

**DETERMINANTS OF FERTILITY AMONG ADOLESCENTS AND  
YOUTH 15-24 YEARS IN KENYA**

**BY**

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## DECLARATION

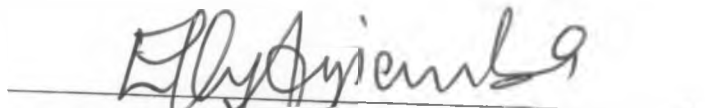
This project is my original work and has not been presented for a degree in any other university.

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## **DEDICATION**

**This project is dedicated to my beloved family. My husband Dickson: son Kahoro and: Kirichu.**

## ABSTRACT

Teenage pregnancies are a major problem not only in Kenya but also in the whole world. Teenage pregnancies have demographic and health implications. Using data of 3506 of adolescents and youth 15-24 years from Kenya Demographic and Health Survey of 1998, this study explores factors that influence children ever born among this age group.

The study used cross tabulation and ordinary multiple regression analysis. The results from analysis suggest that the most significant influence of fertility among adolescents and youth is age at first birth and age itself. Religiosity is not a factor that influences children ever born among adolescents and youth 15-24 years.

The analysis among ethnic group indicated that Luo, Luhya and Kalenjin have the highest number of adolescents with 2 children and more. Education was found to be associated with children ever born. The study indicates that among women sampled in Kenya demographic and Health Survey of 1998, 52 % of children were born before their mothers were 25 years. Mean age at first sex is found to be 15.87, median at 16.00, mode at 15 while minimum age at first sex is 8 years.

Results of this study suggest that it is important to commence family life education before 8 years and intensify it before 15 years when majority of adolescents seem highly sexually active. Further studies are recommended to determine most appropriate messages and programs to sustain virginity.

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# CHAPTER ONE: INTRODUCTION, PROBLEM STATEMENT AND OBJECTIVES

## 1.1 Introduction

The purpose of this study is to explore determinants of fertility among adolescents and youth aged 15-24 years in Kenya so that policy makers and program managers can advocate for appropriate laws and programs to address adolescent health.

Although the government adopted a national family planning program in 1967, it was not until 1984 that the country issued the “Sessional Paper Number 4 of 1984 on Population Policy Guidelines”, to guide the implementation of the population program (NCPD, 1993). At first, due to lack of effective health infrastructure and adequate skilled manpower, the Ministry of Health relied mainly on Family Planning Association of Kenya and expatriate staff for service delivery.

On the basis of census statistics, Kenya’s 1989 population growth rate of 3.4% was a moderate decline from the growth rate of 3.8% per annum in 1979 (NCPD, 1998). This decline could be attributed to a reduction in infant mortality rate due to improved primary health care services, improved nutrition for the population and improved literacy and education attainment levels (NCPD, 1998). Total fertility has also been falling from 7.9 in 1979, 6.7 in 1989 and 4.7 in 1999.



During the first phase of family planning program implementation, the locus of activities was the married woman but after 1994 International Conference for Population and Development (ICPD), the focus of reproductive health has shifted to adolescents and youth who have previously been marginalized with information and services. The motivation for this change of approach is the realization of numerous medical, demographic, social, and economic consequences of adolescent's reproductive behavior. All over the world, in the recent population studies, there has been increased interest in the sex behavior of youth. The interest is due to the linkages of early pregnancies to low child survival. Adolescents and youth who bear children early in life have a host of other socioeconomic hardships, for example, dropping out of school, low paid jobs, low education level, and increased maternal mortality rates.

In Kenya, sex begins on average at age 16.2 for boys and 16.8 for girls (NCPD, 1998); yet, contraceptives use is very low in the age group 15-19 and seldom involves effective family planning methods (UNFPA, 1994). Premarital sexual activity often results in unwanted pregnancies. The increasing low age at menarche lengthens the period of time where the adolescents are likely to engage in premarital sex while increasing cases of unwanted pregnancies. Consequences of unwanted pregnancies include unsafe abortion, school dropouts and other health complications to the mother due to premature physiological development that may end in maternal morbidity, mortality and infant mortality. It is estimated that about 11,700 teenage girls in Kenya get pregnant monthly and 40 % of the pregnancies are terminated through abortion (NCPD, 1993). According to KDHS of 1998, 44.9 percent of adolescent had begun child bearing by age 19 years.

Elsewhere in this report, of 23,351 children born to women interviewed in 1998 KDHS, 12,182 were born by adolescents below 24 years and only 11,169 were born by women after they were 25 years and above (NCPD, 1998).

Although Kenya has entered the second stage of demographic transition, population has continued to grow due to the momentum created by the youth who reach reproductive age who otherwise would not have reached if mortality did not decline. The vast growth among the youth has created a broad based pyramid of the population. According to 1999 census, 48% of the population in Kenya is below 25 years.

Adolescent fertility has negative health consequences both to the mother and the baby. At the regional level, unprotected adolescent sexual activity significantly contributes rapid population growth, high birth rates and escalating rates of HIV infection. Reports from National Aids Control Program (NAS COP) indicate that, 15 % of the population is HIV positive with variations in some districts like Thika with as high as 30 % (Johnson T. 2000). According to NAS COP, majority of people with HIV virus infection are between ages 15-24 years.

First sexual activity takes place before marriage in Sub-Saharan countries with Kenyan women having median age of first marriage being 18.8 while median age at first intercourse is 16.8 years. Data also showed that 4 % of Kenyan men are married by age 18 although 64% report sexual intercourse before that age (Advocates for Youth, 1998).

According to several reports, about 15 million babies are born to adolescent mothers each year and 8 in every 10 of these babies born in developing countries are born to teenage mothers. If the present trends continue, about 325 million births to adolescents will occur in developing countries over the next quarter of the century (Advocates for youth, 1998; Focus, 2000; teenage. tm; KDHS, 1998; Children and Youth Service Review, 1997).

Once married, adolescent women living in Africa, Asia and Latin America began their reproductive lives with relatively low reliance on contraception and when they do use contraception to delay or limit their childbearing, they may use less efficient methods than do older women. Demographic and Health surveys from 56 countries indicate that 13 million teenage women living in developing countries have unmet need for family planning and 30 % or more of married adolescent women wish to delay or limit childbearing but are not using contraception ([www.measuredhs.co](http://www.measuredhs.co)).

Gender imbalance in sexual decision-making influences teen women's contraceptive use and adolescent girls are said to find it easier to risk pregnancy than to ask a partner to use condoms (Youth Advocates, 1998). If adolescents abstain from sex or delay having sex, the risk of pregnancy is essentially zero and the sexual transmission of a communicable disease is diminished substantially. An understanding of factors that influence adolescent sexual behavior is of major importance in not only regulation of fertility but in disease prevention and determinants of fertility among adolescents have a major role to play in

designing strategies that will have an impact on utilization of reproductive health information and services.

Data indicate that among adolescents 15-19 years who are mothers or are currently pregnant, variations include education, place of residence (Rural/Urban) and age (NCPD, 1993: [www.measuredhs.co](http://www.measuredhs.co)). The main concern of this study is to establish whether such variations are correlated with Children Ever Born among adolescents 15-24 years.

The study will also examine and confirm extent of such disparities in Kenya.

## 1.2 Problem Statement

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As indicated in the Kenya Demographic and Health Survey of 1993, 1998 and other studies elsewhere; teenage pregnancies are a major problem not only in Kenya but also in Africa. If the problem of adolescent fertility is not arrested, about 325 million births to adolescents will occur in developing countries over the next quarter of the century (Advocates for youth, 1997; Focus, 2000; Teenage, tm; NCPD, 1998; Children and Children Service Review, 1977). Adolescent fertility has numerous demographic, social, economic and health consequences. Adolescent fertility is associated with adverse consequences related to unplanned pregnancies.

Due to marginalization with reproductive health information and services (UNFPA, 1994) adolescents have been found to start their reproductive life with relatively low reliance on contraceptives and when they use contraception to delay or limit their childbearing, they may use less efficient methods than do older women. Low use of contraceptive methods result in unplanned pregnancies among adolescents and youth

with consequences of dropping out of school. Dropping out of school affects socio economic status in the long run.

Unsafe sex among adolescents contributes to high prevalence of STI/HIV/Aids among adolescents 15-24 years (Johnson T, 2000). Other health related problems associated with childbearing among adolescents include complications to the mother and child that might lead to increased maternal morbidity and mortality and child mortality rate. Low age at menarche compounds the length of childbearing while vast growth among the youth creates a broad based pyramid of the population. According to 1999 census, 48 per cent of the population in Kenya is below 25 years (CBS, 2000). Gender imbalance in decision-making has been found to affect women in contraceptive use. When adolescents are engaged in sex with older men, they have been found to have inadequate skills to negotiate safe sex leading to STIs and unplanned pregnancies (Youth advocates, 1998).

In Kenya, sex starts early in life. By age 19 years, 44.9 percent of adolescents have began childbearing (NCPD, 1998). Reports also indicate that about 11,700 teenage girls in Kenya get pregnant monthly and 40 per cent of the pregnancies are terminated through abortion (NCPD, 1993; Ochola-Ayayo, 1998).

There is need therefore to explore factors that influence fertility among adolescents. This study aims to explore differentials in adolescent fertility and the association with Children Ever Born among adolescents 15-24 years in Kenya that is crucial in designing

appropriate interventions. Equally important is the need to analyze association of contraceptive use with those factors that are found to influence adolescent fertility.

As this study attempts to explore factors associated with increasing pregnancies among adolescents and youth 15-24 years, it will be trying to answer several questions stated below, thus: whether use of modern contraceptives has an influence on children ever born; whether education is associated with children ever born; whether religiosity is associated with children ever born; whether ethnicity is associated with children ever born; whether place of residence has an association with children ever born; whether age at first sex is associated with children ever born and; whether marriage influences children ever born.

### **1.3 Main Objective**

The purpose of the study is to explore determinants of adolescent fertility in Kenya so as to gain a better understanding about the extent of the problem. Knowledge gained will help policy makers and program managers to advocate for appropriate laws and programs to address adolescent reproductive health that may have contributed to population growth, maternal morbidity, mortality and infant mortality rate in Kenya.

#### Specific objectives

- To explore factors that influence adolescent fertility in Kenya.
- To explore differentials in adolescent fertility in Kenya.
- To examine determinants of adolescent sexual and contraceptive behavior.

- To establish relationship between contraception behavior with knowledge of modern contraceptives among adolescents and youth 15-24 years in Kenya.
- To establish relationship between children ever born with onset of sexual behavior, among adolescents and youth 15-24 years in Kenya.

## CHAPTER TWO: LITERATURE REVIEW

### 2.1 Introduction

Adolescent fertility is influenced by many factors that include cultural factors, residence, female education attainment, age at marriage, age at first sex and contraceptive use. Literature review will explore the scope of the problem of adolescent fertility, factors that affect adolescent fertility and differentials recorded. Consequences of adolescent fertility on population components will also be explored.

### 2.2 Adolescent Fertility

Teenage pregnancies are a major problem not only in Kenya but also the whole world. In Kenya, adolescent sexuality is an issue of concern. Results from KDHS 1993 indicated that 167,000 births occurred to women aged 15-19. The 1998 KDHS indicates that on average, women in their late twenties have given birth to almost 3 children. These were more births than those occurred to women 30-34 years. In Kenya, teenage fertility contributes to 18% of all births (KDHS, 1993). The proportion of adolescents already in the family formation pathway rises rapidly with age from 3% at age 15 years to 45% at age 19 years (KDHS, 1998). A study by Population Council (1997) report indicates that although teenage fertility is not increasing in Kenya, what is increasing is the percentage of births to unmarried teenagers. A study conducted in Brazil found that despite near universal knowledge of contraceptive methods, 20% of all births were to teenagers in the year preceding the 1996 survey compared with 12% 10 years earlier. Another study quoted by Population Council report indicates that 50% of childbearing in Kenya before the age of 20 involves a premarital conception (Bledsoe and Cohen, 1993).



