

TRENDS IN DEVELOPMENT RELATED FACTORS
ASSOCIATED WITH WOMEN UNDERGOING
VOLUNTARY SURGICAL CONTRACEPTION IN NAIROBI
PROVINCE, KENYA.

By

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DECLARATION

This thesis is my original work and has not been presented before in any other university or any other award.


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Date 22/07/07

This thesis has been submitted after examination with our approval as university supervisors.

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DEDICATION

To my loving children Nick and Nicole and their caring mother, Gorretty.

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ACRONYMS AND ABBREVIATIONS

- ANC – Antenatal Clinic
- ANOVA – Analysis of Variance
- BTL – Bilateral Tubal Ligation
- CDC – Centre for Disease Control
- FHOK - Family Health Options Kenya
- FIDA – Federation of Women Lawyers
- FPAK – Family Planning Association of Kenya
- IPPF – International Planned Parenthood Federation
- KDHS – Kenya Demographic and Health Survey
- NCPD – National Council for Population and Development
- SPSS – Statistical Package for Social Sciences
- WHO – World Health Organization

ABSTRACT

An intricate relationship exists between economic development and maternal health. As a result, maternal health is being used as an indicator for development in the Millennium Development Goals. Goal number five seeks to reduce maternal mortality, which currently stands at 590 per 100,000 live births, by two thirds by 2015. The performance of bilateral tubal ligation (BTL) nearly abolishes risks associated with pregnancy in women. Hence, nearly all risks associated with maternal mortality end with performance of this operation. As such, BTL is a landmark family planning method that impacts directly on a country's development. The decision to do BTL however is influenced by many factors. These same factors affect maternal health and because they also affect development, maternal mortality becomes a relevant indicator for development as used in the Millennium Development Goals. Against this background, little is known about trends in factors that relate to maternal mortality and which are finally abolished by doing BTL. This comparative cross-sectional study defined trends in socio-demographic and reproductive health factors in women undergoing BTL in Nairobi and related the trends to socio-economic development. The trends were studied over the span 1994 to 2005. Data was obtained from 620 hospital records, half of these being for 1994 and half for 2004. Interviews were done with 310 antenatal clients and 30 key informants. In addition, 3 focus group discussions were conducted with ante-natal mothers. Data was managed using Statistical Package for Social Sciences (SPSS). The results showed that the age at which BTL is being done has risen from 32 to 34 years between 1994 and 2004 and is likely to rise further in future, a factor that is likely to increase maternal mortality and is a negative indicator of socio-economic development. Using ANOVA, the mean age at BTL was found to be significantly different among the centres of study (Pumwani, Aga Khan and FPAK). Tukey test showed that the difference arose from Pumwani having a consistently low age at BTL compared to the other centres. The number of living children remained consistent at 3 to 4 children before undergoing BTL. Paired t-test showed that there was a significant difference in parity and number of living children over the period. The correlation between parity and number of living children weakened from 0.92 to 0.86 over the period, a factor that increases risk of maternal mortality given that fewer pregnancies are leading to a desired number of living children with time. The influence of religion and traditional beliefs was found to play a weakening role in deciding on BTL with representations in women undergoing BTL coming from all the major religions. Empowerment and education of women were found to be on the increase and to play a positive role in choosing to have BTL. While only 10% of women undergoing BTL had post-secondary education in 1994, this figure rose to 33% in 2004. Further, it was found that 80% of married women would not undergo BTL without their husbands' consent, a position supported by 94% of key informants. It is recommended that women and key informants be educated on the dangers of pregnancies at ages above 35 years; that religions that oppose contraception review their stand as faithful disregard their advise; and that men be targeted with advocacy and education on the importance of BTL because women depend on them for consent to undergo the procedure. Players in the areas of population and development will find results of this study important in planning interventions to enhance socio-economic development in Nairobi.

CHAPTER 1: INTRODUCTION

1.1 Background Information

The Millennium Development Goals are eight goals that 192 United Nations member states have agreed to try to achieve by the year 2015 (Gautam, 2007).

