Life Transitions of Young Women and the Influence of Older Sisters: Adolescent Sexual Behaviour and Childbearing in South Africa

By

Crystal Munthree

Submitted in partial fulfilment of the requirements for the degree of Masters of Population Studies, Faculty of Humanities, Development and Social Sciences, University of KwaZulu-Natal

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ABSTRACT

High adolescent childbearing in South Africa has been sustained over several decades (Kaufman, De Wet and Stadler, 2001:149). Findings from the South African Demographic Health Survey (1998) show that 35 percent of 19-year-old girls had given birth at least once (DoH, 1999). Early childbearing can affect the economic, social and physical well-being of the mother and child. In addition young women who are sexually active are also at high risk of HIV infection and other STIs (Rutenberg, Kaufman, McIntyre, Brown and Karim, 2003). Apart from the health risks, there are also social consequences of early childbearing. Studies that have examined the factors influencing early childbearing show that there is a variation in the prevalence of early childbearing that is by place of residence (rural vs. urban), educational attainment, socio-economic status and population group (Palmuleni, Kalule-Sabiti.and Makiwane, 2007; Dickson, 2003). However, there have been few studies that explore the influence of family structure on early childbearing and sexual intercourse. In an attempt to tease out family influences on teenage sexual behaviour, recent literature explores the correlation of timing of sexual activity and childbearing among sibling pairs. Findings confirm that a sister's sexual initiation and timing of childbearing and other forms of family formation have an independent strong effect on the timing of family formation for a younger sibling (East, 1996). Exploring a sister's influence in the context of high early childbearing, such as one observed in South Africa, could contribute in understanding escalating teenage pregnancies and childbearing. The 1998 South African Demographic Health Survey will be used to analyse the sexual behaviour patterns of young women between 15 and 24 years of age, focusing specifically on their age at sexual debut, and age and the covariates associated with teenage pregnancy. These results show that having an older sister who has given birth to a child during adolescence could influence the age at which a younger sister has a child and her age at sexual debut. From the results sisters could be a strategic population to target for pregnancy prevention, which would help reduce early childbearing and also the spread of HIV and AIDS in Africa.

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DECLARATION

I, Crystal Munthree, declare that

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LIST OF ACRONYMS

ACDSA	Africa Centre Demographic Surveillance Area
CEDAW	Convention for the Elimination of All Forms of Discrimination against Women
CSS	Central Statistical Services
DoFA	Department of Foreign Affairs
DoH	Department of Health
GEAR	Growth, Employment and Redistribution
ICRW	International Centre for Research on Women (ICRW)
PRB	Population Reference Bureau
RDP	Reconstruction and Development Programme
RHRU	Reproductive Health Research Unit
SADHS	South African Demographic Health Survey
SALDRU	South African Labour and Development Research Unit
STATS SA	Statistics South Africa
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNODC	United Nations Office on Drugs and Crime
USAID	United States Agency for International Development (USAID)
WHO	World Health Organization

Chapter One: Introduction

1.1 Introduction

The continuous high rate of adolescent childbearing in South Africa is a problem. (Garenne, Tollman, Kahn, Collins and Ngwenya, 2001). By 18 years of age, one in five women in the population has given birth, and by 20 years of age, more than 40 percent have become mothers (Harrison, 2008). The continuous high rates of adolescent childbearing suggest that despite programmes and interventions that have been executed to improve access to sexual reproductive health services, promote contraception use and to promote gender equality, adolescents are still practicing risky sexual behaviour exposing them to HIV infection and early childbearing (Penn, 2004). Adolescents who engage in risky sexual behaviour are at an increased risk for sexually transmitted infections and HIV (Wilkinson, Ramjee, Sturm and Karim, 1997).

Adolescent women in particular who practice unprotected sex with their older partners are vulnerable to STIs and HIV infection (Wilkinson, Ramjee, Sturm and Karim, 1997). The Medical Research Council and the Centre for Actuarial Research show that 14 percent of young people in South Africa between the ages 15 to 24 are HIV positive. The prevalence rate for young men is 5.8 percent while for young women it is almost four times that at 21.6 percent (Thomas, 2004). This represents a very high level of HIV infection among adolescents, particularly young women, in South Africa, which is a cause of concern to the government, communities and researchers.

1.2 Problem Statement

South Africa's total fertility rate is estimated to be one of the lowest in Sub-Saharan Africa, i.e. fewer than three births per woman (DoH, 1999). However, South Africa continues to have high levels of early childbearing amongst adolescents. According to the Central Statistical Service (CSS) (1997), in the last 40 years, 30 to 40 percent of women in each five-year age cohort have given birth as teenagers suggesting that high levels of early childbearing in South Africa have been sustained over several decades (Kaufman, De Wet and Stadler, 2001). Recent census data shows that teenage fertility

(15-19 years old) has declined by 10 percent between 1996 (78 per 1000) and 2001 (65 per 1000) however the mean age at first birth has not increased i.e. it remains at age 18 (Moultrie and McGrath, 2007). In almost two-thirds of cases, teenage pregnancies in South Africa are unplanned and unwanted (Harrison, 2008).

Studies have shown that there are negative economic, social and physical consequences associated with early childbearing for young women (Kaufman, De Wet and Stadler, 2001; Swartz, 2004; Menken, 1972). Physically, women between ages 15 and 19 are more likely than older women to suffer pregnancy related complications that endanger their lives (McDevitt, 1996). In addition young women that are sexually active are also at immediate high risk of HIV infection and other STIs (Rutenberg, Kaufman, McIntyre, Brown and Karim, 2003). Apart from the health risks associated with early childbearing there are also social consequences of early childbearing. Untimely childbearing can force young women to leave school early, which results in young women having fewer job possibilities, making them more vulnerable to poverty (Negussie, Knut, Berit and Sundby, 1999).

1.3 Rationale for the Study

The poor socio-economic conditions that surround a young adolescent mother have a negative impact on the well-being of her child. It has been found that children of young women tend to have high school drop-out rates, drug use and generally higher risky behaviour (Kowaleski-Jones and Mott, 1998). These children also have poor social outcomes characterised by high non-marital childbearing rates and high divorce rates (Bradshaw, 2006).

Considering the risk factors associated with early childbirth and sexual activity it is important that we are aware of all factors that influence early childbirth and sexual activity in South Africa. According to Lamb and Sutton-Smith (1982) family members are the primary socialising agents for adolescents. A number of studies show the

influence mothers have on their children's behaviour (Weinstein and Thornton, 1989; Fox, 1981; Levy, 1989). Children are often likely to hold attitudes and behave in a manner consistent with their mothers' attitudes. Research has shown that daughters of adolescent mothers are significantly more likely to give birth themselves before the age of 18 (Furstenberg, Levine and Brooks-Gunn, 1990). Younger siblings also often view their older sisters and brothers as role models whom they emulate and admire. Siblings can influence each other in areas such as education and sexual behaviour (McHale, Updegraff, Helms-Erikson & Crouter, 2001). The behaviour and attitudes of an older sibling are likely to influence a younger siblings behaviour patterns (Widmer, 1997). This study attempts to show how the family structure, more specifically a younger sister's age at sexual debut and childbearing, is influenced by the presence of an older sister in the household who has had a child during adolescence.

1.4 Research Objectives

The main objectives of the study are:

- To explore the key socio-economic determinants of early childbearing for sisters growing up in the same household
- To determine the influence of older sisters' sexual debut on resident younger sisters' sexual behaviour
- To determine if early childbearing behaviour is correlated among sisters in the same household.

1.5 Motivation for the Study

Previous studies that have investigated the determinants of early childbearing in South Africa show that a young women's socio-economic status, place of residence (rural vs urban), educational attainment, and population group are common factors that influence early childbearing (Palmuleni, Kalule-Sabiti and Makiwane, 2007). However, there have been few studies that explore the influence of family structure on early childbearing and sexual behaviour. Evidence from developed countries suggests that the timing of sexual activity and childbearing is strongly affected by family composition and relationships (East , 1996). In an attempt to tease out family effects on teenage sexual behaviour, recent literature explores the correlation of timing of sexual activity and childbearing among sisters (East, 1996).

Studies show that an older sister's sexual initiation and timing of childbearing has an effect on the timing of childbearing for a younger sister (East , 1996; Hogan and Kitagawa, 1985; Widmer, 1997). Exploring the relationship between an older sister age at first birth and younger sisters' age at first birth in the context of high early childbearing in South Africa could contribute in further understanding the determinants of early childbearing (Palumuleni, Kalule-Sabiti and Makiwane, 2007).The study focuses on how an older sister who has given birth during adolescence could influence the timing of childbearing for a younger adolescent sister.

Chapter Two: Literature Review

2.1 Introduction

In recent decades, Sub-Saharan Africa has shown a trend towards an increasing incidence of premarital sexual activity among adolescents (Okanoufua, 2000). According to the World Health Organisation (1998) 11 percent of all births each year are to adolescents (WHO, 1998). A recent special world population report has estimated that births to girls aged 15 to19 will reach 4.8 million by the year 2020, an increase of approximately 400,000 over 1996 levels (Garenne, Tollman, Kahn, Collins and Ngwenya, 2001). Adolescent childbearing is a major cause for concern, since adolescent fertility is related to high incidence of health problems for both mothers and their infants (Menken, 1972). It has been widely documented that childbearing at a younger age is generally associated with higher rates of maternal mortality and a greater risk of risky abortions, delivery complications and low birth weight infants (Dickson, 2003. A high adolescent childbearing rate is also closely linked with risky sexual behaviour and subsequently associated with high risk of sexually transmitted diseases including HIV. High adolescent childbearing, STI infection and HIV prevalence among adolescents are serious concerns for the future well-being of young people.

2.2 Adolescent Childbearing in Sub-Saharan Africa

Countries in Sub-Saharan Africa have the highest levels of adolescent childbearing in the developing world (Singh, 1998). The age-specific fertility rates of young women in the age group 15 to 19 years range between 120 to about 160 per 1000 in most countries of this region (Singh, 1998). These figures show that early childbearing amongst young women in Sub-Saharan Africa is high. A series of reports based on a review of data from census and surveys shows that African women begin childbearing at a much younger age than women in many Asian and Latin American countries (UNICEF, UNAIDS and WHO, 2002).

Early sexual activity is also associated with a higher risk of acquiring sexually transmitted diseases including HIV. Research shows that by the end of 2003, 2.3 million people in Sub-Saharan Africa had died of AIDS-related illnesses, and almost 27 million were estimated to be living with HIV/AIDS (Arnett, 2008). A 1994 UNDP report found that a woman's probability of contracting HIV increases dramatically as her age at first intercourse reduces (Radhakrishna, Gringle and Greenslade, 2000). Further country analysis in Botswana, Zambia and Zimbabwe found that more than 40 percent of those aged 20 to 24 years old had given birth by the age of 20, and more than 25 percent of girls aged 15 to 19 who attend antenatal clinics in the capital cities were HIV infected (Singh, 1998).

2.3 Adolescent Childbearing in South Africa

The South African Demographic and Health Survey (SADHS) (1998) shows that 35 percent of all girls aged 15 to 19 years in the survey had given birth (DoH, 1999). In South Africa research shows that many of the births occurring during teenage years are to women who are neither economically nor emotionally ready to deal with parental responsibilities (Swartz, 2004). There has already been a considerable amount of research completed on early childbearing and its determinants in South Africa. The main factors associated with adolescent childbearing in South Africa are discussed below.

2.4 Factors Associated with Adolescent Childbearing in South Africa

2.4.1 Socio-economic Status

Research has shown that there is a clear link between the socio-economic status of young women and adolescent childbearing (Bumpass and McLanahan, 1988; Hogan and Kitagawa, 1985). According to Brewster (1994) adolescents from disadvantaged homes have a greater probability of sexual activity compared with those from more advantaged households. For many young women who live in poor socio-economic conditions, pursuing further education is too costly, therefore these young women often struggle to find employment (Khoza, 1998). Having not much to do and nothing to look forward to except the fulfilment of the maternal role, the attraction of having a baby is not uncommon for many African teenagers from a poor environment (Preston-Whyte, 1990). Women who are occupied by their studies often do not have the time to engage in risky sexual behaviour, which delays their age at sexual debut and childbearing (Xenos, Achmad, Lin, Luis and Podhisita, 2001). The socio-economic status of young women also determines their education and career options, which influences their age at childbearing.

2.4.2 Place of Residence

An adolescent's place of residence is also a factor contributing to adolescent fertility. Studies show that fertility levels are lower in urban areas than in rural areas (Gupta and Costa, 1993; Montgomery and Casterline, 1998 Cohen, 1993). Rural youth are 22 percent more likely than urban youth to be living in poverty (McManus and Newacheck, 1989). Cohen (1993) in his analysis of regional trends and differentials in fertility in Sub-Saharan Africa found that fertility rates in rural areas were significantly higher compared to urban areas.

Nearly a quarter of all youth in South Africa live in rural areas, which tend to be characterised by high rates of poverty, social isolation and a shortage of medical services, all of which are risk factors for early childbearing and poor birth outcomes

(Bennett, Skatrud, Guild, Loda and Lerman, 1997). According to Mahy and Gupta (1993) 'the rural and urban divide is important because of differences in access to health facilities, cultural beliefs, living situations, and opportunities' (Mahy and Gupta, 2001:4). Studies have shown that urban women have a better knowledge of and access to modern contraception than women in rural areas (Cohen, 1993).