United Nations publications indicate that adolescents comprise 20% of the world's population (CRLP publication, 2000). Almost all this growth of adolescents is occurring in the developing world with Sub-Saharan Africa leading the way. The growing numbers of young women in sub-Saharan Africa is as a result of past high fertility in this region. According to Internet sources, about 15 million babies are born to adolescent mothers each year (Teenage fertility). According to Demographic and Health Surveys from Asia, Africa and Latin America, about 8 in every 10 of these babies born in the developing countries are born to teenage mothers (teenage.htm). In Dominican Republic, fertility rate for 15-19 year-olds had increased from 91 births per 1000 to 112 per 1000 between 1989-1996 (R. J. Magnani et al, 2000). If present trend continues, about 325 million births to adolescents will occur in the developing world over the next quarter of the century (teenage.htm).

All over the world in the recent population studies, there has been increased interest in sex behavior among adolescents. The interest in adolescent fertility is due to the linkages of early pregnancies to low child survival. Adolescents and youth who bear children early in life have a host of other socioeconomic hardships, for example, dropping out of school, low paid jobs, low educational level and increased maternal and infant mortality rates.

*"...for young women, the risks of child bearing do not end with delivery.*

*A woman who has her first child before age 20 faces loss of education, more limited job possibilities, and lower earnings..."*

(Pop report, 1995).

Other adolescent reproductive health problems associated with adolescent fertility include sexually transmitted infections, HIV/AIDS and unsafe abortions.

Early sexual activity is linked to adolescent morbidity and mortality. In a study conducted in a rural community in Nigeria, 42.1 percent of the sexually active female adolescent participants had experienced either an abortion or a sexually transmitted disease. Adolescent childbearing poses health risks for both mother and child, including toxemia, hemorrhage, anemia, infection, malnutrition, cephalopelvic disproportion, obstructed labor, vesico-vagina fistula, low birth weight and perinatal and maternal mortality. According to fact sheets in "Advocates for Youth" (1998), maternal mortality for Ethiopian women ages 15-19 was 1,270 per 100,000 live births, approximately three times higher than for women ages 20-34, while in Niger, 80 percent of all cases of fistulae occur to women between the ages 15-19.

For a young woman below age 20, pregnancy is dangerous for both the mother and the baby. Young women face more pregnancy related complications than older women.

Lack of access to antenatal care and emergency obstetric care increase risk of pregnancy for young people.

Pregnancy before age 20 also increases the risks of the infant who is likely to be small for dates due to malnutrition hence higher mortality rate among babies born of young women. Young mothers below age 15 have higher rates of premature labor, spontaneous abortion, stillbirths and low birth weight babies.

Studies indicated that up to 1 million to 4.4 million abortions take place in developing countries among women below 20 years each year (Pop report, 1995). In Kenya, 53 % of septic abortion patients were below 20 years (Pop reports, 1997). Two reports in Nigeria indicate that 61 % and 74 % of septic abortion occurred among adolescent girls while a Ugandan study indicated 60 % of deaths due to unsafe abortion among women under age 20 (Pop report, 1997). Because of fear, shame and socio-economic factors among young people, the abortions are normally unsafe which leads to life long disability, infertility or even death.

Although young women are marrying latter due to schooling, more are engaging in premarital sex. However, few women practice contraception the first time they have sex (Pop report, 1997). According to the same report, women delay about one year on average between first sexual intercourse and use of modern contraceptives. Several reports indicate that many pregnancies occur within a year after first sexual intercourse and most are unintended. A study carried out in Harare indicated that among 200, sixteen year-olds had become pregnant within three months of starting sexual activity (Pop report, 1997).

According to the study carried out in Kenya and Nigeria on influences on adolescent sexuality, young people know more about and have more favorable attitudes towards abortion than modern contraception (Barker and Rich, 1992). Another study carried out in Nigeria indicated that among 1,800 never married women ages 14 to 25, of those who

had experienced sexual relations, half of the students and two-thirds of non students had been pregnant and nearly all had ended their pregnancies with abortion (Nichols et.al., 1986).

Some countries routinely expel students who become pregnant and in Kenya alone 10,000 are forced out of school due to pregnancies (Ferguson, 1986). Young people will therefore take the risk of abortion to avoid leaving school. For example, in a study carried out in Zambia, 81 % of women hospitalized for complications of unsafe abortions were students who did not want mistimed pregnancy to disrupt their education. Young people are also more likely to attempt unsafe abortion due to lack of resources. For the same reasons, they are also likely to delay seeking treatment for complications of unsafe abortions. A study carried out in Nigeria indicates that young people said they would rather run away from home than tell their parents or go to health facilities for complications of abortions.

In a Ugandan study, 17 percent of young women ages 15-18 have undergone an abortion while a review of 13 studies in seven Sub-Saharan African countries shows that adolescents between ages of 11 and 19 years account for 39 to 72 percent of all abortions related complications (Advocates for Youth, 1998). Complications include sepsis, hemorrhage, uterine perforation and cervical trauma that may cause infertility and chronic illness. Another health complication associated with unprotected sex is sexually transmitted diseases.

Sexually transmitted infections among youth are high. In Abidjan, 11 percent of females under the age of 20 attending a maternal-child health center were HIV positive, while in Malawi, 9 out of 10 teenage boys feel invulnerable to HIV. In Uganda, youth fact sheets indicate that prevalence of HIV among teenage females is six times higher than in teen males. According to Children and Youth Services Review (1997), if adolescents abstain from sex, or delay having sex, the risk of pregnancy is essentially zero and the sexual transmission of a communicable disease is diminished substantially.

Adolescent fertility is affected by cultural economic and social factors. In a Senegalese study, 4 percent of adolescent women and 7 percent of adolescent men surveyed have ever visited a family planning clinic. Reasons cited for non-use of services include unmarried status among women, embarrassment, cost, poor reception by clinic staff, lack of knowledge about sexuality, concern about the efficacy and side effects of contraceptives and contradictory social perceptions around premarital sex and contraceptive use.

Gender imbalance in sexual decision-making influences teen women's contraceptive use as well. In a study in Malawi quoted in "Youth Advocates" magazine (1998), over 57 percent of adolescent girls said that it is easier to risk pregnancy than to ask a partner to use a condom.

Solutions to adolescent fertility have been expressed in the International Conference for Population and Development (ICPD) report of 1994 while several models on interventions have been tried in different parts of the world.

The 1994, ICPD report recommended that information and services should be made available to adolescents to help them understand their sexuality and protect them from unwanted pregnancies, sexually transmitted infections and subsequent risk of infertility. Information and services would be combined with the education of young men to respect women's self-determination and to share responsibility with women in matters of sexuality and reproduction.

The main objective of the ICPD action plan on adolescent reproductive health was to address adolescent sexual and reproductive health issues, including unwanted pregnancy, unsafe abortion and sexually transmitted diseases including HIV/AIDS. This would be carried out through promotion of responsible and healthy reproductive and sexual behavior including voluntary abstinence and the provision of appropriate services and counseling specifically suitable for that age group. According to ICPD, programs should involve and train all those who are in a position to provide guidance to adolescents concerning responsible sexual and reproductive behavior, particularly parents and families, and also communities, religious institutions, schools, the mass media and peer groups. Government and non-governments organizations should also promote programs directed to the education of parents, with the objective of improving the interaction of parents and children to enable parents to comply better with their educational duties to

support the process of maturation of their children, particularly in the areas of sexual behavior and reproductive health.

### **2.3 Falling Age at Puberty.**

In general, girls enter puberty at age 8 and 13 and boys at age 9 and 14. Decreased age at puberty along the years could be attributed to improvement in nutrition. During puberty, physical development is fast and their bodies grow more than any other period in their life except in infancy.

Sex characteristics also develop tremendously and little girls and boys may carry bodies of adults. Boys and girls 14 years may also look like babies. Although they have started planning their future, adolescents reach sexual maturity before they attain emotional, social maturity and economic independence. As indicated in population reports, the field of sociology and psychology view adolescent sexuality within the framework of deviant behavior and models developed explain young adults sexual activity and decision-making but none has so far explained how to influence behavior. Very few studies have focused on what is normal, healthy sexual development and behavior for young people (Pop report, 1995).

As they grow up, adolescents experience strong sexual emotions but because of health risks of sexual activity, their decisions and experiences during this stage of transition can affect the rest of their lives. In his study on "Teen Child", Kilepinger suggests that an

earlier birth may more severely interrupt schooling and have greater long-term effects (Kilepinger, et.al., 1999).

#### **2.4 Young Adults Fertility Patterns**

According to Population reports, 15 million women under 20 years give birth each year.

A young woman's pregnancy is more likely to be unintended than her counterpart, married women, as reported in several Demographic and Health Surveys. In Kenya, pregnancies among adolescent 15-19 years reported to DHS as mistimed were 47% among married women and 74% among unmarried women. In Peru 51% of current pregnancies among married were un-timed against 69% among unmarried while in Jamaica, 76% of all first pregnancies were un-timed.

Un-timed pregnancies often end in abortion even where abortions are unsafe. An analysis by the Center for the Study of Adolescents (CSA) suggests that roughly 252,800 abortions occur annually among adolescents ages 15 to 19, a rate of nearly 700 abortions a day (Njau and Radney, 1995). A focus group discussion in a study carried out in Nigerian found out that fear of future infertility was an overriding factor in adolescents decision to rely on induced abortion rather than contraception (V. O. Otoide, et.al.,2001). The report of this study recommended the need to educate adolescents about mechanisms of action of contraceptive agents and about their side effects in relation to unsafe abortion.



## **2.5 Information on Adolescent Fertility**

Adults have conflicting views regarding adolescent sexuality. A study by Karugari Kiragu, conducted in Kenya demonstrated that adults accept adolescents have sexual intercourse but disapprove of sex before marriage. In the study, adults said 18.2 years was the right age for a girl to start having sex yet suggested that 20.8 years would be the right age to get married while the young people said 17.9 and 20.8 years for the same questions. The study also revealed that young people and adults have similar views and face similar conflicts and with greater communications, parents may discuss more commonality which can be resolved amicably. As indicated in the results of National Information, education and Communication Situation Study, both adolescents and adults appear to hold views indicative of an expectation that most adolescents will experience premarital sexual activity (NCPD, 1997). Both adolescents and adults when asked ideal age at first sex and marriage for young people gave ages 3 years younger than ages at marriage but only one third of the respondents when asked directly about sex before marriage said it was acceptable.

A study conducted in schools in 3 districts in Kenya indicated that an overwhelming majority of teachers did not think that boys and girls below 18 years should have sexual intercourse. The same study indicated that teachers believed that girls who become pregnant should leave school. These findings contradict KDHS (1998) report that 45% of adolescents are sexually active before and on family formation pathway at age 19. The implication of the teachers believe that adolescents below 18 years should not engage in

sex would be that teachers would not give information on sexuality to adolescents below 18 years.

## **2.6 Young Adolescents and Contraceptive Use**

Few unmarried young couples use contraceptives before their first sexual intercourse.

A study in Latin America and Caribbean revealed that among young women 15-24 years, only 4%-43% used contraceptives before first sexual intercourse. Premarital sexual activity therefore results in unintended pregnancies. A study in Zimbabwe showed that 200 of 16 year olds delivery in Harare maternity Hospital had become pregnant within 3 months of starting sexual activity (Pop reports, 1995).

Common reasons given by young people for non-use of contraceptives are that they do not expect to get pregnant and lack of knowledge about contraception. The following was quoted from a girl in Vihiga District in Kenya:

### Expecting baby number 2.

*“...amazingly, Judy believes that she is a cursed girl, she never believed she would get pregnant at age 16 and termed it a bad omen...”* (East African standard, Monday 12, 2001).

Even when young people can name contraceptive methods, they might not know where to get them or how to use them. In Kenya and Nigeria, students had heard about contraceptives but incorrectly cited dangerous side effects (Pop report, 1995). A study

carried out in Kenya on reproductive health communication indicated that adolescents wanted to be taught about family planning and how a woman gets pregnant (NCPD, 1997).