The Millennium Development Goals (MDGs) are the world's time-bound and quantified targets for addressing extreme poverty in its many dimensions-income poverty, hunger, disease, lack of adequate shelter, and exclusion-while promoting gender equality, education, and environmental sustainability (United Nations, 2000). They are also basic human rights-the rights of each person on the planet to health, education, shelter, and security.

The fifth MDG aims to reduce maternal mortality by 75% by 2015. This is the developmental indicator that this study concentrated in understanding. By reducing maternal deaths resulting from pregnancy, a country is taken to have improved in socio-economic development. This is because the factors that lead to maternal deaths are results of poverty, gender inequality, lack of education and all the factors discussed in the Millennium summit (United Nations, 2000). Factors that affect maternal mortality are therefore development related and this formed the core of the study.

To help understand developmental factors that affect maternal mortality, voluntary surgical contraception was used. Voluntary Surgical Contraception is a method of family planning in which an operation is done to disable a person's ability to conceive (in case of a woman) or to impregnate (in case of a man) (Kigonde, 1971). It is a permanent measure of birth control (WHO, 1994). When done in women, the procedure is generally referred to as bilateral tubal ligation (BTL) because it involves the discontinuation of the tube in which the ovum travels from the ovary in order to be fertilized and then settle in the uterus as a conceptus (Ganong, 2000; Gyton, 1998).

In men, the procedure is also called vasectomy and is done by ligation and separation of the vas deferens, the tubes which transport sperms from the testes to the vaginal canal during sexual activity (IPPF, 2003).

This study looked at trends in important factors associated with BTL. It, therefore, concentrated on voluntary surgical contraception in women. The factors considered were social, demographic and reproductive health in nature. The study showed how these factors correlate in women who underwent the procedure in 1994 as compared to those who did in 2004 and those intending to do the operation in future. The investigation also included interviews with key informants as well as focus group discussions with pregnant women in a bid to define the existing trends. Results showed emerging trends in beliefs, knowledge and practices as far as BTL practice is concerned and reference has been made on whether the trend is towards positive or negative socio-economic development thereby defining the possible factors affecting achievement of the Millennium Development Goals, especially goal five which aims to reduce maternal mortality (Republic of Kenya, 2004). The study is based on the contention that reproductive health indicators are being used as markers for economic development yet they are affected by a multiplicity of factors. Trends in these factors can, therefore, be used to monitor trends in socio-economic development and modifying them can also impact on the overall performance of the country's economy.

The socio – demographic factors studied included maternal age when BTL is done, marital status, religion, ethnicity – which reflects on cultural background, and level of education. The reproductive health factors considered were parity (total number of pregnancies carried) prior to doing BTL, number of living children, knowledge of contraceptives and the reason for carrying out BTL.

1.2 Statement of the problem

An intricate relationship exists between economic development and maternal health. This is why maternal health has been used as an indicator for development in the Millennium Development Goals. Goal number five seeks to reduce maternal mortality by two thirds by 2015 (Republic of Kenya, 2004). Currently, maternal mortality ratio in Kenya stands at 590 per 100,000 live births

(Republic of Kenya, 2003). A review of Kenya's performance in achieving the goals for the period 2000 to 2003 indicated that no much gain had been made in reducing maternal mortality and that the targets on maternal mortality were unlikely to be met (Republic of Kenya, 2004). By implication, no much economic development is going to be achieved in this period.

The performance of BTL nearly reduces to nil the risks associated with pregnancy in women. Hence, the risks of maternal mortality nearly end with performance of BTL (CDC, 1989). As such, BTL is a landmark family planning method that impacts directly on a country's development. The decision to do BTL however is determined by many factors. The factors can be social, demographic or reproductive health in nature. These same factors contribute directly to maternal health. They also affect development thereby making maternal health a relevant indicator for development as used in the Millennium Development Goals (Republic of Kenya, 2004).