The SADHS show a higher incidence of adolescent childbearing amongst rural African adolescents (21.1 percent) than African adolescents residing in urban settings (13.7 percent) (DoH, 1999). The social disadvantage of rural populations has been largely neglected in the development of policies and interventions related to adolescent pregnancy, despite the high-risk profile of rural teenagers (Ricketts, Osborne and Savitz, 1994).

2.4.3 Race

While poverty is not confined to one racial group in South Africa, it is concentrated among Africans in particular (Swartz, 2004). The high incidence of poverty amongst Africans is largely due to the previous apartheid laws and policies, which provided Whites with better educational and job opportunities than Africans in South Africa. The fertility trends among the different population groups in South Africa show that Africans have a higher fertility rate compared to other race groups. A study conducted in KwaZulu-Natal shows that African adolescents were more likely to engage in risky sexual behaviour than other race groups (Kaufman, Clark, Manzini and May, 2004. The different values and traditions that are present in the cultures of race groups in South Africa influences adolescent childbearing (Trent and Crowder, 1997).

2.4.4 Cultural Background

The cultural context of teenage and non-marital childbearing has received much scholarly attention (Brewster, 1994). In many developing countries the timing of first sexual intercourse has cultural meaning that is linked to adulthood, fertility or marriage (Miller and Heaton, 1991). In western culture adolescent childbearing is usually shunned, however studies suggest that in the African culture communities are more accepting of early childbearing (Caldwell and Caldwell, 1993). Bearing a child in the Africa culture is often seen as an essential part of being a woman. Studies show that once a woman has proven her fertility, she has also improved her chances for marriage and improved her position in society in the long term (Kaufman, De Wet and Stadler, 2001).

'Unmarried daughters may be punished for becoming pregnant, however once a baby is born it is generally welcomed into the household and the girl usually returns to school' (Kaufman, De Wet and Stadler, 2001:149). As a result many young people in South Africa are growing up in an environment in which adolescent childbearing does not necessarily result in exclusion from the family home (Preston-Whyte, 1990). Living in cultural environments that are more accepting of early childbearing could possibly influence early sexual debut and childbearing amongst younger women.

2.4.5 Educational Attainment

One of the most consistent findings in the review of factors influencing early childbearing in developing countries is the strong correlation between the level of women's education and fertility (Gupta and Costa, 1993). Education is seen as an important means of upward mobility for young people across the developing world, enabling them to overcome poverty and improve their social status (Lloyd, 2005). Researchers suggest that early childbearing often limits a young woman's educational opportunities and compromises her ability to support herself and her family (Dickson, 2003).

Adolescent childbearing often results in school drop-out or interrupted education (Cunningham and Boult, 1996). Studies in the United States show that girls who give birth at a younger age are less likely to complete secondary schooling (Madhavan and Thomas, 2005. While some evidence from Sub-Saharan Africa supports the idea that childbearing impedes educational progress, South African researchers have argued that childbearing during school years does not necessarily prevent a girl from completing her education in South Africa (Swartz, 2004). South African law forbids schools from using pregnancy as a reason for terminating education (Madhavan and Thomas, 2005). A study conducted in South Africa (Maharaj, Kaufman and Richter, (2000) shows that 34 percent of girls under the age of 24 who had given birth as teenagers were currently enrolled in a school. However, the ability to negotiate parenthood and schooling depends to a large extent on the social and financial support available in the adolescents' household (Marteleto, Lam and Ranchhod, 2006). Many adolescents in South Africa who fall pregnant are from disadvantaged homes, which make it difficult to pay for childcare, and as a result a number of women are forced to leave school, limiting their future career opportunities.

2.4.6 Coercive Sex

Research on teenage pregnancy in South Africa has highlighted the issue of coercive sex (Varga and Makubalo, 1996). It has been found that many pregnant teenagers who did not wish to have sex at an early age were instead forced into sexual initiation (Makiwane, 2003; Jewkes, Vundule, Maforah and Jordaan, 2001). Research that used multiple modelling shows that forced sexual initiation and unwillingness to confront an unfaithful partner is strongly associated with childbearing (Ibid). The imbalance of power between male and female partners in relationships reduces the ability of young women to either refuse sex or negotiate the use of condoms (Macphail, Williams and Campbell, 2002). Notions of masculinity that include the ideal of 'flesh to flesh' sex with numerous partners are particularly prevalent, and as a result many men in South Africa feel the need to prove their masculinity by having unsafe sex with their partners (Pithey and Morojele, 2002).

In addition, there is a growing body of literature documenting patterns of sexual practice among the youth, including assault, coercion, poor interpersonal communication and high levels of 'risk-taking'. Increasingly, gender-based violence has come to be viewed as a major factor driving not only growth rates of HIV, but also STIs, teenage pregnancy, rape and child abuse (Woods & Jewkes, 2001; Leclerc-Madlala, 2001)

2.4.7 Access to and Use of Contraception

Contraceptive use amongst groups of sexually active youth has been estimated to be as low as 25 percent in certain areas in South Africa (Buga, Amoka and Ncayiyana, 1995). Most researchers agree that the main driver of teenage pregnancy is not sex, but unprotected sex (Harrison, 2008). Research has shown that males in a relationship see contraception as their partner's responsibility and not their own (Harrison, 2008). It is also evident that many adolescents visit family planning services only after several sexual encounters (Blanc and Way, 1998). Even in urban areas, South African adolescents have yet to develop the responsibility and initiative to seek out the sources of information that will help them take advantage of the reproductive health services available to them (Mfono, 1998).

It has also been found that younger women (under 20 years) and women living in urban areas were more likely to use condoms than other women. As might be expected, women with more education were more likely than less educated women to have used a condom the last time they had sex (DoH, 1999). Overall, condom use was highest among African women, followed by Coloured women and White women. It was lowest among Asian women, although they were more likely than Coloured or white women to use condoms with their husbands (DoH, 1999). Contraception use by race can also be explained by traditional or cultural practices.

Macheke and Campbell (1998) argue that traditional African cultural practices, which inform gender-role expectations most often, oppose condom use, and this increases a women's risk of becoming pregnant. Mahy and Gupta (2001), in an investigation to examine trends in age at first birth among women in eight African countries, found that

having a strong family planning programme in the community could increase adolescents' familiarity with contraception and knowledge of the health risks associated with sexual behaviour and childbearing.

Parental involvement in sexual behaviour decisions has also been found to influence contraceptive at first use. The 1998 Demographic and Health Survey (Department of Health, 1999) showed that White teenagers were much more likely than any other racial group to have parental assistance in first contraceptive use. Many young African women did however report parental involvement in early contraceptive use, but this only involved parents taking teenagers for injections before they commence sexual activity (Woods and Jewkes, 2006). African teenagers however did not report discussing sexual matters with their parents. These finding show that parental involvement in contraception may promote effective use of contraception if it occurs in a context where adolescents are comfortable to discuss sexual matters with parents (Jewkes and Christofides, 2008).

2.4.8 Community Structure

The community in which an adolescent grew up in could potentially affect their behaviours and attitudes (Brewster, 1994). Adolescents who live in disadvantaged communities are often likely to participate in risky behaviour (Brewster, 1994; Hogan and Kitagawa, 1985). In communities where there are limited educational opportunities offered, joblessness and poverty, adolescents tend to have early onset sexual intercourse, low use of contraception and high adolescent childbearing rates (Anderson, 1989; Upchurch, Mason, Kusunoki and Kriechbaum, 2004). The cultural norms and values that exist in a community could influence early childbearing (Brewster, 1994). Growing up in a non-traditional family is associated with more permissive views towards sexual activity and childbearing outside of marriage (Axinn and Thornton, 1996).

2.5 The Influence of Older Siblings on Timing of Sexual Behaviour

2.5.1 Family Influence

According to East (1996) early childbearing does not occur in isolation, but rather within a community and within families that may influence or promote it (East, 1996). A variety of family characteristics have been associated with the risk of timing of childbearing (De Wit, 1994). For example children of divorced or single-parent families have been found to initiate sexual activity at a younger age than others and are more likely to become pregnant (Hogan and Kitagawa, 1985). Studies have shown that a parent's attitudes and values about teen sex and pregnancy often influence whether teens have sexual intercourse and their timing of first sex (Miller, 2002). The quality of the mother-daughter relationship can also influences the age at which teenage girls first engage in sex (McNeely, Shew, Beuhring, Sieving, Miller and Blum, 2002). Teenagers are less likely to start having sex if their mothers are involved in their lives (Blum, 2002).

Research shows that adolescents who spend more time with their parents are less likely to engage in risky sexual behaviour (Donovan and Jessor, 1985; Shilts, 1991; Small and Luster, 1994; Wilder and Watt, 2002). It has been observed that parents have a bigger impact on their younger adolescents than on their older adolescents who are often influenced by their friends or peers (Nduati and Kiai, 1997). Parent's values for their teens to avoid pregnancy are most effectively transmitted when parents have a close relationship with their children. However the traditional cultural and social norms that exist in the African culture often discourage adolescents from discussing sexual matters with their parents (Nduati and Kiai, 1997). Adolescents therefore often confide in their siblings and peers about sexual matters.

2.5.2 Presence of Older Sisters in Household

The presence of sexually active older siblings in the family is often overlooked as an influence on adolescent sexual behaviour (Whitbeck, Yoder, Hoyt and Conger, 1999).

Research has shown that siblings influence each other in many areas including age at sexual debut and childbearing. A study conducted by Kiragu and colleagues in Kenya, reports that Kenyan females aged 15 to 19 felt most comfortable discussing sexual matters with their sisters (Kiragu, 1996). Lamb and Sutton-Smith (1982) suggest that older siblings often introduce their younger siblings to new environments. In a review of more than 200 studies conducted in the United States, Kirby (2001) has found that having an older sister who had given birth as an adolescent was associated with early initiation of sexual activity for the younger sister. Research therefore suggests that an older sister's timing of sexual activity or pregnancy can influence a younger sister's timing of sexual activity.

Rodgers and Rowe (1990) suggest that the closer siblings are in age, the greater their chance of experiencing similar developmental events including sexual behaviour and childbearing. Siblings who are close in age are also more likely to share the same friends and peers than those spaced further apart (Minnett, Vandell and Santrock, 1983). An age gap of two to four years between siblings allows for siblings to be influenced by one another more significantly than siblings with a larger age gap between them (Dunn and Kendrick, 1981).

2.5.3 Siblings of the Same Sex Versus Siblings of the Opposite Sex

Research has shown that relationships between siblings of the same sex are different from relationships between siblings of the opposite sex. Same-sex siblings create more coalitions and reported greater warmth and closeness (Adams, 1968; Bowerman and Dobash, 1974). Bossard and Boll (1956) suggest that same-sex siblings also interact more frequently and have greater access to common life events. Previous research has shown sibling interaction to be most frequent between sisters (Adams, 1968). Research conducted to investigate sibling interaction has shown that sisters develop closer relationships with more companionship and intimacy than do brothers and mixed pairs (Buhrmester and Furman, 1990).

East and Kiernan (2001) found that having multiple older sisters who have had children during adolescence is associated with elevated problem behaviours. In a study investigating sibling influence on smoking behavior, Bard and Rodgers (2003) found that sisters play a particularly strong role in influencing their younger sisters. Buhrmester and Furman (1990) also found a trend suggesting that adolescent girls reported greater intimacy with siblings than did boys. Sister pairs viewed their relationships as more supportive than brother pairs did (East, 1996).

2.5.4 Older Sisters' Influence on Attitudes and Behaviour of Younger Sisters

In many families, older sisters are the caretakers of younger siblings when both parents are working and not consistently at home full time. An older sister is often an important role model for younger sisters during their early stages of development (Diop-Sidibe, 2005). According to Widmer (1997) since second born children are exposed to the influence of their older siblings, they may develop more liberal or conservative attitudes towards sex. A study carried out by East (1996) in California showed that both the attitudes and behaviours of older sisters significantly influence the behaviour of their younger siblings. Other studies show that sisters of childbearing adolescents are at a twofold elevated risk of adolescent childbearing (Cox, Emans and Bithoney, 1993; Hogan and Kitagawa, 1985). The study also revealed that, compared with sisters with a never pregnant older sister, a younger sister who is exposed to an older sister who has had a child during adolescence becomes more open-minded towards early childbearing. Younger siblings may view the effort involved in attaining school and career goals as unnecessary if they have seen their sister attain adult status and recognition through parenthood instead of through educational or career achievements (East, 1996).

Further studies that investigate the influence of having an older sister who has had a child during adolescence on a younger sister's age at childbearing indicate that, when compared to girls of the same race and socio-economic status, the sisters of teenage mothers are younger at sexual debut and teenage childbearing (Hogan and Kitagawa, 1985; East, Felice and Morgan, 1993; Cox, Emans and Bithoney, 1993). Hogan and Kitagawa (1995) show that black adolescent girls in the USA who grew up with a sister

who is a teenage mother is more likely to engage in sexual behaviour than those whose sisters did not bear a child during adolescence. A common finding in the life histories of Black American girls who have a poor socio-economic status is that women who become pregnant very early are likely to have an older sister who has already had a child in their family (Hogan and Kitagwa, 1985).