Lack of access is a major barrier to contraceptives by the young people. Access barrier is commonly caused by attitudes of young people because they are not sick and not used to visiting clinics like adults. They may also not know what to expect from service providers. Young people might also not afford transport cost to clinics or payment for contraceptives. Laws or religion may prohibit use of contraceptives by young people. Where laws may not prohibit access, service providers might be prejudiced from giving RH services to adolescent and youth. A study in South Africa reported that clinics resisted requests for condoms and often provided no instructions on correct use (Pop report, 1995). Interestingly, a study conducted in Brazil found that religious affiliation and mass media exposure did not consistently affect adolescent fertility over time in multivariate analysis (N. Gupta, Luri da Costa Leite, 1999).

Many contextual factors affect contraceptive use. Decision making process in relation to sexuality is affected by social norms and attitudes in a society. In many cultures, sex discussion is taboo. Even among married couples. In such cultures, it would be harder for young people to discuss sex activities. Some people believe that planning sex activity spoils the fun while others believe that use of contraceptives encourages promiscuity. Such attitudes may not prevent sexual activities and increases vulnerability to STI and unwanted pregnancies. Young women may also not have skills to negotiate for safe sex

especially when involved with old men and when sexual intercourse is forced or unwanted.

HIV/AIDS is a threat to young people. According to the population reports (1995), up to 6 million of the people infected with HIV are below 25 years and many contracted HIV before age 20. According to the same report, a study in Zimbabwe showed that 30% of pregnant girls aged 15 to 19 years were HIV positive. Young people are particularly vulnerable to STI's. Young people may also not use condoms consistently and are likely to have first sexual intercourse without condoms. Young people once they are sexually active are also likely to change sexual partners transmitting STI's even more. Young people are more embarrassed to discuss STI's and are more likely to buy drugs over the counter or buy drugs from the street. Incomplete treatment only masks the symptoms and may lead to infertility in future. Infertility is fragile for women in cultures where children are primary means to socio status.

In developing countries, poverty forces girls to prostitution. Teenage prostitution is a double tragedy for young people who are not able to negotiate for safe sex especially from older men who are infected with HIV. STI's pathogen's move easily and penetrates mucous of young women than for older women and are therefore more vulnerable to infections like gonorrhoea, chlamydia and papilloma virus, which causes cervical cancer.

Young people suffer physical and emotional trauma through sexual abuse and incest. It may not be possible to know the magnitude of the problem because most of sexual

assault goes unreported as it happens at home, among relatives and acquaintances of neighbors. However, sexual abuse in childhood may lead to early onset of consensual sexual activity. A study in US showed that among 93% of young people who were pregnant before age 17, two-thirds reported having been sexually abused as children (Pop reports, 1995).

## **2.7 Socio Economic Factors**

Young women who become pregnant before age 20 are more likely to obtain less education, have fewer job possibilities and lower income, be divorced and to live in poverty. (Pop report, 1995). In developing countries, girls who become pregnant rarely go back to school and even if policies are modified to allow the girls to go back to school after giving birth, this might not be possible due to acquired responsibilities of bringing up the new born. Studies carried out in Kenya show that nearly 10,000 girls drop out of school each year due to pregnancies. One girl 15 years old had this to say:

### Girl struggling with family burden.

*" ...all the dreams to have a formal education have busted miserably like foam bubbles...I was impregnated by a classmate in class six last year. He is also jobless and out of school... "*

(East African standard, Wednesday, April 11, 2001).

Few programs to assist girls to balance motherhood and school are recorded. For example, Jamaican Women's Center Program reported that 64% of its participants returned to school compared to 15% of non-participants (Pop report, 1995).

Boys also have consequences for early fatherhood. Boys who may become fathers early are also likely to lose opportunities for education and future economic advancement. Boys may leave school to support their new families. To society, caring for young parents and their child puts a cost for health care on the family as well as government expenditure for health, school and other socio amenities. The costs, which might not be well quantified, include lost productivity of uneducated and impoverished young people who become parents too soon.

Young people form the group in the population with the largest unmet needs of reproductive health. They need to prevent themselves from the risk of pregnancy, STI and abortions. Considering that young people are the adults of tomorrow, society needs to invest on this group for their potential in future productivity and economic development of any country. There is therefore need for organized community health and social measures that fill the gap of tradition family supposed to help young people face changing realities of life.

## **2.8 Adolescent Fertility and Socio Cultural Factors**

In Sub-Saharan Africa, girls marry early to fetch bride price for the parents. Once married, girls are expected to start childbearing immediately. Early marriage increases

the time span spent in child bearing. More time spent in childbearing increased fertility rate and population growth rate in the country. According to Internet sources (<http://www.measuredhs.com>), in 1998, by age 19 years, 44.9% of girls in Kenya 79.0% in Mali in 1987 and 70.7% in Niger in 1998 had children or were currently pregnant. Religion may be another factor that may affect adolescent fertility. Some religions prohibit their faithful to use modern methods of family planning and this may contribute to unplanned pregnancies. In Kenya, most of the Catholics and Muslims view use of modern contraceptives as going against their faith.

## **2.9 Environmental Factors/Place of Residence**

According to Internet sources (<http://www.measuredhs.com>), there is higher fertility among adolescents in the rural regions than in the urban. Demographic and health surveys in Sub-Saharan Africa indicate that in Kenya, 1998, 21.8 of adolescents had children or were currently pregnant in the rural areas as opposed to 17.5% in urban. In Mali in 1996, 49.4 % of adolescents in rural areas had children or were currently pregnant as opposed to 29.9 in urban while in Niger in 1992, 38.0% of adolescents in the rural areas had children or were currently pregnant as opposed to 28.7 in urban areas.

## **2.10 Conclusion of Literature Review**

In conclusion of literature review, a young woman's level of education has been found to be the factor most strongly and consistently associated with the probability of giving birth during adolescence. Other factors that affect adolescent fertility include contraceptive use, age at first sex and marriage, ethnicity and regions. However, although these factors

are explained at the macro level, differential analysis in each country is required to enable more focused interventions of reproductive health programs for adolescents and youth. For example, DHS carried out internationally looks at teenage pregnancies using indicators against age, country, education, urban, rural, pregnant with first child and percentage who have begun child bearing. KDHS added provinces to the list of indicators.

However, cultural factors like religion, ethnicity, wanted pregnancy, unwanted pregnancy and use of family planning by region in relation to adolescent fertility needs to be analyzed. Interestingly, results of a study carried out in Brazil did not show religious affiliation as a factor affecting adolescent fertility in a multivariate analysis. This study will analyze the relationship between religion and children ever born. The findings of religion and children ever born will add to the body of knowledge in confirming or rejecting the relationship. If religion is found to have no effect on use of modern contraceptives and unplanned pregnancies among adolescents as implied in the study quoted above, this information would be useful in lobbying policy makers and other community members in making contraceptives more accessible among the young people.

While analysis of adolescent fertility by province is useful as in KDHS, looking at the problem at the district level may help programs even more in identifying clusters that may require special interventions with RH information and services.



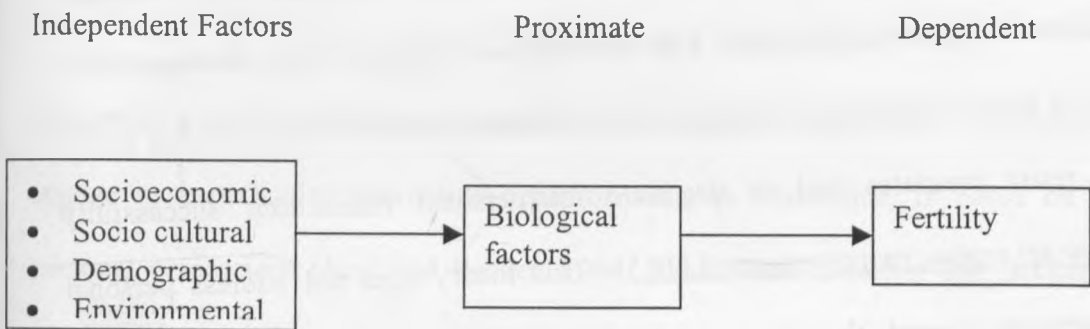
All literature reviewed indicated health implications associated with adolescent fertility with consequences of life economic outcomes. Another observation is declining age at first birth with more births experienced outside marriage. Early births, contributes to higher fertility and an increase in population among the youth that contributes to the broad based pyramid observed in developing countries. Health benefits of providing information and services include: delayed onset of sexual activity; reduction in births to teenagers; reduction in prevalence and incidences of STI/HIV/AIDS; reductions in complications of pregnancy that lead to death and; reduction in infant and child mortality. Social benefits of addressing adolescent fertility include: promotion of morality; retaining more girls in school; improved socioeconomic and social status of the girl child, increased age at marriage and; decreased population growth rate.

# CHAPTER THREE: THEORETICAL STATEMENT, JUSTIFICATION OF STUDY AND PROBLEM

## 3.1 Theoretical statement

Although variations in fertility, mortality and morbidity are primarily determined by physiological and biological processes, they are always affected, modified and even promoted by socio-economic, socio-cultural and demographic factors as well as the prevailing environmental conditions ( Chadike 1986, Ochola-Ayayo 1989-1991).

Figure 1. Conceptual framework



## 3.2 Behavioral Theories

In order to understand adolescent fertility, it is important to understand body changes that influence desire to initiate sex acts.

At birth, boys and girls are born with sex hormones that become active at puberty. Androgen for boys and estrogen for girls are the sex hormones stimulated by the pituitary gland. Tetrogen in boys stimulate production of sperms and semen in boys while estrogens stimulates maturation of ovum in the girl's ovaries which if fertilized results into a

pregnancy. If not fertilized by the boy's sperm, the girl's uterus that had prepared itself for a pregnancy sheds its wall and this is called menstruation. Other body changes in a girl are enlarged hips, breasts, changes on the skin complexion and hair on the pubic area and armpits. Boys break the voice, develop broad shoulders, have enlarged penis and grow hair on the armpits and pubis and grow a beard. At puberty, hormones make boys and girls attracted to each other and if guidance is not provided at this stage, experimentation with sex will result in unplanned pregnancies. Masturbation for boys is also common at this stage (Mussen. P.H. et al, 1974).

Researchers have used several theories to explain adolescent sexual and fertility behavior. The social and cognitive skills model that Gilchrist and Schinke (1983) developed and tested posits that for behavior to change, individuals need specific cognitive and social skills to resist pressures and to negotiate interpersonal interactions successfully (<http://www.aei.org/sw/swmooresugland.htm>). This theory does not address personal values or attitudes towards the behavior or whether other factors may influence behavior change.

Social learning theory (Bandura, 1977; 1986) assumes that whether an individual will engage in or avoid a behavior is determined by a sequence of factors (<http://www.aei.org/sw/swmooresugland.htm>). First, the individual must understand the association of a behavior with an outcome, for example, that unprotected sex carries a high risk of pregnancy. Second, the person must believe that he or she is capable of either engaging in or avoiding the behavior and that the specific strategy chosen can be

implemented effectively. For instance, individuals must believe that they have the capacity to abstain from sex and that they can effectively employ a strategy to avoid sex. Finally, people must believe that avoiding the outcome is beneficial, for example, that delaying sex will make their lives better in ways that matter to them. Individuals develop their specific attitudes and feelings about behavior (and avoidance of behavior) elicits, and then by developing the necessary skills through practice that enable them to behave in accordance with the beliefs they develop.

A number of other value-expectancy models also take account of the costs and benefits associated with engaging in or avoiding a specific type of behavior.

According to the health believe model for example, the probability that persons will engage in a particular preventive behavior such as abstinence, is based on several personal perceptions (Janz and Becker, 1984; Rosenstock, Strecher and Becker, 1988: <http://www.aei.org/sw/swmooresugland.htm>). The behaviors include: perception of the probability of an outcome as a result of unprotected sex; the perceived seriousness of experiencing the outcome for example, not being able to complete school; the perceived benefits minus the perceived costs of avoiding the outcome (that is, completing school outweighs the difficulty of saying no).

The health-believe model proposes that a person considers each of these criteria before engaging in a protective or preventive behavior. Thus, protective behavior is most likely to occur if the adolescent perceives himself or herself as vulnerable to an outcome,

perceives the outcomes as negative and perceives the benefits of protection to outweigh the costs of protection.

