

Examination of factors contributing to early childbearing in Sub-Saharan Africa:


Using the findings from South African Demographic and Health Survey of 1998 and

Zimbabwean Demographic and Health Survey of 1999.

DECLARATION

Submitted in fulfilment / partial fulfilment of the requirements for the degree
of Masters in Development Studies, in the Graduate Programme in the
School of Development Studies, University of KwaZulu-Natal,
Durban, South Africa.

I declare that this dissertation is my own unaided work. All citations,
references and borrowed ideas have been duly acknowledged. It is being
submitted for the degree of Masters in Development Studies in the Faculty of
Humanities, Development and Social Science, University of KwaZulu-Natal,
Durban, South Africa. None of the present work has been submitted
previously for any degree or examination in any other University.


Student signature

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Date

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Glossary of terms

| | |
|---------|---|
| AIDS | Acquired Immunodeficiency Syndrome |
| CSO | Central Statistics Office |
| FS | Factor Score |
| HIV | Human Immunodeficiency Virus |
| HSRC | Human Sciences Research Council |
| MRC | Medical Research Council |
| PCA | Principal Component Analysis |
| Pr | Probability |
| SADHS | South African Demographic and Health Survey |
| SD | Standard Deviation |
| TFR | Total Fertility Rate |
| UN | United Nations |
| ZDHS | Zimbabwean Demographic and Health Survey |
| ZMS92 | Zimbabwean Master Sample OF 1992 |
| ZNHSCP) | Zimbabwean National Household Survey Capability Programme |
| WHO | World Health Organization |

Abstract

Using South African and Zimbabwean Demographic and Health Surveys of 1998 and 1999 respectively, findings show that about 35% and 42% women between the ages 15-24 years had given birth at least once in South Africa and Zimbabwe respectively. Of these births, 26% and 32.2% occurred to South African and Zimbabwean women before they reached their 20th birthday respectively. In addition, these births among women between ages 15-24 account for 17% and 27% of the total births in South Africa and Zimbabwe. These are indeed high levels of early childbearing.

It is because of these high levels of early childbearing that this dissertation aims to examine determinants contributing to early childbearing. To achieve this, two comparable data sources are analyzed, namely South African Demographic and Health Surveys (SADHS) of 1998 and Zimbabwean Demographic and Health Surveys (ZDHS) of 1999. The results from this dissertation show that major significant determinants contributing to early childbearing are the age of sexual debut; childhood place of residence; highest level of education attained; socio-economic status; and ethnicity and sex of household head.

The results of this dissertation make an important contribution to the growing knowledge base of Sub-Saharan African early childbearing research. Its recommendations are based on the findings of the determinants contributing to high levels of childbearing, which can be used for planning and policy development towards adolescent fertility prevention.

Chapter One

Introduction

1.1. Background

Among the nations experiencing high levels of early childbearing, Sub-Saharan Africa has the highest levels than elsewhere in the world. In nine out of ten sub-Saharan African countries, the levels of births among 15-19-year-olds range from 103 to 209 live births per 1000 women. The projections provided by the United Nations (1998) and Population Reference Bureau (2000) indicate that these levels will increase over the next decades, exceeding a total of 4.8 million births to girls aged 15-19 years over a period 1995 to 2020. To be specific, the Demographic and Health Survey report that about 42% of women between the ages 15-24 in South Africa and 35% in Zimbabwe had given birth at least. Of these births, 26% and 32% are births accounted by women before their twentieth birthday in South Africa and Zimbabwe, respectively. These are very high levels. It is owing to these high levels of early childbearing that adolescent sexual behaviour and reproduction has remarkably received attention from different disciplines such as demography, sociology, health, psychology, and economics (Alan Guttmacher Institute, 1991; Meekers and Ahmed, 1999; Kaufman et al. 2001; Kim et al. 2001).

The shared consensus among these scholars is that early childbearing has negative social economic, health and psychological outcomes on the mother's future and children born (Westoff et al. 1983). This is because pregnancy and births, during adolescence, frequently, if not typically, occur during the period of schooling and before marriage (Department of Health, 1999). Studies conducted by Furstenberg et al. (1991) and Macleod et al. (2002), show that women, who become parents as teenagers, are at greater risk of social and economic disadvantage throughout their lives than their counterparts. This association is mostly attributed to the disruption of schooling that potentially accompanies pregnancy, which limits the mother's future career prospects (Adams et al. 1989; Boulton and Cunningham, 1992; Brindis, 1993; Barnett, 1997; Meekers and Ahmed, 1999, Anderson et al. 2001; Lloyd, 2006).

The literature on sexual and reproductive health shows that early childbearing does not only affect teenage mothers socially and economically, but also extend its severe outcomes to the health of

both the mothers and children born. For example, women who give birth during their teen-years have a higher risk of death during birth delivery compared to women in their twenties (Reference Bureau 2000). There is enough evidence to demonstrate that children of adolescent parents do not only face an elevated risk of illness or death, but they are also more likely to be abandoned, left to live on the street, and caught in a cycle of poverty (Hofferth, 1987; Adhikari and Amatya, 1996).

1.2. Problem statement

The literature shows a remarkable fertility decline in Sub-Saharan Africa. At the same time, the literature shows concern at the unchanging nature of levels of early childbearing in the region. For example, among others, United Nations (1995) reports that, the incidence of sexual debut at an early age and, the levels of early childbearing are significantly high, and will continue to increase. High levels of early childbearing are also experienced in developed countries. The patterns and trends of early childbearing, in developed countries, are associated with the term 'epidemic', owing to its persisting increasing levels (Alan Guttmacher Institute, 1976; McCall's Magazine, 1978). In Sub-Saharan Africa, early childbearing has been common and is perceived as a social norm. The levels of early childbearing in the past decades, in Sub-Saharan Africa, were high. However, this was never a problem, since most of early childbearing happened within marriage (Garrene et al. 2002). What is depressing about the current trends of early childbearing is the fact that much of it is out-of wedlock, especially in South Africa. According to the report from the Department of Health (1999), above 80 percent of all births among women, aged 15-19 years are premarital. In this study, the results show that only about 10 percent of respondents are married.

Abundance of research concerning early childbearing has been motivated by the concerns of its adverse socio-economic outcomes and consequences (mentioned in the introduction). Relevant examples involve the comprehensive and large-scale research on early childbearing in the developed nations such as Japan, Netherlands, Sweden, United Kingdom, and United States, (Hayes, 1978; Millman and Hendershot, 1980; and Westoff et al. 1983). In developing nations, particularly in Sub-Saharan Africa, research on adolescent sexual behaviour and reproduction did not receive much attention until late 1990s. The demographic studies neglected the sexual behaviour and needs of young unmarried women, since most of adolescent fertility was within a recognised union, which did not pose any threat to the population (Mturi and Moerane, 2001).

Instead, studies focused on the patterns, trends, determinants and sources of overall fertility decline (Sibanda, 1997). Until recently, owing to the presence of HIV/AIDS, researchers have been concerned about adolescent sexual behaviour and, of course, the factors contributing to adolescent sexuality and reproductive health (Makinson, 1985). This is in order to provide substantial HIV/AIDS preventive measures and to create constructive HIV/AIDS awareness programmes.

While accepting that there are high levels of early childbearing in Sub-Saharan Africa, and acknowledging its adverse consequences, little is known about determinants contributing to these high levels of early childbearing or adolescent's sexual behaviours, attitudes and knowledge which lead to the initiation of sexual debut at an early age. There are limited comparative studies, which assess determinants contributing to high levels of early childbearing among countries in Sub-Saharan Africa. The examination of significant determinants contributing to high levels of early childbearing, through a comparative approach in Sub-Saharan Africa, is one area of research that has received little attention. The literature often emphasises further research on this topic. Kaufman et al. (2001) indicate that in South Africa, little research on adolescent reproduction and behaviour exists. Most researchers have given too much attention to the patterns and trends of fertility decline.

There is a need of research focusing on adolescent sexuality behaviour and reproductive health. Sub-Saharan Africa has been undergoing a second stage of demographic transition since 1960s, This is a stage where fertility declines together with mortality rates. However, early childbearing levels are still significantly high (Singh, 1998), research needs to focus on the determinants contributing to these high levels. This study attempts to bridge that gap by examining determinants contributing to high levels of early childbearing in Sub-Saharan Africa.

1.3. Aim of the dissertation

The primary focus of this dissertation is to investigate determinants contributing to high levels of early childbearing in Sub-Saharan Africa. To achieve this objective, a comparative analysis research is used to examine the differences and similarities of significant determinants contributing to high levels of early childbearing in South Africa and Zimbabwe. The comparative analysis uses the

findings from the South African Demographic and Health Surveys of 1998 and the Zimbabwean Demographic and Health Surveys of 1999.

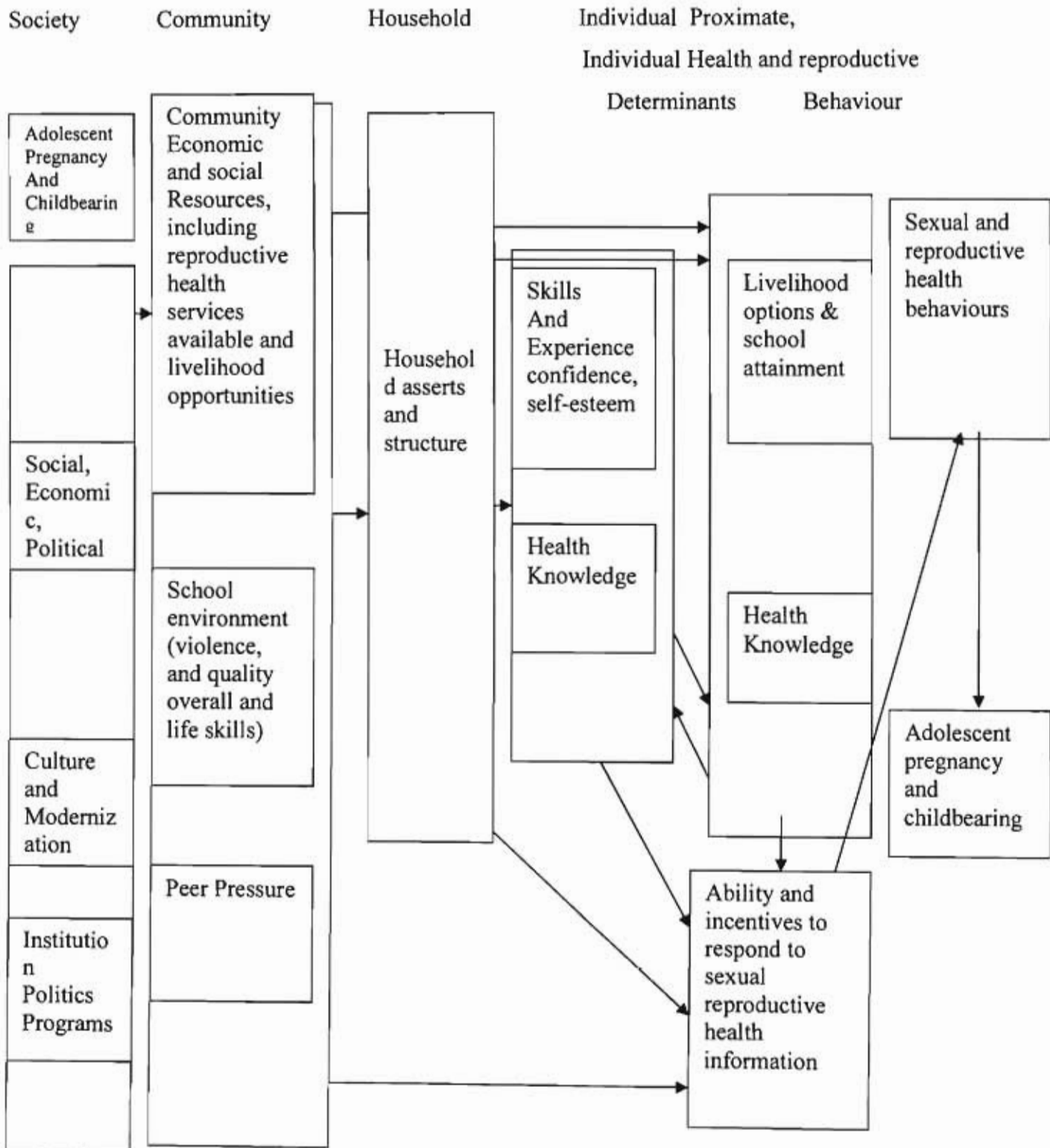
The motivation behind this dissertation is merely stimulated from the interest to understand determinants contributing to high levels of early childbearing. Through a comparative approach, this study aims to examine any differences and similarities among determinants contributing to high levels of early childbearing in South Africa and Zimbabwe, taking into consideration their different socio-economic, historical and political background. For example, the South African population is composed of four population groups: Black/African, Coloured, White, and Indian, while the Zimbabwean population is almost Black/African, with very few whites and Indians (ZDHS, 1999). Zimbabwe and South Africa have different total fertility rates (3.1 and 5.0 respectively), economies, politics, and histories (SADHS, 1998 and ZDHS, 1999). However, what makes the comparison interesting is that South Africa and Zimbabwe had undergone fertility transition at the same period, even though it was not at the same pace. South Africa and Zimbabwe are both severely stricken by the HIV/AIDS epidemic. Other common demographic indicators, in South Africa and Zimbabwe include high HIV/AIDS awareness and programmes for prevention, high female school enrolment, high knowledge of contraception (DHS Reports, 2000). One may argue that it is not expected for these two countries to experience high levels of adolescent childbearing, given such factors, which are recognised to influence low fertility. However, levels of adolescent fertility appear to increase.

Furthermore, the study proposes to present a comprehensive overview and discussion of early childbearing, focusing solely on the hypothesised determinants associated with early childbearing in South Africa and Zimbabwe. This study does not suggest that South Africa and Zimbabwe have the highest levels of adolescent pregnancy and childbearing in Africa. Using these two countries for comparison is motivated by the nature of the study. The SADHS of 1998 and ZDHS of 1999 are excellent sources, as they are close and comparable, regarding the period in which the surveys were undertaken. This allows for observation of adolescent fertility, in these two countries, around the same time.

Reducing the incidence of early childbearing is one of the top priorities of the adolescent reproductive health programs (United Nations, 1984). The research on the determinants, contributing to early childbearing, helps to inform adolescent reproductive health program managers whether their existing strategies, to curb early childbearing are appropriate or not. Furthermore, knowledge on the determinants of early childbearing will also assist in identifying adolescents who are at greater risk of childbearing. More importantly, it will help to develop effective programs to prevent adolescent pregnancy and childbearing, by focusing on the most important antecedents of early childbearing. Lastly, this study draws on the work done in earlier chapters to provide recommendations to policy-makers on how to reduce high rates of early childbearing in Sub-Saharan Africa.

1.4. Principle theoretical conceptual framework

Figure 1: Conceptual framework of adolescent pregnancy and childbearing in sub-Saharan Africa.



Source: Hallman, (2004).

Unlike models that perceive sexuality and reproduction as determined largely by individual “health beliefs” and knowledge, such as the ones employed by Hollander (2003), the model to be employed for this study is derived from a conceptual framework which investigates socio-economic disadvantage and unsafe sexual behaviours among young women (Hallman, 2004). This conceptual framework presents a model of exogenous influences of society, community, and households on individual determinants contributing to high rates of HIV/AIDS infection. This model is used because the mode of acquiring HIV/AIDS is the very same mode that results in pregnancy and childbearing.

As indicated in Figure 1.1, the influence of society, community, and socioeconomic background plays a role on individual’s decision making in terms of sexual behaviour. This framework is associated with the fact that knowledge interacts with skills, experience, confidence and self-esteem, the livelihood options and school enrolment, to affect the individual choice on sexual and reproductive health behaviour. It is acknowledged that even with the awareness and knowledge of risk factors, other proximate determinants may be influenced by common independent factors, which may affect sexual behaviour. Numerous studies have substantiated this claim. For example, in an attempt to investigate ways of using protective measures during sexual relations, results in the following studies (Alan Guttmacher Institute, 1986; Richter, 1996; Blanc and Way, 1998) indicate a mismatch between the knowledge and usage of contraceptive methods and risky behaviours. This is also observed in the case of HIV/AIDS across sub-Saharan Africa. For example, the results cited in Maharaj (2006) indicate that about 95% of respondents know that condoms prevent HIV/AIDS in South Africa, but only 10% use them. However, individual proximate determinants may be interrelated; for example, livelihood activities may raise levels of skills and experience, while school enrolment may increase health knowledge. Confidence may improve with greater health knowledge or with more work or schooling experience. On the other hand, past sexual behaviours and outcomes may affect the proximate outcomes. For example, early age at sexual intercourse debut may influence school attendance through raising the risk of pregnancy.

The family structure also plays an important role in influencing early childbearing. According to an analysis of nationally representative British data, daughters of teenage mothers are at greater risk

(double the risk) than other women who delay fertility until late twenties (Edwards, 1992). The background of the parents, for example, education attainment and occupation, are found to play a vital role as well. Hollander (1995) reports that teenagers, born to women who are less likely to be educated are reported to have higher levels of early childbearing than teenagers born to mothers with high education and having better paying jobs.

1.5. Structure/Organisation of the dissertation

Chapter One: Introduction

This chapter aims to provide an introduction and background to the research topic. Included in this chapter are sub-themes such as problem statement, aim and importance of the research paper, theoretical conceptual framework upon which the research is based, the structure of the research, and lastly, the conclusion of the chapter.

Chapter Two: Literature review

This chapter provides a critical appraisal of existing literature on the topic of early childbearing in sub-Saharan Africa. Included in this chapter is a brief discussion of the transition to adulthood, how early childbearing affects this transition, determinants of early childbearing, the global, South African and Zimbabwean trends and patterns of early childbearing.

Chapter Three: Methodologies

Chapter three provides a detailed description of the steps undertaken for the execution of data analysis. To fulfil the objectives of this chapter, two sections are considered. Section A provides the data sources and description, which include data collection tools and strategies, sampling, questionnaire design, data problems and limitations, the population sample and the analysis approach used for this research paper. Section B outlines the methodologies or data analysis procedures used during data analysis. This section also presents the selection of determinants contributing to early childbearing used during data analysis.

Chapter Four: Determinants of early childbearing in South Africa and Zimbabwe

This is the main and most important chapter of the current work. It provides data analysis with the aim of establishing major determinants contributing to early childbearing through the comparative

analysis. These determinants are investigated by using the Kaplan-Meier estimator, which reports the probability/survivorship from childbearing. Further analysis investigates the level of risk of childbearing using Cox Proportional regression method.

Chapter Five: Conclusion and recommendations

This is the last chapter of this dissertation. It draws conclusion from all the aforementioned chapters. This chapter aims to provide the overall conclusion and the recommendations. Recommendations involve interventions and policies which could possibly reduce high levels of adolescent pregnancy and childbearing in sub-Saharan African continent.

1.6. Conclusion

The objective of this dissertation is to examine the determinants contributing to high levels of early childbearing in Sub-Saharan Africa. In this chapter, the following themes are discussed, 1) the background of the proposed study, 2) problem statement of the study, 3) aim and importance of the research paper, 4) research hypothesis; 5) theoretical conceptual framework; 6) and the structure/organisation of the research.

Chapter Two

Literature Review

Overview

This chapter provides an appraisal of existing literature on adolescent childbearing in sub-Saharan Africa. The sub-themes discussed herein include 1) adolescence period, 2) the transition to adulthood, 3) how early childbearing affects transition to adulthood, 4) patterns and trends of adolescent fertility in sub-Saharan Africa, 5) and lastly, the hypothesized significant socio-economic factors contributing to high rates of adolescent childbearing in Sub-Saharan Africa.

2.1. The transition to adulthood

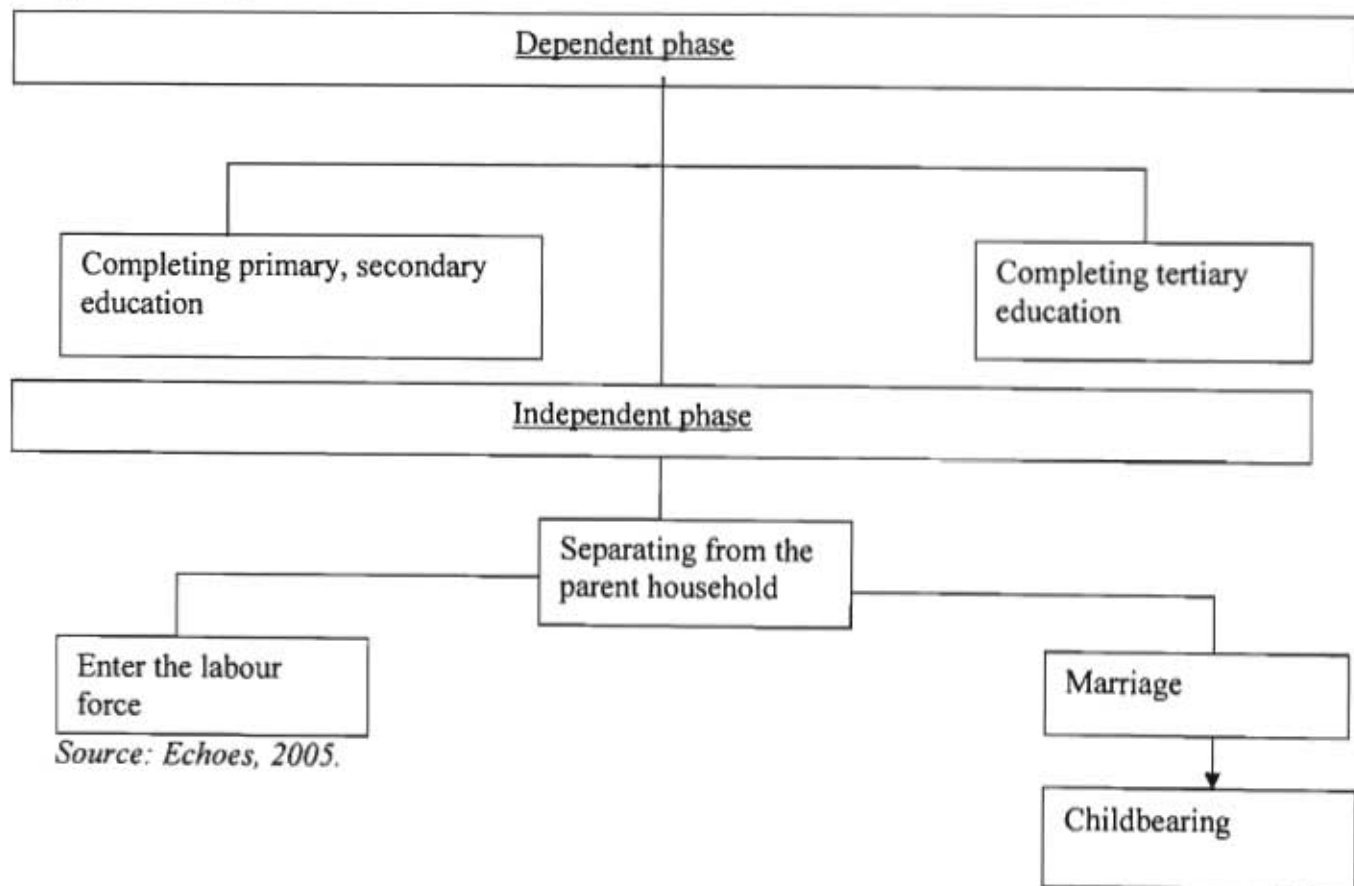
The Adolescence period is a timeframe defined in biological and social contexts (Bandura, and Walters, 1963; Herbamas, 1984; Freud, 1995). From a biological perspective, adolescence is associated with the onset of puberty. It marks the beginning of the ability for reproduction to occur (Bruxton, 1987). Noticeable characteristics involve the development of pubic hair, cracking voice in boys, breast development and onset of menstruation in girls. According to social studies, adolescence is a human development period in which an individual characteristically is seeking autonomy and selfhood (Bongaarts and Cohen, 1998). As part of this growth towards identity and selfhood, an individual is involved in formulating attitudes towards what [s]he does or what people expect him/her to do (*ibid*). Bongaarts and Cohen (1998) further suggest that this stage relates to times of continual exploring, endless questioning, doubting, desire and aspiration to experiment life adventures (*ibid*).