2.6 Effect of an Older Sister's Early Birth on Younger Sister's Age at Sexual Debut and Childbearing

Explanations for persistently high adolescent childbearing in South Africa include peer group pressure, socio-economic conditions and family characteristics (Garenne, Tollman, Kahn, Collins and Ngwenya, 2001). In many African societies, child birth, whether in or outside marriage, is traditionally regarded as the ultimate rite of passage to womanhood and thus elevates a girl's social status (Preston-Whyte and Zondi, 1992). Some African teenagers have reported that their mothers or grandmothers are pleased when they get pregnant (Woods and Jewkes, 2006). However adolescents may find that the changed social status of an adolescent mother may be a mixed blessing, as it may distance a girl from her peers (Woods and Jewkes, 2006).

In South Africa, there is abundant evidence that confirms that adolescents are affected by the sexual attitudes and behaviours of their friends (Whitbeck, Yoder, Hoyt and Conger, 1999). Although the majority of adolescents may not wish to become pregnant, they are nonetheless under a great deal of peer pressure to have a boyfriend or girlfriend, and for boys particularly to have many partners (Rutenberg, Kaufman, McIntyre, Brown and Karim, 2003). Sexual activity with a partner confers the status of a relationship, and for girls may bring benefits in the form of gifts or financial support. Having many girlfriends for boys can be an affirmation of manhood (Varga and Makubalo, 1996).

In-depth qualitative research done by Preston-Whyte and Zondi (1992) in the Kwa-Mashu and Mpumulanga areas near Durban reveals that friends of an adolescent girl can influence early sexual behaviour. A respondent of the study stated that when a girl dates

a boy for a long period of time and she does not fall pregnant, 'schoolchildren laugh at you and say that you are old fashioned not to sleep with a boy …' (Preston-Whyte, 1990). Young women who live in this type of environment, which promotes early childbearing, can be influenced to have sexual intercourse at an early age.

2.7 Conclusion

Research has shown that there are a number of factors that influence early childbearing in South Africa. A women's socio-economic status, cultural background, race, place of residence, level of education and family environment are all factors that contribute to the risk of adolescent childbearing. It is evident that women who live in poor socio-economic conditions are more likely to have children during adolescence. A woman's cultural background and race also determine the age at which she has her first child. The level of education a woman has also contributes towards her risk of adolescent childbearing. Women who live in rural area are also more likely to have children compared to women who live in urban areas. A comprehensive understanding of these factors is important for establishing programmes that are aimed at reducing adolescent childbearing in South Africa.

Chapter Three: Methodology

3.1 Introduction

This dissertation attempts, as outlined in the introduction, to establish the pattern of teenage pregnancy in South Africa. The primary objective of the study is to investigate the age at first birth for sisters and women with and without sisters, by childbearing status of the sister. The study will also estimate the effects of individual characteristics and social background factors on the timing of premarital births for women with sisters and those with no sisters. This study uses data that captured the sexual behaviour patterns of young women aged 15 to 24.

3.2 Study Population

The 1998 Demographic and Health Survey (DoH, 1999) was conducted in South Africa across all provinces. There are four population groups in South Africa i.e. African, White, Coloured and Indian. Classification of the population into racial groups under apartheid had profound economic and social impacts on the South African population. South Africa is a middle-income country with modern infrastructure and relatively well developed financial, legal, communication, energy and transport systems. It has the largest economy in Africa (DoH, 1999). However, South Africa has one of the most skewed distributions of income in the world. In 1994 the Government of National Unity entered office with the blueprint for a Reconstruction and Development Programme (RDP), which has since been supplemented by Growth, Employment and Redistribution (GEAR), which was introduced in 1996. South Africa's economic growth level since 1994 is approximately at 2 percent per annum, however the government has been unable to address the high levels of poverty and unemployment (DoH, 1999).

In South Africa a woman's class and race determines her position in society. Women from rural areas are considered the most disadvantaged group in South Africa (DoH, 1999). The social status previously accorded to African women was undermined as men became migrant labourers. The system of 'customary law', entrenched by the colonial

rulers, ensured that African women held a far lower status than other women in South Africa men. Since 1994, a strong government policy of gender equality has emerged. The International Convention for the Elimination of All Forms of Discrimination against Women (CEDAW) was signed in 1995 (DoFA, 1998). A wide range of initiatives laid down in this document includes mechanisms to promote women's rights and to monitor the impact of government spending on women's lives. The Gender Commission has been instituted in terms of the Constitution as an independent body to promote gender equity in society. The President's Office has established an Office of the Status of Women to ensure that gender issues are incorporated in policy and programmes (DoFA, 1998). During the apartheid era, demographic data was fragmented and incomplete. While statistics for Whites, Coloureds and Asians was of reasonable quality, the data for Africans were not adequate. The 1998 South African Demographic Health Survey (SADHS) was therefore introduced to produce data for all population groups that could inform health and population development programmes through accurate and timely data on a range of demographic and health indicators (DoH, 1999).

3.3 Data Collection

The South African Demographic and Health Survey (SADHS) is a nationally representative survey of households. The sample for the SADHS was designed to be a nationally representative probability sample of approximately 12,000 completed interviews with women between the ages of 15 and 49 (DoH, 1999). The country was stratified into nine provinces and each province was further stratified into urban and rural areas. The sampling frame for the SADHS encompassed approximately 86,000 enumeration areas (EAs) created by the Central Statistical Services, now Statistics South Africa (SSA), for the 1996 census (DoH, 1999). Within each stratum a two-stage sample was selected. The Primary Sampling Units (PSUs) corresponded to the EAs and were selected with probability proportional to size, the size being the number of census visiting points in the EA. Interviewers were instructed to include any second household residing on a selected plot, this rule resulted in more than the expected number of 12,540 households selected. This led to a total of 972 PSUs being selected for the SADHS (690 in urban areas and 282 in rural areas). In urban enumeration areas ten

households were selected, while in rural EAs, 20 households were selected (DoH, 1999). This resulted in a total of 12,860 households being selected throughout the country. Every second household was selected for the adult health survey. In the second household, in addition to interviewing all women aged 15 to 49. Interviewers also interviewed all adults aged 15 and over. It was expected that the sample would yield interviews with approximately 12,000 women aged 15 to 49 and 13,500 adults.

The survey utilised three questionnaires: a household questionnaire, a woman's questionnaire and an adult health questionnaire. The contents of the first two were adapted from the DHS Model Questionnaires to meet the needs of the national and provincial Departments of Health (DoH, 1999). The adult health questionnaire was developed to obtain information regarding the health of adults. The household questionnaire was used to list all the usual members and visitors in the selected households. Basic information was collected on the characteristics of each person listed, including his/her age, gender, education and relationship to the head of the household. Information was collected about social grants, work status and injuries experienced in the previous month.

An important purpose of the household questionnaire was to identify women and adults who were eligible for interview (DoH, 1999). In addition, information was collected about the dwelling itself, such as the source of water, type of toilet facilities, material used to construct the house and ownership of various consumer goods. The woman's questionnaire was used to collect information from all women aged 15 to 49. The survey covers topics related to women's background and reproductive health history, such as educational attainment, residential information, race, age, previous pregnancies, knowledge and use of family planning methods, the number of children women wished to have, marriage and sexual activity. There were 11,735 interviews completed with women between the ages 15 to 49 (DoH, 1999).

3.4 Method

Since this study focuses on the timing of childbearing, survival analysis was used. Survival analysis allows for the subject to be evaluated over time and the time when they experience the event of interest. For the purpose of the study the event of interest is the timing of childbearing (Singer and Willett, 2003). There are however certain aspects of data on events such as censoring, that cause difficulty when trying to analyse data using traditional statistical regression methods (Singer and Willett, 2003).

The non-normality aspect of the data violates the normality assumption of most commonly used statistical models such as regression or ANNOVA (Analysis of Variance), etc. A censored observation is defined as an observation with incomplete information. The study focuses on right censoring, which essentially means that the information is incomplete because the subject had not yet experienced an event by the end of the study. This means that those who had not given birth may still do so at a later date after the observation period has elapsed.

Kaplan-Meier curves will be used to analyse categorical predictors. The Kaplan-Meier curves show the timing of childbearing for women by factors influencing adolescent childbearing (Singer and Willett, 2003) .The study will also use a Cox Proportional Hazard Model, which is a multiple regression model that models timing of events, while simultaneously testing the effect of multiple independent variables. Since there is more than one explanatory variable, each parameter is interpreted as a partial derivative, or the change in the dependent variable for a change in the explanatory variable, holding all other factors in the model constant (Singer and Willett, 2003). In the study hazard models examine the effects of multiple continuous or categorical predictors.

The Cox Proportional Hazard Model estimates the coefficient in the following form:

$$H(t) = H_0(t) \exp(b_1 x_1 + \ldots + b_n x_n)$$

Where **x1… xn** are a collection of predictor variables or covariates, **b1…bn** are coefficient estimated by 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. Cox Models can accommodate independent variables that are dichotomous, continuous and categorical in nature (Cox, 1975).

Another important concept in survival analysis is the hazard rate. From looking at data with discrete time (time measured in large intervals such as months, years or even decades) we can get an intuitive idea of the hazard rate (Singer and Willett, 2003). For discrete time, the hazard rate is the probability that an individual will experience an event at time (t) while the individual is at risk for having an event (Singer and Willett, 2003). It is important to understand how the shape of the hazard function will influence the other variables of interest (Singer and Willett, 2003). A high hazard means that there is a great chance of failing and a low hazard implies that the subject has a low chance of failing. Failing in terms of the study is 'giving birth to a child', that is, experiencing an event.

3.5 Conceptual Framework used in Study

The theoretical framework used in this analysis draws on the theory of social learning. According to Bandura (1977) 'learning would be exceedingly laborious, not to mention hazardous, if people had to rely solely on the effects on their own actions to inform them what to do. Fortunately, most human behaviour is learned through modelling: from observing others, one forms an idea of how new behaviours are performed and on later occasions this coded information serves as a guide for action' (Bandura, 1977:22). Social learning theory suggests that, apart from learning from our own experiences, we also perform by watching other people.

According to the social learning theory human behaviour is also determined by a three-way relationship, i.e. between cognitive factors, environmental influences, and

behaviour (Bandura, 1977). As much as we influence our environment so too can the environment influence our behaviour. Bandura (1977) therefore states that a person's behaviour is not only a result of their personal characteristics but also their situational conditions experienced in their environment. Bandura further acknowledges that learning occurs within a social context (Bandura, 1977). Social systems such as the family, household and community can provide a major social context within which the mechanisms of social learning operate (Bandura, 1977).

The theory also emphasises that as human beings we learn more from the people with whom we identify than from strangers. At a younger age members of the family are the common people with whom adolescents identify. A young person's role models generally include their parents, siblings and other close relatives. Research and theory on modelling also suggest that models that are similar to the self are more likely to be imitated (Bandura, 1977). Therefore same-sex sisters are viewed as more powerful models than siblings of the opposite sex (Sutton-Smith and Rosenberg, 1970). Older sisters are often admired and emulated by younger sisters because of the greater freedom, privileges and resources they experience.

From social learning theory, we find that individuals adjust their behaviours and attitudes to conform to others who display similar attributes relevant to a particular behaviour or attitudes (Powers and Chering-Tay Hsueh, 1997). By observing the behaviour patterns of an older sister a younger sister may adopt the older sister's behaviour patterns. These behaviour patterns may include sexual activity and childbearing.

3.6 Factors under Evaluation in the Study

Key Dependent Variables

In order to explore how an older sister who has given birth during adolescence affects younger sister, the study focuses on two key events of younger sister, i.e. age at sexual debut and age at childbearing.

- **Age at sexual debut of younger sister**

Age at sexual debut is used to measure the age at which women begin sexual intercourse. The younger sister's age at sexual debut will be compared with the age of sexual debut of an older sister.

- **Age at first birth of younger sister**

The age at first birth is a measure of the age at which a woman had her first child. The childbearing age of a younger sister will be compared with the childbearing age of an older sister.

Independent Variables

- **Age at sexual debut of older sister**

The age at sexual debut of an older sister will be used to investigate the difference in the timing of sexual debut for the older sister and younger sister.

- **Age at first birth of older sister**

Age at first birth of an older sister will be used to compare the difference in the timing of childbearing between the older and younger sister.

- **Place of residence**

In South Africa place of residence is also an important socio-economic determinant (Dickson, 2003). Regional differences that is urban versus rural is an important demographic determinant for early childbearing. Although urban areas provide better access to health and educational services, the poor living conditions that prevail in many urban environments in South Africa has influenced early childbearing. Many rural areas are characterised as having high rates of poverty, unemployment and limited access to reproductive health services, which influences adolescent childbearing (Swartz, 2004). In this study, the age at childbearing for older and younger sisters by place of residence will be investigated. Place of residence is used to identify women who live in urban areas and women who live in rural areas.