The theory of reasoned action emphasizes individual perceptions ( Fishbein and Ajizen, 1980, 1975: <http://www.aei.org/sw/swmooresugland.htm>). This theory emphasizes the importance of an intention to engage in a behavior and attempts to explain the factors that determine that intention. Factors presumed to influence such intentions consist of: one's belief regarding the outcome of the behavior in question; one's assessment that the outcome of the behavior is good or desirable; One's assessment that the outcome is desired by significant others; the individual motivation to comply with the preferences of these significant others. According to the model, an adolescent would have to believe that avoiding sex will prevent pregnancy and STI, is desirable, that the significant persons in their lives want them to avoid pregnancy and STIs and that they want to comply with the views of the significant persons in their lives.

Opportunity cost perspective also takes a cost-benefit accounting approach and puts specific emphasis on whether an adolescent feels a particular behavior will have negative consequences for him (Moore, Simms and Betsy, 1986:

<http://www.aei.org/sw/swmooresugland.htm>). This theory emphasizes the notion that adolescents in different segments of the socioeconomic distribution face very different costs to pregnancy if it occurs. Thus, pregnancy represents a much more substantial cost to a college-bound adolescent than to an adolescent whose future does not realistically include a good education, a good job, a good income or a good marriage. The motivation

to prevent parenthood is therefore substantially lower for adolescents from disadvantaged families and communities.

Culture of poverty perspective (Lewis, 1959, 1961, 1966:

<http://www.aei.org/sw/swmooresugland.htm>) also focuses on the role that poverty and socioeconomic disadvantage play and argues that early sex and childbearing among impoverished persons represents “both an adaptation and reaction of the poor to their marginal position in society” (Lewis 1968). The distinction of this theory, however, is the argument that such behavior becomes normative and is passed from generation to generation.

Utility Maximization perspective such as the opportunity cost perspective (Moore, Simms and Betsy, 1986), tend to focus less on long-term norms and more on the varied individual costs and benefits on the varied individual costs and benefits associated with sex, contraceptive use, and fertility (Philliber and Namerrow, 1990). Studies based on such frameworks have examined the utility derived from sex among adolescent males as well as females and have explored the role of a wide array of benefits not just economic ones ( Hingson, Srunin, Berlin and Heren, 1990). The authors find that social utilities, such as popularity with peers, also affect adolescent decision-making. Thus, the notion of relationships emerges, even, among the more traditional utility maximization paradigms. In general, cost-benefit approaches to teen sexual behavior are fairly persuasive theoretically.

Providing information can be an important component in an intervention particularly when combined with other strategies. Models can also address attitudes or values supportive of abstinence or the development of skills to help teens avoid pressure and negotiate difficult interpersonal relationships. From an ecological perspective, the factors that predispose one to engage in sexual activity range from the individual adolescent and his or her partner, to the nuclear family, to the extended family, peer group, neighborhood, religious organization, and school, and to the larger culture including the media, the economy and socio policies. Interventions should therefore provide knowledge, address attitudes and values relating to the avoidance of sex, and provide skills to help adolescents delay sexual intercourse.

Other fertility theories propose several factors that will motivate a couple to strive for many or few births. For example, Malthusian theory indicates that there is a relationship between fertility and income ( Malthus,1803), and that fertility occurs within marriage. Caldwell (1978) also advanced economic theory of fertility by indicating that fertility will only change when wealth starts to flow from parents to children (Weeks, J.R. 1994).

When these theories explain how fertility decisions are made, they have not explained fertility among the adolescents before marriage. If people are getting fewer children because of pressure for socio mobility (Dumont A, Kingsley Davis 1963) economic, and utility functions, then the adolescents who are basically dependent and trying to make something out of life must be devastated when they find themselves pregnant, therefore, there must be factors that derive adolescents to have sex before marriage. If adolescents

do not want to drop out of school due to pregnancies, then there must be strong motivating factors that explain fertility at this age (Weeks, J.R. 1994).

According to Garry Becker (1960) argument in trying to explain utility function of fertility, he explains that fertility decisions are made in the same manner as other choices of purchasing goods (Turci,1975). His argument is that giving birth depends on resources, ability to save and rate of consumption. This theory does not therefore explain adolescent fertility since it is normally not young peoples' choice to be pregnant and they do not have resources since they are dependent on their parents. Easterlin (1957) in his sociological approach explains that fertility has a difference due to social and biological factors (Turci,1975). He incorporated education and religion as important variables influencing fertility. Easterlin explains that for us to understand fertility, we need to understand changes in development. He used cost-benefit analysis, which says that children provide satisfaction utility by just raising them. He also explains a second factor, which says that children have both direct and indirect costs involved in the process of bringing them up. The third factor is that children have both direct and indirect gains in bringing them up. Children can generate wealth and look after parents during their old age.

In studying adolescent fertility, there is no evidence of satisfaction as indicated by the rate of abortion among adolescents and youth (NCPD, 1997).



To explain non-marital fertility, Cutright (1972), in the economic theory of fertility in an article by Easterlin(1969) stresses physiological changes (Turchi,1975). Because of improvements in health and nutrition among young women since 1940, age at menarche has fallen substantially and the likelihood of conception has noticeably increased at ages 15-17. These improvements have also increased the probability of young women carrying a fetus to full term. Together, these factors have resulted in a substantially increased likelihood that a given rate of sexual activity among teenage women will result in a life baby. Cutright's hypothesis is that the rise in teenage non-marital fertility reflects in good part an increase in the potential output of children caused by physiological changes that have increased natural fertility.

Easterlin attempts to provide an alternative to Cutright's explanation of teenage non-marital fertility through his suggestions that higher teenage illegitimacy is due to a breakdown of taboos on premarital intercourse. In this case, the premarital fertility occurs via a shift in natural fertility caused by greater frequency of extramarital intercourse due to changed social norms.

### **3.3 Operational hypothesis**

It has been discussed in the previous literature review that teenage pregnancies are influenced by many factors that include socio economic, environmental and demographic. Among socio-economic factors, education is one of the major factors that is most strongly and consistently associated with the probability of giving birth during adolescence (N Gupta, Luri da Costa Leite, 1999). Women who become parents as

teenagers are at a greater risk of social and economic disadvantage throughout their lives than those who delay childbearing. Early childbearing affects completion of school, chances of employment and high salary.

Access to effective family planning methods was indicated in the literature review as a reason for use of modern contraceptives. Access to modern contraceptives is affected by lack of information, religious and cultural beliefs. Poverty is another reason that has been indicated as a reason for engaging in risk behavior of unprotected sex and prostitution among adolescents ( Klepinger D. etal. 1995) Unprotected sex is likely to result in unplanned pregnancies and STIs.

Therefore, the following operational hypothesis are proposed:

- Adolescent's level of education is negatively associated with the number of children ever born.
- Adolescent's religiosity is associated with the number of children ever born.
- Adolescent's place and residence is associated with the number of children ever born.
- Adolescent's ethnicity is associated with the number of children ever born.
- Adolescent age at first sexual intercourse is positively associated with the number of children ever born.
- Adolescent knowledge of modern contraceptives is associated with children ever born.

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- Adolescent's contraceptive use is negatively associated with the number of children ever born.
- Adolescent's marital status is positively associated with the number of children ever born.

### **3.4 Variables**

The following are the independent variables that have been used in the analysis:

- Age
- Religion
- Marital status
- Education
- Rural vis sa vis urban
- Ethnicity
- Age at marriage
- Region
- Contraceptive use
- Age at first sexual intercourse
- Age at first birth

### **3.5 Key concepts**

The following key concepts were used in grouping operational variables:

- Socio-economic- education, housing, income, employment status.
- Socio-cultural -religion, place of residence, ethnicity, knowledge of contraception.

- Demographic-age at first sexual intercourse, age at first birth, age at first marriage and knowledge of contraceptive use.
- Environment- Rural, urban and region.
- Biological-use of contraception and exposure to sex.
- Fertility- number of children ever born.

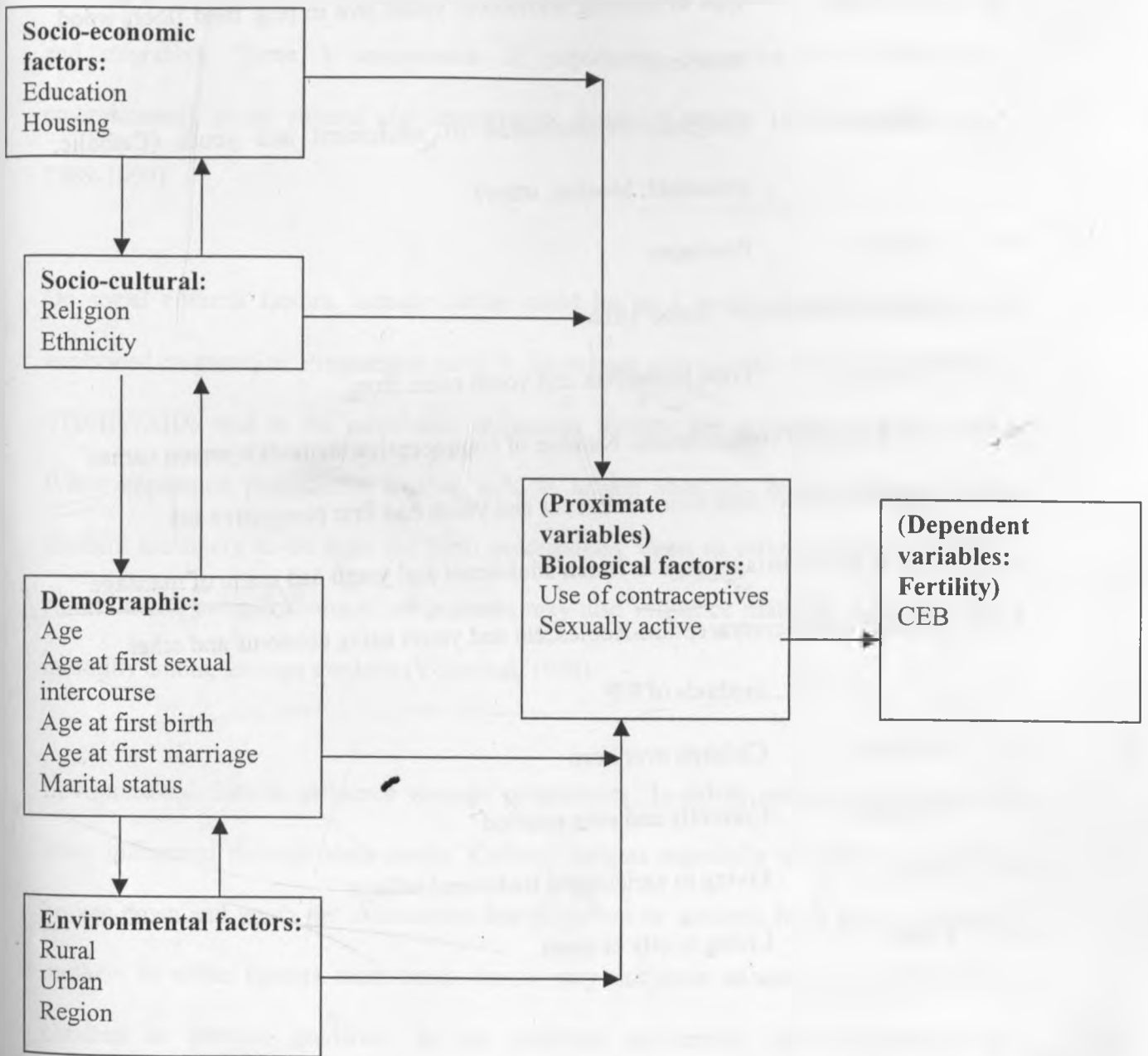
### **3.6 Operation model**

In explaining factors that influence adolescent fertility, the study will adopt two behavior theories that seem most appropriate. The two behavior theories are “reasoned action theory and opportunity cost perspective”. Reasoned action theory proposed by Fishbein and Ajzen (1975,1980) postulates that behavior is influenced by several factors among them one’s belief about the outcome of an action, one’s assessment that a particular behavior is desired by significant others and a motivation to comply with views of significant others. According to this theory, adolescents would have to believe that avoiding sex would prevent unwanted pregnancy and STI and that significant others would not want unplanned pregnancies and STI. Complying with wishes of significant others would mean that adolescents will take action or not take action. Taking action to prevent a pregnancy would influence adolescent abstaining from sex or using a contraceptive method. Within social environment, there are several factors that would be grouped into significant others, for example, peers, religion, culture, available information and parents.