Using maternal health and especially maternal mortality as an indicator of socio-economic development implies that it is being used as a factor for assessing improvement in poverty reduction and the general development of countries. Kenya being a signatory to Millennium Development Goals has bought into this whole principle. Against this background, little is known about trends in factors that relate to maternal mortality and which are finally terminated when BTL is performed. Achieving targets in reducing maternal mortality assumes a shift in the negative factors that lead to maternal mortality. It also assumes enhancement of positive attributes that promote good maternal health. The shifts in these factors are also taken to influence or indicate changes in the economy. If trends in these factors are known and if it is possible to influence them, better prediction and setting of achievable targets can be made in maternal health and in economic growth. This scenario calls for studies in trends of socio-demographic and reproductive health factors of women undergoing BTL as a way of understanding the dynamics of maternal mortality, setting targets more

accurately and planning interventions that will result in achievement of set targets. This is unlike the Millennium Development Goals which were set without a thorough understanding of in-country situations.

1.3 Research Questions

- a) Are women in Nairobi ending their obstetric careers at a younger age than they did ten years ago and as they will do in the future?
- b) Are women in Nairobi having fewer children now than they did ten years ago and as they will do in future?.
- c) How socially liberated are women in Nairobi now compared to ten years ago? Are their social characteristics the same in 2004 as they were in 1994 and as they will be in future?
 - Are more unmarried women doing BTL?
 - Is there a difference in the religion of those who underwent BTL in 2004 compared to those who did in 1994 and those intending to do it in future?
 - Is there a difference in the ethnicity of women doing BTL now as compared to ten years ago and in the future?
- d) What is the relationship between education and BTL as a choice for family planning?
- e) How do trends in socio-demographic and reproductive health factors in women undergoing BTL between 1994 and 2004 relate to economic growth?

1.4 Null Hypotheses

- 1.4.1 There is no difference in the ages, parity, social characteristics and level of education of women who underwent BTL in 1994 as compared to those who did in 2004 as well as those intending to undergo the operation in future.
- 1.4.2 Trends in socio-demographic and reproductive health factors in women undergoing BTL between 1994 and 2005 do not reflect positive economic growth.

1.5 Objectives of the study

1.5.1 General Objective

To establish trends in socio demographic and reproductive health characteristics of women who underwent BTL in 1994, those who did in 2004 and those intending to do the operation in future with the aim of establishing whether trends are towards positive or negative socio-economic growth.

1.5.2 Specific Objectives

- a) To establish the socio-demographic and reproductive health profiles of women who underwent BTL in 1994, 2004 and those intending to have the procedure in future.
- b) To establish trends in the socio-demographic and reproductive health factors of women who underwent BTL in 1994, 2004 and in future.
- c) To determine whether the trend in socio-demographic and reproductive health factors is towards reducing or increasing maternal mortality and hence positive or negative socio-economic development respectively.

1.6 Justification

As echoed in the Millennium Development Goals (Republic of Kenya, 2004), maternal health is a good indicator of development in a country. Given that socio-demographic and reproductive health characteristics directly influence maternal health, a study of trends in these characteristics is in effect equivalent to studying trends in the community's socio-economic development.

Furthermore, identifying negative characteristics helps planners to know where to concentrate resources so that socio-economic development is enhanced.

The way to know if a community is on the path to positive socio-economic development is by demonstrating positive changes in reproductive health behaviour. The acceptance rate of family planning, for example, should be demonstrated to be increasing among various faiths, cultures and in the

CHAPTER 2: LITERATURE REVIEW

2.1 Status of Bilateral Tubal Ligation (BTL)

BTL is the most popular contraceptive in the world (Larsen, 2002; Green, 1978). It is estimated that over 100 million women have undergone the procedure and 36% of all women practicing contraception have had BTL. The fact that most women get the number of children they desire long before the end of their fertile years is the main reason for the procedure. However, as noted by Bongaarts (2000), Africa is known to have the lowest rates of the procedure.

The low BTL rate in Africa has to do with lack of facilities and personnel rather than willingness of the population to undergo the operation. Rosen and Conly (1998), have stated that the decision to have BTL is highly affected by the availability of the service. Where the service is lacking, this lack becomes the greatest barrier and rates are generally low as seen in Africa.

In a study done in Kenyatta National Hospital, Mati *et al.*, (1973) found that 59% of women who had just delivered and had five or more children would have wanted to have BTL. In recent years, the highest increase in demand for BTL is actually known to be in Africa (Johnson and Macke, 1996).