According to Dickson (2001), these activities mark the adolescence period as one of the most fascinating and perhaps most complex stages of life, since young people take new responsibilities and experiment with independence. Adolescence is also related to a process of transformation from childhood to adulthood. The conceptual framework of the transition in this dissertation is adopted from Kinston's model (1987) cited in Echoes (2005). According to Kinston's conceptual framework of post-adolescence, during the transition to adulthood, various traditional stages are realised, which prepare an individual to become a full member of society (cited in Echoes, 2005). As indicated in figure 2.1, the sequence of the stages of the transition to adulthood is as follows:

completion of primary, secondary and tertiary education, entering the labour force, separation from the parental household, formation of a relationship or marriage, and childbearing. Worthman and Brown (2005) in support of this model, demonstrate that the achievement of socio-economic success in the adolescent's later life depends solely on the success of the sequence of activities undergone during this transition.

This is evident in the study conducted by the World Health Organization: WHO (1996), which suggests that many individuals during adolescence are likely to think in a way of which immediate needs tend to take priority over long-term needs, and by the initiation of behaviours that may be perpetuated over a life-time. Verification to this claim materializes in many studies concerning adolescent sexual and reproductive health and behaviours across the globe. In sub-Saharan Africa, for example, increasing levels of adolescent premarital pregnancy and childbearing, high prevalence of sexual transmitted infections and HIV/AIDS, and high rates of school dropouts are among common outcomes of such adolescent's reluctant decision-making (Gyepi-Garbrah, 1985; Ferguson et al. 2000; Hulton et al. 2000).

Figure 2.1: Stages in the transition to adulthood



Source: Echoes, 2005.

The critiques of this model involve the neglect of other aspects that affect decision-making towards the achievement of the transition. Factors excluded include cultural values and norms in different countries that govern sexuality and gender roles among adolescents. The socio-economic status of the country should be considered when dealing with this transitional period. The transition to adulthood is heterogeneous, thus it can differ according to sub-groups, such as gender, population group, ethnicity, and countries' socio-economic status. Disadvantaged societies are more likely to experience an earlier transition to parenthood, which involves marriage and childbearing. This trend is consistent with the work done in Sub-Saharan Africa (Gage-Brandon, 1992). In this region traditional and cultural values and norms are found to play a significant role in influencing the transition to adulthood. These are some of reasons, in Sub-Saharan Africa, why there is failure to comply with the post-adolescence model proposed by Kinston.

The transition to adulthood, in sub-Saharan Africa, reflects its historical and cultural background. As in any developing continent, exposure to modernisation and development, in the form of education, medical advance, urban livings, and other facilities, if not limited, were non-existent in the Sub-Saharan African region, before the 19th century. The lack of these resources prompted the transition to adulthood to involve only marriage and childbearing, or visa versa. The same transition is observed in developing countries such as Nepal and Bangladesh (Amin et al. 1998). In these societies, early motherhood is socially accepted and considered as a path to adulthood (see Preston-Whyte et al. 1990). Another example is Kenya, where at some stage among Kipsigis women; the age at first marriage was as low as 13 years (Lura, 1985). Furthermore, using data from 40 Demographic and Health Surveys, Singh and Samara (1996) show that 20-50 percent of women marry or enter a union by the age 18, and 40-70 percent do so by their 20th birthday.

2.2. How early childbearing affects the transition to adulthood

As mentioned before, individuals go through several adolescent life-course stages during the transformation from adolescence to adulthood (see page 11). According to Worthman and Brown (2005), the quality of an adolescent's future life depends largely on the sequence of these activities. If early childbearing occurs, undesirable consequences such as education under-achievement and school dropout prevail; hence the transition to adulthood is not successfully achieved. This corresponds with the declaration that the United Nations has initiated, which

emphasises the importance of education to all (boys and girls), thus adolescents should take advantage of education opportunities to personal growth.

Educational attainment

The prominent mode that early childbearing affects the transition to adulthood is through the interruption of schooling. Growing evidence now exists to suggest that, early childbearing is strongly related to educational underachievement and school dropouts. In Botswana, the Central Statistics (1983 and 1985) shows that 64% of secondary dropouts, 85% of senior level dropouts and 88% of grade 12 dropouts are due to pregnancy. In South Africa, Manzini (2001) demonstrates that pregnancy accounts for more than 50 percent of school dropouts. The findings from Manzini's study provide evidence to demonstrate a strong relationship between early childbearing and education underachievement. To strengthen this claim, the following studies (Preston-Whyte, 1988; 1996; Kaufman et al. 2001; Kravdal, 2002) show that, though South African Education Policy allows adolescent mothers to attend school during pregnancy and after birth, there are still high rates of school dropouts owing to early childbearing. More evidence to support this relationship is in Kenya, where Gage and Meekers (1993) report that there is an annual 10% of school dropout owing to pregnancy and childbearing. For these mothers, reasons for school dropout may be associated with additional responsibilities faced, such as difficulties experienced while trying to cope with the responsibilities of motherhood versus the demand of schooling. This is evident in Botswana; findings reported by Gordon et al. (1993) show that, though teenage mothers return to school, after two years the majority drop out of school. In South Africa, Kaufman et al. (2001) report the same trend of high school dropout among school-girls after pregnancy.

In social science research, it is generally accepted that due to lack of adequate education associated with early childbearing, adolescent mothers are more likely to experience a range of personal and social disadvantages. Such include socioeconomic disadvantages, welfare dependence, single parenthood and marital instability in their later life (Card and Wise, 1978; Makinson, 1985; Furstenberg 1991; Burtler, 1992; Hoffman et al. 1993; Brook-Gunn and Chase-Lansdale, 1995; Alan Guttmacher, 1997; Singh, 1998; Buviniv et al. 1998; Fergusson and Woodward, 2000). The following group of researchers provides evidence to show that even in developed countries, such

as the United States of America; the effects of early childbearing allude to important factors in the intergenerational transmission of poverty (Bane, 1986; Wilson and Neckerman, 1986; Bane and Ellwood, 1986; Wilson, 1987; Ellwood, 1988; Duncan and Hoffman, 1990). The work done by Grogger and Bronars (1993), in the United States of America, further provides evidence to accept the assertion that early childbearing indeed exacerbates poverty. Their findings show that after 10 years of giving birth, both black and white women, who had an unplanned birth, have significantly higher rates of poverty, lower family income and household earnings.

The two groups of researchers mentioned in the previous paragraph confirm that low socioeconomic disadvantaged status of adolescent mothers in their later lives stems from the fact that education is the key element to advance to another stage in the transition to adulthood, which results in better socio-economic status. The interruption of education, owing to pregnancy and childbearing prolongs the interval it takes for adolescents to separate from their parental households, and to start independent responsibilities. This ultimately limits their future opportunities. This is evident in a study conducted by Hallman (2001), which found that in most African populations, the number of household members exceeds the expected number. The argument is that the cause of this pattern is related to numbers of adolescents (20 years and above) who are still residing in their parental households. The results suggest that in less developed countries, this pattern might be the results of poverty and high unemployment levels, which results in a large proportion of young people depending on parental support and welfare (*ibid*).

2.3. Patterns and trends of early childbearing in sub-Saharan Africa

2.3.1. Global patterns and trends

Sub-Saharan Africa has experienced drastic fertility decline (van de Walle and Foster, 1990; Althaus, 1991; Caldwell et al, 1992; Kirk and Pillet, 1998; Potts and Marks, 2001). Evidence of significant fertility decline in Sub-Saharan Africa includes notable experiences in, Botswana, Lesotho, South Africa and Zimbabwe (Caldwell and Caldwell, 1993; Potts and Marks, 2001). According to these countries latest Demographic Health and Surveys (DHS), total fertility rate is around three to four children per women, representing a decline of 40-50% from their peak levels (Potts and Marks, 2001). However, the incidence of early childbearing is very high (Preston-Whyte et al. 1990; Bledsoe and Cohen, 1993; Garrene et al. 1994; Singh, 1998; Kaufman et al.

2000). During the examination of early marriage and early childbearing, in developing countries, using the findings from the DHS from 25 countries in Africa, Asia and Latin America, Althaus (1991) reveals that early childbearing levels are higher in Sub-Saharan Africa than elsewhere in the world. Fertility rates for 15-19-year-olds, in nine out of ten countries of Sub-Saharan Africa range from 103 to 209 live births per 1000 women, compared to only 18 per 1000 in East Asia, primarily because of very low adolescent fertility in China (United Nations, 1998).

The same study conducted by Althaus (1999), further reports that the median age at first birth, in six of ten countries in sub-Saharan Africa is below 19 years. Further estimates in this study show that in sub-Saharan Africa, 54-69% of women aged 24-49 years in every country had given birth before the age of 20, except in Burundi. In other developing countries, such as Sri Lanka, Thailand and Tunisia, only (20-27%) births are before the age of 20. The projections provided by the United Nations (1998) and Population Reference Bureau (2000) indicate that these levels will increase over the next decades, exceeding a total of 4.8 million births to girls aged 15-19 years over a period between 1995 to 2020. These statistics indeed show high levels of early childbearing in sub-Saharan Africa. The persistent high levels of adolescent fertility in sub-Saharan Africa such as South Africa and Zimbabwe question the theory proposed by Caldwell et al. (1992), who argued that fertility levels among adolescents in sub-Saharan Africa would drop during the course of fertility decline.

However, some developing countries are experiencing declines in early pregnancy and childbearing. When Makoto and colleagues (2004) examined fertility levels, using the comparative analysis in East and South-East Asian countries, they observed that Asia is undergoing the second stage of demographic transition, with the rates of early childbearing showing a significant decline in countries such as Hong Kong and Singapore. In these countries, the age at first birth increased from 25.1 to 28.3 between the years 1960 to 1998.

In the developed nations, early childbearing levels are lower, compared to the levels in developing nations. The results from the study which examined levels of adolescent childbearing, abortion and pregnancy, in developed countries in the mid-1990s as well as trends over recent decades show that Netherlands has the lowest levels, namely, 12 pregnancies per 1000 adolescents per year and

Japan was under 40 per 1000 adolescents. Australia, Canada and New Zealand had 40-69 per 1000 adolescents. The highest levels were observed in the Russian Federation with more than 100 births per 1000 adolescents (Singh and Dorrach, 1999).

2.3.2. Trends and patterns of early childbearing in South Africa and Zimbabwe

South Africa experienced the highest fertility decline compared to any other country in sub-Saharan Africa. The total fertility rate (TFR) has dropped from the average of above six children per woman in 1970s (United Nations, 1995) to fewer than three children per woman in the late 1990s (SADHS, 1998). According to Anderson (1998), the pace in which South African fertility declined is in line with that of the less developed regions of the world, but very rapid in comparison with Sub-Saharan Africa as a whole. The South African TFR is one of the lowest TFR in Sub-Saharan African region. According to the demographic standards, the South African total fertility rate is close to the replacement level (Kaufman et al. 2001).

Zimbabwe has also undergone a drastic fertility decline. The TFR dropped from the average of above seven children per woman in 1970s to at least five children per woman in the late 1990s (ZDHS, 1999). However, its pace had been rather slower compared to that of South Africa (Kirk and Pillet, 1998). Although there has been a fertility decline in South Africa and Zimbabwe, the incidence of adolescent pregnancy and childbearing remains significantly high (SADHS, 1998 and ZDHS, 1999). According to Mostert (1990), most of the fertility decline occurred at the age of 25 years and over, while in the age category of 20-25 years and below, fertility remained virtually unchanged, with fertility levels among the youngest age categories (15-19) either higher than previously estimated or increasing. Nevertheless, for both South Africa and Zimbabwe, statistics shows that high levels of adolescent fertility had been sustainable over the past four decades (Preston-Whyte, 1990 and South Africa Central Statistics Services, 1997, ZDHS, 1997 and 1999).

In South Africa in 1998, the Department of Health indicates that above 30% of 19-year-olds had given birth at least once, and almost all these births are out-of wedlock and unplanned. Dickson (2001) indicates that this estimate represents one-third of all births. According to Preston-Whyte, (1990) this is a level approximating that experienced by these adolescent's mothers and grandmothers, which demonstrates a very high sustainable level of adolescent fertility in the

country. In their study, the results indicate that the highest proportion of women with children had their first birth as teenagers (*ibid*). Similarly, the 1999 Zimbabwean DHS findings show that above 40% of 20-24 year-old adolescents have given birth before the age of 20 years. The South African and Zimbabwean DHS show that teenage birth rate is 77 and 102 births per 1000 adolescents respectively. These rates are even much higher compared to teenage birth rates in the United States of America, which is the highest teenage birth rate in developed nations (54.5 births per 1000 adolescents).

Adolescent fertility is not a new phenomenon to African fertility history. Adolescent fertility has been common in sub-Saharan Africa and furthermore approved. Although adolescent childbearing was approved, the birth was expected to be within a marriage (i.e. modern, religious, traditional, or civic). In rural areas, women were allowed to marry as early as the age of 12, and their childbearing roles were expected to start immediately. In these societies, 17 to 18 year-old women who had not borne a child cause mounting and anxiety to their husbands and family (Bledsoe and Cohen, 1993). The problems women faced, during that time, were different. Early childbearing did not pose severe consequences to a child born, because the child had a recognized father, with a well-established family, where there was sufficient financial support, towards its development and growth.

During those days, the societies emphasised marital childbearing in such a way, that, if a girl became pregnant she was forced into marriage, so that the child would be born in a 'legitimate' union. The only problem was that the adolescent's health was undermined and compromised (Bledsoe and Cohen, 1993; Zabin and Kigaru, 1998). However, this dissertation will largely concentrate on the configuration, which involves early childbearing among unmarried women. This is because issues around premarital fertility are closely linked to issues of adolescent fertility. Furthermore, early childbearing levels are continuously increasing among unmarried adolescents and carries adverse consequences, compared to early childbearing among married women (Bledsoe and Cohen, 1993).

2.4. Determinants of early childbearing

There are a number of factors that contribute to early childbearing. Old and recent literature acknowledges the contribution of factors such as age at first marriage, age at first sexual intercourse, population group, childhood place of residence, school enrolment, and behavioural factors such as contraceptive knowledge and use, and family structures. For the purpose of this dissertation, the focus will only be on the selected factors. Drawing from the literature review, this section will provide reasons to explain why the focus is on these factors.

According to the model Bongaarts developed in 1978, fertility of any given population is influenced by both indirect and direct determinants. The indirect determinants also referred to as distant determinants, which mainly constitute the social, cultural, economic, institutional, psychological, health and environmental variables. Such variables include factors like, ethnicity, population group, marital status, place of region (rural/urban), employment status, education attainment, level of development, and access to health facilities (Bongaarts et al. 1984). These factors have an indirect effect on fertility, which is positive, negative or insignificant, through the proximate determinants (Lucas, 1994). On the other hand, there are direct determinants, often referred to as proximate determinants or intermediate variables. These variables include the proportion of married women, frequency of sexual intercourse, effective contraceptive use, and induced abortion (Lucas, 1994). According to Bongaarts's model, these determinants consist of a set of biological and behavioural variables through which the indirect variables such as social, economic and cultural conditions can affect fertility.

Numerous studies using discrete and survival time models in bivariate and univariate have been useful in pointing out the impact of such factors on fertility (Caldwell, 1980; Bongaarts and Watkins, 1996; Makinwa-Adebusoye, 2001; Kravdal, 2002). More and more literature provides substantial evidence as to the effectiveness and efficacy of Bongaarts's model in many developing and developed countries. However, what influences persistent roaming levels of adolescent fertility is not yet well comprehended. This study concurs with the Alan Guttmacher Institute (1986), to suggest that the determinants of adolescent pregnancy and childbearing cannot be discussed separately from the proximate determinants of adolescent sexuality itself. Therefore, we need to understand the factors influencing adolescent sexuality and reproduction, e.g. (age at first sexual

intercourse or the timing of first sexual debut). However, one of the problems with the existing literature on sexual behaviour stems from data sources used for analysis. The data often comes from scattered selected groups, such as school population and clinics, which makes it difficult to compare the findings. For example, the important questions, contributing to an understanding towards adolescent sexual behaviours and attitudes are not included in the Demographic and Health Surveys. Such questions include reasons and influences of sexual debut, e.g. why did you have sex? Did you want to have sex at that time?

Age at first sexual intercourse and sexual experience

The initiation of sexual intercourse is an important topic in this study and a predictor of adolescent fertility (Hofferth, 1987). This is mainly because the context within which sexual activity begins is a key indicator of the adolescent's potential risk for unplanned pregnancy and other sexual transmitted diseases (Manzini, 2001). Demographically, the age at first intercourse is often used as a proxy for the onset of women's exposure to the risk of pregnancy and childbearing. The earlier the age at first sexual intercourse, the higher the exposure to the risk of premarital and unplanned pregnancy. The reason is associated with the maturity of the individual during the event. Most studies reveal that most adolescents, during their first sexual intercourse are not ready for the event (National Population Unit, 2000). The results in this study indicate that adolescents reported that during their first sexual experience, did not think that they would be having sexual intercourse. Furthermore, at a very young age, adolescents rarely have the ability to understand that one can get pregnant. Adolescents at this age are less likely to take effective and informative decision, which prevent pregnancy. This is confirmed in the study conducted by the National Population Unit (2000) & Moore et al. (2001), which reports that mostly, at a young age, sexual intercourse is unguided and uninformed.

In Sub-Saharan Africa, the rates of sexual debut at young ages and sexual experiences, among adolescents, are alarming, even though there is considerable variation across countries. In a rural area of Transkei in South Africa, 76% of girls and 90% of boys are already sexually experienced and the mean age at first sexual intercourse is between 15 and 16 years (Buga, 1995). The DHS shows that in Liberia, only 32% of women aged 15-19 had married, but 82% in that age –group

acknowledge sexual experience. The DHS further shows that in Ghana, Kenya, and Uganda 50%, 46% and 62% of women between ages 15-19 had experienced sexual intercourse, respectively.

There is a strong relationship between the age at first sexual intercourse and early pregnancy. One of the arguments in support to this assertion is that once sexual activity begins, it generally continues. This assertion is confirmed in the study conducted by Mackintyre et al. (2000), which shows higher rates of pregnancy among those who started sexual intercourse at an early age. Further evidence is presented in the results from the National Survey of Family Growth, suggesting that the increase in the rates of teenage childbearing, in the 1980s in USA, was mainly prompted by an increase in the proportion of teenagers having sex at early age (Manlove et al. 2000). The higher risk of pregnancy during the adolescent years is also related to low use of contraception. According to Eggleston et al. (1999), adolescents who begin sexual activity at younger ages are less likely to practice contraception. At a very early age, teenagers face challenges, such as being scolded by the health service providers for starting sexual relations, while so young.

For Du Toit (1987) Jackson and Harrison (1999), the incidence of early sexual debut cannot be divorced from the observed declining age at menarche and the increasing age at first marriage in sub-Saharan Africa. The age at marriage has dramatically increased, while the age at menarche has tremendously decreased, leaving a large gap between menarche and marriage. This increases the risk of premarital sexual intercourse and the likelihood of premarital pregnancies (Mekeers et al. 1994 and Garenne et al. 2001). Marriage, for women, used to be a social and traditional norm, virtually universal and occurred early in Sub-Saharan Africa, with median ages at first marriage often below twenty years. Today, an abundance of literature, using the DHS, demonstrates an increasing proportion of never married women at each age-category (Singh, 1998; Lloyd and Mensch, 1998; Blanc and Way, 1998). Literature consistently documents that factors, associated with delays of age at first marriage involve increasing levels of formal education to a girl-child, urbanization, and economic opportunities, which consequently provide preference for later marriages and for remaining unmarried to many women (Caldwell and Caldwell, 1992).

Sexual activities among unmarried adolescents in Sub-Saharan Africa cannot be separated from its social paradigm. According to Bledsoe and Cohen (1993), many problems connected with sexuality and fertility among unmarried adolescents is attributed to the erosion of moral codes and familial control that has resulted in increasing illicit sexual activity. These findings are further supported by a study conducted by Preston-Whyte et al. (1990) which suggests that today's adolescent sexual behaviour and attitudes can be seen as a result of a breakdown of social control over young adults, by their elders, and the rise of behaviour oriented toward personal satisfaction and emotional gratification, rather than family responsibility. The qualitative study conducted by Barker and Rich (1992), concurs and suggests that the breakdown of the social controls has reinforced the disappearance of cultural practices that serve as mechanisms for the transmission of information about issues related to family life, including child spacing and sexuality among adolescents. This group of researchers stresses the influence of the media, the peer group, the school, social welfare programs, and other institutions on adolescent fertility, rather than the influence of families and society. High rates of early childbearing are seen to be motivated by these institutions, and furthermore these institutions are accused of allegedly weakening family control over sexuality. This, according to Bledsoe and Cohen (1993) also refers to the social disorganization model.

The argument of this model stems from the opinion suggesting that most early sexual activity is unplanned and most premarital pregnancies are unwanted. There is evidence to support the validity of this model. A relevant study to test this hypothesis was conducted in Kenya. The results from this study show that above 60% of respondents believe that traditional norms, restricting premarital sexual relations have weakened and are no longer applied in contemporary societies (cited in Maharaj, 2001). Further example includes the disappearance of the importance placed on virginity. In the past, girls, who lost their virginity before marriage, were required to confess, and the man responsible was forced to marry the mother of his child. Today societies are more tolerant; instead of a man taking his child's mother as a wife and resuming fatherhood responsibilities, men are required to pay for the damage¹ and therefore, are free to marry any woman (Kaufman et al. 1998).

¹ Damage is a term in African society, which refers to charges that a man pays to a woman's family who is carrying his child to gain authority to his child's responsibility and life.

Furthermore, high levels of early childbearing and adolescent sexuality in Sub-Saharan Africa can be understood via the mechanism called rational adaptation model, linking early fertility to poverty. According to this model, adolescents exchange sexual favours for clothes, gifts, or school fees (Barthelemy Kuate-Defo in 2004). This model often relates to sugar daddy relationships². Some studies suggest that the imposition of school fees, charges for uniforms, and textbooks and the need for pocket money may perpetuate relationships with older men for adolescents who are willing to go to school but whose parents cannot afford to pay. For adolescents to meet their school requirements they may enter into remunerative sexual relations with older men or sugar daddies in exchange for money (see Mekeers et al. 1995). When Kuate-Defo in 2004 conducted a content study, through the search of articles on young people's engaging in sugar daddy and sugar mommy relationships³, results showed that sugar daddy relationships add significantly to high rates of early childbearing. These relationships may be noticeable at higher education institutions (college and university), since the expenses are more expensive, compared to primary and secondary schools. However, there is a need for further research on this subject, to provide more information.

The association between high levels of early childbearing and sugar daddy relationships are even much greater. This is because adolescents in such relationships are not in a good position to make informed choices, regarding their sexuality. Though financial disadvantage status plays an essential role, in this case, it may not necessarily be because they are financially disadvantaged, but because they are over-powered by their older partners. When the male partner is relatively older, studies point out that there is a lack of sexual negotiation and less of a chance of sexual communication between partners (Varga, 1997). In such relationships, young women are abused and remain powerless (*ibid*). In an article on sexual non-negotiation by Varga collaborating with Makubalo (1996), results indicate that 58% of the respondents did not discuss the use of contraception or safe sex, with the partners, because they feared physical abuse and rejection.