In the opportunity cost perspective, Moore and Betsy (1986) indicated that cost benefit evaluation of an action influences decision-making. The theory emphasizes that adolescents will weigh the benefits of unwanted pregnancy against future opportunities. Opportunity cost perspective is therefore important in explaining fertility in different socioeconomic segments of society. According to opportunity cost perspective model, a pregnancy will cost much more to a college bound student than to adolescent whose future does not realistically include a good education, a good income and a good marriage. To influence outcome of this theory, young people require information about future opportunities influenced by postponement of sex, early marriage and in acquiring a good education.

An operational framework for analysis of adolescent fertility is suggested below.

Figure 2. Operational framework



### 3.7 Operational definitions

- Age- number of years
- Education- highest level of education attained
- Housing- type of housing adolescent youth live in (e.g. mud floor, wood, stone etc).
- Religion- Religious denomination of adolescent and youth (Catholic, protestant, Muslim, other).
- Region- Provinces
- Place of residence- Rural/ Urban
- Ethnicity- Tribe adolescent and youth come from
- Knowledge of contraception- Number of contraceptive methods a person names
- Age at first sex- First time adolescent and youth had first penetrative sex
- Age at first marriage- Age at which adolescent and youth had union of marriage
- Current use of contraception- Adolescent and youth using condoms and other methods of F/P
- Fertility- Children ever born
- Marriage- Currently and ever married
- Rural- Living in agricultural traditional village
- Urban- Living in city or town

### **3.8 Justification of the Study and Problem.**

Teenage pregnancies are a major problem in not only Kenya but also the whole world. Teenage pregnancies have demographic implications as they influence fertility, mortality and migration. These 3 components of population dynamics are modified by environmental, social cultural and demographic factors (Ohadike 1986, Ocholla-Ayayo 1989-1999).

On social cultural factors, teenage births could be as a result of early marriage or unplanned pregnancies. Pregnancies early in life expose girls to risks related to childbirth, STI/HIV/AIDS and at the same time influences fertility and population growth rate. While unplanned pregnancies expose girls to unsafe abortion, babies born of these mothers are likely to be light for birth predisposing them to infant and child deaths. Abortion and complications of pregnancies may also influence maternal morbidity and mortality among teenage mothers (Villarreal, 1998).

Environmental factors influence teenage pregnancies. In urban centers, teenagers are more influenced through mass media. Cultural barriers especially in urban centers are broken down and youth get information that might not be accurate from peers. Working mothers in urban centers most times single, may not have adequate time with their children to provide guidance. In the informal settlements, the environment is compounded by drug abuse and housing problems that do not provide privacy for parents. As observed during my work experience, in single room households found in informal



settlements of Nairobi, where drugs, prostitution are rife, young girls and boys are exposed to sex practice early in life. Poverty in the informal settlements may have a positive influence on sex practices and STI/HIV/AIDS (APHRC, 2000).

Youth vulnerability is therefore increased by such factors as early exposure to sexual experience through cultural and economic factors, media and erosion of traditional values that were used as sanctions for regulating expressions of sexuality. Breakdown of traditional socialization has created a vacuum of knowledge (Villarreal,1998).

With breakdown of culture and traditions, it is very important to establish factors that will influence fertility in order to design effective reproductive health programs for the youth. If adolescent fertility problem is not addressed, more and more adolescents will not be able to reach their potential in contributing to the economic development. Teenage pregnancies will continue to result in unsafe abortion influencing maternal mortality and morbidity rate and babies born of too young mothers will continue to die due to complications related to early pregnancies contributing to Infant Mortality Rate (Villarreal, 1998).

More often than not, adolescents and youth get conflicting and mixed messages on sexuality from the environment around them. In the name of morality, culture and religion, young people are often denied their right to education about health risks of sexual and other risk behavior and to important services for protection. Health service providers believe that adolescents and youth have no right to have sexual intercourse

before marriage and therefore do not need to have reproductive health services. Many people also believe that exposure to sex education introduces adolescents and youth to early sexual intercourse. Since the Conference on Population and Development held in Cairo in 1994, several approaches have been developed with the aim of increasing sexual and reproductive knowledge and services among the youth. These approaches are young and may not have been adequately evaluated to assess the most appropriate, cost effective and sustainable strategies that would have the greatest impact in positive behavior change among the youth.

Cairo conference aroused great interest on youth sexuality and the need to ensure that adolescents have access to family planning services although not much evidence is seen on the ground. According to Kenya Service Provision Survey (KSPS), 2000, although the majority of facilities did not have special services for teenagers, more than a quarter of these facilities reported offering special family planning counseling for adolescents. However, 1 in 5 facilities that reported offering condoms did not have condoms available at the time of the interview or had only a minimal supply on hand. Results from KSPA also indicated that health workers were not taking the opportunity of counseling sessions to discuss risk factors related to STI and HIV/AIDS or modes of prevention. There was also little discussion of the role of condoms in preventing infections and almost no mention of other modes of prevention. These omissions in stocking and counseling on role of condom use in preventing spread of STI/HIV/AIDS go against government recognition that the combination of a large sexually active group of youth and inadequate

knowledge and education about STI /HIV/AIDS are major factors responsible for the increasing spread of STI and HIV/AIDS.

Over the years, HIV infection has shifted to younger segments of the population. As indicated in the youth fact sheets, new data suggest over 7,000 new infections per day among those 15-24 year-old in Sub-Saharan Africa. In Nairobi and Abidjan, up to 90 percent of female commercial sex workers are HIV positive and adolescent African males are often clients of commercial sex workers. In Zimbabwe, nearly 16 percent of male high school students report having had sex with prostitutes ( [www.advocate for youth](http://www.advocatefor youth.org)).

Although 1 out of 5 of the health facilities sampled in KSPA (2000) reported providing youth counseling, an evaluation through interviews and focus group discussions of NCC clinics serving 7 informal settlements and the community found out that youth who frequented the clinics had already given birth, had an abortion or had visited the clinic for ante natal care (NCC: UNFPA, 1999). This means that a lot of adolescents and youth requiring ARH information and services from health facilities to prevent unplanned pregnancies did not access the services. There must therefore be factors at the health facilities and the community serving as barriers to ARH services.

Cairo Conference on Population and Development held in Cairo in 1994 indicated that poor educational and economic opportunities and sexual exploitation are important factors in the high levels of adolescent child bearing. In both developed and developing countries, adolescents faced with few apparent life choices have little incentive to avoid

pregnancy and childbearing. Compounded with little incentives to avoid early sex, pregnancy puts young women's health at risk of childbearing or unsafe abortion. Increasing early parenthood also means less education with life long loss of earning. Half of those infected with HIV/AIDS are indicated to be below 25 years (Population reports, 1995). According to ICPD, 1994, access to reproductive health information and services is a human right issue and this includes adolescents and youth.

Focus on adolescent fertility is important because youth are the future of any country. In Kenya, 48 % of the population is below 25 years (Census, 1999). Socialization process has changed and parents are shy to teach sexuality to youth. Traditionally, girls were to be better behaved to get husbands and the current love marriage encourages sex before marriage as boys and girls search for future marriage partners, that, exposes boys and girls to sexually transmitted infections. Early marriage among the youth also interferes with education hence low status of women that affects decision-making power on the number and timing of pregnancies. If adolescents and youth are not supported with reproductive health information and services, the country will continue experiencing youthful population, unplanned pregnancies that will contribute to high fertility and population growth rate.

The study hopes to explore factors that affect adolescent fertility. Results of the study will influence policy development of appropriate strategies on adolescent reproductive health. The study will also help program managers in the designing and implementing the

most appropriate ARH programs that will influence quality of life for adolescents who will develop into responsible citizens.

### 3.9 Limitations of the Study

Due to limitations of funds and time, the study will utilize secondary data from Kenya Demographic and Health Survey. The study also focuses more on girls who are at risk of getting pregnant.

## **CHAPTER FOUR: DATA AND METHODS**

### **4.1 Introduction**

This section discusses data and methods that are used for analysis. The section also describes data source, study population and variables that are used in the analysis.

### **4.2 Data Source**

The study used secondary data generated by the 1998 Kenya Demographic and Health Survey (KDHS), the 3<sup>rd</sup> survey carried out in Kenya. The 1998 KDHS is a national survey carried out by the National Council for Population and Development (NCPD) in collaboration with the Central Bureau of Statistics (CBS). KDHS survey was carried out in partnership with other International Agencies who included Macro International Inc. (USA), United States Agency for International Development (USAID), British Department for International Development (DFID), United Nations Population Fund (UNFPA) among others.

### **4.3 Study Area**

Kenya covers an area of 582,000 square kilometers and borders Tanzania in the South, Uganda in the West, Sudan in the North West, Ethiopia in the North, Somali in the East and Indian Ocean to South East. Kenya is along; latitude 3 degrees North and 5 degrees, and longitude 34 degrees and 41 degrees East with the equator bisecting the country. Kenya is divided into 8 provinces and 75 districts.

#### **4.4 The Sample Design**

The 1998 KDHS is national in scope with the exclusion of all 3 districts in North Eastern Province and 4 other northern districts (Samburu and Turkana in the Rift Valley and Isiolo and Marsabit in Eastern Province). The excluded areas account for 4 percent of Kenya's population. The survey used a two stage, stratified sample consisting of 536 selected sample clusters. Six of the 536 clusters (1%) were not surveyed due to inaccessibility.

Household listing was carried out for each of the selected clusters. From the lists, a systematic sample of households was drawn. Twenty two households per urban cluster and 17 households per rural cluster totaling 9,465 selected households were listed. All women 15-49 were interviewed in the households. Every second household was identified for inclusion in the male survey and, in those households, all men aged 15-54 were also eligible for interview.

The 1998 KDHS sample clusters were the same as those used in the 1993 KDHS and were selected from a national master sample called NASSEP-3. Third National Sample Survey and Evaluation Programme (NASSEP-3) were drawn 536 sample points (clusters), 444 rural and 92 urban. Selected districts were over sampled in the 1998 KDHS in order to produce reliable estimates for certain variables at the district level. Fifteen districts were targeted in both the 1993 and 1998 KDHS that included; Bugoma, Kakamega, Kericho, Kilifi, Kisii, Machakos, Meru, Murang'a, Nakuru, Nandi, Nyeri, Siaya, South Nyanza, TaitaTaveta, and Uasin Gishu. In addition, Nairobi and Mombasa

were targeted. Due to this over-sampling, the 1998 KDHS is not self-weighting (ie sample weights are needed to produce national estimates).

#### **4.5 Study Population**

Of the eligible households, 8,380 were successfully interviewed, giving a response rate of 97 percent. The main reason for eligible households not being interviewed was that a competent member of the household could not be found and interviewed during the course of work in the cluster. In interviewed households, 8,233 eligible women (age 15-49) were identified and 7,881 were successfully interviewed yielding a response rate of 96 percent. Out of the women 15-49 years eligible, 3,350 adolescent and youth 15-24 years were interviewed. All adolescents and youth interviewed will be included for analysis of adolescent fertility.

Of the 4,747 households sampled for inclusion in the KDHS male survey, 4,337 households were occupied and therefore eligible for interview. About 97 percent of these households were successfully interviewed. A total of 3,845 men (15-54) were identified in the surveyed households and 3,407 of these were interviewed, yielding a response rate of 89 percent. Response rates for males and female individual interviews were higher in rural areas than in urban areas. The main reason for non-response was failure to find the individuals despite repeated visits to the household and place of work.



## **4.6 Variables: Dependent Variables Definition and Operationalisation**

### **4.6.1 Fertility**

Utility of information on the desire for children to anticipate changes in actual fertility behavior has been demonstrated in a wide range of contexts (Westoff,1990). In the KDHS study, women and men were asked a series of questions to ascertain their fertility preferences, that is, their desire to have another child, the length of time they would like to wait before having a child, and the number of children they consider to be ideal. These data made quantification of fertility preference possible.