The popularity of BTL is partly because of its safety (CDC, 1989). Despite the fact that it is the most effective method with failure rates lower than 1% at any time of use, its safety is unmatched by other methods. It carries only a one time risk at the time of its performance. The risks include anaesthetic complications, wound infection and bleeding (Republic of Kenya, 1998).

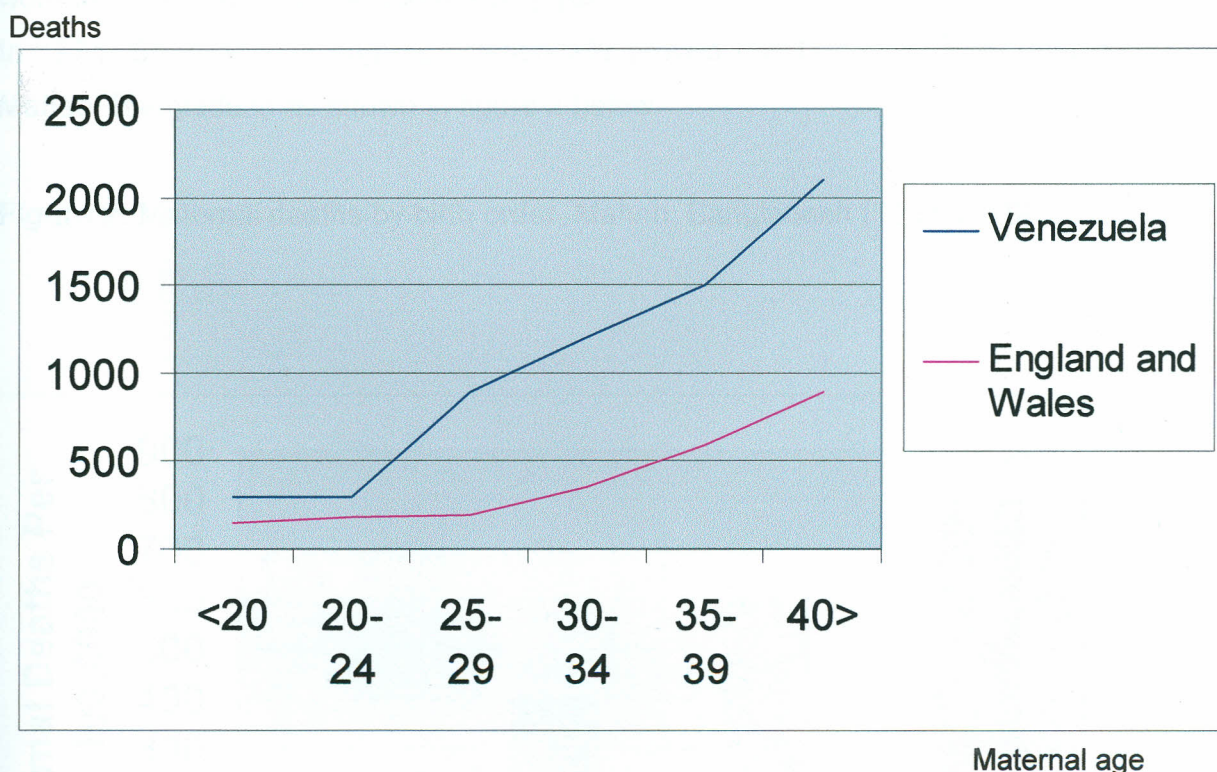
2.2 Maternal age and child bearing

In studying the reproductive health behavior of a community, the age at which women stop delivering is a critical factor (Maine, 1982). It is known that the older a woman becomes after the age of twenty the riskier it becomes to give birth. Diseases such as toxemia of pregnancy, maternal diabetes and renal disease become more common with advancing age (Williams, 2000). More women die

from pregnancy and childbirth the older they become. This fact has been illustrated by Tietze, (1979) in his study of maternal mortality and has been shown to apply in both developing and developed countries. Although the age of 35 years looks rather risky, going above it seems to multiply the risk even more as shown in figure 1 below.