- **Racial group**

Race serves as important variable in identifying relatively homogeneous population subgroups with similar beliefs, values and economic status. As a result of South Africa's political history, which determined the distribution of social services for the different race groups, Africans were disadvantaged. With a lower socio-economic status Africans also have higher adolescent childbearing rates than all other race groups in South Africa, placing them at a higher risk of STIs and HIV and AIDS (Macleod, 2002; Swartz, 2004). Clinical studies suggest that the incidence of most sexually transmitted diseases, including AIDS, is substantially higher among Africans than it is among Whites (Brewster, 1994). Considering these results, race has been included in the study as one of the independent variables. There are four categories for race, that is, African, White, Coloured and Indian. Race is used to compare in the timing of childbearing for women who belong to different race groups.

- **Educational attainment**

The impact of education on adolescent childbearing has been recognised in a number of studies (Gupta and Costa, 1993; Dickson, 2003; Madhavan and Thomas, 2005). Educational attainment is an important factor influencing adolescent sexual behaviour and childbearing. In this study a woman's educational status is measured by level of education. Level of education will be used to measure the differences in the timing of childbearing for women according to their different educational levels. There are three categories, namely, primary, secondary and tertiary education.

- **Frequency Use of contraception**

The use of contraception is an important determining factor for adolescent childbearing, as well as STI and HIV infection. Most sexually active teenagers use contraception to avoid sexually transmitted diseases and pregnancy. Compared to older women, teens are less likely to practise contraception effectively over the course of a year, and are more likely to practise contraception at irregular intervals or not all (Alan Guttmacher Institute, 1999). In the study the frequency use of contraception will be used to determine the timing of adolescent childbearing for women who are using contraception and those who are not.

- **Marital status**

In South Africa the age at marriage has been increasing over the years (Palumuleni, Kalule-Sabiti and Makiwane, 2007). As a result there are many couples having children out of wedlock. According to Bledsoe and Cohen, there has been a significant increase in childbearing among women whom do not appear to be married (Bledsoe and Cohen, 1993). The study aims to determine the age at which married women and those who are not married have children. There are two categories for marital status, that is, 'never married' and 'ever married'.

- **Household characteristics**

A household's socio-economic status can also have an impact on early childbearing. Studies show that adolescents from households that have limited resources, such as access to water, electricity and sanitation, are more likely to have children at an earlier age than adolescents in households with a better socio-economic status (Singh, Darroch and Frost, 2001) Socio-economic status is an important determinant of early childbearing, however the increase in the number of informal settlements in urban areas makes it difficult to assess the socio-economic status of people by residence. Rural areas are often characterised as having limited socio-economic opportunities, i.e. access to jobs, education, and poor social services including health services, and limited access to water, sanitation and electricity.

Similar to rural areas, informal settlements in the urban areas of South Africa are also characterised as having poor services available and low income levels (Napier and Kellett, 1995). Informal settlements have very high HIV prevalence rates (the proportion of people who are HIV positive) and incidence rates (the rate of new infections) (HSRC, 2005). Researchers estimate annual incidence rates in urban informal areas at 7 percent, as compared to 1.8 percent in urban formal areas, 2.7 percent in rural formal areas, and 2.7 percent in rural informal areas (HSRC, 2005). It is also evident that the highest reported rates of sexual partners are in urban informal areas (Hunter, 2006).

In the study a household's socio-economic status will be measured by the household's type of water source, type of toilet facility and access to electricity. There are three categories for households' type of water source namely piped, public and other sources. Other sources refer to accessing water from water from rivers, dams and streams. The type of toilet facility is used to identify households that have flush toilets, bucket/pit latrine and those with no toilets. Access to electricity was used to identify households that had electricity and households without electricity. These factors provide an understanding of the socio-economic conditions of the household that women live in.

3.7 Characteristics of Sample Population

Table 1 below provides a breakdown of the individual characteristics of the sample population.

Table 1: Descriptive statistics for women between ages 15 and 24

Individual Characteristics	**Frequency N= 4320**	**Distribution (%)**
Race *N=4303*		
African	3499	81.32
Coloured	494	11.48
White	190	4.42
Indian	120	2.79
Place of residence		
Urban	2176	50.37
Rural	2144	49.63
Highest level of education		
Primary	976	21.20
Secondary	3169	73.36
Higher	235	5.44
Marital status		
Never married	3725	86.23
Married	595	13.77
Sexually active N=4268		
Yes	2849	65.77
No	1419	34.23
Children ever born *N= 4320*		
Yes	1550	35.88
No	2770	64.12
Frequency use of contraception		
Not using	2468	57.13
Using	1852	42.87

From the table above it is evident that African women form 81.32 percent of the sample. 50.37 percent of the women reside in urban areas while 49.63 percent live in rural areas. 73.36 percent of the women had secondary education, however there were less than 6 percent of women who had higher education. Most of the women between ages 15 and 24 were never married (86.23 percent), while 13.77 percent were married. 65.77 percent of the women in the sample had sexual intercourse while 34.23 percent did not. 35.88 percent of the women had already begun childbearing. The results show that 57.13

percent of the women were currently not using any contraception while 42.87 percent preferred to use modern method of contraception.

Table 2: Household characteristics for women between ages 15 and 24

Household Characteristics N=4320	Frequency N= 4320	Distribution (%)
Source of drinking water N= 4290		
Piped	2499	57.09
Public	859	20.02
Other	982	22.89
Type of toilet facility N= 4284		
Flush toilet	1750	40.85
Bucket / pit latrine	1924	44.91
No facility bush field	610	14.24
Electricity access N=4299		
Yes	2624	61.04
No	1675	38.96

Household characteristics of respondents in Table 2 provide a picture of the socio-economic status of the women .The three socio-economic factors that will be considered are access to water, type of toilet facility and access to electricity. A number of respondents have indicated that they obtain their water from a piped water source (57.09 percent). In the sample 20.02 percent of the women were accessing water through public taps. Nearly 23 percent of the women obtain water from other sources, which include river, dams and streams. Approximately 41 percent had a flush toilet present in their household, while 45 percent of the women were using the bucket / pit latrine. Nearly 40 percent of the women had no electricity in their household.

3.8 Methods of Statistical Analysis

The 1998 SADHS (South African Demograhic Health Survey) was analysed using the Statistical Analyst Package, Stata 8.0. Factors influencing adolescent childbearing were categorised. These factors were: highest level of education, marital status, sexual debut, source of water and type of toilet facility. Crosstabs and frequencies were run to obtain descriptive statistics that show the characteristics of the population. Survival analysis was used to determine factors influencing the timing of childbearing for women between ages 15 and 24.

3.9 Limitations of the Study

In the dataset used there were missing values found for some of the indicators used in the analysis. However the percentage of missing values was small therefore it did not affect the results of the analysis. A further limitation of the study is that the information provided is reliant on self-reported data, which would lead to some errors. For example, respondents may not have understood the question and therefore provided incorrect information. In order to check the dataset for errors, frequencies for all variables were run and checked. Finally, as the analysis relied on secondary data the study could only explore areas that were included in the questionnaire at the time of the study.

Chapter Four: Timing of Childbearing in South Africa

4.1 Introduction

There is increasing concern in South Africa over the adverse effects of early childbearing for young women. Research has shown that early childbearing has been linked to higher rates of maternal morbidity, limited educational opportunities, and lower future family income (Mahy and Gupta, 2001). To reduce the high rates of adolescent childbearing in South Africa it is important that the factors and determinants of early childbearing are clearly identified and understood. This chapter investigates the determinants of early childbearing amongst young women aged 15 to 24 in South Africa.

4.2 Characteristics of women who had given birth between ages 15 and 24

The table below provides a breakdown of the characteristics of women who had children between the ages of 15 and 24. The table shows the number of women who had children by their race group, place of residence, level of education, marital status, frequency use of contraception and age at sexual debut.

Table 3: Characteristics of women who had given birth between ages 15 and 24

Individual Characteristics	Frequency N=1550	Distribution (%)
Race *N=1542*		
African	1318	88.22
Coloured	185	9.38
White	16	0.94
Indian	23	1.45
Place of residence		
Urban	657	47.17
Rural	893	52.83
Highest level of education		
Primary	380	24.52
Secondary	1109	71.55
Higher	61	3,94
Marital Status		
Never married	1100	70.97
Married	450	29.03
Frequency use of contraception		
Not using	556	35.87
Using	994	64.13
Sexual debut N=*1507*		
Had sex before age 15	472	31.32
Had sex by age 17	659	43.73
Had sex by age 19 and older	376	24.95

From Table 3 it is evident that the majority of women who had children were African (88.22 percent). More than half of the women who had children were from rural areas (52.83 percent). A majority of the women had secondary education, i.e. 71.55 percent, with less than 4 percent having achieved higher education. Nearly all women who had children were using contraception (86.32 percent). 71 percent of the women who had children were never married. Nearly 36 percent of women who had children were not using any contraception, while 64.13 percent of the women were using contraception. The results show that 31.32 percent of the women in the sample had their first sexual debut by the age of 15. Nearly 45 percent of the young women had first sex by the age of 17 and nearly 25 percent of the women had had their first sex by age 19 and older.

Table 4: Household characteristics of women who had given birth between ages 15 and 24

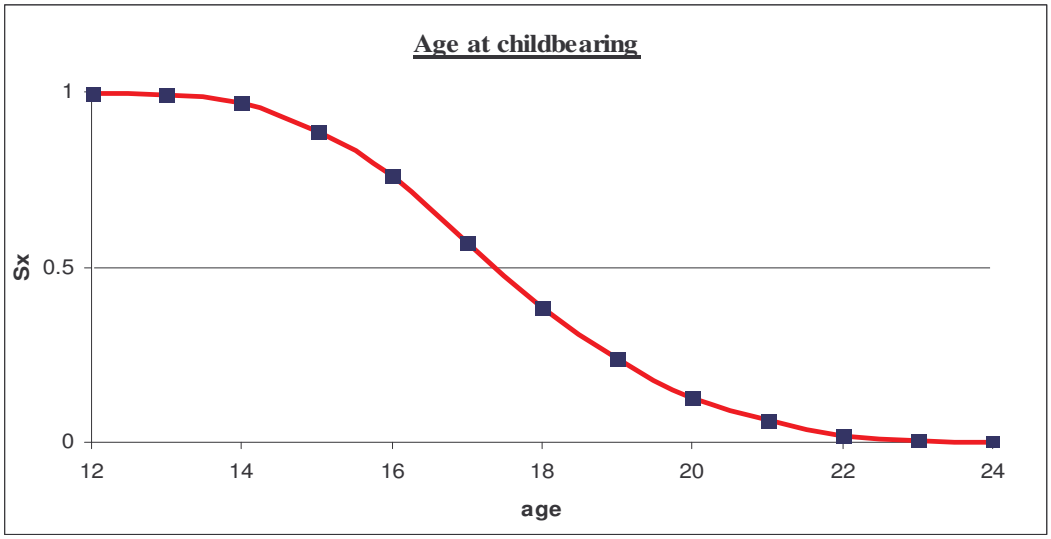
Household Characteristics	Frequency N=1550	Distribution %
Source of water *N=1540*		
Piped	926	52.37
Public	736	25.26
Other	493	22.37
Type of toilet facility *N=1541*		
Flush toilet	518	37.47
Bucket/pit latrine	771	47.21
No facility bush field	252	14.50
Electricity access *N=1544*		
Yes	853	56.58
No	691	43.42

Table 4 provides the characteristics of the households of the women who had children between ages 15 and 24. Table 5 shows that most women who had given birth between ages 15 and 24 had piped water in their household (52.37%). 22.26% of women used a public tap as source of water % 22.37% used other sources, i.e. boreholes, dams, rivers and rainwater tanks. Most of the women who had children lived in households that used the bucket/pit latrine system (47.21%). 14.50% of women had no toilet facility in their households or used the bush for sanitation purposes. 43.42% of women did not have access to electricity in their households.

4.3 Timing of childbearing according to characteristics of young women who had children between ages 15 and 24

To understand which factors influence early childbearing in South Africa, the Kaplan-Meier estimator is used. The Kaplan-Meier estimator is a non-parametric technique that uses the exact survival time (e.g. age at first birth) for each individual in a sample instead of grouping the times into intervals. In this analysis the Kaplan-Meier graphs allows us to compare the different characteristics of young women who had given birth by focusing on their timing of childbearing.