### **4.6.2 Knowledge of Contraception**

One indicator of adolescent fertility used in this study is knowledge of contraception. Since knowledge of modern contraceptives is almost universal in Kenya 96 percent of all women 15-49 know at least one method of modern contraceptive, computation is carried out using a combination of different types of modern family planning methods listed in the DHS namely, the pill, IUD, injectable, condom, female sterilization and implants. Tabulation of knowledge of, fewer than 4 methods, and more than 4 methods, scoring values of 0 and 1 respectively.

### **4.6.3 Current Use of Contraception**

Current use of modern contraceptive to regulate childbearing. In this study, respondents who never had sexual intercourse and those with no knowledge of modern method are

## **4.7 Proximate Variables**

### **4.7.1 Exposure to sex**

KDHS included questions on sexual activity in the last 12 months preceding the survey with the respondent's spouse and with other partners. Besides exposure to sex being a risk for sexually transmitted infections, it also predisposes the respondent to risk of pregnancy. Clustering responses to no sexual experience within last 12 months scoring values of 0 and 1 respectively are used to carry out computation.

### **4.7.2 Further Analysis**

Tabulating mean age at first sex made further analysis.

### **4.7.3 Control Variables**

The following control variables were used in the study. 1 education, 2 age, 3 ethnicity, 4 rural/urban residence, 5 marital status, 6 socioeconomic status, 7 religion, 8 current school attendance:

Socio economic variables: education, housing;

Socio-cultural variables: Religion and ethnicity;

Demographic variables: age, age at first birth, age at first marriage, marital status, and knowledge of contraceptive use;

Environmental variables: rural, urban, region.

In order to reduce errors introduced by age in single years, age is recorded into categories namely; early adolescent (15-17 years), late adolescence (18-19 years), youth (20-24 years) with a score of 0, 1 and 2 respectively.

excluded as having no risk of using contraceptives. Variables have 2 categories of yes and no with values of 0 and 1 respectively.

#### **4.6.4 Children Ever Born**

Children ever born is an indicator of fertility that shows the number of children the respondent has had during her reproductive life. In the 1998 DHS, on average, women in their late twenties had given birth to almost 3 children. Computation in this study involves combining all births and categorizing them into no births/never been pregnant, 1 birth/currently pregnant with 1<sup>st</sup> child and more than 1 pregnancy scoring 0, 1 and 2 respectively.

#### **4.6.5 Wanted and Unwanted Fertility**

Wanted and unwanted fertility are classified together to indicate whether pregnancy was planned or unplanned. Among unmarried women, unwanted pregnancies influences decisions to drop out of school or on abortion. Unwanted pregnancy may also result from failure of a contraceptive method of the service. In this study, computation is be carried out indicating those with unwanted and wanted scoring 0 and 1 respectively. During analysis, this question was limited to those who were ever pregnant, as it could have skewed more than 90% of data.

#### **4.8.1 Socio Economic Variables**

Education level has been categorized in terms of levels rather than years of schooling. Values 0 stands for no education or incomplete primary education, 1 for complete primary education and 2 for secondary level and above.

Other socio economic status (SES) indicators are dichotomized as necessary. The indicators included access to electricity, water piped into residence, flooring materials (earth/sand/dung/cement), number of rooms used for sleeping. Number of rooms information provides a rough measure of household crowding and level of privacy.

Other socio economic status indicators on housing include access to toilet facility, source of drinking water, radio, bicycle, television, motorcycle and private car. After dichotomizing the SES variables, the next stage involved carrying out a analysis with each of the variables and recording the level of significance.

Finally, variables were categorized as low, medium and high socio economic status after classifying the variables according to values scored.

#### **4.8.2 Social Cultural Factors**

Ethnicity in the study was taken as membership in the following categories; 1 Kalenjin, 2 Kamba, 3 Kikuyu, 4 Kisii, 5 Luhya, 6 Luo, 7 Masai, 8 Meru/Embu, 9 Mijikenda/Swahili, 10 Somali, 11 Taita/Taveta, 96 others.

Religion was categorized as; 1 Catholic, 2 Protestant,/Other Christian, 3 Muslim, 4 no religion, 6 Other.

#### 4.8.3 Environmental Factors

Environmental factors were categorized into rural, urban and region. Region was further analyzed by province as follows: Nairobi, central, Coast, Eastern, Nyanza, Rift Valley and Western.

15 districts were included in the 1998 DHS. Therefore, to provide information on how districts fared in adolescent fertility, further control information was generated from the provinces.

#### 4.9.1 Summary of Operational Definitions of Variables

Variable	Value
1 Knowledge of modern contraceptive method	0-N 1-Yes
2 Current use of contraceptive	0-Not using 1-Current use
3 Children Ever Born	0- Low birth 1- High birth

4	Wanted pregnancy	0-N 1-Yes
5	Exposed to sex	0-N 1-Yes
6	Multiple partners	0-1 1-More than 1
7	Current marital status	0-Never married 1-Current +Ever married
8	Level of education	0-No education /Primary incomplete 1-primary complete 2-secondary plus
9	Age	1-15-17 Years 2-18-19 years 3-20-24 years

10 Religion

- 1-Catholic
- 2-Protestant
- Others

11 Ethnicity

- 1-Kalenjin
- 2-Kamba
- 3-Kikuyu
- 4-Kisii
- 5-Luhya
- 6-Luo
- 7-Masai
- 8-Meru/Embu
- 9-Mijikenda/Swahili Others
- 10-Somali
- 11-Taita/Taveta

12 Type of place of residence

- Rural
- Urban

13 Region

- 1-Nairobi
- 2-Central
- 3-Coast

4-Eastern

5-Nyanza

6-Rift Valley

7-Western

14 District

1-Bugoma

2-Kakamega

3-kericho

4-Kilifi

5-Kisii

6-Machakos

7-Meru

8-Murang'a

9-Nakuru

10-Nandi

11-Nyeri

12-Siaya

13-South Nyanza

14-Taita/Taveta

15-Uasin Gishu

15 Socio-economic status

1-Low

2-Medium



		3-High
16.	Age at first sex	1-below 12 years
		2- 12-14
		3- 15-17
		4- 18-19
		5-20-24
17	Age at first birth	1- below 15 years
		2-15-17
		3- 18-19
		4- 20-24
18	Age at first marriage	1- below 12 years
		2- 12-14
		3-15-17
		4-18-19
		5-20-24

#### 4.9.2 Bivariate and Univariate Analysis

Cross tabulation with chi-square test was used in examining strength of association between dependent and independent variables. To run cross tabulation, frequencies were obtained first. Frequencies gave valid cases that provided true interpretation based on valid percentages. Frequencies generated indicated which variables required some

recording or grouping. Frequency table helped in assessing quality of data for example, if a lot of cases are indicated as missing cases. Cross tabulation was used to test association of children ever born and control variables which were continuous values like, age at first birth, age at first intercourse and age at first marriage. Cross tabulation therefore helped in assessing disparities and overall outcomes of the association. The advantage of bivariate and univariate analysis is that the model can measure those factors, single or multiple that are negatively or positively associated with fertility among adolescents and youth 15-24 years. Both techniques are useful in measuring continuous data. Chi-square helped to show overall significance of the model. Chi-square test demonstrated association of variables more clearly while level of confidence was expressed in percentages. Advantage of cross tabulation is that it is simple to use as the results are given on a contingency table.

The disadvantage of cross tabulation and Chi-square are their inappropriateness for analyzing dichotomous data.

#### **4.9.3 Ordinary Multiple Regression Analysis**

Ordinary multiple regression was used to analyze dichotomous data. Such data were generated by Yes/No responses of contraceptive use. Multiple regression models helped in establishing effect or influence of a set of explaining dependent interval variable of children ever born. Multiple regression models were used for variables represented by proxy dummy variables. When an explanatory variable has K categories, K-1 dummies will represent it. The omitted dummy variable becomes the influence category. The regression has the advantage of allowing inclusion of statistical control that is not

possible with chi-square test. The disadvantage of this technique is that it is used only in situations where the dependent variable is categorical.

Multiple linear regressions have the advantage of allowing determining gross effect, net and relative effect, influence and effect of variables on dependent variables. The technique helps to isolate effect of independent on dependent and outcome. Functions listed in regression have the effect of disentangling effects of explanatory variables on dependent variables. In this study, there are several variables that would influence Children Ever Born and the technique helps to determine their association better.

Multiple regression models take the form of:

$$Y = B_0 + B_1X_1 + B_2X_2 + \dots + B_kX_k + e.$$

Multiple regressions are based on the assumption where K variables are the ones, which are theoretically known to influence particular phenomena. In this study, K variables include all the variables stated above that influence Children Ever Born. For example, marital status, education, housing, religion, ethnicity, age, age at first sexual intercourse, age at first birth, age at first marriage, region, use of contraceptives and sexual activity.

Multiple regression analysis gave the association between dependent and independent variables in the model. In this study, analysis was carried out on the probability of getting a child or using contraceptives among adolescents with primary education, secondary and college education. Other control variables that were tested using linear regression included religion, ethnicity, rural, urban and region (province, district) and use of

contraceptives. Linear regression was carried out to test effects of exposure to sex, marital status, contraceptive use and fertility behavior.

The advantage of multiple regression analysis is that the researcher is able to compare several factors and magnitude of the strength of association. The researcher is therefore able to accept or reject the hypothesis of the study. Level of significance  $< 0.001$  means that there is a linear relationship. One disadvantage of the technique is that the model does not indicate how much each variable reduced or increased the effect.

## CHAPTER FIVE: DISCUSSION OF FINDINGS

### 5.1 Introduction

This chapter presents results for bivariate and univariate analyses. Univariate analyses involved cross tabulation and chi-square tests. Results of ordinary multiple regression analysis as well as cross tabulation for age at first sex are indicated.

### 5.2 Preliminary analyses

Frequencies and descriptive statistics were carried out to assess the nature of distribution of cases in each variable (both dependent and independent) in order to facilitate recoding of variables that in turn facilitated meaningful multiple regression analysis. Recoding was undertaken to take care of categories with too few cases as well as too many cases. Computation of socio-economic variables was carried out to re-categorize high, medium and low socio economic status.

The following is a summary of the more important characteristics of survey respondents. Respondents 15-19 years were 1815, 20-24 were 1535 making a total of 3350 adolescents and youth 15-24 years. Among 3350 adolescents and youth who were interviewed in the survey, those within 15-17 years, only 0.6% had 2 or more children (N=6), 18-19 years had 7.6 % ( N=59) and 20-24 years had 37.7% (N=581). Of all current adolescents, 19% had 2 children or more ( N=646) out of the total 3350 adolescents that were interviewed (Table 5.1.1). The findings showed a significant relationship between the current adolescent age and the number of children. Two-sided test showed 0.000 level of

confidence (Table 5.1.4). This finding accepts the hypothesis that age is associated with the children ever born.

**Table 5.1.1 Percentage of women 15-24 by age group with Children Ever Born**

Age group	15-17				18-19				20-24				Total (15-24)			
	0-1	N	2+	N	0-1	N	2+	N	0-1	N	2+	N	0-1	N	2+	N
	99.4	1069	0.6	6	92.4	718	7.6	59	62.3	961	37.7	581	81	2748	19	646

Source: NCPD 1998

### Ethnicity

Among ethnic groups listed in KDHS, Luo had the highest proportion of adolescents having 2 children or more. 25 % of Luos had 2 children and more (N=107), while Kisii had the least adolescents having 2 children or more 13.9 % (N=42). When controlled for age, Luo and Luhya had the highest number of adolescents between 15-17 having 2 children or more while at age 18-19 years, Luo and Kalenjin had the highest number of adolescents having 2 or more children (Table 5.1.3). The finding accepts the hypothesis that ethnicity is associated with children ever born.

### Education

Adolescents with no education had highest proportion of Children Ever Born having 2 children and above 38.3% (N=54). Adolescents with primary education had 21.2% with 2 children and above (N=485). When controlled for age, adolescents with no education had the highest proportion 28 % having 2 or more children at age 18-19 years while those with secondary education and more had the least 0.8% having 2 or more children (Table 5.1.3).

On Chisquare, education level showed high correlation between education level and number of Children Ever Born to adolescents (Table 5.1.4). The finding accepts the hypothesis that the level of education is associated with children ever born.