Another mechanism under the adaptation model is a situation where adolescents may seek to become pregnant before marriage, as a way of proving their fecundity and their fitness for

² Sugar daddy relationship refers to a relationship between young women and older men, who are almost the age of these young women's fathers.

³ Sugar mommy relationship refers to relationship between young men with older women, who are almost the age of these young men's mothers.

marriage. In South Africa, Preston-Whyte et al. (1990) confirm that being pregnant before marriage increases a woman status in society, and in fact, there is a good chance that a woman may even have enhanced her marriageability marginally to the man and the in-laws-to-be. These motivations for sexual activity indicate that becoming sexually active in sub-Saharan Africa may be a rational decision, based on weighing of benefits such as school fees, the opportunity to find a husband, or the acquisition of needed goods for services, yet on the other hand costs, such as pregnancy and expulsion from school, the risks of abortion and abandonment by a potential husband. This model is more consistent with a dependency theory approach, under which the so-called "disorganized" behaviour of the urban poor is seen as a rational strategy for coping with poverty and marginality (Furstenberg, 1991). In general, sizable literature finds that these two models have significantly contributed to high levels of early unplanned pregnancy and childbearing in the sub-Saharan African continent.

In South Africa, there is an on-going debate as to whether there is a relationship between the social welfare (child grant) and early childbearing. Up to date, there is only one study conducted by Udjo and Makiwane (2005) with the Human Science Research Council in South Africa. This study investigated any relationship between early childbearing and the child grant. Unfortunately, the results suggest that there is no relationship between the two. This study is not conclusive. It could have been better if the authors had used other wide statistical methods for investigation. However, in the USA, reports show that teenage mothers are most likely to be associated with welfare (Trussell, 1976). The findings suggest that in lower income societies, the relationship between early childbearing and the child grant is stronger than in societies with middle and higher family incomes. So far, the discussed literature presents an interesting picture of early childbearing, which associates early childbearing with low social and economic background and future status. This therefore, provides a possible explanation as to why Trussell (1976); Publey et al. (1982) and Geronimus (1991) acknowledge that an increased risk of incidence of adolescent pregnancy is compounded by other factors, particularly relating to poverty such as low socio-economic status.

After the presentation of the aforementioned literature, it may not be fruitful to reject the role of poverty and assume that there is no relationship between poverty and early childbearing. This is evident in a study conducted by Furstenberg (1991), which found that teenage mothers are more

likely to have grown up in extreme poverty and low socio-economic background status. He suggested that for this group, pregnancy might be an adaptive response to poverty. This is extremely pertinent to this study, because examining the association between early childbearing and socio-economic status is one of the factors of interest. As to respond to the hypothesis of this study, the following section discusses selected determinants associated with early childbearing.

Population Group

Population group has been one of the most important and major predictors of early and unintended childbearing and overall fertility (Dryfoos, 1984). Worldwide, population group displays a huge fertility disparity level. This parity is often observed among Black/Africans and Whites, with Black/Africans accounting for higher fertility levels (Norville et al. 2001). Several studies demonstrating population group fertility differentials include countries, such as South Africa and the United States of America (SADHS Report, 1999; Norville et al. 2001). This might be related to the presence of different population groups in these two countries. Fertility differentials, according to population groups in South Africa are of a great interest. South Africa displays demographic regimes that are typical of both developed and developing standards. For example, among white adolescents, fertility is relatively low and the overall fertility among this population group resembles the European fertility transition, with levels approaching a level below replacement (less than two children per woman during her reproductive years (SADHS Report, 1999).

On the other hand, fertility transition among Black/Africans and Coloureds shows the traditional pattern of fertility in the developing countries, characterised with very high fertility levels. Adolescent fertility levels are highest among the Coloured group and followed by Black/Africans (SADHS Report, 1999). Fertility disparities existing between the population groups, in South Africa, are the reflection of socio-economic imbalance suppressed during the apartheid regime such as differences in employment levels and the quality of and access to education and health services among citizens of South Africa (Moultrie and Timaeus, 2002). The apartheid political system formed population segregation, which has influenced the uneven distribution of resources in favour of the white population.

Many of the apartheid measures including the extensive welfare systems, the higher quality of education, and formal job reservations were specially designed to prevent poverty among the White population (Swartz, 2000). Consequently, white people had better living conditions, including access to various health facilities, quality education, and urban settlements, while other population groups suffered. For example the minorities had inferior education and were located at remote areas, which were far from towns (Camlin et al. 2004). In some instances, policies systematically denied access to education, health services, and urban residence to black people.

Thus, low levels of adolescent fertility among whites in South Africa are expected, since the majority of this population group has access to a combination of factors considered significant for fertility decline, in both developing and developed nations (high quality of education, urban-residence, contraception) (Bongaarts' model, 1978; Camlin, 1998). Inversely, it is not surprising for Black/African and Coloured population groups to have the highest levels of early childbearing. These two population groups severely suffered the imbalances of resources from the apartheid legacy, and continue to do so. According to Johannes et al. (2006), the population of South Africa still has vast inequalities across racial groups. For example, the majority of Black/Africans still reside in rural areas (above 70%), their poverty rates exceeds 60%, while among whites the poverty rate is less than 1% (PISA, 1998). Furthermore, Black-Africans' education and literacy levels are still the lowest in the country (SADHS, 1998). This combination of factors signifies high levels of childbearing. On these grounds, it may then be argued that the significance of racial differentials, on early childbearing, rests on the characteristics that race groups possess, which enables low or high levels of early pregnancy and childbearing.

Similarly, in the United States of America, literature stamps further evidence to accept that population group is a major predictor of early childbearing and overall fertility. When the Alan Guttmacher Institute (1976) assessed fertility among adolescents, high disparity levels of adolescent pregnancy and childbearing between Whites and Black Americans were found, with high levels owing to Black/Americans. Further evidence to support this study is a sequence study conducted by Dryfoos in 1984. The aim of this study was to provide a new strategy for preventing unintended teenage childbearing among unmarried adolescents. The results indicate that unmarried Black adolescents are five times more likely to give birth than are White adolescents. Just after two

years prior to Dryfoos's study (1984), Lancaster & Hamburg (1986) predicted that 40 percent of all 14-year-olds in the United States of America will become pregnant before their twentieth birthday, and a large proportion will account for Black/Americans. In the 1990s, when Baldwin and colleagues investigated the effect of ethnic groups on sexual activities, the results indicate that Asians in the United States begin sexual intercourse and childbearing at a later stage while Blacks begin at a much younger age than any other population groups available. These findings correspond to the results from the South Africa Demographic and Health Surveys, which report lowest sexual activities and childbearing among the Asian population group.

Childhood Place of residence

Another socio-economic variable that emerges from literature as an important factor contributing to adolescent fertility is childhood place of residence (Gupta, 2000; Dickson, 2001; Cohen, 2003; and HSRC, 2006). These publications support that people who spent their childhood in rural areas have higher levels of pregnancy and childbearing than their counterparts in urban areas. A study of nine countries in Latin America and the Caribbean found that 40-60 percent of women who grew up in rural areas had a child before age 20, compared to 25-36 percent of urban women (Wulf and Singh, 1991). Lower levels of early childbearing in urban areas might be influenced by a wider range of resources available. According to Rodriguez and Cleland (1981), the main cause of lower fertility rates, owing to place of residence, is a reflection of a concentration of better educated women with better work opportunities in urban areas, compared to their counterparts in rural areas. This is evident in the study conducted by Kirk and Pillet (1998). They found that the urban/rural differences are usually due to the differences in education, and family income between the regions (Lotter, 1990).

The other explanation for lesser sexual activities and low levels of early childbearing, in urban areas, relates to the breakdown of social norms towards sexuality, which results in open discussions of sexual relations between parents and children. Parent-adolescent communication about sexuality has been identified as an important norm regarding acceptable and unacceptable behaviours. Empirical data, supporting the association between parental control and adolescent sexual behaviour indicates that daughters, who discuss with their parents issues about reproduction and sexuality, are more likely to be informed about their sexuality. Hence, they are at lower risk of

early sexual intercourse and pregnancy than their counterparts, who come from single-parent families or who receive very strict and limited supervision from their parents (Alan Guttmacher, 1981; McLanahan and Booth, 1991). In addition to this evidence, Mury (1998) investigates factors that motivate Black female adolescent to abstain from sexual intercourse. The results in this study strengthen this claim. The findings, based on adolescent groups studied in Mury's study, point out that the decision to abstain from sexual intercourse, occurs more frequently among adolescents, who live in urban areas, with both biological parents, who have incomes of middle-to upper-income levels, and have educated mothers. In this study, the decision for abstinence was associated with open communication between adolescents and parents, about sexual issues such as anatomy and physiology, sexual education, contraceptive use, and sexually transmitted diseases.

Higher levels of adolescent pregnancy, in rural areas, may relate to the fact that pre-marital early childbearing is socially accepted and tolerated when it happens. Early childbearing, in these societies, is often perceived as the premiere events of a young woman's life and it is regarded as a path to womanhood or adulthood (Preston-Whyte et al. 1990). Nevertheless, more literature tends to relate the rural/urban early childbearing differential to the redistribution of resources that influence fertility rates. Besides the little information from the DHS that link urban/rural differentials to redistribution of resources between the regions, scant research has paid attention to these differentials. This may be due to limited data, especially in Sub-Saharan Africa, where extensive research relied on DHS and small sample sizes. It is essential for further comparative research regarding this topic.

School enrolment

For the past three decades, demographic analyses have shown a strong relationship between female education enrolment and decreased fertility levels in sub-Saharan Africa (Gupta and Leite, 1999). Sizable studies point out that overall educational attainment of a woman is an important factor in explaining variations in the levels of fertility worldwide (United Nations, 1998). The relationship usually noted in surveys covering all regions of the world is a negative one in which subgroups with higher educational attainment has lower fertility than subgroups with little or no education. This relates to the fact that schooling of a woman is a strong indicator of socio-economic development, and this variable is also positively correlated with contraceptive use in the form of

increasing awareness, knowledge, acceptability, and utilization of family planning services, which results in lower levels of pregnancy and childbearing.

Education, especially higher education affects fertility because it prolongs the age at marriage, which is a proximate determinant of fertility and furthermore reduces the desire for a large family, through the costs of rearing children versus the demand of highly educated women in the working force (Mturi, 2001). This relationship however, is contradictory, as on the other hand, evidence suggests that with an increase in the number of years of schooling, the period between menarche and marriage is lengthened, thus, there is a high exposure to the risk of premarital conception due to the long period between menarche and marriage (Gare-Brandon and Meekers, 1993).

For adolescents, education influence their sexuality and childbearing, in various ways. Firstly, education provides an ability to understand that one can get pregnant. Secondly, education places adolescents in a position to be able to make informed decisions and make good choices, about sexuality and fertility preferences. Studies show that an adolescent, who is educated, takes an informed decision, when the risk of a sexual intercourse situation arises. Such studies include (Kravdal (2002), whose results show that girls who attend school have an ability to discuss HIV with partner, and negotiate safe sex with a spouse. Furthermore, they are likely to understand the costs of risky behaviour and know the effective refusal tactics in difficult sexual situations. In support Malherbe (2002) suggests that education motivates people to take responsibility for their health and reproduction. Any form of education is fundamental. For example education provided by media plays a crucial role as well. Mass media programmes, representing real life situations like dramas, soaps, plays, newspapers and frequency media (FM/radio) are found to be more effective in influencing decision-making. According to Gupta (2000), these programmes have been significantly effective in addressing issues of gender, sensitivity, empowerment, condom negotiations, and both males and females knowing what their rights are in a relationship.

School environment also contributes to a girl's decision to engage in sexual activities. For example, once the pregnancy is detected, an adolescent at school may be familiar with abortion services, compared to an adolescent who is out of school. Enough evidence suggests that pregnancies that occur among school-girls are more often aborted than those of adolescents, who

are not in school. This claim is supported by a study conducted by Calves (2002) who used a small but representative survey of 384 young people, aged 20-29, and living in Yaounde in Cameroon. He found that, being in school, increased the odds sevenfold that a pregnancy would result in abortion, after controlling for other factors. In addition, it is only through education and literacy that women can read and further understand issues related to their sexuality.

More and more literature shows that the spread of education and literacy, among women, is fundamental to changes in their reproductive behaviours and outcomes (Singh, 1998, Mahy and Gupta, 2002). Women who attend school learn things that alter their attitudes, plans and behaviours compared to women who are not attending school. Comparative analysis of DHS data shows that, in a majority of sub-Saharan African countries, the proportion of adolescent girls, aged 15-17, who are sexually active is much lower among currently enrolled students than among those who never went to school or are no longer at school (Lloyd, 2006). The evidence of this relationship is provided in the study conducted by Castro (1995) using 26 Demographic Health Survey findings. The results show that despite large variations, in each country, adolescents out of school are at much higher risk of early childbearing, compared to their counterparts in school.

Bearing in mind that substantial numbers of adolescents in sub-Saharan Africa are engaging in premarital sex with insufficient knowledge of reproduction, education can be a weapon to fight this battle. The importance of sex education was also recommended at the International Conference in Population in Mexico in 1984. Governments were urged to ensure that adolescents, both boys and girls, receive adequate education, including family-life and sex education, in order to reduce high levels of adolescent pregnancy and childbearing (United Nations, 1984). The reports from countries such as Switzerland, Thailand, Uganda and United States of America show that the introduction of sex education has a significant influence on premarital sexual activities (Barnett, 1997). For schools where there is sex education, adolescents tend to delay their sexual debut, which leads to low premarital sex and pregnancy levels.

School environment can positively influence sexual relations in many ways. The following are some of the possibilities that school environment can influence sexual behaviour among adolescents who are in school.

- Adolescents who are in school spend most of their time at school, which limits the amount of the time that they can be alone and engage in sexual activities, compared to adolescent outside school.
- A school environment increases the interaction with older people (teachers), who discourage risk-behaviour such as unprotected and early sexual intercourse, but positively encourage students to prepare for a better future, which includes abstinence from sexual intercourse and encourages them to use contraceptives.
- Teachers are also seen as role models in whom students would aspire to become when they grow older. Therefore, the desire to achieve their future target overpowers the desire to enter motherhood at early age. Exposure to education can increase beliefs in the future and help young people plan for tertiary education and professional careers. Moreover, such planning may increase the motivation to avoid early childbearing. In countries where there is high education and employment opportunities, studies suggest a strong correlation between schooling and early childbearing, whereby adolescents delay sexual debut and concentrate on their studies to make their future a success (Bledsoe and Cohen, 1993).
- Lastly, school environment can increase student's self-esteem, sense of competence, and communication skills leading to positive empowerment. These skills may help adolescents to avoid unprotected sex and be able to negotiate contraception with their partners of any age during sexual intercourse.

After acknowledging different positive ways that the school environment can influence adolescent sexual activities, other scholars suggest that school environments may also act as a barrier for adolescents to obtain their desired level of education and hence increase levels of premarital sex and pregnancy rates (Mensch and Lloyd, 1993). This is common in societies without social and economic opportunities for girls and the demands placed on them, coupled with the gender inequalities known to exist within the educational systems. However, there is limited research on this subject.

Mensch and Lloyd (1993), in Sub-Saharan Africa, conducted a study of this nature. The results acknowledge that marriage and pregnancy are associated with school dropouts in sub-Saharan Africa, but there are other factors associated with school dropouts rather than these two. Those factors are found to be associated with the deprivation of socio-economic opportunities and school social environments. The results demonstrate that in Niger for example, out of 87 percent school dropout of women aged 20-24, only 1% and 5% was because of pregnancy and marriage respectively. The main reasons for school dropout in this study were mostly associated with the lack of social and economic opportunities for girls and the demands placed on them. Also gender inequalities in schools, which resulted in women with unsatisfactory school experiences, poor academic performance, and preference for early motherhood instead (Mensch et al. 1999). This particular topic needs research attention. Such productive research can channel and form educational policies, to curb early childbearing.

On the other hand, the experience in South Africa rejects this relationship. In the presence of education and employment opportunities, for women, and lower gender inequality rates in the country, the proportion of adolescents engaging in sexual activities at an early age is increasing. Further research on this topic is essential. Perhaps in South Africa, high levels of early childbearing can be better comprehended from Zabin and Kiragu's point of view. Zabin and Kiragu (1998) suggest that schooling may actually encourage sexual onset, because it encourages interaction and contact between adolescent boys and girls. At the same time, the supervision of traditional caretakers, and undermining parental control, then leaves adolescent boys and girls to have freedom and full control of their lives during the period of schooling. This suggestion is not conclusive; so far there is little supportive research evidence to attest to this claim. Further research would be useful.

Female education has demonstrated a significant positive correlation with fertility decline in developing countries, especially countries most stricken by poverty. Some studies view female education as a risk factor for HIV/AIDS and increased levels of adolescent fertility (Roth et al. 2002). For example, the relationships of adolescents and sugar daddies are blamed on high school fees and uniform charges. The discussion around subsidizing the uniform and school fees of

adolescents, at the International Conference on Population and Development in Mexico in 1984, was born from this controversy. The arguments and explanations for the association of education and increased rates of HIV and early childbearing, relate to the adaptation model as discussed earlier.

Contraceptive use

Contraception has been reported as one of the proximate determinants of fertility decline in sub-Saharan Africa since the times of Bongaarts's model. According to Bongaarts et al. (1984), contraception is referred to as a deliberate parity dependent practice undertaken to reduce the risk of conception. Rather than limiting the number of children one might desire to have, contraception delays the conception process. According to van de Walle and Foster (1990), a population that desires to delay childbearing and limit fertility is likely to experience changes in contraceptive use. Of course, the change involves an increase in the prevalence rate of contraception use. The significant influence of contraceptive use on fertility is mostly observed in societies, where there is a great availability and accessibility of contraception or family planning programs. According to Bongaarts and Watkins (1997), fertility had declined drastically where use of family planning has increased. Research in Sub-Saharan Africa indicates there is no other better indicator of reproductive behaviour, which had contributed to fertility decline, than contraceptive use.

However, for adolescents, literature observes low use of contraception. The availability of contraception shows weak influence on their fertility. Furthermore, the knowledge of contraception among adolescents, which according to Maharaj (2001) is the first step for contraceptive acceptance and subsequent use, appears to have a less significant role. In the following studies: (Worth, 1989; Richter 1996; Blanc and Way, 1998; Abdool-Karim, 2001), the results indicate a mismatch between the knowledge of contraceptive method and the usage among adolescents. This is because knowledge of contraception, on its own, is insufficient to bring about a significant change in behaviour, either to start or correctly use the method (Gage-Brandon and Meekers, 1993). Maharaj (2001) cited that, in Uganda, almost every respondent had knowledge of condoms, but only 10% knew how to use one correctly.

While increasing studies suggest that adolescents, who begin sexual activities at a young age, are less likely to practice contraception, convincing reasons as to what factors contribute to their non-use is minimal (Eggleston et al. 1999 and Chikamata et al. 2002). For example, the findings from the study by Blanc and Way (1998) indicate that in South Africa, only one-third of surveyed adolescents used any contraceptive method the first time they had sexual intercourse. In this study, results demonstrate that the likelihood of using a contraceptive method increases with age. Little knowledge seems to exist regarding the pathways that lead young people into making the choice to use contraceptive methods.

There is a need for further research on the subject of adolescent sexuality and contraceptive use, particularly to establish factors associated with non contraceptive use among adolescents. Among a few studies, Naidoo (2005) examined factors affecting contraceptive use among young people in KwaZulu-Natal. Her findings suggest that factors influencing contraceptive use include education, attitudes, knowledge and source of contraception. The barriers to contraceptive use in her study include factors such as power imbalances, social and peer pressures, and economic constraints. These barriers consistently appear in other literature concerning high rates of adolescent fertility and HIV/AIDS (Wood and Jewkels, 1997; Varga, 1997; Blanc and Way, 1998; Gage, 1998; Mfono, 1998; Varga, 1999; Manzini, 2001). Due to the length of this research paper, the factors contributing to contraceptive use and non-use will not be discussed, since it requires its own research attention.

For a young person to get through her adolescence without experiencing unintended maternity, she must have both the capacity and the desire to prevent early childbearing. The recommendations suggested by Dryfoos (1984) are very essential. Dryfoos (1984) suggests that young women should be provided with the capacity, which comprises of the reproduction knowledge, availability and accessibility of contraception. If contraception fails, there should be pregnancy testing and counselling, and if pregnancy termination is desired, there should be availability and accessibility of abortion services. The results also suggest that if these conditions are fulfilled, then most adolescents will have the resources to be able to delay childbearing until they are ready to assume the responsibilities of parenthood (*ibid*).

However, capacity is not the only prerequisite, without the desire to avoid early pregnancy, a young woman will not effectively acquire the knowledge needed, in order to utilise the appropriate prevention services. Adolescents should have the knowledge and understanding of the consequences of early childbearing, and the recognition of the relevance of these consequences to their own lives. Unless this knowledge and understanding is brought forth and manifested in the adolescents, intellect, so as to educate them that early childbearing ruins and jeopardises the future, by limiting life opportunities, adolescents are unlikely to protect themselves, sufficiently, against pregnancy and childbearing.

In Sub-Saharan Africa, little focus has been directed to the intervention and research to improve the reproductive health of adolescents. For example, it is well acknowledged that there is a large proportion of adolescents, in Uganda and Nigeria, exposed to the risk of conception, because, in these regions, adolescents receive poor sexuality and contraceptive education (see Agyei and Epema, 1992 and Makinwa-Adesobuye, 1992). There is a wide array of laws, policies, cultural norms and traditional laws that hinder attempts to educate and inform young people on matters relating to their sexuality and fertility. For example, in South Africa, the adolescent's knowledge of contraception is constrained by attitudes associated with sexual involvement with marital commitment and stable relationships, which neither depict adolescent's relationships (Mfono, 1998). It is not only South Africa; most African societies rarely discussed adolescent reproductive health issues openly (Preston-Whyte, 1990). In African societies, adolescent sexuality is considered a taboo. Owing to this stigma, attached to adolescent sexuality on this continent, reproductive health services, towards adolescents, have been poor and inadequate. According to a United Nations Report (2000), more than 120 million women have an unmet need for contraception in developing countries, with a large proportion in Sub-Saharan Africa (Gupta, 2006).

The importance of contraception on the reproductive health of adolescents had provoked the program of action of the International Population and Development Conference, in Cairo in 1994⁴,

⁴ *Program of Action of the 1994 International Conference on Population and Development Chapters I-VIII, Population and Development Review, 1995, 21(1): 187-213*

to focus solely on the improvement of contraception among adolescents. The program of action took into account that young people should be involved in planning, implementation and evaluation of the development programs and activities that have a direct impact on their daily lives. The emphasis was then given to information, education and communication activities and to services concerning reproductive and sexual health, including the prevention of early pregnancies and childbearing, sex education and the prevention of HIV/AIDS and other sexual transmitted infections and diseases. Contraception is the only hope of reducing early childbearing, mainly because adolescents are not going to stop sexual activities, without preventive measures such as contraception, high levels of early childbearing will continuously increase in sub-Saharan Africa. Based on the research and concepts presented above, the central question posed and tested in the present study is that: Taking into account individual, family, socio-economic variables, what specific determinants will emerge as the strongest predictors of early childbearing in sub-Saharan Africa.