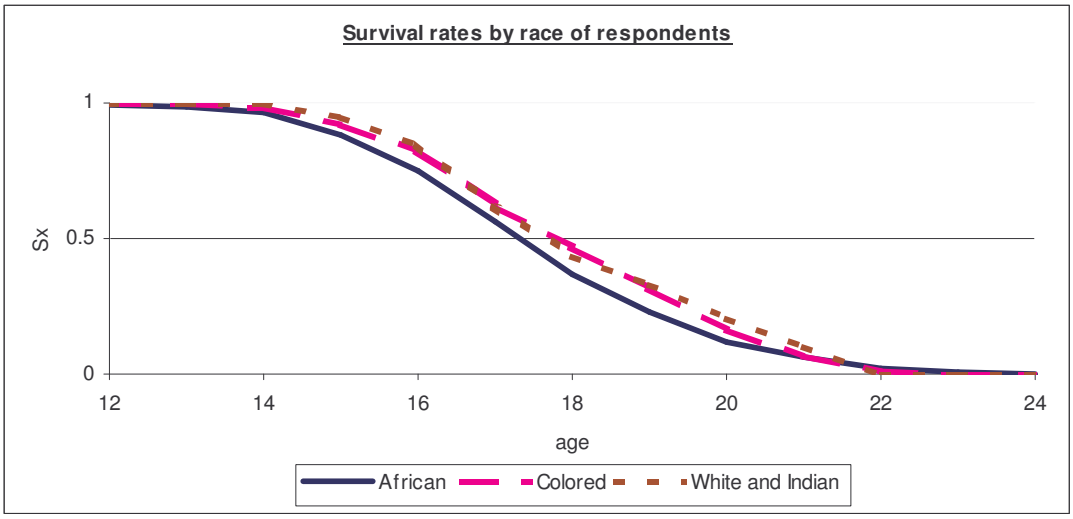
Figure 1: Kaplan-Meier survival function for age at first birth



The graph above shows that from the age of 14 the survivorship probabilities for women begin to drop, showing that the first group of women began childbearing at age 14. The results also show that by age 17, half of the women in the study had already had their first birth.

According to the World Health Organization (WHO) the severity of the social and personal consequences of adolescent childbearing is likely to be greater for younger women (WHO, 1994). Research has shown that early childbearing has negative consequences for both mother and child (Mahy and Gupta, 2001). Zabin and Kiragu (1998) review the negative health outcomes of early childbearing for younger women. The study revealed younger women have higher than average levels of blood pressure, toxaemia, anaemia, bleeding, obstructed and difficult labour, premature delivery and death. In addition, children born to teenage mothers are susceptible to a higher incidence of low birth weight, stillbirth and prenatal mortality (Mahy and Gupta, 2001).

Figure 2: Kaplan-Meier survival function for childbearing by race

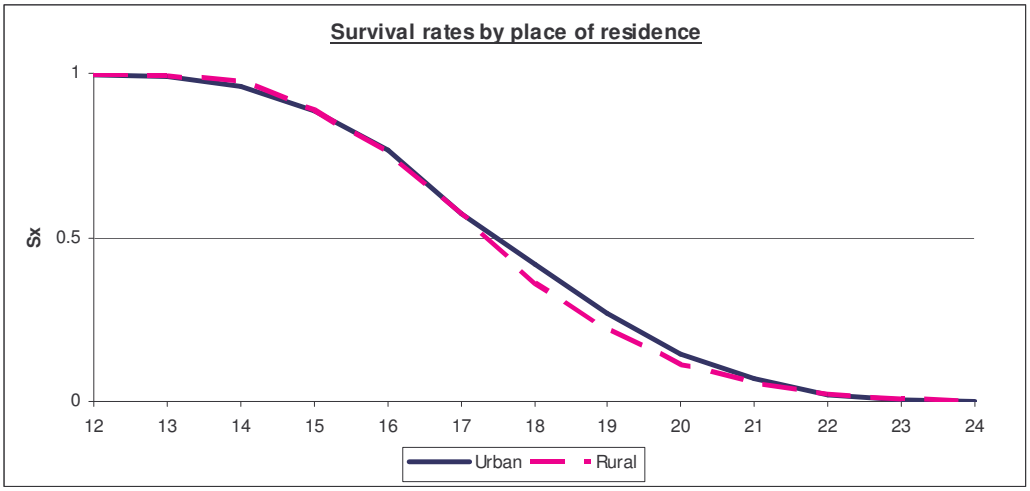


From Figure 2 Africans are having children earlier than other races. During the ages 12 to 18 Coloureds, Indian and Whites are having children at similar ages. After the age of 18 it is evident that Coloureds are having children later than Whites and Indians. In the late 1980s, special clinics and programmes for African adolescents were discontinued (Kaufman, De Wet and Stadler, 2001). The inadequate family planning services that where offered to Africans by the apartheid government have resulted in a long history of high adolescent childbearing. Family members are frequently available to provide childcare, and children of adolescent mothers are usually absorbed into the mother's or grandmother's households and given the protection of the mother's family (Jewkes Vundule, Maforah and Jordaan, 2001).

According to Hayes (1987), African teenagers have higher rates of non-marital births and are therefore more likely to experience the negative outcomes associated with teenage motherhood, including low rates of secondary school completion, unstable employment and higher rates of poverty. Research has shown that the incidence of AIDS is substantially higher among Africans than it is among Whites (HSRC, 2005). For example, 12 percent of Africans aged 15 to 24 are infected with HIV, compared to less than 2 percent of Whites, Coloureds and Asians (HSRC, 2005). Since about four out of five young South Africans are African, this represents a large group at high risk of HIV infection (Burgard and Lee-Rife, 2008). The high rates of adolescent

childbearing experienced by Africans have also made them more vulnerable to HIV and AIDS in South Africa (Rutenberg, Kaufman, McIntyre, Brown and Karim, 2003).

Figure 3: Kaplan-Meier survival function for childbearing by place of residence



The results above show that from the ages of 12 to17 there is no difference in the timing of childbearing for women from urban and rural areas. However, after the age of 18 women from rural areas are having children earlier. According to the 2005 South African National Household Survey on HIV Prevalence, Incidence, Behaviour and Communication, it was evident that people living in informal settlements have the highest HIV prevalence rate (HSRC, 2005). Rural and informal settlements in urban areas have poor socio-economic conditions, which influence the timing of childbearing for women.

Figure 4: Kaplan-Meier survival function for childbearing by current use of any contraception

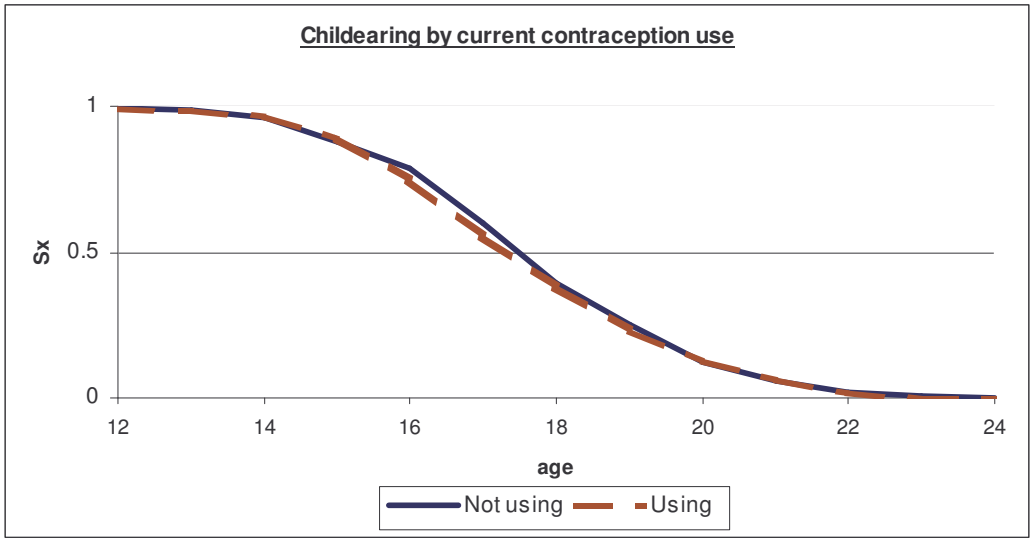
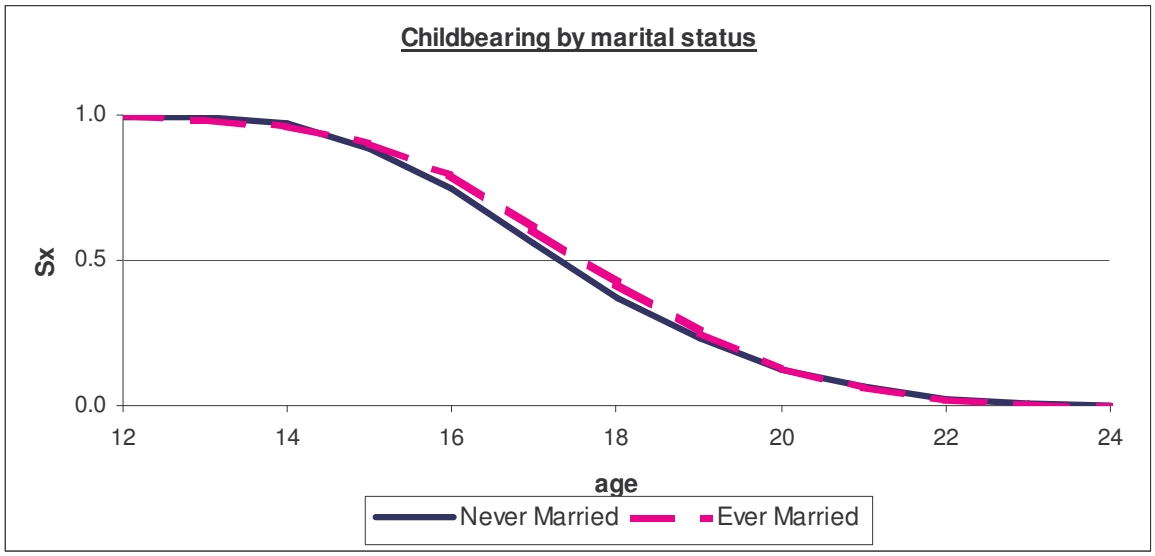


Figure 4 shows the time at which women who use contraception and those who are not using contraception have their first child. Between ages 12 and 14 both groups of women are having children at similar ages. Between ages 15 and 18 women who are using contraception are having children earlier than women who never used contraception. These results suggest that women who are using contraception are using them irregularly and as a result are having children earlier than women who are not using contraception. In order to avoid pregnancy it is essential that women understand how to correctly use contraception. According to Garenne and colleagues (2000) the high levels of teenage pregnancy and HIV in South Africa suggest that the public health care system is failing to provide adolescents with correct information about the safe and effective use of contraceptive methods.

Better access to contraception will require recognition of the special needs of adolescents (particularly the youngest), including the skills necessary to negotiate with male partners. The high rates of adolescent childbearing experienced in South Africa suggest that there is a low usage rate of contraception amongst young women before childbearing (Garenne, Tollman, Kahn, Collins and Ngwenya, 2001). According to Mfono (1998) adolescent contraceptive use in South Africa is constrained by attitudes associating sexual involvement with marital commitment and stable relationships, neither of which characterises adolescent relationships. The situation of earlier and

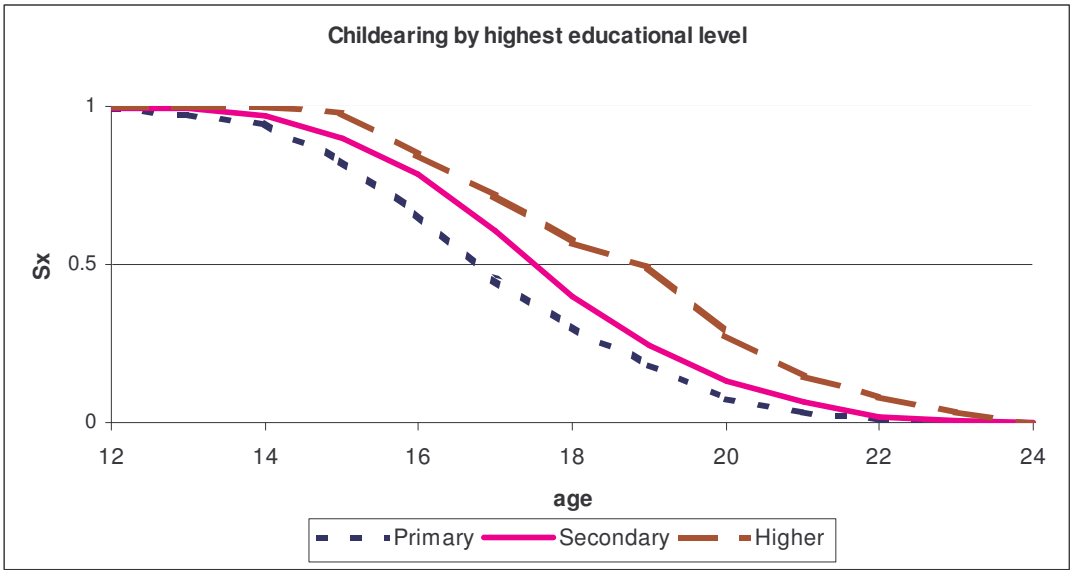
unprotected sexual intercourse and lack of access to family services leaves an increasingly wide window of vulnerability to unplanned or unwanted pregnancies including the risk of HIV for unmarried adolescents (Garenne, Tollman, Kahn, Collins and Ngwenya, 2001). In order to reduce adolescent childbearing it is important that the public health care system provide the correct information and services to young women and men.

Figure 5: Kaplan-Meier survival function for childbearing by marital status



From Figure 5, never married women are having children earlier than married women in the study. The median age of childbearing for both women was at the age of 18. In many societies marriage is often an indicator for the onset of a woman's exposure to the risk of childbearing. According to Bongaarts and Potter (1983), marriage is one of the proximate determinants for fertility, which are a set of biological and behavioural factors that influence fertility (Bongaarts and Potter, 1983). However in South Africa a large number of women are having children outside of marriage, which is referred to as 'premarital fertility'. In 2000, premarital births accounted for 21 percent of all births amongst Africans (Garenne, Tollman, Kahn, Collins and Ngwenya, 2001).