### **Age at first birth**

Of adolescents who had their first birth while under 15 years, 75.1 % had two children or more (N=145). Of adolescents who had their first birth between 15-17 years 56.5% (N=216) had 2 or more children while those 18-19 years 45.3 % (210) had 2 or more children. Of adolescents who had their birth while 20-24 years, 20.7% (N=75) had 2 or more children. When controlled for age, 18 % of adolescents below 15 years had 2 or more children and by age 19, the same group had 80 % of adolescents having 2 or more children. By age 19, at least 77.4 of adolescents had given birth (Table 6.1.3). This result was interesting and when compared with all births (Table 7.1.1), number of children born to women sampled in KDHS 1998 before they were 25 years old was 12182 children of the total 23351 children ever born. Children born to women after they were 25 years and above were only 1169. The finding has importance implications for population policy in providing services to the youth so as to postpone giving birth early in life. Chi-square showed significant relationship between age at first birth and Children Ever Born to adolescents. Level of significance 0.003 (Table 6.1.4). The finding accepts the hypothesis that age at first birth is positively associated with children ever born.

## **Religion**

Of all Catholics 17.8% had 2 children or more (N=165) while all others had one or none. Of all protestants and other Christians 18.9 % had 2 children and above (413). Among others (Muslims, no religion, or other religion apart from protestants or Catholics), 24.4 % had 2 children or more (67). When controlled for age, religion did not show significant differences between Catholics, Protestants and others among adolescents in all ages (Table 5.1.3). This finding was a contradiction against common belief that religion is associated with number of Children ever Born. This finding has implications in provision of contraceptives among adolescents of all religious denominations. Chi-square showed level of confidence not significant on two sided 95 % confidence interval. There is no significant difference between religion and number of children born among adolescents (Table 5.1.4). This finding rejects the hypothesis that religion is associated with children ever born.

## **Age at first intercourse**

On cross tabulation, mean age at first sex is found to be about 15.87 years while minimum age is 8 years (Table 5.1.2). Mean age at first sex has implications in programmes that address adolescent reproductive health. In current education system, adolescents at age 8-15 years are in primary school and early secondary school.



**Table 5.1.2: Age at first intercourse**

N	Valid Missing	1938 1456
Mean		15.87
Median		16.00
Mode		15
Minimum		8
Maximum		23

Source: NCPD 1998

Of adolescents who had first intercourse below 12 years, 4.1 % (N= 56) had 2 or more children while adolescents who had first intercourse between 12-14 years 30.4% (N=95) had 2 or more children.

Of adolescents who had first intercourse at 15-17 years, 27.5 % (N=276) had 2 children or more and those who had first intercourse at 18-19 years 29.2 % (N=105) had 2 or more. Of adolescents who had first intercourse at 20-24 years, 8.3 (N=10) had 2 or more children. When controlled for age, adolescents who had first intercourse below 12 years were the least after those who had first intercourse at age 20-24 years by age 19 among adolescents having 2 or more children, 19.1 and 8.3 respectively (Table 5.1.3). Age at first intercourse may not have had a major influence in the number of children ever born among adolescents. Individual physiological changes may have had an influence as late commencement of menses determines when conception occurs. Chisquare showed a relationship between age at first intercourse and Children Ever Born, level of confidence 0.000 (Table 5.1.4). The finding accepts the hypothesis that age at first intercourse is negatively associated with children ever born.

### **Age at first marriage (N=1315)**

Of adolescents who were first married before age 12, 78.6 (N=220 ) had 2 or more children. Of adolescents who were first married between 12-14, 75.8 % (N= 69) had 2 or more children. Of adolescents who were first married between 15-17 years, 52.2 % (N=252) had 2 or more children. Of adolescents who were first married between age 18-19 years, 43.0 % (N= 178) had 2 or more children. Of adolescents who were first married between 20-24 years, 27.4 % (N=82) had 2 or more children. When controlled for age, adolescents who married below 12 years were the highest among those who had 2 or more children by age 24 years 94.1 % (Table 5.1.3). Chi square showed association between age at first marriage and Children Ever Born among adolescents on 2 tailed 95 % confidence interval 0.000 level of significance (Table 5.1.4). The finding accepts the hypothesis that age at first marriage is associated with children ever born.

### **Children Ever Born by Region**

Of all adolescents in Rift Valley, 22.3% (N= 187) had 2 or more children. Nairobi had the least proportion of adolescents with 2 or more children 12.2% (N=24). When controlled for age, Nairobi followed by Central province had the lowest number of adolescents having 2 or more children at age 24 years 23 % and 27.0% respectively. Nyanza and Western province had the highest number of adolescents having 2 or more children at age 24 years, 45.2 % and 42.6 % (Table 5.1.3). The findings therefore show an association between Region and Children Ever Born on 2 tailed 95 % confidence

interval 0.000 level of significance (Table 5.1 4). The finding accepts the hypothesis that region has an association with children ever born.

### **Urban rural region**

Of all urban adolescents, 16.6 % (N=112) had 2 or more children while rural 19.6 % (N=534) had 2 or more. When controlled for age, there seems to be a difference in the proportion of adolescents having 2 or more children with urban having 2.9 % against rural with 8.9 % at age 18-19 and 28.9% against 40.4 % respectively (Table 5.1.3). There seems to be no significant difference on Children Ever Born among adolescents between urban and rural regions (Table 5.1.4). The finding rejects the hypothesis that place of residence is associated with children ever born.

### **Marital status**

Of all adolescents who have never been married, 2.1 % (N=43) had 2 or more children. The ever-married adolescents 45.9 % (N=603) had 2 or more children. Chi-square showed a strong association between marital status and Children Ever Born among adolescents. When controlled for age, adolescents ever married consistently increased in proportion of those who had 2 or more children. By age 19-20 years, 54.2 % of adolescents had 2 or more children compared to 6.9 % never married at the same age (Table 5.1.3). Level of significance on 2 sided test at 95 % confidence interval 0.000 (Table 5.1.4). The findings accepts the hypothesis that marital status is associated with children ever born.

### **Children Ever Born by Social Economic Status**

Of all adolescents in high socio economic status, 6.7 % (N= 13) had 2 children or more. Of all adolescents with medium socioeconomic status, 18% (N=193) had 2 children or more. Of all adolescents with low socioeconomic status, 20.7 % (N=440) had 2 children and more. Chi-square showed a strong association between Children Ever Born and Socioeconomic status. When controlled for age, only 14.4% (N=90) of adolescents in high socio economic status had 2 or more children by age 20 years compared to 35.5% (N=498) and 41.0% (N=954) in medium and low socioeconomic status respectively (Table 5.1.3). Level of confidence on 2-sided test at 95 % confidence interval was 0.000 (Table 5.1.4). This finding accepts the hypothesis that socio economic status is associated with children ever born.

### **Ever use of any method**

Of adolescents who used any method of contraceptives, 62.5% (N=8) who used only folkloric had 2 or more children 40.3 % (N=742) who used modern methods had 2 or more children while 23.5% (N=277) used tradition method. Of all adolescents with ever use of contraceptives 11.7 % (N=2367) had 2 or more children. When controlled for age, only 15.2 % of adolescents who had 2 or more children used modern contraceptives by age 15-17 years (Table 5.1.3). Level of significance on 2 sided test at 95% confidence interval was significant only at age 20-24 years (Table 5.1.4). The finding accepts the hypothesis that ever use of contraceptive methods is associated with children ever born but only for youth age between 20-24 years.

### **Knowledge of modern methods**

Of adolescents who had knowledge of less than 4 methods of contraceptives, 81 % (N=2748) had less than 2 children while 19 % had 2 children and more. When controlled for age, quite a substantial number of adolescents having 2 or more children at age 15-17 years use low effective contraceptive methods with those not using 7.0% (N=685), 15.5% pill (N=26), injection 21.1% (N=19), abstinence 7.7 (27) and none for all other methods. (Table 5.1.3). No statistics were computed because knowledge of modern methods was a constant.

### **Children Ever Born by District**

Of all the districts which were sampled, Kericho had the highest proportion of adolescents with 2 children or more, 24.1 % (N=41), followed by Bugoma and Siaya districts which had 24.1 % ( N= 42) and (N=32) respectively. Districts with lowest proportion of its adolescents having 2 or more children was, Nyeri, with 10.9 % (N=13) and second least Nairobi with 12.2 % (N=24) respectively (Table 5.1.3). Chi-square showed a strong relationship between districts and Children Ever Born. Level of confidence at 95 % confidence interval was 0.000 (Table 5.1.4). The finding accepts the hypothesis that district (region) is associated with children ever born.

**Table 5.1.3. Percentage of women aged 15-24 with children Ever Born**

Age group	15-17			18-19			20-24			TOTAL (15-24)		
	0-1	2+	N	0-1	2+	N	0-1	2+	N	0-1	2+	N
<b>Ethnicity</b>												
Kalenjin	99.5	0.5	184	87.7	12.3	130	56.8	43.2	266	77.2	22.8	580
Kamba	100.0	0	132	94.9	5.1	79	64.9	35.1	171	83.2	16.8	382
Kikuyu	100.0	0	127	95.2	4.8	104	74.2	25.8	256	85.4	14.6	487
Kisii	100.0	0	118	98.6	1.4	70	64.3	35.7	115	86.1	13.9	303
Luhya	99.4	0.6	169	91.2	8.8	113	57.0	43.0	200	79.9	20.1	482
Luo	98.5	1.5	134	90.7	9.3	97	48.9	51.1	188	74.5	25.5	419
Others <sup>1</sup>	99.0	1.0	210	92.4	7.6	184	66.0	34.0	344	82.0	18.0	738
<b>Total</b>	99.4	0.6	1068	92.4	7.6	777	62.3	37.7	1540	80.9	19.1	3391
<b>Education</b>												
No	96.7	3.3	30	71.9	28.1	32	44.3	55.7	79	61.7	38.3	141
Primary	99.5	0.5	871	90.5	9.5	506	52.7	47.3	916	78.8	21.2	2293
Sec+	99.4	0.6	174	99.2	0.8	239	81.0	19.0	547	88.9	11.1	960
<b>Total</b>	99.4	0.6	1068	92.4	7.6	777	62.3	37.7	1540	81.0	19.0	3394
<b>Age at first birth</b>												
Below 15yrs	81.3	18.8	32	20.0	80.0	35	11.9	88.1	126	24.9	75.1	193
15-17 yrs	100.0	0.0	38	75.2	24.8	121	16.6	83.4	223	43.5	56.5	382
18-19 yrs	-	-	-	99.0	1.0	105	41.8	58.2	359	54.7	45.3	464
20-24 yrs	-	-	-	-	-	-	79.3	20.7	363	79.3	20.7	363
<b>Total</b>	91.4	8.6	70	77.4	22.6	261	45.8	54.2	1071	53.9	46.1	1402

Age group	15-17			18-19			20-24			TOTAL (15-24)		
	0-1	2+	N	0-1	2+	N	0-1	2+	N	0-1	2+	N
Religion												
Catholic	99.4	0.6	320	84.1	15.9	198	63.7	36.3	411	82.2	17.8	929
Protestant and other Christians	99.7	0.3	688	92.4	7.6	509	61.8	38.2	987	81.1	18.9	2184
Others <sup>2</sup>	96.9	3.1	65	87.7	12.3	69	61.7	38.3	141	75.6	24.4	275
Total	99.4	0.6	1073	92.4	7.6	776	62.3	37.7	1539	81.0	19.0	3388
Age at first intercourse												
Below 12yrs	99.9	0.1	829	98.0	2.0	297	80.9	19.1	256	95.9	4.1	1382
12-14yrs	95.9	4.1	98	76.2	23.8	84	45.8	54.2	131	69.6	30.4	313
15-17 yrs	99.3	0.7	141	92.8	7.2	305	54.6	45.4	557	72.5	27.5	1003
18-19 yrs	-	-	-	100.0	0.0	41	67.0	33.0	318	70.8	29.2	359
20-24 yrs	-	-	-	-	-	-	91.7	8.3	120	91.7	8.3	120
Total	99.4	0.6	1068	93.4	6.6	727	64.7	35.3	1382	82.9	17.1	3177
Age at first marriage												
Below 12yrs	60.0	40.0	5	33.3	66.7	6	5.9	94.1	17	21.4	78.6	28
12-14 yrs	88.9	11.1	9	36.4	63.6	22	10.0	90.0	60	24.2	75.8	91
15-17 yrs	100.0	0.0	50	75.2	24.8	141	25.7	74.3	292	47.8	52.2	483
18-19 yrs	-	-	-	96.2	3.8	78	47.9	52.1	336	57.0	43.0	414
20-24 yrs	-	-	-	-	-	-	72.6	27.4	299	72.6	27.4	299
Total	95.3	4.7	64	77.3	22.7	247	45.8	54.2	1,004	54.1	45.9	1315