2.5. HIV/AIDS among adolescents in sub-Saharan Africa

The issue of HIV/AIDS cannot be separated from the dominion of adolescent fertility. Patterns of early childbearing and HIV infection are not independent of one another (Rutenberg et al. 2003). High rates of teenage fertility are more likely to resemble a high proportion of teenagers at the risk of HIV/AIDS and STDs. This is because conditions and behaviours producing high levels of adolescent pregnancy are also likely to bear upon the risk of acquiring HIV. Recent studies in fertility and HIV/AIDS provide enough evidence to support this relationship (Varga, 1997; Varga, 1999; Manzini, 2001; Rutenberg et al. 2003). In addition, the study conducted by Dickson (2001), demonstrates that adolescent fertility levels in a country indicate the patterns of unprotected sexual intercourse and are related to HIV levels. The experiences in Sub-Saharan Africa attest to this pattern. Sub-Saharan Africa is one of the continents with the highest levels of adolescent childbearing and the HIV infection is most pervasive among adolescents. The levels of HIV infections, among the youth, in this region are as high as above 20%. According to the US Bureau of the Census (1999), in Botswana, Zambia, and Zimbabwe, more than 25% of 15-19 year-old girls attending antenatal clinics have HIV infection.

In South Africa, the estimates of HIV prevalence rate, from the ante-natal survey of pregnant women between the ages 15-19 years, had experienced a steep increase from 12.7% in 1997 to 21% in 1998 –almost a double increase in less than 1 year (Varga (1999). Further estimates shows that of approximately 4 million South Africans now infected with HIV, over a half are youth aged between the ages 15-24 years. Among 1.4 million men and women who are infected with HIV, a highly infected population is youth (ZDHS, 1999). Increasing studies suggest that HIV is rapidly spreading among the youth (Dickson, 2001). Rates of HIV/AIDS are exceptionally high, and without any precautions and preventive measures established, the population pyramid would be affected and is most likely to become an aging population. For both HIV and adolescent fertility, sub-Saharan Africa should adopt a high pragmatic approach, such as treating adolescent sexuality as a public health issue to be managed by information, education, and access to contraception (Furstenberg, 1998). This model has worked effectively in developed countries such as Denmark and Sweden, and no doubt, can work for the Sub-Saharan African continent.

2.6. Conclusion

The discussed literature shows that having a child during teenage years limits a girl's opportunities for better education, a job and income, and increases the likelihood of poverty. According to Manzini (2001), the introduction of sexual education programs, before adolescents are sexually active places, girls in a better position to make informed choices about sexual activities by the time they begin to engage in sexual activity or reach menarche. Therefore, the consequences along with the necessary knowledge of early childbearing should be presented to young people at an early age of their lives (before puberty). The sex education should include the methods of contraception and other preventive measures. Furthermore, contraception should be available and easily accessibility for adolescents from both rural and urban areas. Other preventive measures should also be made available in case contraception fails. Once pregnancy is detected, programs other than contraception, such as pregnancy testing and counselling, should be available. Also if pregnancy termination is desired, there should be availability of such abortion services. As Dryfoos (1984) has suggested, if these conditions are fulfilled, then most adolescents will have the resources, to be able to delay childbearing, until they are ready to assume the responsibilities of motherhood.

The literature review reveals that early and premarital childbearing in Sub-Saharan Africa is a common phenomenon. Though societies do not approve of premarital and early childbearing, the literature shows that it is tolerated and accepted when it happens. The literature review has also identified a number of determinants contributing to high levels of early childbearing in sub-Saharan Africa. The gap between age at the first sexual intercourse and the age at the first marriage was found to increase the risk of premarital pregnancy and childbearing. Furthermore, the literature on early childbearing in sub-Saharan Africa confirms that the determinants such as race, childhood place of residence, school enrolment, and contraceptive use, play an essential role in determining adolescent fertility outcomes. Other sub-themes discussed herein include the adolescence period, transition to adulthood, the trends and patterns of adolescent pregnancy and childbearing and HIV/AIDS among the youth of Sub-Saharan Africa.

Chapter Three

Methodology

Overview

This chapter is presented in two sections. Section A provides the description of data sources, while Section B provides data analysis procedures and selection of determinants that contribute to early childbearing. The descriptive statistics of the distribution of respondents according to selected determinants, contributing to early childbearing, will also be presented in section B in the form of figures and tables.

3.1. Section A: Data sources and description

The Demographic and health Surveys (DHS) were established in 1984, with the mission to provide data and analysis on population, health, and nutrition of women and children, maternal and child health and HIV/AIDS, in developing countries (Demographic and Health Survey Report, 1999). This project was initiated by the United States Agency for International Development (USAID). Up to date, the DHS project has provided technical assistance to more than 200 surveys in 75 countries, advancing global understanding of health and population trends in developing countries (Demographic and Health Survey Report, 1999). Since this is a comparative research for South Africa and Zimbabwe, it is important that the data sources used are comparable. The data sources used for the purpose of this research paper are the South African Demographic and Health Survey (SADHS) of 1998 and the Zimbabwean Demographic and Health Survey (ZDHS) of 1999. These two datasets are excellent sources because they allow for observation of teenage behaviour in two countries around the same time.

3.1.1. South African Demographic and Health Survey of 1998

3.1.1.1. Area of data collection and sample size

The 1998 SADHS is the first major demographic and health survey in South Africa. The aim of this survey is to collect data, as part of the National Health Information of South Africa

(NHIS/SA), with several objectives. One of them is to contribute to the information base for health and population development programme management, through accurate and timely data on a range of demographic and health indicators (SADHS Report, 1999). This survey is designed to be a nationally representative probability sample of approximately 12, 000 women between ages of 15 and 49 years, targeted to complete interviews in all nine provinces of South Africa. The survey had a satisfactory response rate of 98%. Of 12, 000 targeted women, 11, 735 were successfully interviewed. The sampling frame constituted a list of approximately 86, 000 enumeration areas (EAs) formulated by Statistics South Africa to be utilised for the 1996 Census. The size of the enumeration area was measured according to the number of households in that enumeration area. The range of enumeration areas were between 100-250 households and were stratified according to province, urban and non-urban residence and by the type of enumeration area, with the exception of the Eastern Cape. The province of the Eastern Cape was stratified according to its five health regions, urban and non-urban areas within each region.

There were a total of 16 sampling strata for the 8 provinces and another 10 sampling strata for Eastern Cape, resulting in a total of 26 sampling strata. Within each stratum, a two-stage sample was selected. Primary Sampling Units (PSUs) corresponded to enumeration areas and were selected with a probability proportional to size, the size being either the number of households in that enumeration area or the number of census visiting points in the enumeration areas. Where available, the listing of the visiting points and the households found in that visiting point or alternatively a map of the enumeration area which showed the households, was used as the sampling frame for the second stage of sampling, to select households, to be visited by the SADHS interviewing team for the main part of the survey. A total of 12,860 households, throughout the country, were selected and every second household was selected for the adult health survey-systematic sampling. In these households, in addition to interviewing all women aged 15-49; all adults aged 15 and above were also interviewed.

3.1.1.2. Data collection tools and strategy

Three questionnaires were used: a household questionnaire, a woman's questionnaire and an adult questionnaire. The questionnaires were originally developed in English and later translated into all

the rest of South Africa's 10 official languages. The questionnaires were then pre-tested in a pilot study, whereby 150 interviews were conducted in several of the nine provinces, under the supervision of staff from the Medical Research Council (MRC) and Macro International. After the pilot study, the questionnaires were revised and translated, based on the discussions that were held with the pilot field staff. For the main survey, a total of 175 candidates were selected, for fieldwork, based on their education, maturity, field experience, and fluency in the language required, to conduct interviews in a given province. These fieldworkers then underwent training on questionnaire administration and field training, which was conducted by the MRC, The Human Sciences Research Council (HSRC), Free State University and Macro International. Overall, 33 interviewing teams, with three teams per province, with the exception of KwaZulu-Natal and the Eastern Cape, which had seven teams and five teams respectively carried out fieldwork. Each team had 2-5 female interviewers, a supervisor and field editor. Team leaders were also appointed to supervise the teams. Two centrally located editors were appointed per province for screening of questionnaires before submission to the office for processing.

3.1.2. Zimbabwean Demographic and Health Survey (ZDHS) of 1999

3.1.2.1. Area of data collection and sample size

The 1999 ZDHS is a follow-up of the 1988 and 1994 ZDHS surveys. All these series of surveys are implemented and undertaken by the Central Statistics Office as part of the Zimbabwean National Household Survey Capability Programme (ZNHSCP) and the worldwide MEASUREDHS+ programme. The 1999 ZDHS is a significant expansion in scope and provides updated estimates of basic demographic and health indicators, covered in the earlier surveys. The sampling frame used for the 1999 ZDHS was the 1992 Zimbabwean Master Sample (ZMS92), developed by the Central Statistics Office (CSO) after the 1992 Population Census. The same enumeration areas (EAs) of the 1994 ZDHS were used in the 1999 DHS. That included 395 enumeration areas stratified by the province and land use sector. For the purpose of the ZDHS 18 sampling strata were identified: urban and rural strata for each of the eight provinces.

The sample was then selected in two stages. In the first stage, 230 EAs were selected with equal probability. Then, within each of these 230 EAs, a complete household listing and mapping exercise was conducted in May 1999, forming the basis for the second-stage sampling. All private households were listed. The list excludes people living in institutional households (army barracks, hospital, police camps, etc.). Households to be included in the ZDHS were selected from EA household lists, with the sample being proportional to the total number of households in the EA. All women aged 15-49 years in those households were eligible to be interviewed in the ZDHS. Furthermore, a 50 percent systematic sub sample of these households was selected, within which interviews with all males age 15-54 years were conducted as well. The overall target sample was 6, 208 women and 2, 970 men.

3.1.2.2. Data collection tools and strategy

The survey used four types of questionnaires to collect data, namely: the household questionnaire, the women's questionnaire, the men's questionnaire, and the cluster location form. The contents of these questionnaires were based on the DHS Model "A" questionnaire, which is designed for countries with moderate to high levels of contraceptive use. Since the interest of this research paper focuses on women, only women's' questionnaire from both South Africa and Zimbabwe was considered. This questionnaire was used to collect information from all women in their reproductive years (15-49). In this questionnaire, women were asked questions related to their socio-economic background, marital and sexual reproductive health history, such as education attainment, residential information, population groups, age at birth and first intercourse, previous pregnancy, knowledge and use of family planning methods, fertility preference, partner's characteristics and awareness and behaviour regarding AIDS and other sexually transmitted diseases, and maternal mortality.

3.1.3. Data problems and limitations of using DHS and comparative approach.

It is generally accepted that there are data errors and limitations in every survey. Such errors are mainly caused by underreporting and over-reporting. However, there are other problems that might affect the results of the survey. In the study of adolescent sexuality, there are some problems that data concerning adolescent sexual activity and outcomes suffer from. For example, sexual behaviour issues are likely to be problematic when older interviewers try to obtain firsthand information from adolescents, about their sex lives. This might relate to the embarrassment that adolescents face when questioned by adults interviewers. Young people, especially girls, find great difficulty in admitting to having sex outside a socially sanctioned relationship, such as marriage. The other limitation lies in the nature and the design of the questions from the questionnaire. In most cases questions in the survey questionnaire do not provide the in-depth information on any social related issues that a student might be interested in studying. For example, the questions in a DHS questionnaire are asked in such a way that the respondents must respond in a manner that is set to meet the framework standards. Therefore, there are limitations to obtaining some specific answers leading to the answers that the research intends to investigate. This limitation is common in all surveys and census, because the design of the methodology is meant to meet the specific framework. The questions are often adjusted to suit the subjects intended to be addressed, and since DHS covers a wide range of topics, some of the important questions for a particular study are not covered due to the length of the questionnaire itself. For example, in this study, important questions to obtain information on reasons, motivation, and influences that lead to premarital sexual relations are not included.

Since this is a comparative study, there are also other data limitations observed in this study owing to its nature. For example, SADHS and ZDHS were collected at different times; even though very close (1998 and 1999). Secondly, there are different determinants of early childbearing in these two datasets. For one to draw a comparative analysis, similar variables have to be selected from different datasets. However, problems arise when some variables from one dataset are not coded as in the other dataset. Particularly in this research paper, there are cases where some important determinants of early childbearing, such as the factor that shows if respondents are still at school or not in Zimbabwe. Owing to this shortfall, this important determinant was eliminated from the

study. Overall, this limitation makes the comparison basic because it is based on simple and similar variables

3.1.4. Study population sample

The sample of this study is women between the ages 15-24 years. The sample is extracted from the dataset compiled, using the women's questionnaire of SADHS and ZDHS, which includes women in their reproductive years (15-49). To obtain the sample from these separate datasets, the variable current age of the respondent was used to omit all respondents above the age of 24. The sample obtained is 4, 459 and 2, 700 women between the ages 15-24 from South Africa and Zimbabwe respectively. It was from the total of these individuals (7, 159) that the investigation of factors, associated with early childbearing is analysed. The analysis for these datasets was performed separately.

3.1.5. Analysis approach

This research paper makes use of the quantitative approach research method. This study covers large sample sizes and large areas. The quantitative approach is the best method for this research, since it enables generalisations from the findings of large sample sizes and large areas (Creswell, 1994). Furthermore, the study seeks to establish relationships to build explanations for observed levels of early childbearing, which is done systematically with rigorous statistical analyses and procedures. On these grounds, the quantitative approach becomes the best tool to achieve the objectives of this research paper. Again, due to this study's comparative nature, quantitative research is a pre-eminent approach to use, since it allows flexibility in the treatment of data in terms of comparative analysis and statistical analysis (Jones, 1997).

3.2. Section B: Variables selection and data analysis procedures

3.2.1. Selection of determinants that contribute to early childbearing

The dataset from the DHS comprises of many determinants, ranging from background characteristics, demographic, socio-economic, and behavioural characteristic variables of the respondents, which are the interest of this study.

Background characteristics of respondents

Table 3.1 below illustrates the description statistics of respondents by their background characteristics in South Africa and Zimbabwe.

Table 3.1: Descriptive statistics of individual background characteristics of the sample

| Individual characteristics | % of Cases South Africa, N= 4, 459 | % of Cases Zimbabwe, N= 2, 700 |
|-------------------------------------|---|---|
| Age-group | | |
| 15-19 | 52.03 | 52.78 |
| 20-24 | 47.97 | 47.22 |
| Population group | | |
| Black/African | 81.61 | 99.9 |
| Coloured | 9.60 | 0.0 |
| White | 5.89 | 0.1 |
| Asians/Indian | 2.90 | 0.0 |
| Ethnic group | | |
| Non_African | 19.07 | |
| Nguni | 46.06 | |
| Sotho | 29.68 | |
| Tsonga/Venda | 5.2 | |
| Shona | | 70.65 |
| Ndebele | | 29.35 |
| Current place of residence | | |
| Urban | 56.64 | 40.73 |
| Rural | 43.36 | 59.27 |
| Childhood place of residence | | |
| Urban | 47.05 | 27.67 |
| Rural | 52.95 | 72.33 |
| Level of education | | |
| No education | 1.25 | 1.55 |
| Primary | 16.31 | 31.44 |
| Secondary | 76.52 | 65.43 |
| Higher | 5.91 | 1.58 |
| Marital Status | | |
| Not in a union | 89.28 | 54.08 |
| Socio-economic status | | |
| Low | 7.68 | 32.6 |
| Middle-low | 39.56 | 18.89 |
| Middle-High | 20.45 | 18.76 |
| High | 32.3 | 29.70 |

Respondent's current age: The determinant, current age of the respondents, is very important in this study. It allows for the observation of the exact age of respondents, during the period of the survey. To decide on the sample selection, this was a key variable used. Since the study focuses on a youthful cohort (those aged between 15 to 24 years), the respondents who are above the age of 24 were omitted from the SADHS and ZDHS datasets, leaving the sample of 4, 459 and 2, 700 South African and Zimbabwean respondents, respectively. Table 3.1 shows that in both countries, 53% of respondents are between the ages 15-19 years. While the rest, 47%, are respondents from the age category, 20-24 years.

Population group: Due to the historical significance of racial class on many aspects of the daily lives of South Africans, more especially on the distribution of poverty, inequality, and fertility, it is essential that this determinant be incorporated. According to Table 3.1, the racial composition shows that the majority of South African respondents are Black/African (81.6%), followed by Coloureds (9.6%), then Whites (5.89%) and the minority are Asians/Indians (2.9%). The distribution, according to population group in this dissertation, is representative. According to the census results, the majority of respondents are Black/African (77.9%), then Coloureds 10.2%, followed by Whites (7.8%), and the minority is the Indian population group (3.5%). In Zimbabwe, this variable is of no importance since the population is almost 100 percent Black/Africans (99.9%). This variable will not further be used during the main data analysis. However, ethnic group instead of population/racial group is used in this research because of the constraints of the comparative study in South Africa and Zimbabwe. For example, owing to its historical background, South Africa has 4 racial groups (Black/African, Coloured, White and Indian), but the results of childbearing, according to these groups, cannot be compared to childbearing results in Zimbabwe, since the Zimbabwean population is almost 100% black African (ZDHS Report, 1999). Owing to this shortcoming, ethnic group among Africans, both in South Africa and in Zimbabwe is used as a covariate contributing to early childbearing.

In South Africa, there are three broader groupings of ethnic groups; Nguni, Sotho, and Venda/Tsonga. Coloureds, Whites, and Indians were grouped together and named non-African ethnic group. The Nguni ethnic group includes Zulu speaking people originating from KwaZulu-

Natal, Xhosa speaking people from the Cape region, Swati and Ndebele speaking people mainly from the Mpumalanga province. The Sotho ethnic group includes Sepede speaking people originated from the Northern Province (Limpopo), the Southern Sotho speaking people from the Free State, and Tswana speaking people from the North West Province. The Venda/Tsonga ethnic group includes Tshivenda and Tsonga speaking people and the majority originate from the Northern Province (Limpopo). The sample consists of 19.07%, 46.06%, 29.68% and 5.2%, non-African, Nguni, Sotho, and Venda/Tsonga women in South Africa and 70.65% and 29.35% of Shona and Ndebele women in Zimbabwe.

Current place of residence: Most research suggests huge differentials in fertility behaviour and knowledge among urban and non-urban dwellers. The latter are deeply entrenched in the socio-cultural and socio-economic structures that exist in these communities (Lotter, 1990, Dickson, 2001, Cohen, 2003 and HSRC, 2006). For example, rural residents and communities are strongly influenced by traditional authority structures and communal administration, which is minimal in urban areas. Table 3.1 above shows that the majority of respondents in South Africa are from urban areas, as compared to Zimbabwe, where the majority of respondents have rural areas as their places of residence. However, in this dissertation, the place of residence to be examined during data analysis is the respondent's childhood place of residence. In SADHS and ZDHS, the childhood place of residence includes metro, town and countryside. Most respondents in this study, during their childhood lived in rural areas, both in South Africa and Zimbabwe (59% and 75.2%), respectively.

Highest level of education attainment: School enrolment is worth examining since literature presumes that the school environment influences sexual behaviour. Literature suggests that being at school has an indispensable role in the adolescent's sexual behaviour. In most cases, girls at school are reported to have a lower risk of sexual activity and pregnancies, compared to girls who are outside of school. In addition, those in school are more likely to adopt safer sex practices than those out-of schools. This is because the school environment provides an atmosphere for easy interaction and discussion, and therefore sexual information can easily be mobilised more easily than any other environment. Schools are also used as a target of many adolescent sexuality campaigns, which do not reach adolescents who are not at school. This variable will also be used

during data analysis to examine its relationship and impact on early childbearing. Table 3.1 shows that very few respondents in South Africa and Zimbabwe have no education (1.3% and 1.6%) respectively, with the majority having reached or attained the secondary level of education (76.5% and 65.4%) respectively.

Marital Status: In sub-Saharan Africa, it is very common for women to marry in their teens. Their marriage is an important contributing factor to sexual outcomes, since childbearing is often expected immediately after marriage. Personal marital status demonstrates a great influence on women's sexual behaviour and is positively associated with higher levels of fertility. However, learning from Table 3.1, it is clear that the majority of our respondents in South Africa have never been in a union (89.3%). In Zimbabwe, 54% of respondents have been in a union. This variable will be included as a predictor when assessing determinants contributing to high levels of early childbearing.

Socio-economic status: As far as the socio-economic determinant is concerned, studies have proven that socio-economic status of the household plays an important role concerning early childbearing and overall fertility. This determinant has received wide attention in the past years and in this dissertation, it is one of the key measures of interest. For the socio-economic status of the household, an index measure was created. To achieve a strong measure that represents the socio-economic status of the respondent's household, the method used is Principal Component Analysis (PCA). This method takes several variables to form one measure. By PCA, the large numbers of variables are transformed into smaller numbers, which makes the measure more understandable. The measure used takes in variables specifying whether the household has the following seven household assets, namely: piped water, flushable toilet, electricity, radio, television, refrigerator, and a car. The method PCA, reports the factor loading. To determine the level of loading (high or low), the rooted component matrix was bounded to loading above 0.5, and all of the indicators loaded sufficiently to the factors. All factors scores operate to increase the index, and since all variables are binary in nature, a one-unit increase in each variable can be interpreted as an increase in the asset index of variables (FS/SD). Table 3.4 below reads that a household with a flushing toilet facility has an asset index that is 0.51 times higher than a household without. The factor scores were used to group the sample into quartiles, which is used

as a determinant of early childbearing to represent the socio-economic status of the household. This determinant is categorised into four, namely: low, middle-low, middle-high and high socio-economic status. See the distribution of respondents according to socio-economic status in Table 3.1 above. Table 3.2 and 3.3 present the results of the principal component analysis in South Africa and Zimbabwe respectively.

Table 3.2: Principal Component Analysis in South Africa

| | Factor loading | Factor Score (FS) | Mean | Std. Dev (SD) | FS/SD |
|------------------|----------------|-------------------|---------|---------------|---------|
| Flush | 0.74496 | 0.25346 | 0.40929 | 0.49176 | 0.51541 |
| has electricity | 0.77913 | 0.26509 | 0.91176 | 0.48740 | 0.54389 |
| has radio | 0.38075 | 0.12955 | 0.79839 | 0.40125 | 0.32287 |
| has television | 0.79617 | 0.27089 | 0.57053 | 0.57053 | 0.54724 |
| has refrigerator | 0.82938 | 0.28559 | 0.47791 | 0.49957 | 0.57688 |
| has car | 0.54194 | 0.18439 | 0.18389 | 0.38744 | 0.47592 |

Table 3.3: Principal Component Analysis in Zimbabwe

| | Factor loading | Factor Score (FS) | Mean | Std. Dev (SD) | FS/SD |
|------------------|----------------|-------------------|---------|---------------|---------|
| Flush | 0.85491 | 0.24899 | 0.32518 | 0.46853 | 0.53143 |
| has electricity | 0.87473 | 0.25476 | 0.65639 | 1.44863 | 0.17586 |
| has radio | 0.57089 | 0.16627 | 0.83593 | 1.41729 | 0.11732 |
| has television | 0.83743 | 0.24390 | 0.56282 | 1.45618 | 0.16749 |
| has refrigerator | 0.79510 | 0.23157 | 0.47849 | 1.45737 | 0.15890 |
| has car | 0.52738 | 0.15360 | 0.37931 | 1.45085 | 0.10587 |

Table 3.4: Descriptive statistics according to provinces in South Africa and Zimbabwe:

| Provinces in South Africa | % of cases | Provinces in Zimbabwe | % of cases |
|---------------------------|------------|-----------------------|------------|
| Western Cape | 6.75 | Manicaland | 14.69 |
| Eastern Cape | 25.68 | Mashonaland central | 7.73 |
| Northern Cape | 7.67 | Mashonaland East | 7.39 |
| Free State | 7.29 | Mashonaland West | 9.05 |
| KwaZulu-Natal | 15.05 | Matabeleland North | 4.71 |
| North west | 7.75 | Matabeleland South | 5.49 |
| Gauteng | 7.33 | Midlands | 12.68 |
| Mpumalanga | 11.08 | Masvingo | 10.79 |
| Northern Province | 11.39 | Harare | 19.86 |
| | | Bulawayo | 7.61 |

Note: These results are based on weighted data

Region: In terms of region or provincial distribution, Table 3.4 shows that there is a relative even distribution of respondents both in South Africa and Zimbabwe. The majority of South African respondents reside in the Eastern Cape (25.7%), followed by KwaZulu-Natal (15.05%), Northern Province and Mpumalanga respectively. The reason the Eastern Cape Province has most respondents is related to the fact that it was over-sampled. The minority of respondents reside in the Western Cape (6.75%). In Zimbabwe, the majority of respondents reside in Bulawayo (12.3%),

then, Midlands and Masvingo respectively. The lowest percentage of respondents resides in the Mashonaland Central province (9.2%).