Figure 1:

Maternal Deaths in Venezuela and England and Wales (1975 – 1979) per Million Births against Maternal Age (Tietze, 1979)



The age at which women decide to stop delivering impacts directly on their health and the older the age, the worse the outcomes.

The Kenya Ministry of Health guidelines, however, discourage the performance of BTL below the age of 18 years (Republic of Kenya, 1998). In fact it has been found that BTL before the age of 30 years is highly associated with regret (Vieira and Ford, 1996). Despite this fact, the worldwide peak age for BTL is late

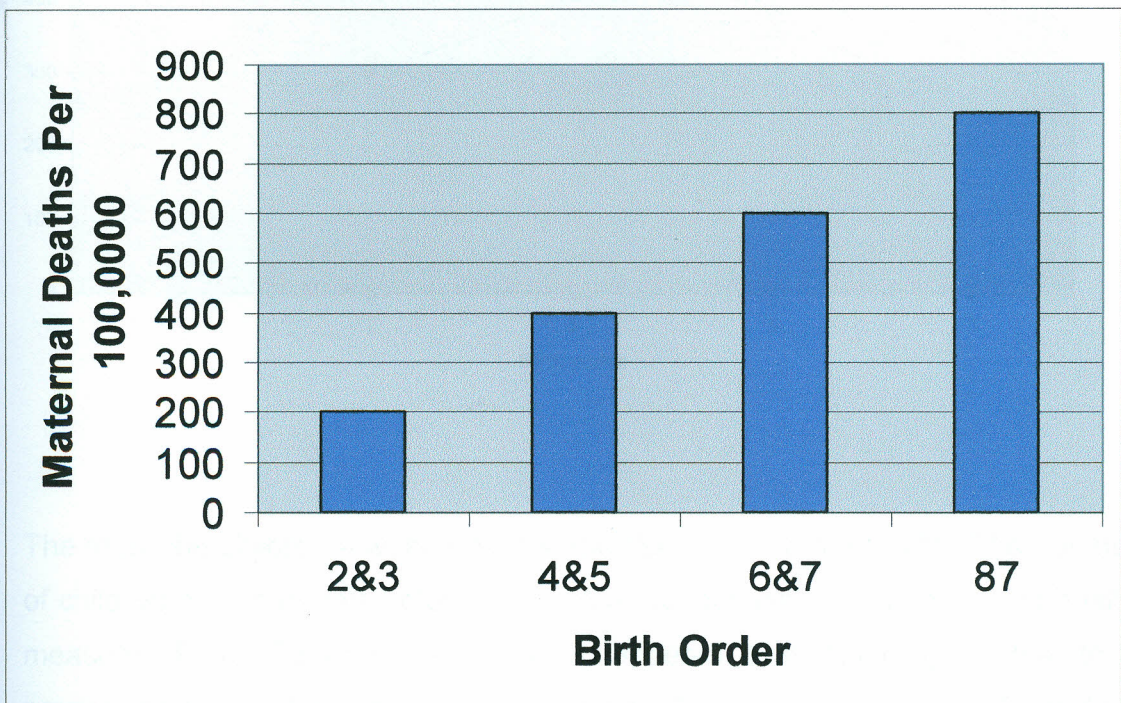
twenties to early thirties (World Federation of Health Agencies for the Advancement of Voluntary Surgical Contraception, 1987)

2.3 Parity and maternal health

Women's chances of having complications of pregnancy and childbirth are increased when they have had three or more children (Maine, 1982). Maternal deaths increase with birth order because many complications of pregnancy and childbirth rise sharply among third and later births. An estimated 25 million women suffer such complications every year.