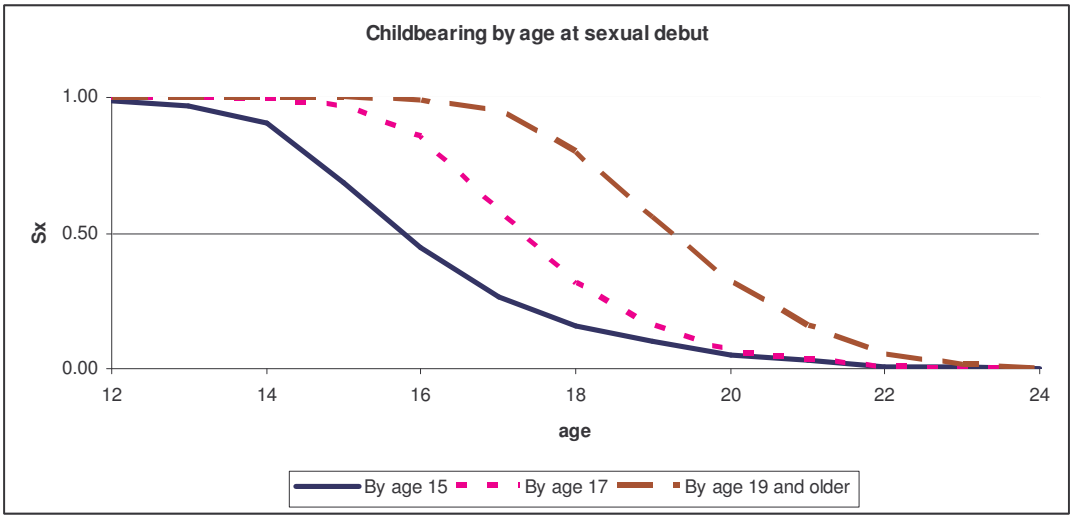
Figure 6: Kaplan-Meier survival function for childbearing by highest education level



From Figure 6 above it is evident that women with primary education are having children earlier than women with secondary and higher education. The median age for women with primary education is 17 whereas the median age for childbearing for women who have higher levels of education is 19. The results show that higher education is associated with a delay in childbearing. This correlation has been observed consistently throughout the developing world (Ainsworth, Beegle and Nyamete, 1996).

Mboup and Saha (1998) found that in many countries in Sub-Saharan Africa (including Burkina Faso, Ghana and Senegal) women with no schooling have about two or three children more than women with secondary or higher education. Research has also shown that young women who perform poorly at school and have lower educational abilities, aspirations and motivation are more likely to become pregnant early (Woodward, Fergusson and Horwood, 2001). Since education requires time young women with higher levels of education are more likely to postpone marriage and childbearing in order to pursue their educational responsibilities. Therefore higher education levels result in reduced likelihood of adolescent childbearing.

Figure 7: Kaplan-Meier survival function for childbearing by age at sexual debut



From the figure above it is evident that young women who begin sexual intercourse by the age of 15 are having children earlier than those who had their sexual debut at a later age. The median age of childbearing for those that had sexual intercourse by the age 15 is 16, while the median age for those who had their first sex by age 17 is 18 and for those who had their first sex by age 19 and older the median age of childbearing is 20. From the results it is evident that women who delay first sex are likely to have children later than women who have first sex at an early age. Therefore timing of sexual debut is closely linked to timing of childbearing, indicating that young women who have sex at an early age are not using protection, which exposes them to early childbearing. Sexually active youth face an increased risk of HIV as well as other STIs, since they tend to have multiple sex partners that engage in unprotected sex (Atalay, Kebede, Mitike, Engusellase & Lemma, 2006)

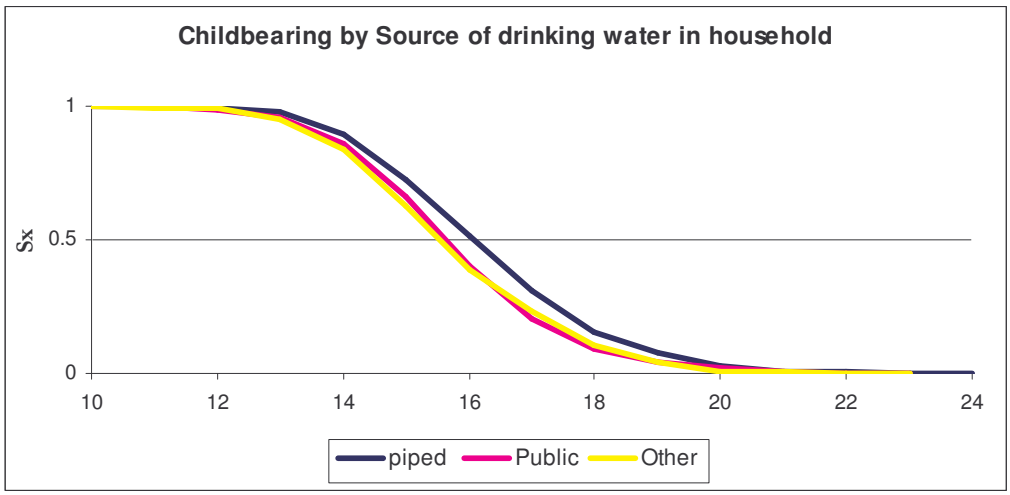
Early sexual debuts can expose women, particularly those who are poor or lacking education, to an uncertain future if they become pregnant or give birth. But adolescent women, who are usually not yet able to support themselves, let alone any children they might have, are likely to be even more undermined by the lack of social, financial and legal support associated with childbearing (Singh, Wulf, Samara and Cuca, 2000). A delay in first sex among young women and men has been positively associated with a

decline in HIV prevalence and STIs (Rutenberg, Kaufman, McIntyre, Brown and Karim, 2003).

4.4 Impact of Household Characteristics on Early Childbearing

The following Kaplan-Meier graphs presents the household characteristics for women who had children between ages 15 and 24. As previous research has shown, disparities in rates of adolescent and non-marital fertility exist between women from different socio-economic status (Trent and Crowder, 1997; Hogan and Kitagawa, 1985). In South Africa young women who live in households that have access to piped water, flush toilet and electricity have a better socio-economic status than those who do not (Heaton and Amoateng, 2007). It is evident that adolescents from economically disadvantaged backgrounds who become sexually active at younger ages, are less likely to use contraceptives during first intercourse, and are more likely to become pregnant and carry their pregnancies to term (Hogan and Kitagawa, 1985). Therefore, to reduce adolescent childbearing it is important to improve the socio-economic conditions of young women in South Africa.

Figure 8: Kaplan-Meier survival function for childbearing by type of water source in households



From the figure above young women who have piped water available in their household are less likely to have children during their early adolescent years when compared to those who live in households that have access to public and other sources of water. A

recent study conducted to investigate the relationship between piped water supply and child mortality in Bengal shows that child loss was higher for women who do not have access to piped water compared to those who have piped water (Datta and Guha, 2006). The source for water in a household is often used as an indicator of socio-economic status.

Figure 9: Kaplan-Meier survival function for childbearing by type of toilet facility in households

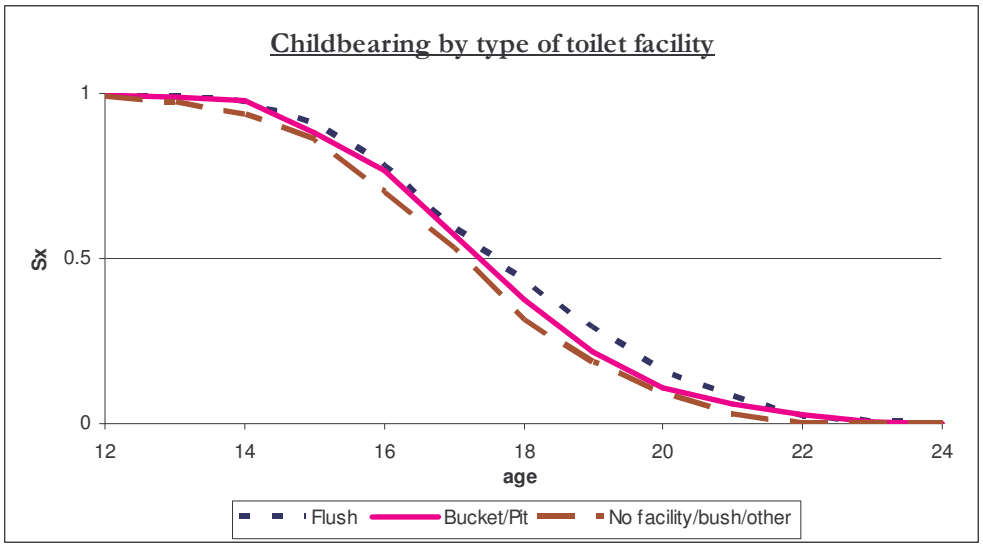
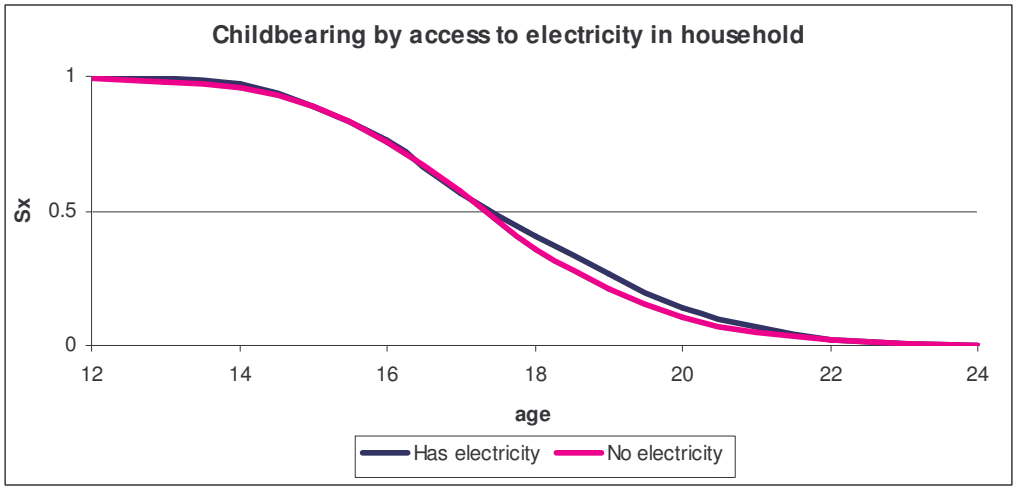


Figure 9 shows that young women who have no facility or use the bush as a type of toilet facility are having children earlier than those who have bucket/pit or flush toilets in their household. Similarly to the source of water present in household, the type of toilet facility can also be used as an indicator of socio-economic status. Many women who have no toilet facilities present in their households reside in households that have limited resources.

Figure 10: Kaplan-Meier survival function for childbearing by type of electricity in household



From the above graph it is evident that that between the ages 12 and 17 women who have and women who don't have electricity are having children at similar ages. It appears that after the age of 18 women who do not have electricity are having children earlier than women who have electricity. The access to electricity has commonly been used as an indicator for socio-economic status (Department of Minerals and Energy, 2008). Providing people with electricity is considered the key to improving quality of life in the modern age (The Presidency, 2008).

4.5 Factors influencing the timing of childbearing for women between ages 15 and 24

The observed pattern of early childbearing according to the chosen background characteristics suggest that potentially confounding influences are at play. To control for these influences, the independent variables have been included in a Cox Proportional Hazard Model. These models will provide us with some insight on early adolescent childbearing by estimating the timing of childbearing for women by their different socio-economic characteristics. Included in the model are variables created to describe an individual's socio-demographic characteristics (education, place of residence, ethnicity and marital status), as well as contextual variables, i.e. piped water in household, access to electricity and type of toilet facility. The STATA 8.0 software was

used to correctly calculate the standard errors and the coefficients, which are reported in the form of hazard ratios.

Table 5: Cox regression models predicting early adolescent childbearing: Influence of individual and household level characteristics

Variables	Model 1	Model 2	Model 3
Place of residence			
Urban	1.00	1.00	1.00
Rural	1.03 (0.05)	1.00 (0.08)	1.01 (0.08)
Level of education			
Primary	1.00	1.00	1.00
Secondary	0.78** (0.05)	0.81** (0.06)	0.83** (0.06)
Higher	0.54** (0.08)	0.60** (0.10)	0.62** (0.10)
Marital status			
Unmarried	1.00	1.00	1.00
Ever-Married	0.91 (0.05)	0.92 (0.06)	0.95 (0.07)
Source of water			
Piped in residence		1.00	1.00
Piped on site		0.98 (0.10)	1.09 (0.09)
Public		1.22** (0.12)	1.02 (0.11)
Toilet facility			
Flush		1.00	1.00
Bucket/pit		1.02 (0.10)	0.86 (0.09)
No facility/bush		1.08 (0.16)	0.83 (0.12)
Electricity			
No electricity		1.00	1.00
Has electricity		1.10 (0.08)	0.96 (0.08)
Frequency use of contraception			
Not using contraception			1.00
Using contraception			1.08 (0.07)
Age at sexual debut			
By age 15			1.00
By age 17			0.65** (0.05)
By age 19			0.34** (0.03)
By age 20 and older			0.23** (0.04)

Notes: significance at **5% level; standard errors are presented in brackets.