Table 3.5: Descriptive statistics of family background characteristics or household social/human capital

| Characteristics of household | % of Cases South Africa | % of Cases Zimbabwe |
|--|------------------------------------|--------------------------------|
| Mean no of household Members | 6.13 | 6.5 |
| Mean no of women in the household | 2.15 | 1.9 |
| Age of Household head | | |
| 15-34 | 18.52 | 39.24 |
| 35-54 | 45.05 | 36.02 |
| 55+ | 36.42 | 24.75 |
| Mean | 49.08 | 42.3 |
| Sex of household head | | |
| Male | 50.7 | 63.65 |
| Female | 49.3 | 36.35 |
| Total | 4459 | 2700 |

In the study of adolescent sexual behaviour or early childbearing, it is very important to include factors that denote socialisation in the household. These factors include the number of household members, the presence of a female figure such as a nurse, a mother or a sister. Literature consistently suggests that, such factors play a crucial role in sexual socialisation and sexual behaviour among adolescents (United Nations, 2001). According to Djamba (1997) this relationship is through sexual discussions and advice on pregnancy prevention, such as the use of contraception, abstinence and other topics, which discourage early sexual activity and early childbearing. Other than these two determinants, literature also suggests that the age and the sex of the household head are important determinants of early childbearing, in terms of sexual socialisation based on the evidence that the presence of an older person or a male head in the

household, reduces risky sexual behavioural choices Djamba, 1997 and Scott, 1999). These sexual socialisation determinants to early childbearing are presented in Table 3.5 below.

Table 3.6: Descriptive statistics of sexual behavioural choices of respondents in South Africa and Zimbabwe

| Characteristics | % of Cases South Africa N=4, 459 | % of Cases Zimbabwe N=2, 700 |
|--------------------------------------|---|---|
| Sexual activity | | |
| Sexual Active | 66.69 | 56.72 |
| Sexual Inactive | 33.31 | 41.81 |
| Sexual active before age 20 | 93.26 | 85.05 |
| Mean age at first sexual intercourse | 16.55 | 17.4 |
| Childbearing status | | |
| Had at least one child | 34.01 | 47.28 |
| No children | 65.99 | 58.72 |
| Have 1 child | 26.04 | 26.9 |
| Have 2 children | 6.56 | 11.35 |
| Have 3 children | 1.31 | 2.46 |
| Have >=4 children | 0.10 | 0.57 |
| Timing of first birth | | |
| Had first birth before the age of 20 | 74.72 | 75.01 |
| Earliest age at first birth | 12 years | 12 years |
| Mean age at first birth | 18.13 years | 18.14 years |
| Currently pregnant | | |
| Yes | 2.97 | 8.41 |
| Contraceptives knowledge | | |
| Yes | 98.80 | 98.43 |
| Contraceptive use | | |
| No | 14.94 | 31.95 |
| Used condom at last sex | | |
| Yes | 18.33 | 11.27 |

The results indicate that the mean average number of household members is 6.1 with an average of 2 eligible women aged between 15-49 years in South Africa, while in Zimbabwe it is 6.5 with 2 women. Table 3.5 shows that in South Africa, the majority of respondents are from households where the head is between the ages 35-54 (45.1%), while in Zimbabwe, the majority come from households where the head is in the age category 15-34 years. Concerning the sex of the household head, in both countries, the majority of respondents have a male as a household head. This paper will also examine the strength of these four mentioned determinants on early childbearing, during data analysis. Table 3.5 below indicates descriptive statistics of respondents according to their sexual behaviours.

The timing of the first sexual intercourse, in the analysis of adolescent fertility is generally an important factor. According to Hofferth (1987) and Manzini (2001), the timing of sexual activity is a key indicator of women's potential risk for pregnancy and childbearing. Table 3.6 indicates a higher percentage of sexual debut in South Africa, with the mean age at the first sexual intercourse of 16.5 years. In Zimbabwe about 56.7% of the respondents are sexually active and the mean age at first sexual debut is 17.4 years.

From the DHS questionnaire, a question used to obtain the information on childbearing status was "the number of children a respondent had borne. Based on this question, a researcher generated a variable called childbearing status, using the Stata software analysis package. This was made a dichotomous variable coded as "0", if the total number of children ever born is equal to zero, representing those who have not started childbearing or respondents who are not mothers yet. And then coded 1, if the respondent has given birth at least once, representing those who are mothers. In the main data analysis, using survival analysis, this dichotomous variable is used as a failure covariate.

Timing of first birth: The timing of the first birth is very important in this study, it specifies the exact age at which childbearing occurred. Table 3.5 indicates that the youngest age at birth is 12 years, while the mean age at first birth is 16.55 years, for South African respondents and 17.4 for Zimbabwean respondents. During the survey, the question asked, to obtain the timing of the first birth, is the age at which the first birth occurred. Similarly, the data on the total number of children

ever born, data on age at first birth can sometimes be problematic, especially among adolescents who were not married at the time they had a first birth. Respondents are likely to shift the age of first birth to be slightly before the age at first marriage. This is common in surveys conducted in African countries, since childbearing is highly encouraged among married women as compared to unmarried women. For example, in this study, there is a case where one respondent, between the ages 15-19, reported giving birth at age of 20. The results suggest that during the survey, approximately, 3% and 8% of respondents in South Africa and Zimbabwe were pregnant, respectively.

It is widely accepted that contraceptive use has been the driving force of fertility decline in most Sub-Saharan African countries. Table 3.6 also shows the behaviour of sexually active respondents towards contraception. The results from this table show that the knowledge of at least one contraceptive method is universal in both countries, meaning that almost all respondents know of at least one method. The well known contraceptive methods in both countries are modern methods, such as the pill, injectables and condoms.

Missing values

Missing values can be a result of non-response, an invalid response, a “don’t know or no opinion response” or failure of the person collecting data to record the response. They are an unavoidable reality in research. In instances where the question is a filter question, namely, those to whom some questions do not apply, are recorded as missing. Missing values are a major concern in data analysis and the dilemma is whether or not they should be included in analysis or not. Either decision is fraught with problems. As de Vaus (2002) warns, the inclusion of missing cases confuses real responses with non responses; can distort results; can inflate or deflate summary statistics or scale scores and can also destroy the ordinal and interval character of any variable. Excluding missing cases, on the other hand, can introduce bias into the sample and if a large proportion of cases are excluded due to missing values, the sample size can be reduced to unacceptable levels, that may affect the precision of any sample-based statistics (de Vaus, 2002). In this research paper, there are few cases of missing values and they will be ignored during data analysis.

3.2.2. Data analysis procedures

The quantitative data from the SADHS of 1998 and ZDHS of 1999 is analysed using Stata Version 9, a software package used for quantitative statistical data analysis. A statistical method such as tabulation was used to describe and summarize respondents' background characteristics. For establishing relationships between independent and dependent variables, the cross-tabulation statistical method was used.

For main data analysis, the appropriate procedure used involves the method that allows for the observation of the failure of childbearing to occur at a particular point in time. Such methods in demography are called survival analysis. Survival analysis is often used as, or referred to as time event analysis. These methods are applied when the measure of interest is timed to an event. Survival analysis allows for a group of individuals, for each of whom there is a defined point of an event, often called failure, to occur after a length of time, called the failure time. Survival analysis requires special techniques. For example, it involves some observations being censored (taking into account the possibility of occurrence of an event in the future), since the event of interest has not occurred for all respondents. In social sciences, the survival analysis method is widely used where the interest is on analysing time to event such as marriage and birth of children. As per purpose of this paper, the survival analysis is used to observe the probability that a respondent will experience the birth of a child, at a particular point in time, given that an individual is at risk of having a child.

In survival analysis, the Kaplan-Meier survival estimator is frequently used, as a starting technique, to estimate the probability of having a birth at a given age. It also takes into account those who did not have a birth and projects their possibilities of having a birth. This method is commonly applied for univariate analysis purposes. In this research, the Kaplan Meier method is applied on each independent variable to assure that the assumption of survival analysis approach is satisfied. After the univariate analysis, using the Kaplan Meier method, to establish relevant independent variables, this paper performs a multivariate analysis using the Cox Proportional Hazard model to examine the risk of childbearing before the age of 20. The Cox Proportional Hazard Model is a popular method, to evaluate the relationship between covariates and

survivorship with the use of the mathematical model (Sowmya and Schoenfeld, 2007). The Cox Proportional Hazard Model was developed by Sir Cox in 1972 (Johansson, 1983). This model is called a semi-parametric or non-parametric model because it does not assume any distribution for the baseline hazard, which is denoted by $h(t)$ (Cox, 1972 cited in Johansson, 1983). The Cox Proportional Hazard Model is a technique for determining hazard functions, or the probability that an individual will experience an event within a particular time-period, given that the individual was subjected to the risk that the event might occur (Cox and Oakes, 1984). The Cox Proportional Hazard Model is the most commonly used model in Hazard regression. In this paper, the Cox Proportional Hazard Model is used to assess the relative risk of early childbearing, at each teenage year, given independent covariates that significantly influence early childbearing. According to Mason (2005), the advantage of this approach is that the data determines the shape of the hazard function that best fits the prescribed data.

The Cox Proportional Hazard Model is explained in terms of the Hazard functions and effect parameters. Hazard function describes how hazards (the risk or exposure of childbearing) change over time, that is when and whether a group of individuals is likely to experience a target event (e.g. early childbearing). While, effect parameters describe how hazard relates to other factors. These descriptive statistics answer questions about the differences between groups (i.e. ethnicity, population groups, educational level and so forth). The Cox Proportional Hazard Model is the most suitable model for this analysis. This is because the technique in this model allows for individual observation to be 'censored' (Klein and Moeschberge, 1997). This takes into account the fact that the majority of respondents will still be teenagers (between ages 15-19), and, if they have not started childbearing, they may give birth during their teenage period. To be able to apply this model, it is necessary to decide upon the functional form, that is which hazard may depend upon time (dependent variable) and the different explanatory variables (covariates). The selection of these variables is discussed in the previous section. The Cox Proportional Hazard Model can take in both dependent and independent variables that are dichotomous, continuous and categorical (Cox, 1975). The probability of the event is called hazard rate $H(t)$, and is a function of time. The essential feature of this approach is to shift the focus of the problem from one, where factors directly affect the occurrence of an event, to one where they influence the risk of occurrence

(Newman and McCulloch, 1984). The Cox Proportional Hazard Model estimates the *coefficient* in the form:

$$H(t) = H_0(t) \exp(b_1 X_1 + \dots + b_n X_n)$$

Where X_1, \dots, X_n are a collection of predictors variables or covariates, b_1, \dots, b_n are coefficient estimated by the Cox regression, and are effects of the corresponding covariates and can be interpreted in a similar manner to that of multiple logistic regression. $H(t)$ is the baseline hazard at time t or hazard rate which gives the effect of duration on the hazard rate, representing the hazard for a person with the value of 0 for all the predictor variables. The Cox Model can take in both dependent and independent variables that are dichotomous, continuous and categorical (Cox, 1975).

The proportional hazards assumption assumes that effect parameters multiply hazard: for example, if population group of X increases or decreases our hazard at time 0, it also increases and decreases our hazard at time 1, or time 0.5, or time t for any value of t ($t = \text{time}$). The effect parameter(s) estimated by any proportional hazards model are reported as *hazard ratio*. This model is significantly suitable for this data analysis because the researcher is interested in investigating the ratios of respondents who will give birth before they are above 20 years.

The ratio of the Cox proportional Hazard Model can also be presented in this form:

$$\frac{H(t)}{H_0(t)}$$

3.3. Conclusion

This chapter has successfully presented research methodologies carried throughout the study as well as the procedures taken during data analysis. The selection of the determinants contributing to high rates of teenage fertility was also discussed in this chapter. Those determinants are population group, childhood place of residence, race and ethnicity, educational attainment, marital status,

media factors, household financial status, and the characteristics of household such as the number of household members, women, and the age and sex of the household head. Furthermore, in this chapter, the researcher has provided the descriptive statistics of the respondents, according to all the mentioned determinants of early childbearing. The next chapter provides data analysis findings and the discussion.

Chapter Four

Determinants of early childbearing in South Africa and Zimbabwe

Overview

This chapter presents data analysis and the discussion of the findings. The findings are presented by means of tables and figures. The determinants contributing to early childbearing analysed in this chapter are thoroughly discussed in chapter 3. The discussion of the data analysis findings covers the similarities and differences of determinants of early childbearing in South Africa and Zimbabwe. This chapter is subdivided into three sections. The first section discusses fertility indicators and uses the bivariate analysis to test for the significant levels of determinant associated with early childbearing. The second section presents the survivorship/probabilities of early childbearing according to selected determinants. To achieve this, the Kaplan-Meier survival estimator in the survival analysis was used. The third section presents and discusses the risk of early childbearing according to selected determinants of early childbearing in South Africa and Zimbabwe. For this analysis, the Cox Proportional Hazard Model was used. Table 4.4 presents fertility indicators and levels of early childbearing in South Africa and Zimbabwe.

Table 4.1: Childbearing levels in South Africa and Zimbabwe

| Indicators | South Africa | Zimbabwe |
|--|--------------|----------|
| Total number of respondents | 4, 459 | 2, 700 |
| % of respondents between ages 19-24 years who gave birth at least once | 34.9% | 42.0% |
| % of respondents between ages 19-24 years who gave birth before age 20 | 26.5% | 32.2% |
| % of births accounted by women between 19-24 years to total number of births among women between 15-49 years | 17.7% | 27.0% |

These results are based on weighted data

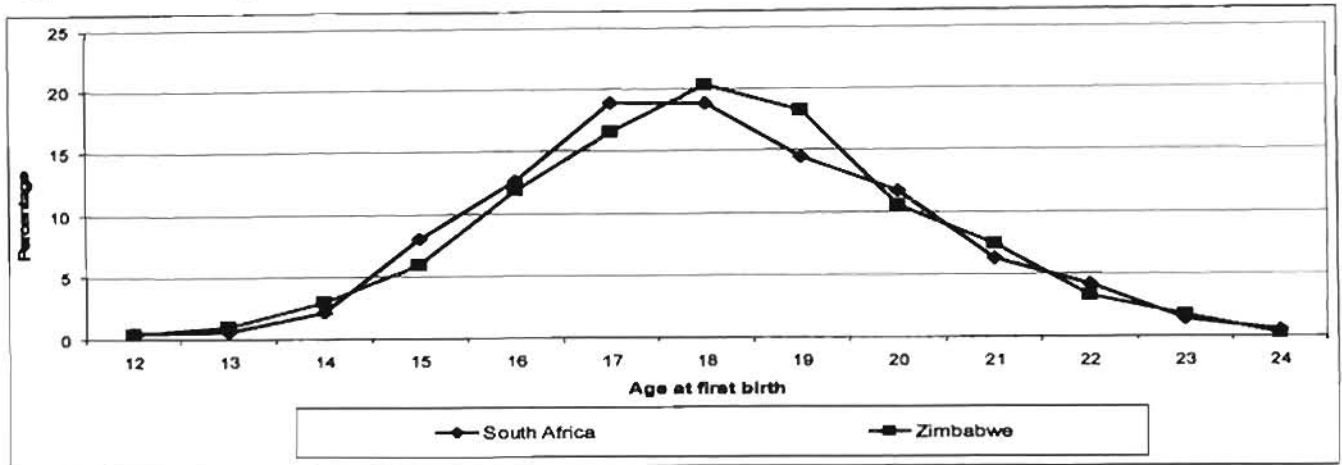
4.1(i) Fertility indicators of early childbearing

Before carrying out the bivariate analysis to examine any relationship between each determinant of early childbearing, it is crucial to note childbearing indicators and their levels among respondents in the sample. The results are presented in Table 4.1 below.

Using the SADHS of 1998 and ZDHS of 1999, Table 4.1 shows that from the sample of 15-24 year-old young women, the proportion of respondents who had given birth at least once, is 35% in South Africa and 42.0% in Zimbabwe, showing a larger proportion of respondents who had given birth in Zimbabwe. Table 4.1 also shows that the percentage of those who had given birth before their 20th birthday is relatively high, 26.5% in South Africa and 32% in Zimbabwe, again showing a higher percentage in Zimbabwe. When comparing these figures with each country's fertility levels, Table 4.1 shows that early childbearing among women between the ages of 15-24 year-olds accounts for 17.7% of all births in South Africa and 27% in Zimbabwe. These statistics represent very high levels of early childbearing, especially in Zimbabwe.

The timing of childbearing in the research of early childbearing is of vital importance, it cannot be ignored. The timing of the childbearing marks the age at which childbearing occurred. The age at first birth is presented in Figure 4.1. It is observed from this figure that the peak age at first birth (age where a higher proportion of respondents in the sample experienced first childbirth), is 17 years for South African respondents and 18 years for Zimbabwean respondents, showing that childbearing in South Africa is much earlier compared to Zimbabwe. Though it was observed in table 4.1 that a higher proportion had a child before the age 20 years in Zimbabwe than in South Africa, figure 4.1 confirms that a higher percentage of birth level in Zimbabwe is after the age of 18 years, while in South Africa it is before 18 years. It is observed that owing to these high levels of early childbearing, it is worth examining the determinants that contribute to sexual behaviour and choices among young Sub-Saharan African women. This is therefore the major aim of this dissertation.

Figure 4.1: Timing of childbearing in South Africa and Zimbabwe



*** $P=0.000$, significant at 0.1% level

4.1(ii). The percentage of women who had given birth according to selected determinants

For the investigation of the significant determinants related to sexual behaviour choices or early childbearing, a bivariate analysis was carried out. In this analysis, cross tabulations were performed to illustrate any eminent relationship between early childbearing and the selected determinants to early childbearing. These determinants include the individuals', socio-economic status, family socialisation characteristics, and contraceptive factors. Such determinants include childhood place of residence; highest level of educational attainment; population group; marital status; socio-economic status; the age and sex of the household head; and contraceptive knowledge and use. Before examining any relationship between these determinants and early childbearing, the test for the statistical significance of each determinant contributing to early childbearing, was performed. The Chi-Square statistics test was used. The results are presented in table 4.2 below. The dependent determinant used for this analysis refers to whether a respondent had given birth or not, that is "childbearing status".

Table 4.2: Percentage of respondents who had given birth according to selected determinants

| Determinants | Had a given birth | |
|-----------------------------------|--------------------------|----------------------|
| | South Africa % N=1556 | Zimbabwe % N=1269 |
| Age-group | | |
| 15-19 | 13.21 | 16.2 |
| 20-24 | 58.29 | 69.3 |
| Childhood residence | | |
| <i>Urban</i> | 27.38 | 36.84 |
| <i>Rural</i> | 40.67 | 42.95 |
| Highest level of education | | |
| <i>No-education</i> | 68.72 | 63.34 |
| <i>Primary</i> | 41.61 | 53.43 |
| <i>Secondary</i> | 33.57 | 35.22 |
| <i>Highest</i> | 24.57 | 29.06 |
| Ethnic groups | | |
| Non-Africans | 24.51 | |
| Nguni | 37.39 | |
| Sotho | 35.53 | |
| Venda/Tsonga | 46.22 | |
| Shona | | 38.2 |
| Ndebele | | 55.2 |
| Marital status | | |
| Not in a union | 28.37 | 8.88 |
| Socio-economic Status | | |
| Low | 46.7 | 44.69 |
| Middle -low | 42.41 | 43.63 |
| Middle-high | 34.64 | 49.21 |
| High | 22.94 | 30.21 |
| Age of the household head | | |
| 14-34 | 48.3 | 62.51 |
| 35-54 | 29.12 | 28.29 |
| 55+ | 35.34 | 34.31 |
| Sex of household head | | |
| Male | 32.8 | 44.86 |
| Female | 37.0 | 37.42 |
| Contraceptive use | | |

| | | |
|--------------------------------|-------|-------|
| Never use | 10.13 | 11.14 |
| Ever use | 52.2 | 88.67 |
| Contraceptive knowledge | | |
| No | 6.15 | 3.87 |
| Yes | 36.69 | 43.36 |
| Timing of sexual debut | | |
| By age 15 | 53.88 | 73.6 |
| By age 16-17 | 53.74 | 76.47 |
| By age 18-19 | 50.70 | 70.84 |
| By age 20 | 44.14 | 61.03 |

N:B How to obtain the socio-economic status indicator is discussed in chapter three. These results are based on weighted data; all the determinants are significant at 0.05% level

Table 4.2 reports the percentage of respondents between the ages 15-24 years who had experienced childbearing according to selected determinants. The results from the chi-square test confirm that all determinants are significant to early childbearing at 0.05% significance level. In both countries, there seems to be a major rural-urban differential of early childbearing. In this dissertation, the childhood place of residence refers to the residential area in which the respondent lived during their childhood stage (childhood stage refers to the stage from the age of 0-18 years). According to the World Health Organisation (WHO, 1998), a person is considered a child until the age of 18 years. The results in table 4.2 show that a large proportion of respondents, who experienced early childbearing, lived their childhood life in rural areas compare to their counterparts, who lived in urban areas during childhood period. This is observed in both countries.

According to the highest level of education, table 4.2 shows that the higher the level of education attained, the lower the proportion of respondents who had given birth. The proportion of women with no education, who had experienced early childbearing is almost triple, the proportion of women, with a higher level of education.

Another determinant contributing to early childbearing and overall fertility suggested repeatedly in fertility literature is ethnicity. Results in table 4.2 show that a larger proportion, that had given birth is among the Venda/Tsonga ethnic group, and followed by respondents from the Nguni ethnic group. The lowest proportion is observed for women from non-African ethnic group. In

Zimbabwe, a larger proportion of respondents who had given birth are observed among women from the Ndebele ethnic group (55%).

Table 4.2 also presents the percentage of respondents who had given birth according to marital status and household socio-economic status. It is observed from the table that a higher proportion of respondents who had given birth, are among women who have been in a union compared to women who have not been in a union. Literature supports these findings and suggests that high childbearing among women in a union is related to general factors, such as high frequency of sexual intercourse, the desire to have children, as well as the pressure to prove fertility in a union (Barrett, 1971; Preston-Whyte et al. 1990; Bongaarts, 1996). According to Garrene and Kahn (2000), union and marriage is almost the same concept. Research generally accepts that marriage is related to fertility and it is one of the proximate determinants of fertility. This is evident in sub-Saharan Africa and in other European countries such as France and Sweden. In these countries (France and Sweden), the government considered raising the age at which men and women may legally marry, in order to delay the first births, and thus, reduce fertility and growth rates (Duza and Baldwin, 1977). The fact that marriage rates have drastically declined in South Africa, and the age at first marriage is increasing, can not be dismissed or ignored.