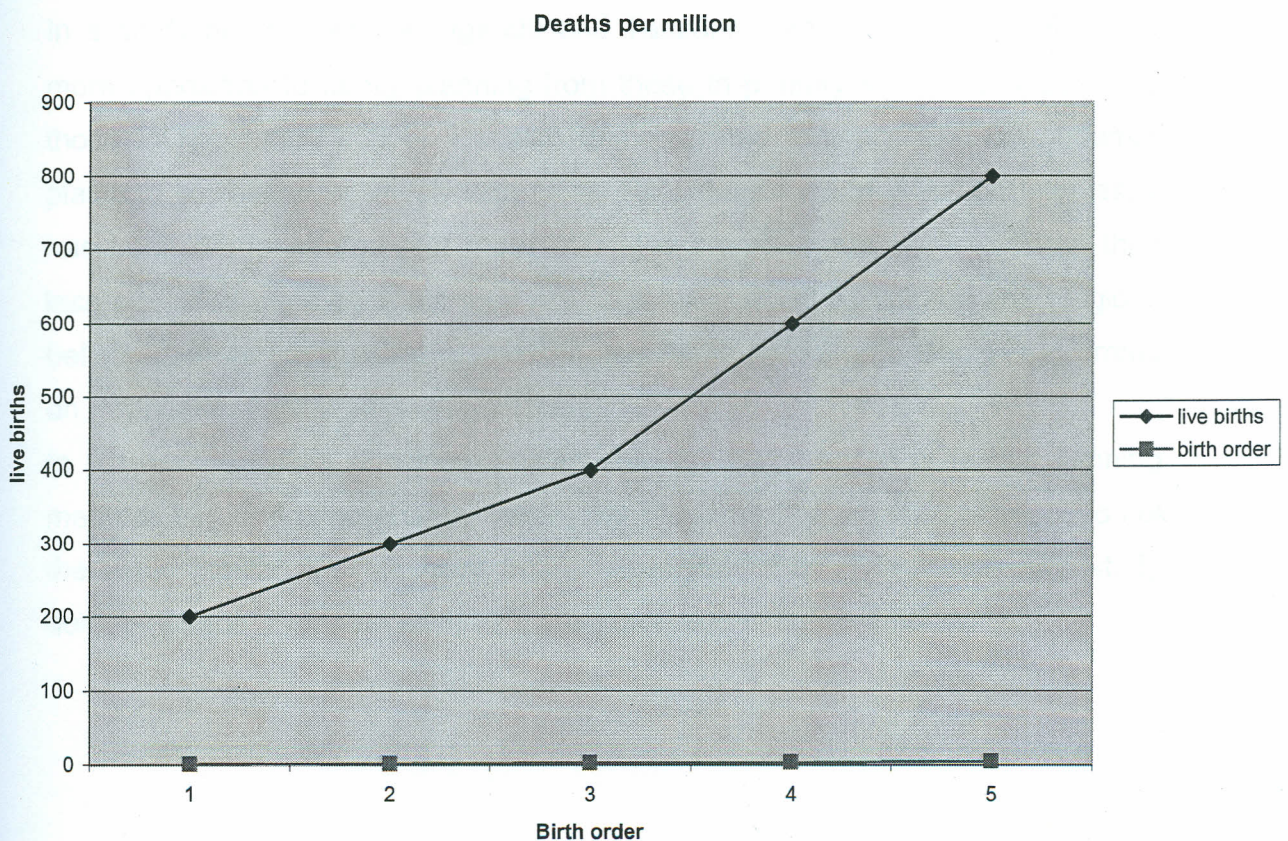
In 1974, Chen and colleagues scientifically proved this fact in a study done in Mahab, Bangladesh as shown in figure 2 below.

Figure 2: Maternal deaths by birth order, Mahab, Bangladesh (1968-1970)



In another study in England and Wales, the same trend was shown to apply (Tomkinson *et al.*, 1979). This confirms that the trend applies to both developing and developed countries. Figure 3 below shows the results of the study done in England and Wales.

Figure 3: Maternal Deaths by birth order England and Wales, 1973-1975



The more the children a woman bears, the riskier it is to her health. The number of children a woman gets before deciding on tubal ligation is an important health measure. From Tomkinson's study, it appears that stopping at the third pregnancy would be most ideal. Williams (2000), puts the cut off at four pregnancies, the fifth being considered high risk.