Table 5 displays the hazard ratios for the Cox Proportional Hazard Model. There are three models used to determine the factors that influence the timing of childbearing for women. The socio-demographic characteristics (place of residence, education and marital status) of individuals are included in Model 1. When controlling for place of residence, education

and marital status, women with secondary education were 22 percent less likely to have had a child during adolescence than women with primary education. Women who have higher education were 46 percent less likely to have children during early ages than women who have primary education. The effect of education is also observed in the Kaplan-Meier estimator presented in Figure 6.

Household characteristics, i.e. source of water, toilet facility and electricity, were included in Model 2. Controlling for place of residence, level of education, marital status, source of water, toilet facility and electricity, it was found that women who have secondary education were 19 percent less likely to have children during adolescence than women who only had primary education. Women who had higher education were 40 percent less likely to have children than those with only primary education. Women who use public sources of water were 22 percent more likely to have children during adolescence than women who have piped water in their households. The Kaplan-Meier estimator in Figure 8 also shows that women who use public sources of water are having children earlier than women who have piped water.

Sexual debut and current contraceptive use were added in Model 3. When controlling for place of residence, marital status, water source, toilet facility, electricity, contraceptive use and age at sexual debut, the study found that women with secondary education were 17 percent less likely to have children than women who only have primary education. Women with higher education were 38 percent less likely to have children than women with primary education. Women who had their first sexual intercourse by the age 17 were 35 percent less likely to have given birth than women who first had sex by age 15. Women who had their sexual experience by age 19 were 66 percent less likely to have given birth than those who had their first sex by age 15. Women who had first sex by the age 20 and older were 77 percent less likely to have given birth than those who had their first sex by age 15. The effect of timing of sexual debut on the age at childbearing can also be seen in the Kaplan-Meier estimator in Figure 7.

4.6 Conclusion

The results from the analysis show that the socio-economic characteristics of women influence their timing of childbearing. Educational attainment, socio-economic status and early sexual debut are key risk factors of adolescent childbearing in South Africa. According to Jewkes and Christofides (2008), adolescents from a background of higher socio-economic status generally have higher expectations of their own success and have much greater incentives to prevent unwanted pregnancy. Conversely, teenagers who grow up in poverty and have been subjected to dysfunctional schools may feel they have less to lose by becoming pregnant and so are less motivated to prevent pregnancy (Jewkes and Christofides, 2008). An important issue related to having children out of wedlock in South Africa is that the father of the child seldom acknowledges or takes responsibility for the financial, emotional and practical support of the child (Swartz, 2004).

The results also show that women who begin sexual intercourse at an early age are at a higher risk of early childbearing than women who begin sexual intercourse at a later age. Early sexual intercourse can have serious consequences. The earlier young people begin having sex, the longer they are exposed to the risk of an unwanted pregnancy or of contracting a sexually transmitted infection (Miller and Heaton, 1991). Rates of some STDs and STIs are higher among sexually active adolescents than among any other age groups (Bell and Hein, 1984). The WHO estimates that at least a third of the more than 333 million new cases of curable STIs each year occur among people under age 25 (WHO, 1998).

Young people are also more likely than adults to become re-infected after having been treated. A study in South Africa showed that adolescent girls were 30 per cent more likely to get STIs than were boys, largely because they were involved with older men who were more likely to have STIs themselves (MacPhail, Williams and Campbell, 2002). Having unprotected sex also places adolescents at an increased risk of HIV/AIDS. An estimated 6,000 youths a day become infected with HIV/AIDS, the

majority of them being young women. Young people who are infected or affected by HIV/AIDS frequently have their schooling disrupted (UNFPA, 2008).

Chapter Five: Influence of Sisters on Sexual Reproductive Behaviour

5.1 Introduction

This chapter investigates how an older sister who has had a child during adolescence could effect a younger sister's age at sexual debut and childbearing. According to East and Jacobson (2001)… 'the most overlooked aspects of the new literature on teenage childbearing is that a teenager's pregnancy and childbearing most assuredly has a strong and unique effect for the teen's family and for her siblings' (East and Jacobson, 2000: 288). Younger sisters who share the same home and school environment with an older sister who has had a child during adolescence may be at elevated risk of teenage childbearing (Hogan and Kitagawa, 1985). The purpose of this chapter is to compare the timing of childbearing for older sisters, younger sisters and women with no sisters.

5.2 Comparison of characteristics of women who had children between ages 15 and 24 with sisters and with no sisters

Table 6 below compares the characteristics for women who had children between ages 15 and 24 who have sisters and those who do not have sisters. The characteristics presented are race, place of residence, highest level of education, current marital status, contraception use and sexual debut.

Table 6: Characteristics of women who had given birth between ages 15 and 24 with sisters and with no sisters

Individual Characteristics	Women with sisters N= 533		Women with no sisters N=1017	
	Frequency	**%**	**Frequency**	**%**
Race	**N=531**		**N=1011**	
African	458	86.25	860	85.06*
Coloured	69	12.99	116	11.47
White	1	0.19	15	1.48
Indian	1	0.56	20	1.98
Place of residence				
Urban	219	41.09	438	43.07
Rural	314	58.91	579	56.93
Highest level of education				
Primary	102	19.14	278	27.34**
Secondary	416	78.05	693	68.14
Higher	15	2.81	46	4.52
Current marital status				
Never married	446	83.68	654	64.31**
Ever married	87	16.32	363	35.69
Contraception use				
Not Using	184	34.52	372	36.58
Using	349	65.48	645	63.42
Sexual debut	**N= 520**		**N=987**	
Had sex by age 15	169	32.5	303	30.7
Had sex by age 17	224	43.08	435	44.07
Had sex by age 19 and older	127	24.42	249	25.23

**p<0.001 *p<0.05

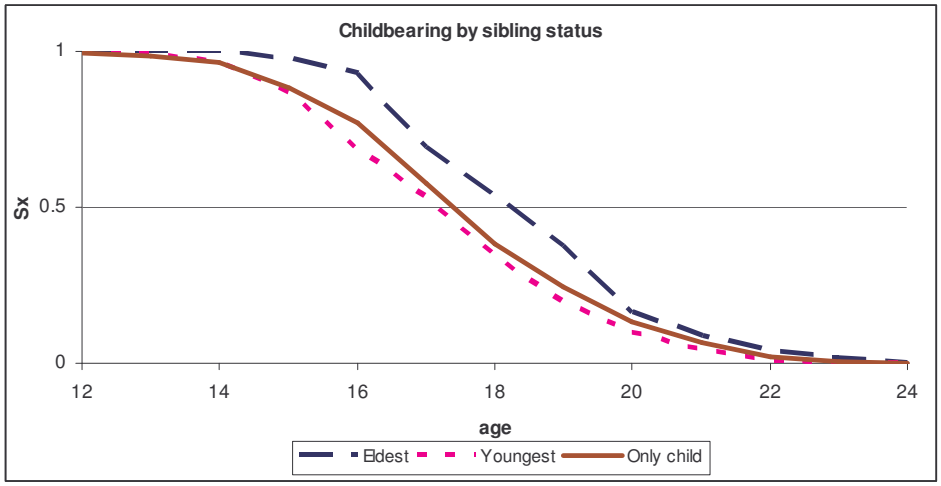
Table 6 depicts the individual characteristics of childbearing women with sisters and of childbearing women with no sisters, between ages 15 and 24. The table depicts childbearing patterns among South African race groups. Childbearing women with sisters are more likely to be African or Coloured. However, childbearing women with no sisters are more likely to be White or Indian. According to the table, race groups that have higher fertility are likely to have siblings. It is evident that most childbearing women are from rural areas. Most childbearing women had secondary education. Childbearing women with primary education were significantly more likely to have no sisters, whereas childbearing women with secondary education were more likely to have sisters. Childbearing women with tertiary education were more likely to have no sisters.

Never married childbearing women between age 15 and 24 were significantly more likely to have sisters, compared to childbearing women who were ever married. Most childbearing women were using contraception. Nearly 84 percent of the women with sisters were not married. Nearly 33 percent of the childbearing women with sisters had sex by age 15.

5.3 The timing of childbearing for older, younger and women with no sisters

Figure 11 below shows that younger sisters are having children earlier than older sisters and women with no sisters. The median age of childbearing for younger sisters is 18 and for older sisters the median age of childbearing is 19.

Figure 11: Kaplan-Meier survival function for childbearing by women with sisters and women with no sisters



5.4 The timing of childbearing for older, younger and women with no sisters by key socio-economic characteristics

The survivorship functions for the independent variables are plotted and can be seen in the following Kaplan-Meier graphs. The Kaplan-Meier graph allows us to investigate the timing of childbearing for older sisters, younger sisters and women with no sisters by their place of residence and age at sexual debut.

5.4.1 Place of Residence

Place of residence is an important factor which influences the timing of childbearing for women. Figures 12 and 13 show the timing of childbearing for older sisters, younger sister and women with no sisters by their place of residence, i.e. urban and rural. Figure 12 below shows that amongst women who live in urban areas, younger sisters are having children earlier than their older sisters. Younger sisters' median age for childbearing is 17, whereas older sisters' median age was 19.

Figure 12: Kaplan-Meier survival function for childbearing by women in urban areas

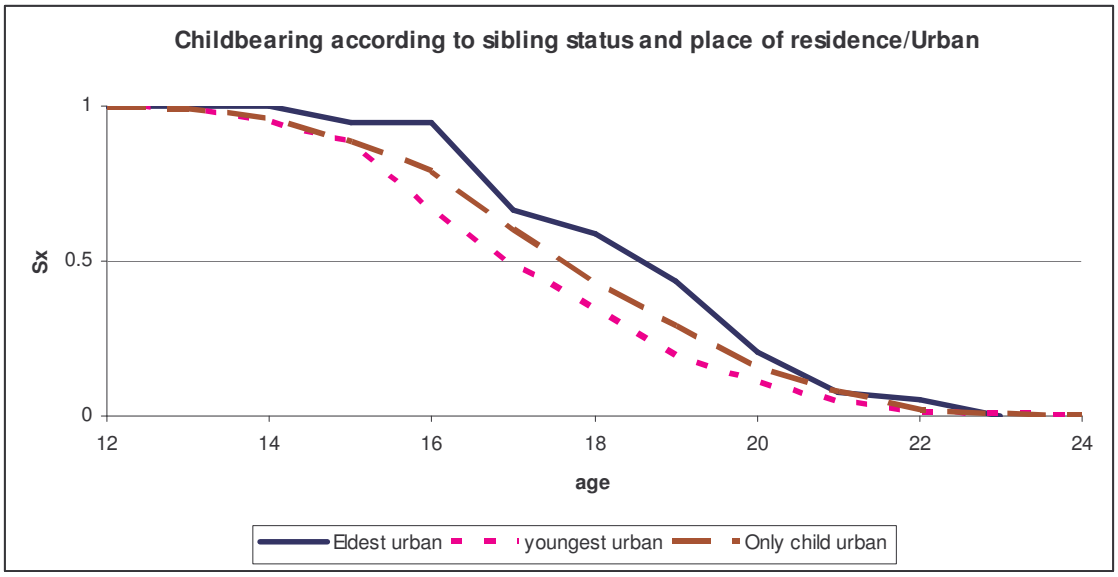


Figure 13: Kaplan-Meier survival function for childbearing by women in rural areas

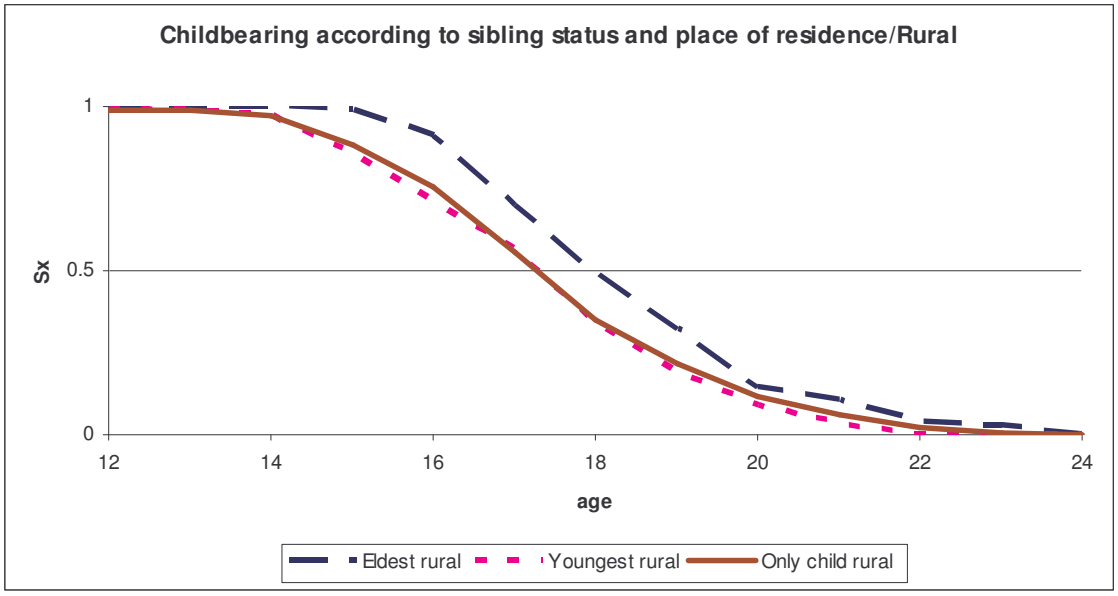


Figure 13 indicates that younger sisters are having children at an earlier age than older sisters. The median age for older sisters is 19, however for younger sisters the median age is 18. The results are similar to those in Figure 12, which also showed that younger sisters from urban areas are having children earlier than older sisters. The results show that younger sisters from both urban and rural areas are having children earlier than older sisters. The results show that, regardless of place of residence, younger sisters are having children at an earlier age than the age at which their older sister had given birth.