In this dissertation, the findings reveal that marriage levels are higher in Zimbabwe compared to South Africa. In South Africa, only approximately 11% of the sample of women between the ages 15-24 years have been married, while in Zimbabwe, almost half in the sample of the same age group have been married (45.9%). Furthermore, the results show that early childbearing, in Zimbabwe, is most likely to take place within a union compared to South Africa. Only 8.9% of childbearing was not in a union, while in South Africa, about 28% of childbearing was out-of-wedlock. Factors contributing to the decline of marriage levels in South Africa include increasing levels of education, urbanisation, economic opportunity and new attitudes and preferences such as delaying first marriage and achieving a desired family size Garrene and Kahn (2000).

Socio-economic status of the household also plays a role in influencing early childbearing, according to previous studies related to fertility. In this dissertation, the findings indeed show a negative relationship between socio-economic status and early childbearing. Table 4.2 shows that

the higher the socio-economic status maintained in the household, the lower the proportion of respondents who had given birth before age 24, in South Africa. This is because a household with a higher socio-economic status is likely to have resources, that can contribute to education and health services for the respondents and these households are more likely to be found in urban areas. The literature review, in chapter 2 of this dissertation, proved that all these factors contribute to lower rates of fertility, in any given society. However, in Zimbabwe, a larger proportion of women, who had given birth, are from households with middle-high socio-economic status compared to women from any other socio-economic status.

As discussed in chapter 3, family socialisation determinants are very important as predictors of early childbearing. These determinants include the age and the sex of the household head. According to Djamba (1997), these determinants cannot be ignored. Table 4.2 indicates that the proportion of respondents, who had given birth according to the age of the household head, is higher when the household head is young or older (household head between the age groups 14-35 and 55+). Table 4.2 shows that in South Africa the proportion of respondents who had given birth, according to the sex of the household head, are lower among respondents who have a male household head, while in Zimbabwe, a higher proportion is observed among respondents from households with female household heads. Statistics South Africa (2002) reports that households headed by a female are generally poorer compared to the households headed by a male. In this report, results show that the female heads of households are less likely to be employed compared to male heads. This might be the reason for higher levels of early childbearing among respondents from households with female heads. To further explain results observed in Zimbabwe and South Africa, the distribution of the sample, according to sex of the household head needs to be considered. The findings regarding this are presented in chapter 3. The results show that the majority of households in Zimbabwe (64%) are headed by a male figure, while in South Africa; the distribution of the sample according to sex of the household head is even, with the difference of only 1.4%, which shows no significant difference of households headed by males or females. This shows a high percentage of single-headed households in South Africa compared to Zimbabwe.

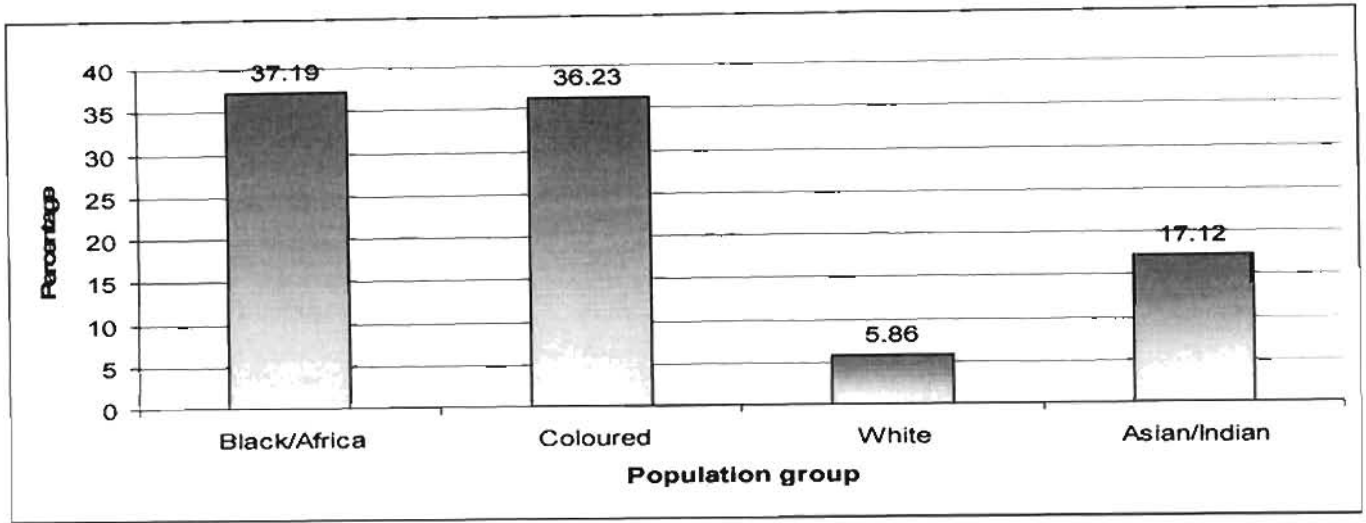
Table 4.2 also shows the percentage of respondents who have given birth according to contraceptive knowledge and use. A large proportion of respondents who had given birth are

observed among respondents who have used contraceptive methods (52% and 88%, South Africa and Zimbabwe respectively). Again, a large proportion of respondents who had given birth are observed among respondents who have contraceptive knowledge, (37% and 43% South Africa and Zimbabwe). Previous research suggests that contraceptive use is directly related to low levels of fertility. In this research, it is deduced that contraceptive use does not result in lower levels of early childbearing. Factors such as inconsistency of use and non-use, before the first conception might have played a major role in these findings

In this research, high levels of early childbearing among respondents who have ever used any contraceptive method can be justified. Firstly, the question which has captured the status of contraceptive use does not reflect if the contraceptive method was used properly and consistently. Secondly, numerous studies suggest that, contraceptive use is common in the majority of women after their first birth. Therefore, since the sample size of this research consists of young women between the ages 15-24, the majority has one child, and their use of a contraceptive does not mean that they have been using the contraceptive before conception of the child. There might be other reasons to justify this pattern, but that is not in the interest of this paper.

Lastly, table 4.2 presents the proportion of respondents who had given birth, according to age at sexual debut. Results clearly show that a large proportion of those who have given birth are among respondents who had started sexual intercourse earlier compared to others who had started, later in their lives. In Zimbabwe, the largest proportion of respondents who had given birth are among respondents who started sexual intercourse by age 16-17 years (76.47%), while in South Africa, the age of those who had started sexual intercourse by the age of 15 years is 53.88%. The lowest proportion of respondents who had given birth are among respondents who started sexual intercourse by the latest age (20 and above), both in South Africa (44.03%) and Zimbabwe (61.03%). It is also clear that in Zimbabwe the levels of those who had started childbearing is high at each age category of sexual debut. The proportion of respondents who had given birth was also examined according to population group, see figure 4.2.

Figure 4.2: Percentage of respondents who had given birth by population groups in South Africa.



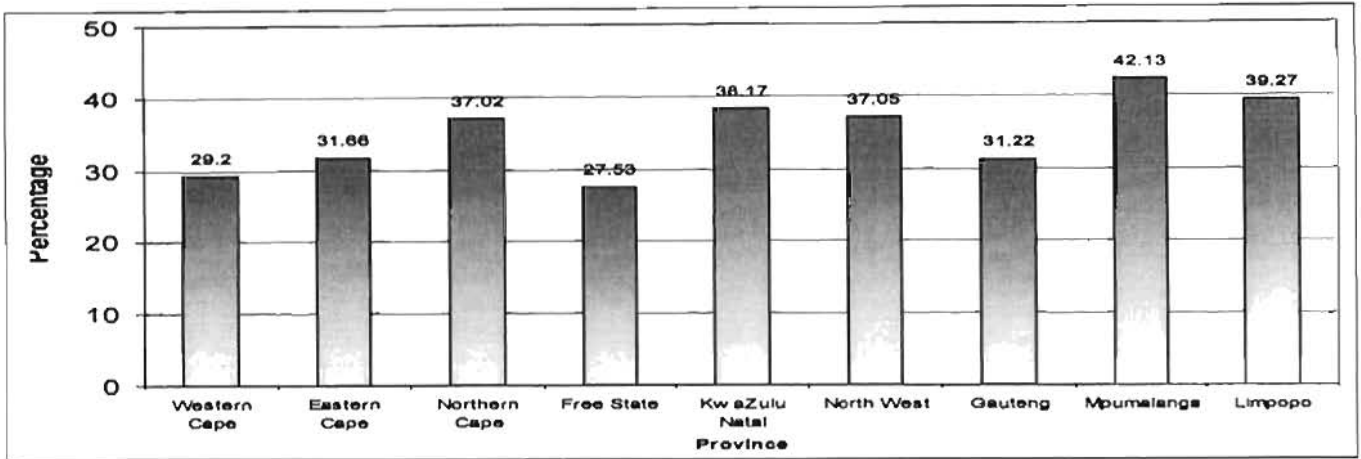
Pr=0.000, significant at 0.01% level

Results in figure 4.2 above show the proportion of respondents who had given birth among 15-24 year old women according to population groups (i.e. African/Black, Coloureds, Whites and Indians) in South Africa. As mentioned in chapter 3, owing to the historical background of South African citizens, population group differentials, on fertility, cannot be ignored. The figure above shows that childbearing in South Africa varies according to population groups. A larger proportion of respondents who had experienced childbearing are Black/African and Coloured (36.7% and 36.2% respectively). Indians and Whites have the most significant lowest levels of early childbearing (6% and 17% respectively).

Region is also one of the most important factors in terms of fertility differentials. This determinant allows for the observation of childbearing according to the distribution of respondents in the country. The results in figure 4.3 below show that in South Africa, a lower proportion of respondents who had given birth are from Free State, Western Cape, and i.e. 27.4%, 29.6%, and 31.5% respectively. A larger proportion of respondents who had given birth are observed in Mpumalanga (42.13%) and Limpopo Province (39.27%). Higher levels of early childbearing in these provinces might be related to the characteristics each of these provinces poses. The comparison study of 1996 and 2001 census results show that these two provinces are among the poorest provinces in the country. The report shows very low occupation levels in these provinces,

Mpumalanga (4%) and Limpopo Province (3%). These provinces also have the highest rates of people with no education and are more rural areas in South Africa compared to other provinces (Statssa Report, 2002). Chapter 3 proved that these characteristics are globally linked to high levels of fertility.

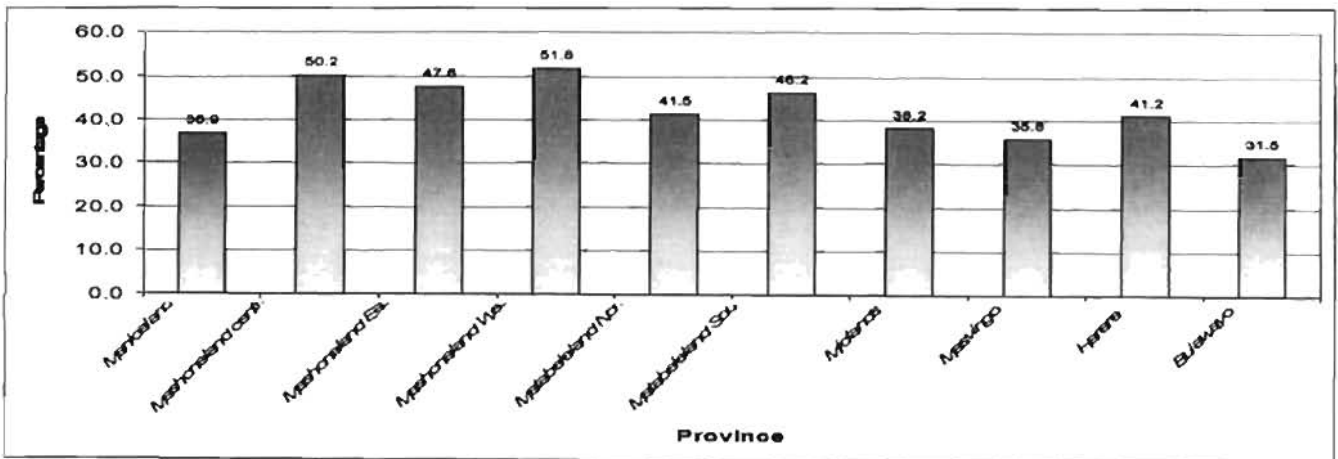
Figure 4.3: Proportion of respondents who had given birth by region in South Africa.



Pr=0.000, significant at 0.1% level

Figure 4.4 below shows that the lowest proportion of respondents who had given birth are among respondents from Bulawayo (31.5%), Masvingo (35.1%) and Manicaland (35.9%). A larger proportion of respondents who had given birth are among respondents from Mashonaland West (51.8%) and Central (50.2%).

Figure 4.4: Proportion of respondents who had given birth by region in Zimbabwe



Pr=0.000, significant at 0.1% level

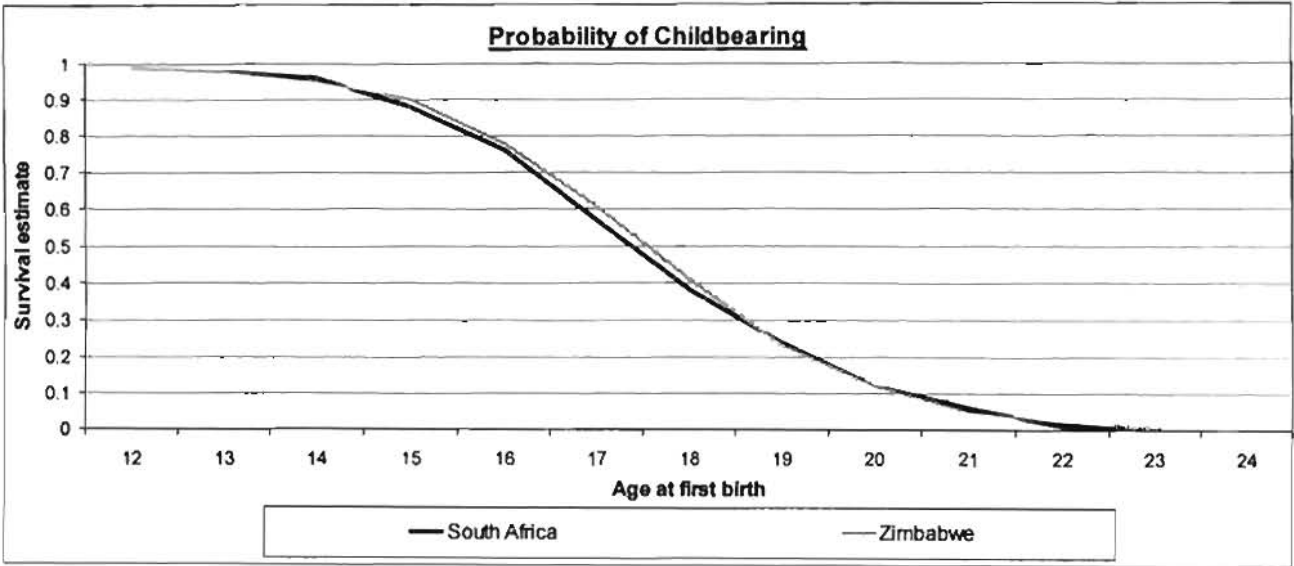
4.2 The analysis of determinants of early childbearing using survival analysis

This section is two-fold. It presents and discusses the probability or survivorship of childbearing, at any given age, according to each selected covariate/determinant of childbearing using SADHS of 1998 and ZDHS of 1999. The selected covariates are childhood residence, highest level of education, ethnic group, marital status, socio-economic status, sex and the age of the household head, the use and knowledge of a contraceptive method. The Kaplan-Meier method was used to perform this analysis. After the discussion of the probability of early childbearing at a given age, according to selected determinants of early childbearing, the levels of risk of early childbearing are assessed for each mentioned determinant, contributing to early childbearing. During this discussion, determinants which have the lowest levels of risk of childbearing will be taken as weak determinants of early childbearing, while those which have higher levels of risk will be considered as major determinants, contributing to early childbearing. The discussion will include the comparison of findings in South Africa and Zimbabwe.

4.2 (i) The probability or survivorship from early childbearing in South Africa and Zimbabwe

As explained in the research methodology chapter, data is analysed using survival analysis. To obtain the probability or survivorship of early childbearing at any given age, the Kaplan Meier survivor estimator was used. The Kaplan-Meier survivor estimator is a running product of the values of p (*probability*), which refers to the probability/survivorship from childbearing at a given age. The values of the survival estimate range from 0 to 1. The value of 1 at any given age shows a 0 probability of early childbearing at that particular age. For example, the survival estimate value of 0.5 at the age of 17 shows that by that age, 50 % of respondents had given birth. The closer the survival estimate values to 0 at any given age, the higher the probability of childbearing at that particular age, or a higher curve, shows less probability of childbearing or a higher survivorship from childbearing (later childbearing). Figure 4.2.1 below shows the probability of childbearing, between the ages of 12-24 among South African and Zimbabwean respondents, who are between the ages 15-24 years.

Figure 4.2.1: The probability of childbearing in South Africa and Zimbabwe



The findings show that at ages 12 to 14, the probability of childbearing in South Africa and Zimbabwe is almost the same. The slight difference between the South African and Zimbabwean probabilities of childbearing occurs between the ages of 15 to 18 years. A slightly higher probability of childbearing at the ages of 15-18 is observed in South Africa. At other ages, the probability of childbearing is the same for South African and Zimbabwean respondents. The rest of the figures below assess the probability of childbearing, at any given age, according to selected determinants of early childbearing.

Figure 4.2.2: The probability of childbearing according to ethnic group

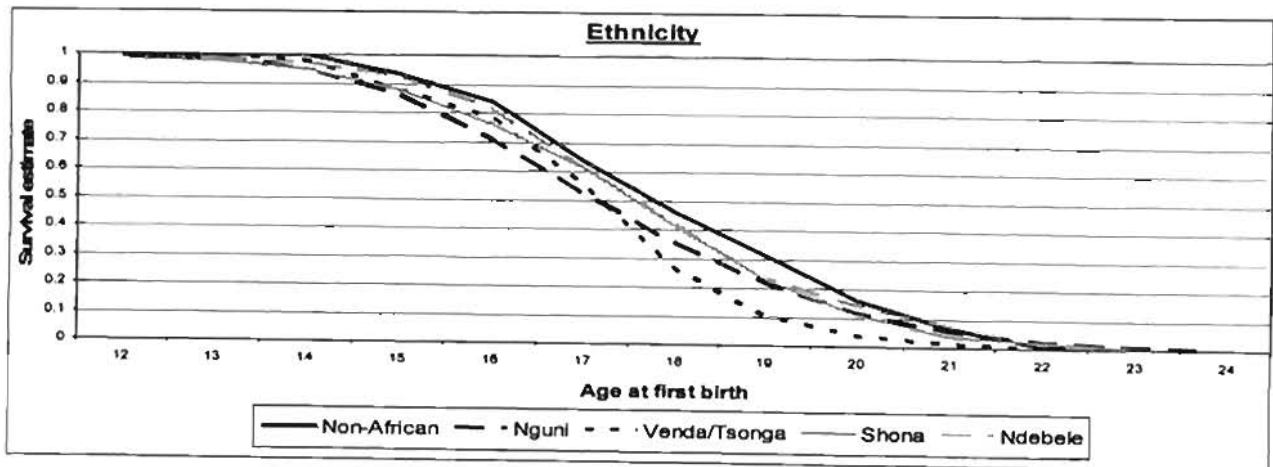
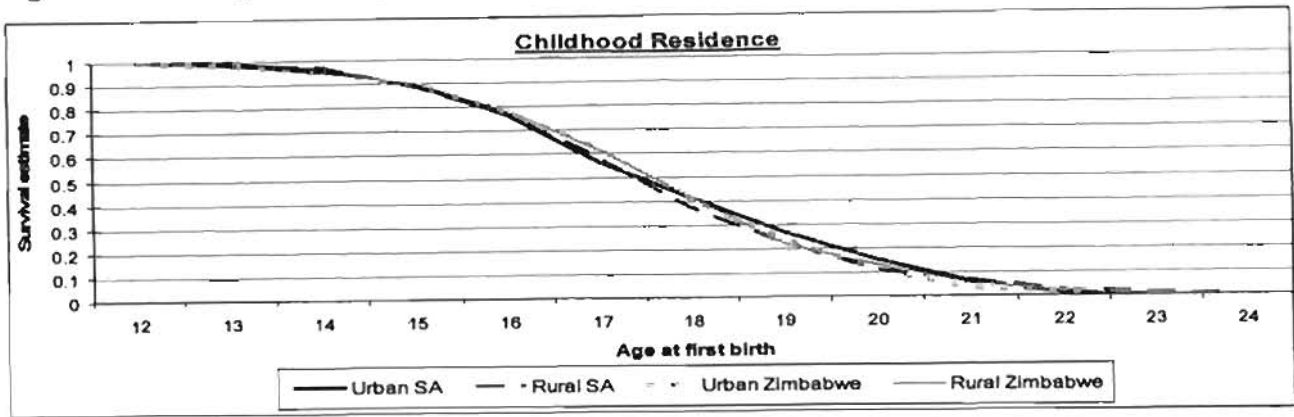


Figure 4.2.2 above indicates the probability of childbearing according to ethnic groups in South Africa and Zimbabwe for only Blacks/Africans. The first four ethnic groups, non-African; Nguni, Sotho, and Venda/Tsonga are ethnic groups in South Africa and the rest; (Shona and Ndebele) are ethnic groups in Zimbabwe. There is a difference in curves for each ethnic group. The survivorship from childbearing is low among women from non-African ethnic groups, at any given age at birth compared to women from any other ethnic groups. For the Nguni ethnic group, the probability of giving birth is highly experienced at the ages 14 to 17 years. Among respondents from the Venda/Tsonga ethnic groups, the probability of childbearing is high from the ages 17-24, indicating highest childbearing, compared to any other ethnic groups in South Africa and Zimbabwe. In South Africa, respondents from the Sotho ethnic group have the lowest probability of childbearing, at any given age, compared to respondents from any other South African ethnic group. In Zimbabwe, there is a little difference between the probability of first childbearing among respondents from the Shona and Ndebele ethnic groups. These results support the earlier findings observed during the examination of the relationship between early childbearing and ethnic groups. The results revealed that the Venda/Tsonga ethnic tribes experience high childbearing levels, compared to the rest of the ethnic groups in South Africa, while in Zimbabwe, respondents from the Ndebele groups,, have the highest early childbearing level.

According to childhood place of residence, figure 4.2.3, shows no difference of survivorship from early childbearing, among respondents who lived their childhood either in urban or rural areas. During bivariate analysis previously, the findings showed that a larger proportion of respondents who had a birth, lived their childhood in rural areas, both in South Africa and in Zimbabwe. This shows that the childhood place of residence does not necessarily influence early childbearing. Rather, the current place of residence, during birth, plays a much more significant role.

Figure 4.2.3: The probability of childbearing according to childhood residence



As far as the level of education and childbearing is concerned, figure 4.2.4 and 4.2.5 below shows a huge difference of survivorship from childbearing by the different levels of education, in South Africa and Zimbabwe. It is clear that the highest survivorship, at each given age, is among respondents who have a higher level of education. In Zimbabwe, the results show that the survivorship from childbearing, at ages 12 to 18 years, among respondents with a secondary level of education, is almost the same as the probability of childbearing among respondents, with a higher level of education. This is because, at those ages (12-18), respondents are less likely to have higher levels of education, which is why there is a clear difference between the survivorship from childbearing among respondents with primary, secondary and higher level of education, is observed after the age of 18 years.