Age group	15-17			18-19			20-24			TOTAL (15-24)		
	0-1	2+	N	0-1	2+	N	0-1	2+	N	0-1	2+	N
<b>Region</b>												
Nairobi	100.0	0.0	40	98.3	1.7	58	76.8	23.2	99	87.8	12.2	197
Central	100.0	0.0	91	92.5	7.5	53	73.0	27.0	159	84.5	15.5	303
Coast	97.9	2.1	142	89.3	10.7	122	66.0	34.0	256	80.2	19.8	520
Eastern	100.0	0.0	178	96.7	3.3	121	66.1	33.9	178	84.7	15.3	523
Nyanza	99.1	0.9	230	92.9	7.1	140	54.8	45.2	228	79.8	20.2	620
Rift Valley	99.6	0.4	254	89.3	10.7	196	57.4	42.6	253	77.7	22.3	837
Western	100.0	0.0	140	93.1	6.9	87	55.7	44.3	140	79.7	20.3	394
<b>Total</b>	99.4	0.6	1075	92.4	7.6	777	62.3	37.7	1542	81.0	19.0	3394
<b>Region/ place of residence</b>												
Urban	98.6	1.4	140	97.1	2.9	172	71.1	28.9	363	83.4	16.6	675
Rural	99.6	0.4	935	91.1	8.9	605	59.6	40.4	1179	80.4	19.6	2719
<b>Total</b>	99.4	0.6	1075	92.4	7.6	777	62.3	37.7	1542	81.0	19.0	3394
<b>Marital status</b>												
Never married	99.7	0.3	1011	99.4	0.6	530	93.1	6.9	538	97.9	2.1	2079
Ever married	95.3	4.7	64	77.3	22.7	247	45.8	54.2	1004	54.1	45.9	1315
<b>Total</b>	99.4	0.6	1075	92.4	7.6	777	62.3	37.7	1542	81.0	19.0	3394
<b>SES</b>												
High	100.0	0.0	56	100.0	0.0	48	85.6	14.4	90	93.3	6.7	194
Medium	99.4	0.6	336	94.1	5.9	236	64.5	35.5	498	82.0	18.0	1070
Low	99.4	0.6	683	90.9	9.1	493	59.0	41.0	954	79.3	20.7	2130
<b>Total</b>	99.4	0.6	1075	92.4	7.6	777	62.3	37.7	1542	81.0	19.0	3394



Age group	15-17			18-19			20-24			TOTAL (15-24)		
	0-1	2+	N	0-1	2+	N	0-1	2+	N	0-1	2+	N
<b>Ever use of any method</b>												
Never used	99.6	0.4	996	94.0	6.0	586	69.7	30.3	785	88.3	11.7	236
Used only folkloric	-	-	0	100.0	0.0	3	0.0	100.0	5	37.5	62.5	8
Used only tradition method	100.0	0.0	37	92.9	7.1	56	66.8	33.2	184	76.5	23.5	277
Used modern method	95.2	4.8	42	84.8	15.2	132	51.2	48.8	568	59.7	40.3	742
<b>Total</b>	99.4	0.6	1075	92.4	7.6	777	62.3	37.7	1542	81.0	19.0	3394
<b>Current contraceptive method</b>												
Not using	99.5	0.5	1042	93.0	7.0	685	65.6	34.4	1145	84.4	15.6	2872
Pill	100.0	0.0	1	84.6	15.4	26	58.6	41.4	116	63.6	36.4	143
IUD	-	-	0	-	-	0	63.6	36.4	11	63.6	36.4	11
Injections	50.0	50.0	2	78.9	21.1	19	34.3	65.7	137	39.9	60.1	158
Condom	100.0	0.0	8	93.8	6.2	16	70.8	29.2	24	83.3	16.7	48
Periodic Abstinence	100.0	0.0	22	92.6	7.7	27	69.2	30.8	91	78.6	21.4	140
Withdrawal	-	-	0	100.0	0.0	2	60.0	40.0	5	71.4	28.6	7
Other	-	-	0	100.0	0.0	2	0.0	100.0	5	28.6	71.4	7
Norplant	-	-	0	-	-	0	62.5	37.5	8	62.5	37.5	8
<b>Total</b>	99.4	0.6	1075	92.4	7.6	777	62.3	37.7	1542	81.0	19.0	3394

Source: NCPD 1998

**Table 5.1.4: Summary of Pearson Chi-square results**

Age group	Value	DF	Asymp.Sig (2 sided)
<b>Ethnicity</b>			
15-17	4.812 <sup>a</sup>	6	.568
18-19	10.427 <sup>b</sup>	6	.108
20-24	38.321 <sup>c</sup>	6	.000
<b>Education</b>			
15-17	4.317a	2	.115
18-19	37.358b	2	.000
20-24	127.975c	2	.000
<b>Age at first birth</b>			
15-17	7.793 <sup>b</sup>	1	.005
18-19	94.370 <sup>c</sup>	1	.000
20-24	301.826 <sup>d</sup>	1	.000
<b>Religion</b>			
15-17	8.327 <sup>a</sup>	2	.016
18-19	7.528 <sup>b</sup>	2	.123
20-24	.491 <sup>c</sup>	2	.782
<b>Age at first intercourse</b>			
15-17	24.677 <sup>a</sup>	2	.000
18-19	53.528 <sup>b</sup>	3	.000
20-24	113.657 <sup>c</sup>	4	.000
<b>Age at first marriage</b>			
15-17	17.245 <sup>a</sup>	2	.000
18-19	43.822 <sup>b</sup>	3	.000
20-24	176.434 <sup>c</sup>	4	.000
<b>Region</b>			
15-17	9.228 <sup>a</sup>	6	.161
18-19	10.470 <sup>b</sup>	6	.106
20-24	32.487 <sup>c</sup>	6	.000
<b>Region/place of residence</b>			
15-17	2.197 <sup>b</sup>	1	.138
18-19	6.914 <sup>c</sup>	1	.009

20-24	15.489 <sup>d</sup>	1	.000
<b>Marital status</b>			
15-17	20.907 <sup>b</sup>	1	.000
18-19	117.338 <sup>c</sup>	1	.000
20-24	333.835 <sup>d</sup>	1	.000
<b>Ever use of any method</b>			
15-17	14.020 <sup>a</sup>	2	.001
18-19	13.203 <sup>b</sup>	3	.004
20-24	57.729 <sup>c</sup>	3	.000
<b>Current contraceptive method</b>			
15-17	88.375 <sup>a</sup>	4	.000
18-19	7.861 <sup>b</sup>	6	.248
20-24	62.554 <sup>c</sup>	8	.000

Source: NCPD 1998

### 5.2.1 Summary of Ordinary Multiple Regression analysis

Ordinary multiple regression analysis was carried out to establish influence of variables cross-tabulated in table 4.2 on children ever born. Significant variables selected in the model were age at first birth and age grouped. All other variables were rejected in the model. Results of the analysis indicated that the younger the adolescent age at first birth, the more children ever born. Level of confidence at 95 % confidence interval was 0.000. Results of the analysis indicate that age is associated with children ever born. The older the adolescent –age-group at first birth the fewer the children ever born. Level of confidence at 95 % confidence interval was 0.000. Therefore, the findings indicate very strong association between age at first birth and age with the dependent variable, children ever born.

**Table 5.2.1.1 :Summary model of multiple regression analysis.**

**Coefficients**

Mode		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.070	.044		24.039	.000	.982	1.157
	age at first b	-.194	.015	-.385	-12.631	.000	-.224	-.164
2	(Constant)	.359E-02	.080		.356	.722	-.129	.186
	age at first b	-.261	.014	-.519	-18.046	.000	-.290	-.233
	age grouped	.441	.030	.430	14.932	.000	.383	.499

a. Dependent Variable: ceb

Source: NCPD 1998

## CHAPTER SIX: SUMMARY, CONCLUSION AND RECOMMENDATIONS

### 6.1 Summary

The current study analyzed direction and strength of the association between children ever born among adolescents and: education; religiosity; place and residence; ethnicity; age at first intercourse; knowledge of contraceptives; contraceptive use; age at first marriage; marital status and; age at first birth.

Frequencies, descriptive statistics and multiple regression analysis were carried out. Broadly, the results suggest several pathways associated with Children Ever Born. Cross tabulation results indicate that all the factors indicated above were associated with Children ever born however weak but religion was not significant. This finding on association contradicts general belief and documentation in literature review on fertility. When subjected to ordinary multiple regression analysis, age at first birth was highly significant in determining Children Ever Born. Age at first birth was negatively associated with Children Ever Born. Age is positively associated with children ever born. The findings confirm information documented in various literature

Mean age at first sex was found to be 15.87 years, median at 16.00, mode at 15.00 and minimum 8.00 years. These findings have implications in programming. Between 8 and 15 years, majority of adolescents are still in school. The finding of this study therefore informs programme managers and policy makers on the most appropriate age to strengthen family life education. Postponing age at first sex would greatly influence

fertility among adolescents and children ever born in the long run. Postponing age at first sex has positive consequences on STI/ HIV infections among adolescents and youth.

Although it was not part of this study, analysis showed that number of children born to women sampled in KDHS 1998 before they were 25 years old was 12182 children of the total 23351 (52.2%) children ever born. Children born to women after they were 25 years and above were only 1169. The finding has importance implications for population policy in providing services to the youth so as to postpone giving birth early in life.

**Table 6.1.1: All children born to women when they were 24 years and below by sex**

	Frequency	Frequency	Percent	Valid percent	Cumulative percent
Valid	Males	6198	50.9	50.9	50.9
	Females	5984	49.1	49.1	100.0
	Total	12182	100.0	100.0	

Source: NCPD 1998

## 6.2 Conclusion

This study established empirically strong association between children ever born with age at first birth, marital status and place of residence. Ethnicity and knowledge of contraceptives are other factors that indicated fairly strong association. Among the weak associations were socio economic status and education that did not show direct association with children ever born among adolescents and youth. Religion did not show association if any. When compared with children born by women sampled in the 1998 KDHS, there is evidence that majority of babies ( 52 %) are born by women when they are 25 years and below.

## **6.3 Recommendations**

### **6.3.1 Policy recommendations**

Considering that majority of children are born when their mothers are 25 years and below and evidence of variables that are strongly associated with children ever born (age at first birth, marital status), it is important that policies that affect age at first birth and marriage be enforced. These two major variables are affected by cultural factors means that more studies are required in the communities to influence postponement of marriage among adolescents. The fact that religion did not show association with children ever born among adolescents calls for more lobbying for reproductive health services to adolescents regardless of religious affiliation.

Mean age at first intercourse informs on the most appropriate age to intensify family life education in schools. If the minimum age at first sex is 8 years, introduction to sex education should start early and intensified at age 14 since mode at first sex was found to be 15 years.

### **6.3.2 Recommendations for future research**

From this study, two things stand out as critical in influencing adolescent fertility. One of those findings is the mean and minimum age at first sex. The other is <sup>the</sup> association religion has on children ever born. If the minimum age at first sex and mode as well as mean is known, it would be interesting to find out most appropriate information that will influence postponing age at first sex. A research to identify how youth can sustain virginity would be useful for programming. Time series analysis would provide the trend

before the intervention and can be compared with the trend afterwards to provide insights about the effects of interventions. Review of time series would review events that would strongly influence behavior change and further studies of results could be carried out. Such a study would go along way in guiding parents, teachers, policy and programmes in improving adolescent reproductive health services and information.



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