5.4.2 Age at Sexual Debut

The age at which a woman has her first sexual intercourse is an important determinant for childbearing. Women who have an early age at sexual debut are likely to have children earlier than women who have a later age at sexual debut. The graph below compares the age at sexual debut of young sisters, older sisters and women with no sister.

Figure 14: Kaplan-Meier survival function for childbearing by sexual debut of women

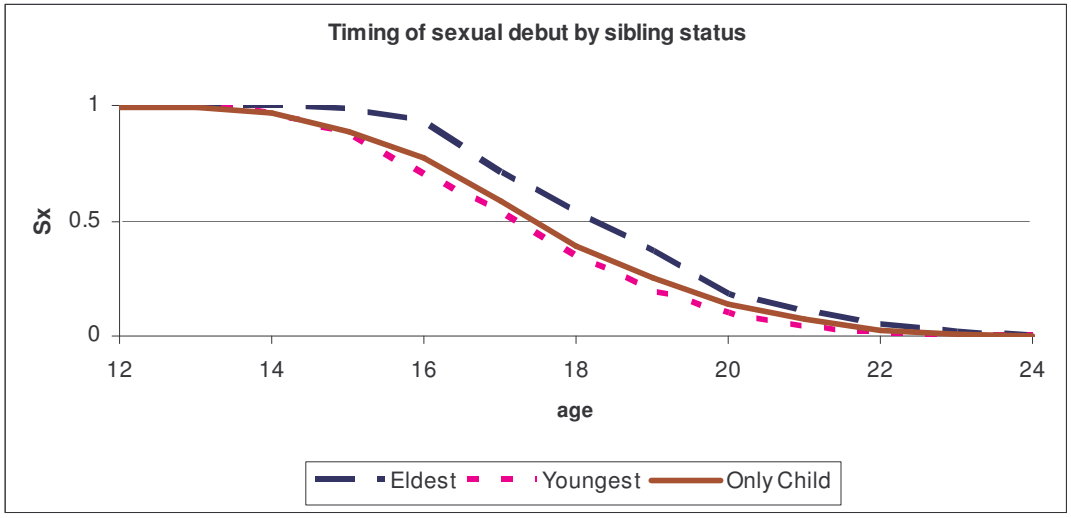


Figure 14 shows that younger sisters are having children earlier than older sisters. Younger sisters started having sex by age 12, whereas older sisters started having sex by age 14. The median age for childbearing among younger sisters is 18, however for older sisters the median age for childbearing is 19. These results show that younger sisters are having sex earlier than their older sisters who are also sexually active.

5.5 The influence of older sisters' early age at childbearing on younger sisters' age at childbearing

To analyse if an older sister's birth during adolescence has an effect on a younger sister, Cox Proportional Hazard Models will be used. These models will provide us with some insight into the process of adolescent childbearing by estimating the risks in the timing of childbearing for older and younger sisters. Included in the model are variables created to describe an individual's socio-demographic characteristics (education, place of residence, ethnicity, and marital status), contextual variables (piped water in household, access to electricity and type of toilet facility, and sibling status (older sister, younger sister and women with no sister).

Table 7 shows the Cox regression models predicting early adolescent childbearing by socio-economic characteristics and having sisters present in household. Hazard rates and standard errors are presented in the table. Sister status (younger sister, older sister, women with no sisters) and socio-demographic characteristics (place of residence, education and marital status) of individuals are included in Model 1. Household level attributes such as water source, toilet facility and access to electricity were included in Model 2. Contraceptive use and age at sexual debut were included in Model 3.

Table 7: Cox regression models predicting early adolescent childbearing: Influence of sisters and socio-economic characteristics

Variables	Model 1	Model 2	Model 3
Sibling status			
Oldest	1.00	1.00	1.00
Youngest	1.46** (0.15)	1.53** (0.19)	1.50** (0.19)
Only child	1.28** (0.13)	1.33** (0.16)	1.33** (0.16)
Place of residence			
Urban	1.00	1.00	1.00
Rural	1.04 (0.05)	1.00 (0.08)	1.01 (0.08)
Level of education			
Primary	1.00	1.00	1.00
Secondary	0.78** (0.05)	0.81** (0.06)	0.84** (0.07)
Higher	0.55** (0.08)	0.61** (0.10)	0.63** (0.10)
Marital status			
Never married	1.00	1.00	1.00
Ever-Married	0.90 (0.05)	0.92 (0.06)	0.94 (0.07)
Source of water			
Piped in residence		1.00	1.00
Public		1.19** (0.10)	1.09 (0.09)
Toilet facility			
Flush		1.00	1.00
Bucket/pit		1.01 (0.10)	0.86 (0.08)
No facility/bush		1.06 (0.15)	0.81 (0.12)
Electricity			
No electricity		1.00	1.00
Has electricity		1.01 (0.07)	0.99 (0.77)
Contraception use			
Not using			1.00
Using Contraception			0.64 (0.05)
Age at sexual debut			
By age 15			1.00
By age 17			0.31** (0.03)
By age 19 and older			0.95** (0.10)

Notes: significance at **5% level; standard errors are presented in brackets.

From Table 7 it is evident that when controlling for sister status, place of residence, education and marital status, younger sisters were 46 percent more likely to have children than older sisters. Women with no sisters were 28 percent more likely to have children than older sisters. Women who had secondary education were 12 percent less likely to have had a child during adolescence than women with primary education. Women with higher education were 45 percent less likely to have children at an early age than women with primary education.

In Model 2 when controlling for sister status, education, place of residence, marital status, type of toilet facility, water source and access to electricity, younger sisters were 53 percent more likely to have children than older sisters. Women with no sisters were 33 percent more likely to have children than older sisters. Women who have secondary education were 19 percent less likely to have children during adolescence than women who only had primary education. Women who had higher education were 29 percent less likely to have children than those with only primary education. Women who use public sources to access water were 19 percent more likely to have children during adolescence than those whom have piped water in their households.

Model 3 included Models 1 and 2 and contraceptive use and age at sexual debut. When controlling for sister status, education, place of residence, marital status, type of toilet facility, water source, and access to electricity, sexual debut and contraception use, younger sisters were 50 percent more likely to have children than older sisters. Women with no sisters were 33 percent more likely to have children than older sisters. Women who had secondary education were 16 percent less likely to have children than women who only have primary education. Women with higher education were 37 percent less likely to have children than women with primary education. Women who had their first sexual intercourse by the age 17 were 69 percent less likely to have children than women who had first sex by age 15. Women who had first sex by age 19 and older were 5 percent less likely to have children than those who had their first sex by age 15.

5.6 Conclusion

The results of the analysis show that of the women who had children during adolescence younger sisters are likely to have children at an earlier age than older sisters and women with no sisters. The results also show that of the women who share the same socio-economic status, younger sisters are younger at sexual debut and have children at an earlier age than older sisters and women with no sisters. These results support the argument that a younger sister who lives with an older sister who has given birth during adolescence is more likely to be accepting of having a child during adolescence than women with no sisters and younger sisters who do not have an older sister who has given birth during adolescence (East, 1996). The experience of living with an older sister who has had a child during adolescence may influence a younger sister to also have a child at an early age.

Chapter Six: Conclusion and Recommendations

According to Kaufman, De Wet and Stadler (2001) and Dickson (2003) the factors driving adolescent childbearing are complex and varied, requiring comprehensive interventions at the individual, familial, cultural and societal levels. Reducing early sex amongst adolescence would substantially reduce the incidence and prevalence of unwanted pregnancies and STIs, including HIV infection. Preventing adolescent childbearing would reduce the number of young women exposed to the negative physical, social, cultural and economic consequences experienced by women who become pregnant at an early age (Diop-Sidibe, 2005). This study investigates how an older sister who has given birth during adolescence could possibly influence a younger sister's age at sexual debut and childbearing.

One of the main objectives of the study was to determine the factors influencing early childbearing for girls growing up in the same household. Another was to explore the effect an older sister's age at sexual debut has on a resident younger sibling's age at sexual debut. The study also investigated the influence an older sister's age at childbearing has on a younger sister's age at childbearing. From the results it was evident that there are significant socio-demographic factors that influence early childbearing among adolescent women, i.e. low level of education and poor socio-economic conditions. Poor socio-economic condition is defined as having low levels of education, unemployment and poor housing. This study measures poor housing by the lack of toilet facilities available, no source of water within the household and no access to electricity within the household. The analysis shows that women with deprived socio-economic conditions are likely to have children earlier than women living in better socio-economic conditions.

From the literature presented and the results, it is evident that women with higher levels of education are more likely to have children later in life (Rani and Lule, 2004; De Wit, 1994). Women who pursue their education often do not have the time to be involved in sexual relationships. Approaches to lowering adolescent childbearing in South Africa should include the promotion of education amongst young adolescent women. Poverty

is considered another constraint for further education. Adolescent women from poor homes cannot pursue their education because of financial constraints. The government should therefore provide young women who cannot afford further education with educational bursaries and scholarships. Policies that promote the schooling and earning opportunities of low-income young women could help in breaking the cycle of poverty experienced by adolescents.

Adolescents often feel more comfortable discussing sexual matters with each other rather than with adults (Alan Guttmacher Institute, 2004). Organising peer counselling programmes in communities and schools could help in reducing adolescent childbearing. Peer counselling programs typically involve older teens, who encourage other adolescents to resist peer and social pressures to become sexually involved. These programmes tend to take a personal approach, helping teens understand their own risks. For adolescents who are already sexually active, peer counselling programmes also provide negotiation skills for relationships and the information they need to get and successfully use contraceptives.

The findings also show that women who had their first sexual intercourse at an early age are more likely to have children earlier than women who had their first sexual intercourse at a later age. One possible approach to delaying sexual debut is sex education. At the International Conference on Population and Development (ICDP) it was recognised that women have a right to access sexual and reproductive health services (Shalev, 1998). This also means that women are entitled to demand from governments the provision of quality reproductive health services. Reproductive health services and clinics in South Africa should therefore provide young women with information about the consequences of sexual intercourse so that they are able to make an informed decision regarding their sexual behaviour.

Sex educational programmes should include the development of life skills and sex education, and should be made available within and outside of schools. Research has shown that sex education programmes are more effective when provided to young people before they become sexually active (Manzini, 2001). Introducing educational

pregnancy prevention programmes into school systems will help in delaying sexual activity among adolescents and increase the use of contraceptives to protect those who are sexually active against pregnancy and sexually transmitted diseases (Josefina, Niego, Mallari & Farrell, 1996).

Fundamental to delaying sexual debut is the provision of sex education programmes that are based on the issues young people face on a daily basis. Advocates of a more comprehensive approach to sex education argue that young women of today need information and decision-making skills to make realistic, practical decisions about whether to engage in sexual activities (Solomon-Fears, 2007). Such an approach allows young people to make informed decisions regarding the timing of sexual intercourse and childbearing, and also provides them with information on the use of contraceptives and the prevention of sexually transmitted diseases (Solomon-Fears, 2007). To reduce adolescent childbearing rates in South Africa it is important that social policy makers introduce programmes that target not only adults, but adolescents as well. The hospitals and clinics around South Africa should be made 'youth-friendly' so that adolescents feel more comfortable to access information about sexual health, reproductive health and family planning (Harrison, 2008).

When investigating the effect of an older sister's childbearing during adolescence on a younger sister, the analysis showed that younger sisters are more likely to have children at an earlier age than their older sisters who already have children. The results also showed that, regardless of socio-economic status, younger sisters have children earlier than older sisters. Younger sisters with childbearing older sister are at a greater risk of adolescent childbearing. It is imperative that programmes target younger sisters of older sisters who had given birth during adolescence. These young women are a relatively easy population to identify, as virtually all protocols of teenage obstetric clinics include a family history on pregnant adolescent clients.

Younger sisters therefore make up a critical target population who could benefit from pregnancy prevention services. To increase the effectiveness of youth orientated programmes, strategies that also account for the potential influence of sisters could be

developed. To draw more conclusive policies that take into consideration the influence of older sisters' age at childbearing on younger sisters' age at sexual debut and childbearing, additional qualitative research is needed. This research would explore the nature of sibling relationships, i.e. the exchange of emotional support during adolescence and the attitudes of younger sisters towards their older sisters (Olenick, 1998).

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