The survivorship from childbearing is lowest when respondents have primary levels of education, in both countries. These results provide evidence that the higher the level of education attained by respondents, the higher the survivorship from childbearing. It should be noted that there are shortcomings with the determinant, level of education. For example, the level of education is merely a function of age. The age of the respondent is most likely to determine the grade or the level of education attained by respondents. In addition, the question used, to capture the level of education, refers to the current educational level attained, during the survey, which does not reflect the level of education attained when a particular respondent gave birth. The results observed will be taken into account, since numerous studies have provided enough evidence to suggest that the characteristics of respondents, with a primary level of education are different from the characteristics of respondents with secondary and higher levels of education. For example, the

literature review showed that respondents, with a secondary level of education, make better sexual behavioural decisions compared to respondents with a primary level of education. Likewise, respondents, with a higher level of education, are also found to make better sexual behavioural decisions, compared to respondents with a secondary level of education. In Zimbabwe, the probability of childbearing at any given age of giving birth is higher among women with no education, compared to women, without any education, in South Africa.

Figure 4.2.4: The probability of childbearing according to level of education in South Africa

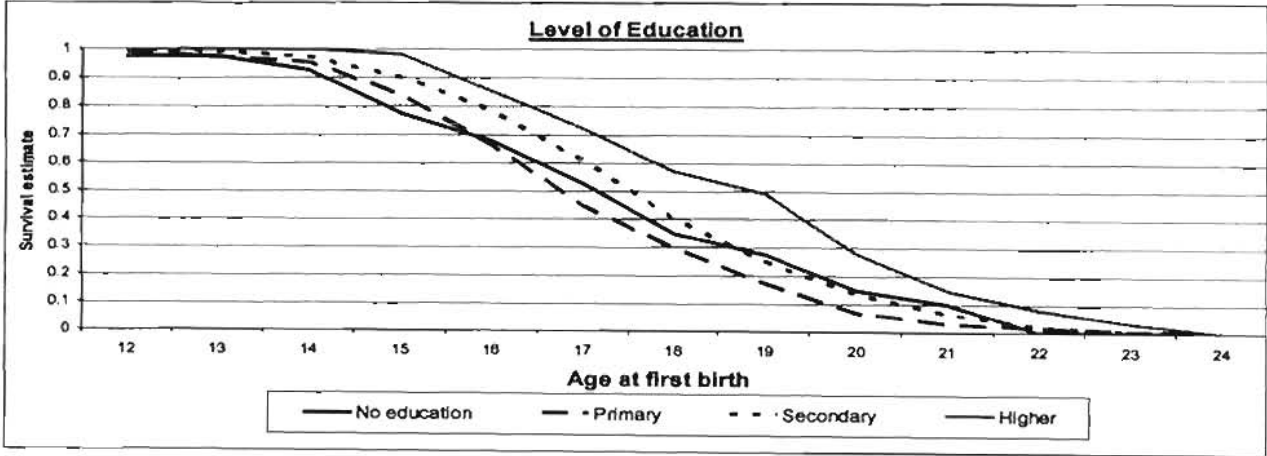
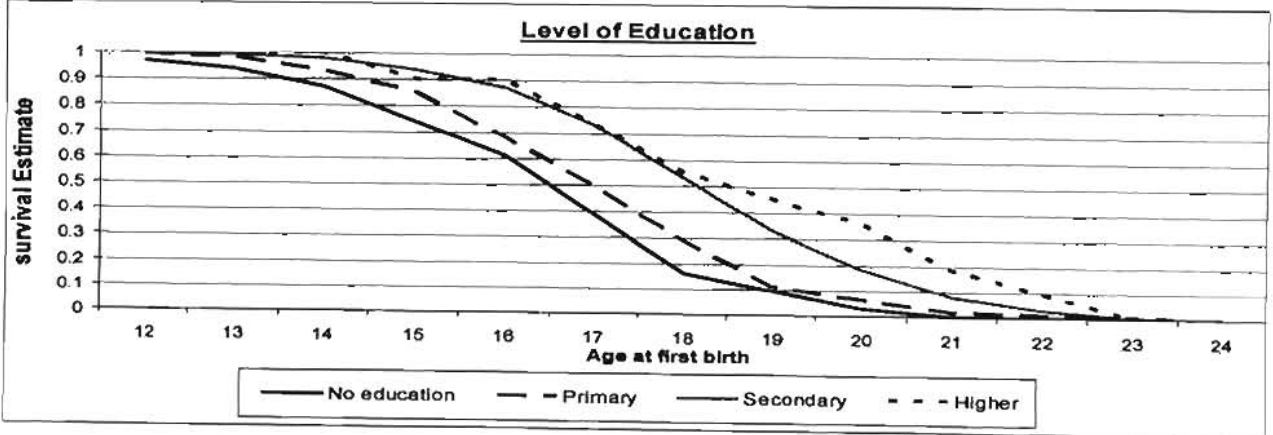


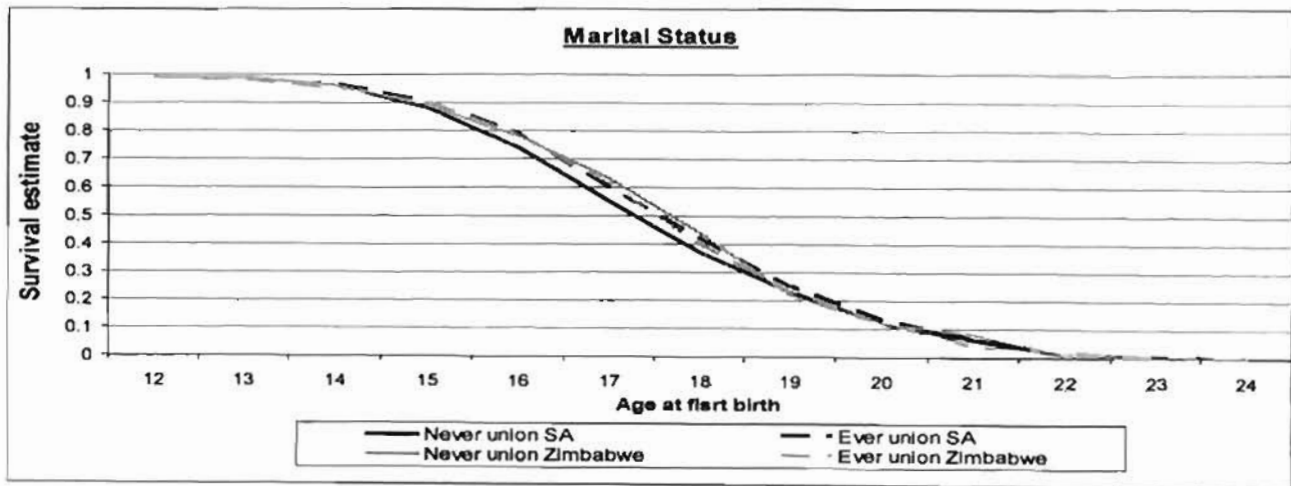
Figure 4.2.5: The probability of childbearing according to level of education in Zimbabwe



The survivorship from childbearing was further explored according to marital status. Figure 4.2.6 below shows the survivorship from childbearing of respondents, who are in a union, in South Africa and Zimbabwe. In South Africa, the survivorship from childbearing, at each age, is higher among respondents who are in a union, compared to respondents who have never been in a union.

In Zimbabwe, the results show that the survivorship from childbearing is almost the same among those who have been in a union or not. This is owing to a larger proportion of married respondents in Zimbabwe, compared to South Africa. Results in this dissertation show that only 11% of respondents in South Africa are in a union compared to about 45.9% in Zimbabwe. The findings also might be related to the way marriage is perceived in these two countries, and the way the information related to marital status was obtained during the survey. In South Africa, first births are generally conceived out-of-wedlock, although societies do not approve, they can tolerate it. Marriage in South Africa is not as well respected as it is in Zimbabwe. A report from Statssa (2002), shows that households headed by females are increasing, showing a drop of marriage levels. In Zimbabwe, out-of-wedlock births are not tolerated at all. Unwed fathers are forced to wed the mother of their child and that conception is recorded as a birth within a union. Furthermore, the question regarding marital status from the questionnaire, during the survey, only captured current marital status, which does not necessarily reflect, if respondents were married the time, they had their first birth.

Figure 4.2.6: The probability of childbearing according to current marital status



The effect of socio-economic status is one of the determinants of early childbearing, which this dissertation is interested in exploring. The probabilities of childbearing, according to socio-economic status of the household of respondents in South Africa and Zimbabwe are provided in figures 4.2.7 and 4.2.8, below respectively. A higher survivorship from childbearing is observed among respondents from households with higher socio-economic status, in both South Africa and

Zimbabwe. The survivorship from childbearing is lower when the socioeconomic status of the household is low, especially in Zimbabwe. In South Africa, the lowest survivorship from childbearing is observed at ages 15 to 18 years. Although this pattern is not common, childbearing is generally linearly related to the level of socio-economic status of the household. The observed pattern might be related to the shortcoming of the determinant, socio-economic status. This may rest on the fact that the question used to capture the socio-economic status uses the current socio-economic status of the household, which may not reflect on the socio-economic status of the respondents, when they had a first birth.

Figure 4.2.7: The probability of childbearing according to socio-economic status in South Africa

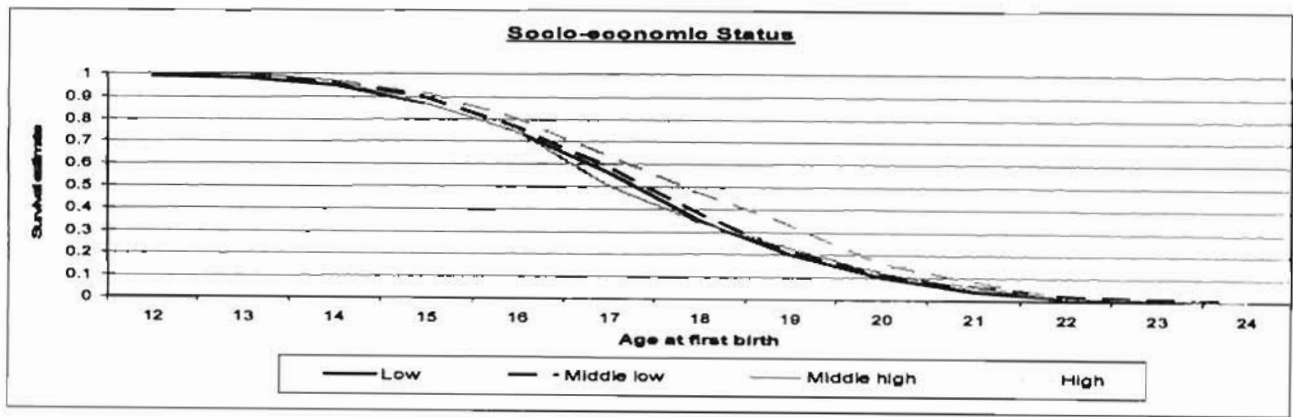


Figure 4.2.8: The probability of childbearing according to socio-economic status in Zimbabwe

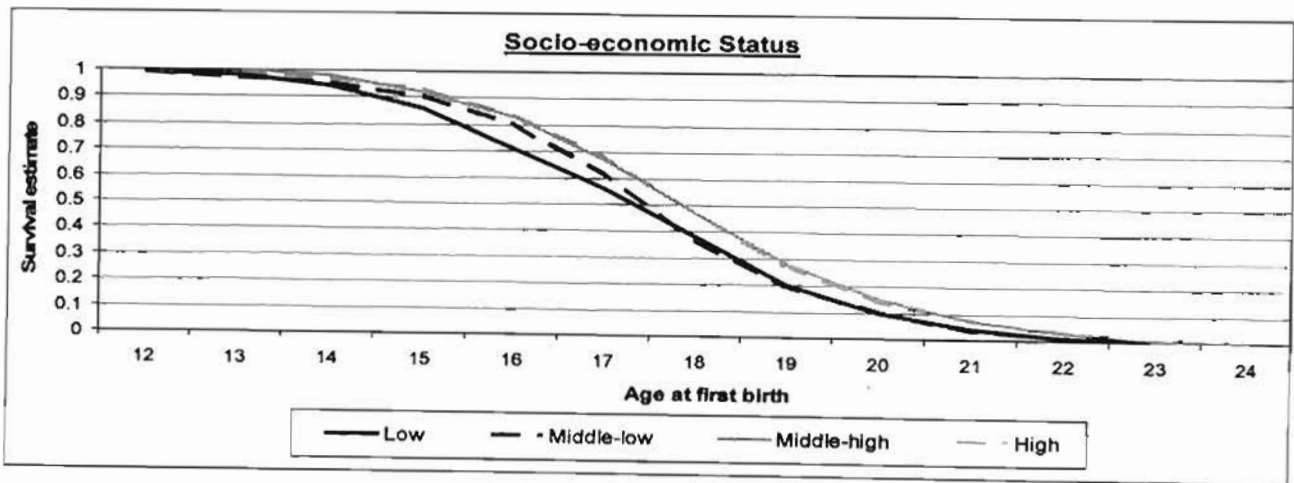


Figure 4.2.9, below, indicates the probability of childbearing, according to the sex of the household head. The results in figure 4.2.9 indicate that there is no difference between the survivorship from childbearing according to the sex of the household head, in Zimbabwe. In South Africa, a lower survivorship is observed among respondents from households, headed by males between the ages 15 to 18. These results support the hypothesis, which suggests that the presence of a female figure positively influences the choice of sexual behaviour of a girl-child, in the household.

Figure 4.2.9: The probability of childbearing according to sex of the household head

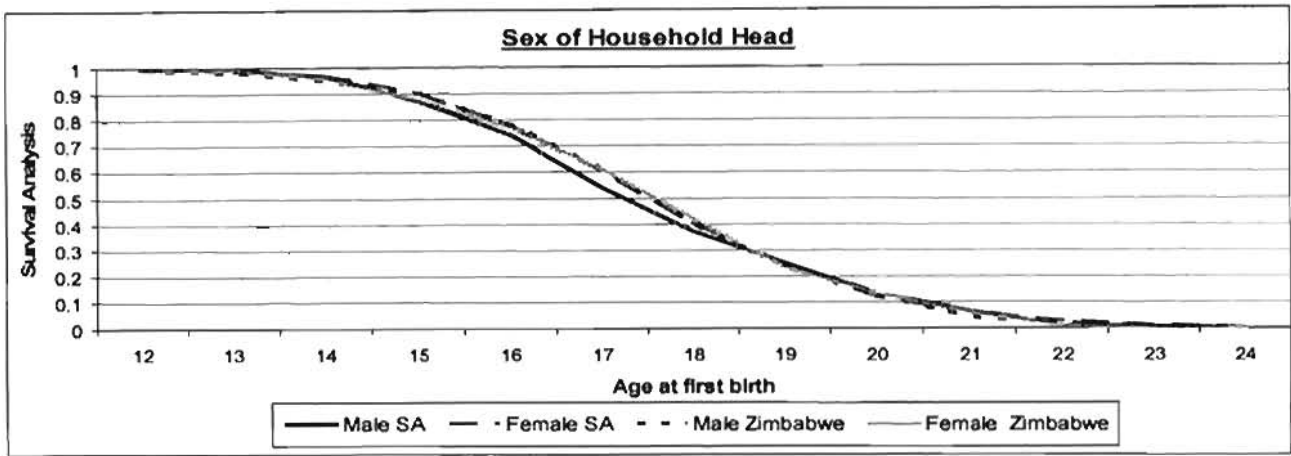


Figure 4.2.10, below, shows the probability of childbearing, according to contraceptive use, among respondents in South Africa and Zimbabwe. In both countries, there seems to be no difference in the probability of childbearing, according to contraceptive use. This does not imply that contraceptive use does not influence childbearing. The shortcomings of this determinant, contraceptive use, in this dissertation, might relate to the fact that the question regarding contraceptive use status asked during the survey does not reflect if the contraceptive was used before the first birth. Research shows that the majority of women use contraceptives after the first pregnancy. This might be the reason to justify the findings observed in figure 4.2.10 below. Numerous studies (see chapter 2), accepted that there is a low level of contraceptive use among adolescents. The next section presents regression analysis findings.

Figure 4.2.10: The probability of childbearing according to contraceptive use

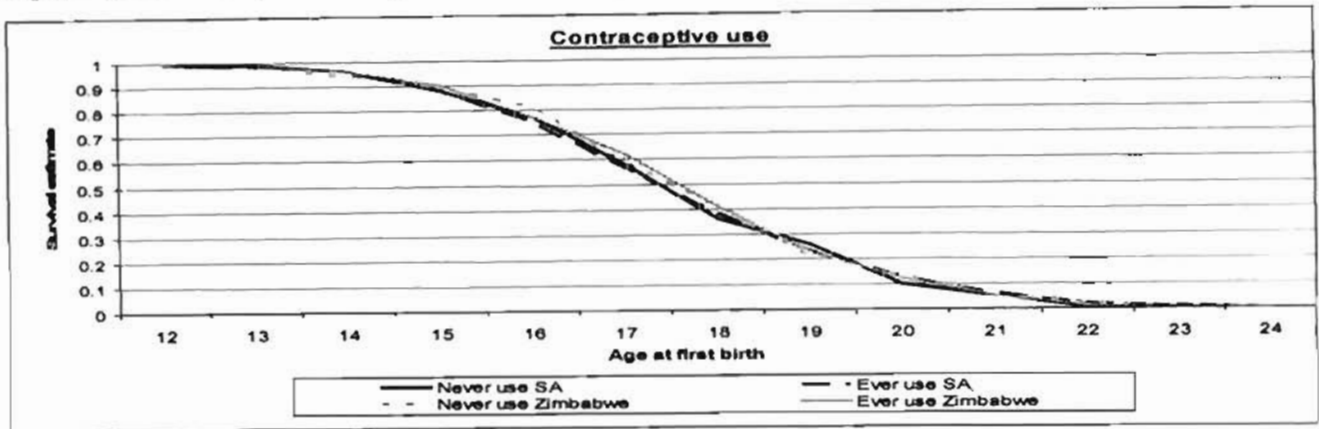


Figure 4.2.11: Probability of childbearing according to sexual debut in South Africa

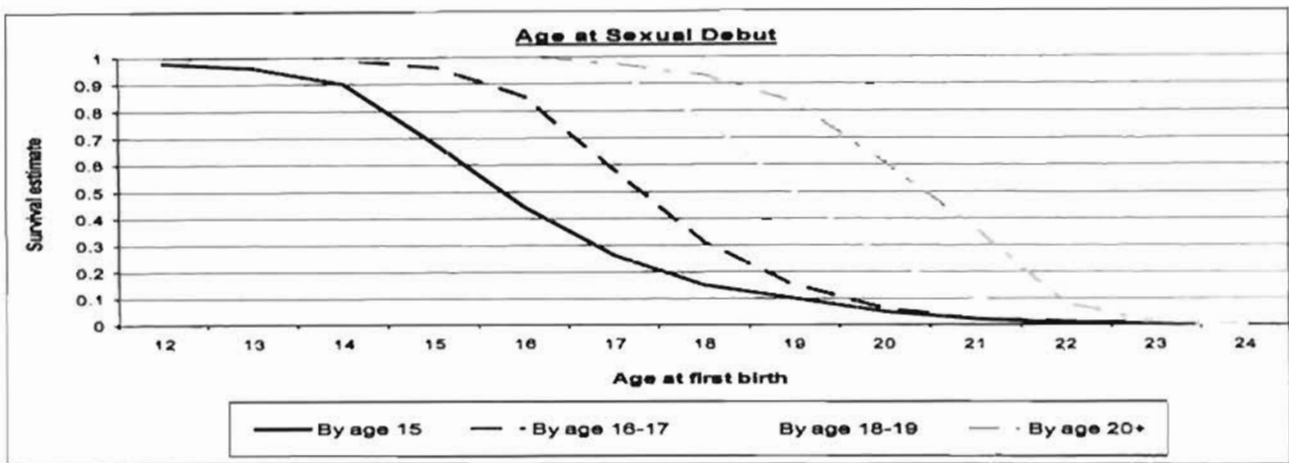
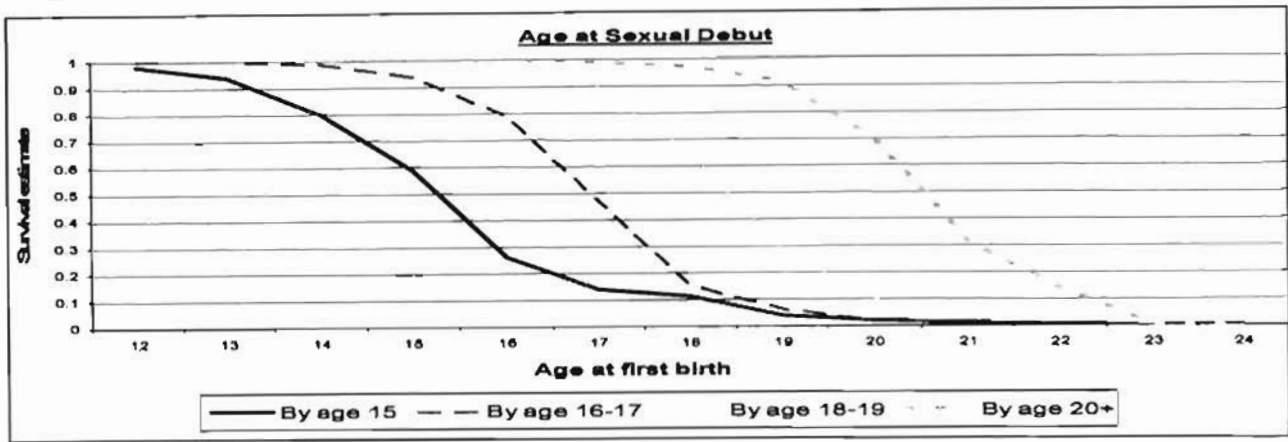


Figure 4.2.11 and 4.2.12 show the survivorship from childbearing, according to the age at first sexual intercourse, in South Africa and Zimbabwe respectively. In South Africa and Zimbabwe, figures 4.2.11 and 4.2.12 show that there is a huge difference between the survivorship from childbearing, according to the time sexual intercourse was initiated. These two figures clearly show that the earlier respondents engage in sexual intercourse, the lower the survivorship from childbearing at any given age. In both countries, respondents who have started sexual intercourse by the age of 15 years, have the lowest survivorship from childbearing, compared to respondents who have started later. Results also show that of respondents who engaged in sexual intercourse by the age of 15 years, 50 % of them had given birth by the age of 16 years, in South Africa and 15.5 years in Zimbabwe. Of the respondents who engaged in sexual intercourse by the age of 17 years, 50% had experienced childbearing by the age of 18 and 17 years, in South Africa and Zimbabwe, respectively. Of the respondents who engaged in sexual intercourse by the age of 19 years, by the

age of 20 years 50% had experienced childbearing by the age of 21 and 20 years, in South Africa and Zimbabwe, respectively. Of the respondents who engaged in sexual intercourse by the age of 20 years, 50% experienced childbearing by the age 21, both in South Africa and Zimbabwe. These results show that the earlier sexual intercourse is experienced, the lower the survivorship from childbearing both in South Africa and in Zimbabwe. It is observed by these figures that at each period of sexual debut, women in Zimbabwe are having children at an earlier age compared to South Africa.

Figure 4.2.12: Probability of childbearing according to sexual debut in Zimbabwe



4.2 (ii) The risk level of early childbearing according to selected determinants

The following section explores the risk of early childbearing among women between the ages 15-24 years, in South Africa and Zimbabwe, according to their selected covariates. The risk of childbearing here is determined, using the Cox Proportional Hazard Model. Table 4.3.1 presents the findings from the Cox Proportional Hazard Model, which reports hazard ratios and standard error of the model. In this dissertation, the hazard or risk is the conditional probability of childbearing at a given age, provided that a respondent has not given birth until that age. If T denotes the duration of an event (here the event is first childbearing), then T depends on a number of factors. Such factors in this study are called covariates and are age at sexual debut, childhood place of residence, highest level of education attainment, ethnic group, marital status, socio-economic status, and sex of the household head. A value of a hazard ratio of more than 1 shows a high risk level of early childbearing, while a value closer to 0 shows a very low risk level of early childbearing. The standard error shows the significance level of the determinant, herein the

comparative significance level is 0.05%. The value less and close to 0.05% shows a strong significance level of the determinant, while a value greater than 0.05 shows a lesser significance level of that determinant. Table 4.3.1 shows the hazard ratio, which shows the risk of childbearing according to selected covariates, and standard error, which show the significance level of the hazard ratio of covariates of early childbearing among 15-24 year old women in South Africa and Zimbabwe.