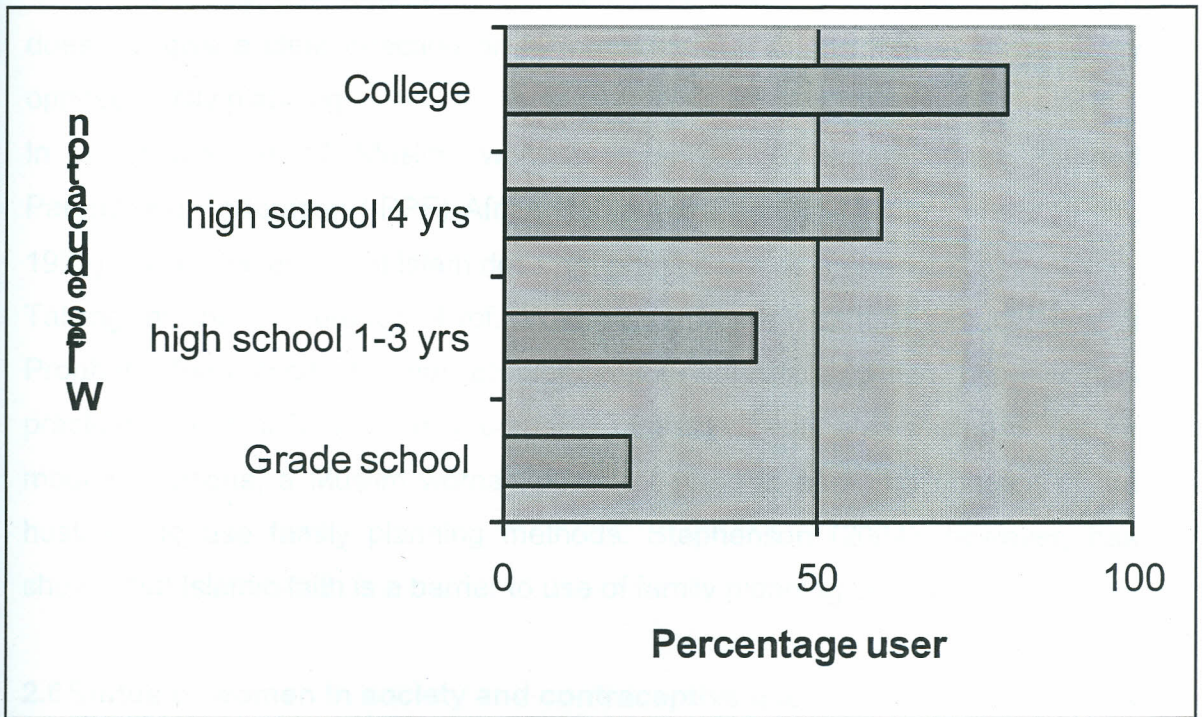
2.4 Level of Education, knowledge of family planning and contraceptive use.

Level of education correlates positively with contraceptive use (Stephenson, 2004; WHO, 1994). Educated women desire effective family planning methods, though they are unwilling to assume risks associated with contraceptive use. Due to perceived low risk of side effects, voluntary surgical contraception is the most widely used family planning method in the world.

In a study done in Kenya, Uganda and Tanzania, Malnos *et al.*, (1968) found more opposition to family planning from those in primary school as opposed to those in secondary school. He also demonstrated that acceptability of family planning correlated positively with class performance. In more recent studies, it has been demonstrated that more educated women want fewer children than less educated ones because they are no longer bound by cultural and religious beliefs such as the number of children one bears being 'upto God' (Programme on Population East-West Centre, 1996).

In yet another study, Fredman (1959) showed that the use of family planning methods before first pregnancy was highly dependent on the level of education of the user. Similar findings have been demonstrated by Parr (2002) in a study done in Ghana. Fredman's findings are expressed in figure 4 below:

Figure 4: Proportion of couples beginning contraceptive before first pregnancy by wife's education:



Level of education also gives women a good understanding of contraceptive choices and the ability to make informed choices on family planning (WHO, 1994).

Generally, it appears that the more educated a woman is, the more likely she is to use contraceptives to space pregnancies and also to limit the total number of children that she bears. The finding is consistent in studies as old as 1968 to those as recent as 2004 as noted above.

2.5 Religion and contraceptive use

Religious beliefs affect use of all forms of contraceptive (Stephenson 2004; African Population and Health Research, 2002; Rosenfield *et al.*, 1990). Christianity is generally pronatalistic and the Bible advises faithfuls to be fruitful

and multiply. Protestant Christians have no opposition to contraceptive use, BTL included. Catholics, however condemn all forms of contraceptives except the natural method.