Table 4.2.1: The Cox Proportional Hazard Model, hazard ratio and standard error of covariates in South Africa and Zimbabwe.

| Covariates | South Africa | Zimbabwe |
|-------------------------------------|-------------------|-------------------|
| Sexual debut | | |
| By age 15 =0 | | |
| By age 16-17 | 0.6260 (0.0387)* | 0.5500 (0.0494)* |
| By age 17-18 | 0.3477 (0.0269)* | 0.2642 (0.02481)* |
| By age 20> | 0.2327 (0.030)* | 0.113 (0.01410)* |
| Childhood residence | | |
| Rural=0 | | |
| Urban | 0.8596 (0.0580)* | 0.955 (0.0697)* |
| Level of education | | |
| No education=0 | | |
| Primary level | 1.3032 (0.2333)NS | 0.764 (0.1416)NS |
| Secondary | 1.0970 (0.1926)NS | 0.463 (0.0857)NS |
| Higher | 0.7876 (0.1752)NS | 0.371 (0.1306)NS |
| Ethnic group in South Africa | | |
| Non-Africans=0 | | |
| Nguni | 1.0360 (0.088)* | |
| Sotho | 0.9290 (0.081)* | |
| Tsonga/Venda | 1.2300 (0.172)NS | |
| Ethnic groups in Zimbabwe | | |
| Shona=0 | | |
| Ndebele | | 0.959 (0.0630)* |
| Marital status | | |
| Not in a union=0 | | |
| In a union | 0.9160 (0.0567)* | 0.930 (0.5169)NS |
| Socio-economic status | | |

| | | |
|-------------------------|-------------------|-------------------|
| Low=0 | | |
| Middle-low | 0.9120 (0.0798)* | 0.9843 (0.0789)NS |
| Middle-high | 1.0060 (0.1035)NS | 0.810 (0.06930)* |
| High | 0.9257 (0.1067)NS | 0.820 (0.0727)* |
| Sex of household | | |
| Male =0 | | |
| Female | 0.8961 (0.0490)* | 0.959 (0.0697)* |

*The values in the parenthesis are the standard errors, which show the level of significance. * shows that the hazard ratio is significant at 5% significant level, and NS shows that the hazard ratio is not significant at 5% significance level.*

The results in Table 4.3.1 above present the Cox Proportional Hazard Model in South Africa and Zimbabwe, which report the hazard ratio and standard error values. The covariates of early childbearing assessed in the model include age at sexual debut, childhood place of residence, and highest level of education, marital status, ethnicity, socio-economic status, and sex of the household head. The results from this table show that the risk of childbearing is negatively associated with age at sexual debut in both countries, the higher the age at sexual debut, the lower the risk of childbearing observed. However, the risk of childbearing, according to this covariate, is stronger in South Africa than in Zimbabwe, for each age at sexual debut. The results read as follows; a respondent in South Africa and Zimbabwe who started sexual intercourse by the age 16-17 is at 38% and 45% lower risk of childbearing respectively, compared to a respondent who started sexual intercourse by the age of 15. A respondent who started sexual intercourse by the age 18-19 is at a 66% and 74% lower risk of childbearing in South Africa and Zimbabwe respectively, compared to a respondent who started sexual intercourse by the age of 15. A respondent who started sexual intercourse by the age of 20 is at a 77% and 81% lower risk of childbearing, in South Africa and Zimbabwe, respectively, compared to respondent who started by the age of 15. These findings are supported by the results observed earlier during the bivariate analysis, which showed a larger proportion of respondents who had given birth among respondents, who started sexual intercourse early in life, than those who started sexual intercourse later.

Age at sexual debut

Though the results show that respondents from both countries are at a lower risk of childbearing when the age of sexual debut increases, it is clear that the risk of childbearing is lower at any given age of sexual debut, in Zimbabwe, than in South Africa. The risk of childbearing among women who started sexual intercourse at age 20 and above in Zimbabwe are at almost half the risk of childbearing among South African women. These findings show that the impact of age at sexual debut on childbearing, especially in Zimbabwe, produces stronger hazard ratios than in South Africa. This might be related to the finding observed from previous studies, which reveals that women who delay sexually intercourse are most likely to control their childbearing once they become sexual active. The lower risk of childbearing in Zimbabwe also shows a better distribution and accessibility of contraception compared to South Africa.

Childhood place of residence

According to childhood place of residence, the risk of childbearing is lower among women who lived in urban areas, during childhood, compared to their counterparts who lived in rural areas. This is observed both in South Africa and in Zimbabwe. The results show that women, who lived in urban areas during childhood, in South Africa and Zimbabwe, are at a 15% and 5% lower risk of childbearing respectively. These results show that the effect of childhood place of residence is stronger in South Africa than in Zimbabwe.

Highest level of education

Education remains one of the suggested influential and significant determinants of fertility. For the past four decades, education has been proven to reduce fertility in a remarkable way. It has been generally observed, throughout the years, that educated women delay childbearing and that an increase in the age at first birth could provide women with more time to pursue further education (Gangadharan and Maitra, 2001). In this dissertation, education is also treated as one of the important covariates to explore. In table 4.3.1, above, the highest level of education includes three educational dummies (primary, secondary and higher level of education), the reference dummy being that women have no primary education. Overall results shows that according to level of education attained in Zimbabwe, the increase in education level is associated with a lower risk of childbearing, meaning that the increase in education results in the increase of age at first birth. The

results in Zimbabwe read as follows; women with a primary level of education are at a 24% lower risk of childbearing, compared to women without education, and women with a secondary level of education are at 54% lower risk of childbearing, while women with the highest level of education have a 63% lower risk. In South Africa, women with primary education and secondary level of education are at a 24% and 7% higher risk of childbearing compared to women with no education. This shows an increased level of risk among women with a primary level of education. Though the risk of childbearing among women with a secondary level of education is higher, compared to women with no education, a 7% higher level of risk shows a reduced level from a higher risk level of 24%, which is among women who have a primary level of education. Therefore, it can be concluded that, an increase in the level of education results in a decrease of risk of early childbearing.

In this country, the literature has documented much about non-relationship between low levels of education and childbearing, especially primary education, which sometimes is a positive relationship (Nyamete et al. 1996). The results from this analysis also prove the non-relationship between low levels of education and childbearing. While education has a delaying effect on the age at first birth in South Africa, it appears that the effect of education on childbearing is observable for a higher level of education. Women with a higher level of education are at a 22% lower risk of childbearing compared to women without education. In general, the effect of highest level of education on the risk of childbearing is stronger in Zimbabwe than in South Africa. It can be deduced from these findings that the education system provided in Zimbabwe empowers women to delay their childbearing, compared to the education system offered in South Africa. This might also relate to the fact that the Zimbabwean education includes sexual programs that are not yet included in South Africa during, the time of the survey. As mentioned before, the covariate level of education has constraints, which a researcher cannot do anything about. Such constraints include the limitation that the level of education observed from the data source does not reflect, which level of education was attained, during the year of childbearing.

Ethnicity

For ethnicity differences, ethnic groups included in the model are non-African, Nguni, Sotho and Venda/Tsonga in South Africa. The non-African ethnic group is made of Whites, Coloureds and

Indians. In Zimbabwe, ethnic groups include Shona and Ndebele. The findings in the table above show that women from the Nguni ethnic group are at a 3% higher risk of childbearing, compared to women from the non-African ethnic group. Women from the Sotho ethnic group are at a 8% lower risk of childbearing, compared to women from non-African ethnic group. Women from the Venda/Tsonga ethnic group are at a 23% higher risk of childbearing, compared to women from the non-African ethnic group. These results are supported by the findings observed previously, during bivariate analysis in the first section. The results showed a lower proportion of women, who had given birth among women, who belong to the Sotho ethnic group. A larger proportion was observed among women from the Venda/Tsonga and the Nguni ethnic groups. A higher risk of childbearing among women from the Venda/Tsonga ethnic group might be associated with the socio-economic levels of the province, where the majority of these people originate or reside. The South African Statistics Report (2001) indicates that this province is one of the poorest provinces in the country, coupled with high unemployment levels and low levels of education. These are the determinants proven to increase levels of fertility/early childbearing. In Zimbabwe, Ndebele women are only at a 5% lower risk of childbearing compared to women from the Shona ethnic group. The Zimbabwean Demographic Health and Surveys reveal low levels of education among the Shona people, and their socio-economic status is generally lower, compared to that of Ndebele people. These might be the factors contributing to their higher risk of childbearing.

Marital status

The risk of childbearing according to marital status is presented in table 4.3.1 as well. Generally a higher risk of childbearing is expected among women who are in a union, compared to women who are not in a union. According to Bongaards (1978), marriage or a union is one of the proximate determinants of fertility and childbearing. This relates to other factors involved in a marriage or union, which influence childbearing. Such factors are frequency of sexual intercourse, desire to have children and others prompted by the-in-laws. However, the results in this analysis show that lower risks of childbearing are experienced among women who are in a union, both in South Africa and in Zimbabwe, but showing a small difference of 2%. Results show that in South Africa, women in a union are at a 9% lower risk of childbearing, compared to women who are not in a union. In Zimbabwe, women who are in a union are at a 7% higher risk of childbearing, compared to women who are not in a union. A lower risk of childbearing among South African

women might be related to low marriage levels in South Africa. Only 10% of women in this study are in a union compared to 46% in Zimbabwe. The question used to obtain the marital status, during the survey, put an emphasis on the current status of marriage, which does not reflect if the woman was married during the first birth.

Socio-economic status

The effect of socio-economic status on childbearing in this study is one of the focal points of interest. According to the socio-economic status of the household, the risk of childbearing is 9% lower among South African women, from households with middle-low socioeconomic status, compared to women from low socio-economic status. Among women from middle-high socio-economic status, their risk of childbearing is 1% higher, compared to women from low socio-economic status. For women, from households with high socio-economic status, their risk of childbearing is 8% lower as compared to women from low socio-economic status. From these findings, it is clear that the effect of socio-economic status on the age at first birth is observable only for a higher socio-economic status of the household. In Zimbabwe, women from the households with middle-low socio-economic status are at a 2% lower risk of childbearing, compared to women from household with low socio-economic status. Women from a middle-high socio-economic status household are at a 19% lower risk of childbearing, compared to women from household with low socio-economic status. Women from a household with high socio-economic status are at 18% lower risk of childbearing, compared to women from household with low socio-economic status. These results show that the higher the level of socio-economic status of the household, the lower the risk of childbearing. In chapter 2, the literature review showed this relationship.

Sex of the household head

Some research suggests that the sex of the household can influence sexual behaviour of a girl-child. In patriarchal societies, the presence of a male figure in the household is most likely to influence lower levels of early childbearing. In such societies, girl-children honour their fathers and delay childbearing until they are married. In contrast, within the modernised societies, the presence of a female figure as head of the household could also result in a lower level or risk of childbearing, since a female figure can advise a girl-child on a positive life style, which demands

childbearing delays. This covariate was tested in the analysis. The results show that South African women from households headed by a female are at an 11% lower risk of childbearing, compared to women who are headed by a male. Among Zimbabwean women, those who come from a household headed by a female are at a lower risk of 5%, compared to women from a household headed by a male. The results show that Zimbabwe has a stronger hazard ratio compared to South Africa. The results provide evidence to accept the hypothesis that adolescents from household headed by a woman have a better association about sexuality and reproduction, which influences their decision to delay their first birth. This also confirms that South Africa is shifting away from the patriarchal system to urbanisation and modernisation, where the female figure is open about the issues related to adolescent sexuality, behaviour and reproduction.

4.3. Conclusion

This chapter aimed to provide data analysis and the discussion of the findings. In the first section, indicators of early childbearing from the sample were provided. The results show that 34.9% and 42% of respondents in the sample had at least given birth once in South Africa and Zimbabwe respectively. The indicators also show that births before the age of 20 account for 27% and 32% of births among 15-24 year old women, in the sample in South Africa and Zimbabwe, indicating higher levels of early childbearing in Zimbabwe, than in South Africa. To test for the significance level of the determinants contributing to early childbearing, the Chi-square test was used. It was found that all the determinants were significant at 0.01% level. These determinants include sexual debut, childhood place of residence, and highest level of education attained, ethnic group, marital status, socio-economic status, and the age of the household head.

During the survival analysis, the Kaplan-Meier survival estimator was used, to determine the survivorship/probability of childbearing at any given age at birth. The probability of childbearing was found significant, when childbearing was assessed according to age at sexual debut, ethnicity, highest level of education, the socio-economic status and the sexual debut. For other determinants of early childbearing, such as the age of the household age, their survivorship was not significant. The results on these determinants did not reveal any differences according to these determinants. Owing to this shortcoming, these determinants were omitted from further analysis.

Further analysis was performed to observe the risk of early childbearing. To achieve this analysis, the Cox proportional Hazard Model was estimated, for both South Africa and Zimbabwe. The model included demographic characteristics, such as age at sexual debut, marital status, individual characteristics, such as childhood place of residence, level of education and ethnicity. From the household characteristics, only the socio-economic status of the household was examined. This is because other household characteristics can be explained using the socio-economic status. For example, household characteristics, such as the age of the household head and the sex of the household are interlinked to socio-economic status, because the age of the household head is likely to determine the economical active status of the household head. Research shows that younger household heads are most likely to be unemployed, which may lead to a low socio-economic status (Statssa Report, 2002). Again, this report reveals that a household headed by females is most likely to be poor, compared to a household headed by a male, in this report, a higher employment rate is observed among men than women.

However, sex of the household head does not only show the socio-economic status of the household. It also shows that the socialisation between the household head and the girl-child may influence the adolescent's sexual decision-making in a household. When the risk of childbearing, according to sex of the household was tested, results showed that indeed, adolescents from a household headed by a female are at a lower risk of childbearing. Due to this finding, sex of the household head was then included in the model

The common major significant determinants contributing to early childbearing observed, both in South Africa and Zimbabwe, are age at sexual debut, level of education attained, socio-economic status and sex of the household head. The risk of early childbearing by ethnic group in South Africa varied accordingly. Women from the Venda/Tsonga ethnic group are at a higher risk of early childbearing, compared to women from any other ethnic groups. In Zimbabwe, women from the Ndebele ethnic group are at only a 5% lower risk, compared to women from the Shona ethnic group.

Chapter Five

Conclusion and recommendations

5.1 Conclusion

Although fertility in Sub-Saharan Africa has declined over the past four decades, but, levels of early childbearing remain high. The findings from SADHS and ZDHS reveal that the total fertility rate declined from above seven children per woman during her reproductive years to fewer than four children. This decline was observed between the 1960s and late 1990s in South Africa and Zimbabwe. The Department of Health (1999) and the Central Statistical Service (1997), find that despite this decline, early childbearing levels have been above 30 percent for the past four decades (Preston-Whyte et al. 1990). In this dissertation, the findings support the observed trend and report high levels of early childbearing in South Africa and Zimbabwe. About 34.9% of South African and 42% of Zimbabwean women between the ages 15-24 years have at least given birth once in South Africa and Zimbabwe respectively. About 26.5% in South Africa and 32% in Zimbabwe of these births occurred to women before their 20th birthday.

It was due to these high levels of early childbearing that prompted the need to investigate determinants of early childbearing in Southern Africa. This dissertation used findings from South African Demographic and Health Surveys of 1998 and Zimbabwean Demographic and Health Surveys of 1999 to investigate major determinants contributing to early childbearing. The sample size consisted of young women between the ages 15-24 years from South Africa and Zimbabwe. The total sample of 7, 159 respondents was used, of which 4, 459 are respondents from South Africa and 2, 700 from Zimbabwe. These data sources were used because they are comparable and were observed almost at the same period (1998 and 1999).

During the survival analysis, the Kaplan-Meier survival estimator was used to determine the survivorship from childbearing at any given age. The survivorship from childbearing in South Africa and Zimbabwe is almost the same at any given age. The survivorship from childbearing was found significant, when childbearing was assessed, according the following covariates, ethnicity, and highest level of education, socio-economic status, and age at sexual debut. Women from the Venda/Tsonga ethnic group have a higher probability of early childbearing, compared to women

from the Sotho and Nguni ethnic groups. In Zimbabwe, there is no difference between the survivorship, according to ethnic groups, showing that being a Shona or Ndebele does not reduce the chances of early childbearing. The survivorship from childbearing, according to the level of education is lower, when women have a primary level of education and higher when women have a higher level of education. This is observed in both South Africa and Zimbabwe. The survivorship from childbearing, according to socio-economic status of the household is higher among women from households with high socio-economic status, compared to women from households with low socio-economic status. According to the age at sexual debut, results show a higher probability of risk of childbearing is observed, at each given age in Zimbabwe than in South Africa.

In section 3, further survival analysis was done using the Cox Proportional Hazard Model. This model was estimated in South Africa and Zimbabwe. Among other statistic measures, the hazard ratio and the standard error were the only two measures reported, and used, to explain the model. The hazard ratio indicates the risk of early childbearing, and the standard error shows the significance value of the determinant. The model includes demographic characteristics, individual and household characteristics. Such characteristics are age at sexual debut, childhood place of residence, highest level of education attained, ethnicity (ethnic-group), and socio-economic status of the household. The model was also interested in observing the risk of early childbearing, according to the sex of the household head. It was taken into account that the sex of the household head can be presented, within the socio-economic status of the household. However, due to the hypothesis, which suggests that women from a household headed by a female are likely to have lower levels of childbearing, due to the socialization between the female head and adolescent girl, which may include their sexuality and reproduction. Thus, the sex of the household head ought to be tested.

The results from this analysis show that the major determinants contributing to high levels of early childbearing in South Africa and Zimbabwe are, age at sexual debut, childhood place of residence, level of education, ethnicity (ethnic-groups), household socioeconomic status, and sex of household. The results show that the risk of childbearing is highest when childbearing is assessed according to age at sexual debut in both countries. The results also show that the earlier the age at sexual debut, the higher the risk of childbearing. Women, who have started sexual intercourse by

the age of 16 and 17, are at a 39% and 45% lower risk of childbearing in South Africa and Zimbabwe, respectively. Women who started sexual intercourse after their 20s are at a 77% and 89% lower risk of childbearing in South Africa and Zimbabwe respectively. The results further showed that at any age at sexual debut, risks of early childbearing are lower in Zimbabwe than in South Africa.

Lower risks of childbearing are observed among women who lived their childhood in urban areas, compared to their counterparts in rural areas. This is observed both in South Africa and in Zimbabwe (15% and 5%, respectively). According to the level of education attained, the risk of childbearing is higher among women with low levels of education. In South Africa as opposed to Zimbabwe, the risk of early childbearing is higher among women with primary level of education compared to women with no education. However, when the educational level further increases, results show a low risk of childbearing. In Zimbabwe, the level of education is negatively associated with the risk of early childbearing, meaning that the higher the level of education, the lower the risk of early childbearing. In both countries, the risk of early childbearing among women who are in a union is higher than the risk of early childbearing among women, who are not in a union.

Early childbearing was further explored according to ethnic groups, namely, non-African, Nguni, Sotho, Venda/Tsonga in South Africa, and, Shona and Ndebele in Zimbabwe. The non-African ethnic group include, Whites, Coloureds and Indians. The results show that women, who belong to Venda/Tsonga and Nguni have the highest level of risk of childbearing, whereas women from the Sotho ethnic group have a lower risk of childbearing, compared to women from non-African women. In Zimbabwe, Ndebele women have a 5% lower risk of childbearing, compared to women from the Shona ethnic group. The effect of the socio-economic status on the age at first birth is observable only for high level of socio-economic status of the household in South Africa. Women from households with the middle-high socio-economic status have a higher risk of childbearing than women from a middle-low socio-economic status. Women from households with a high level of socio-economic status have the lowest risk of childbearing. In Zimbabwe, it was observed that the higher the socio-economic status of the household, the lower the risk of childbearing.

5.2. Recommendations

The high rates of early childbearing indicate that the majority of adolescents do not use contraception. This was also evident in this research. The results showed that almost 98% in both countries have knowledge of contraception, but only less than 50% from each country use contraceptive methods. In the adolescent's life, it can be argued that the contraception use is the only way to prevent childbearing. Another way would be by abstinence, which research shows that the chances for adolescents to abstain are very low. As an example, the results in this research show that about 60% of young women had experienced sexual intercourse already. Ways to motivate adolescents to practice protective sexual intercourse and to use contraception is the most effective way to reduce high levels of early childbearing, in Sub-Saharan Africa. This should be emphasized, in order to reduce these high levels. The following are recommendations this dissertation proposes.

The research reveals that the majority of adolescents start sexual intercourse by the age of 15 years. During this period, the adolescent's cohort is either at primary or secondary school. One way to motivate this cohort to use contraceptives is to develop sex education programmes that concentrate on the awareness, and the consequences of early sexual intercourse and childbearing. This program should include HIV/AIDS and present to the youth the benefits of protected sexual intercourse and late childbearing. Family planning and reproductive health strategies need to shift towards promoting safe sex and making barrier methods acceptable to young people, before their first child is born, and also to move away from providing contraception to women, only after their first birth.

To achieve lower rates of early childbearing, the government should also be involved. Without the willingness from the government, systems to acknowledge adolescents' sexual activities and, to provide the resources to prevent their childbearing, reducing high levels of early childbearing will never be achieved. Political pressure must be applied to increase sex education, the availability of contraception, and abortion as a means of containing the risks of teenage pregnancy and childbearing. Sub-Saharan Africa should adopt a practical approach, such as treating adolescent sexuality as a public health issue to be managed by information, education, and access to contraception, as has been done in countries such as Sweden and Denmark (Furstenberg, 1998).

The findings in this dissertation show that the age at first sexual debut is very important to the levels of early childbearing. The results suggest that the earlier the age at first sexual intercourse, the earlier the age at first birth. A point was made by Manzini (2001), which suggests that sexual education should begin before puberty, around age 9-10 and in primary school. If this was taken into account, many more girls would be in a better position to make informed choices about their sexual activities, by the time they begin to engage in sex or reach menarche.

Since the findings from this dissertation suggest that other major contributing factors to early childbearing are childhood place of residence; level of education and sex of the head of the household, socio-economic status, and the age at sexual debut, more emphasis to work directly on these determinants is essential. For example, the characteristics, in rural areas, that influence high levels of early childbearing should be addressed and policies and programmes should specifically target them. This should be applied to all major determinants, which significantly contribute to early childbearing. For example, the education system in rural areas should be revised, and maybe it should be offered at the same level as it is offered in urban areas. Opportunities to further education among respondents in rural areas should be considered, as well, since the findings in this dissertation show that higher levels of education are associated with lower level of early childbearing.

The results also suggest that higher socio-economic status of the household plays a major role in influencing lower levels of early childbearing. This involves the government developing a holistic program that will better the lives of people, from the lower socio-economic status. This can be achieved through job creation, and setting a minimum wage for people, who are not educated. This is because without the minimum wage, the rates of employment might increase, but the increase will not affect their household socio-economic status, since they will be living on a hand to mouth income, on which they cannot even afford to pay for a decent education for their children. Once these factors are taken into account, better results can be achieved.

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