While the Hindu and Buddhist teachings are silent on birth control, Islamic law does not give a clear direction on it. Interpreters of Quran, however, generally oppose family planning.

In a conference of Muslim women organized by International Planned Parenthood Federation (IPPF) Africa Region and held in Niamey, Niger (IPPF, 1995), it was declared that Islam does not prohibit use of contraceptives.

Talking at the conference, Prof. Wassila, a Muslim scholar, indicated that Prophet Mohammed did not prohibit coitus interruptus which his disciples practiced and which is a family planning method. It was also declared that for medical reasons, a Muslim woman does not need to seek the consent of the husband to use family planning methods. Stephenson (2004), however, has shown that Islamic faith is a barrier to use of family planning services.

2.6 Status of women in society and contraceptive use

Where rights of women are upheld, there is a high acceptance of contraceptive by women (Parr, 2002; UNFPA, 1997; WHO, 1994). In such places, women are also well educated and are involved in professional careers. They are economically able and can afford family planning services. Furthermore, there is no legal requirement for a husband's consent to use any contraceptive and women not in marriage can access all methods of family planning including BTL. Malnos *et al.*, (1968) found that contraceptive acceptance was higher among secondary school students whose parents lived apart.

One of the main causes of regret for having had BTL is marriage break-up (Vieira and Ford, 1996). Unstable marriages are therefore likely to be a barrier to use of BTL for contraception.

In Kenya it is known that 52% of married women do not want more children even though less than one third have had BTL (NCPD, 1995).

2.7 Reasons for BTL

Other than voluntary contraception, BTL can be done for medical reasons (Rosenfield *et al.*, 1990). In such cases, the medical worker orders the woman to have the procedure done and other considerations are put aside.

Indications for BTL on medical grounds range from obstetric to genetic and to medical problems which make pregnancy risky to the mother or that lead to unfavorable results of pregnancy such as malformed babies.

In women with severe psychiatric problems, BTL is normally done because the mother cannot take care of her baby and may not willingly plan or accept pregnancy.

2.8 Legal and cultural factors and BTL

Thirty years ago, voluntary surgical contraception was only done for medical indications (Rosenfield, 1990). Even though this still continues in a number of countries, laws have changed to favor the method in many more.

Voluntary surgical contraception is illegal in Burma, Somalia, Spain, Turkey, Saudi Arabia, Chile and Peru. It is however documented in the law as legal in USA, Scandinavian countries, Singapore, Panama and Japan.

In China, Korea and common wealth countries, the law is silent on it and so the procedure is done without due consideration of the law. Legal status remains unclear in Francophone Africa and Latin America.

In Kenya, BTL is done without due consideration of the law for the law says nothing about it (FIDA Kenya, 1997). Under these circumstances, religion and cultural beliefs remain guiding factors for BTL. Malnos *et al.*, (1968) noted that traditional beliefs among the Kenyan ethnic groups encourage women to bear children and this belief is intricately connected to the wishes of the ancestors and the gods. A big family also proves a high standing in society and people marry first and foremost to bear children (Giddens, 2000).

2.9 Summary of Literature Review

To enhance development and women's state of health, literature shows that the trend should be towards smaller families. Women should aim at getting three to four children by the age of thirty five then stop altogether. In fact the worldwide average age when women do BTL (late 20s to early 30s) is quite appropriate. Given that most religions and African traditions are pronatalistic, women should disregard them in making decisions about their reproductive lives if good health and development is to be achieved. Empowered women will also make reproductive health decisions which favour development irrespective of what the community or their spouses may want. Single women, under these circumstances, will be able to choose any method of family planning including BTL and the community will respect the decision. Education is an important tool in acceptability of family planning including BTL. These are the baselines on which the choice of BTL should be based and trends towards these ideals should be indicative of a country's right path to development.

CHAPTER 3: MATERIALS AND METHODS

3.1. The study area

The study was conducted in Nairobi province (figure 5). The province is cosmopolitan and is estimated to have a population of 2 million people, half of whom are women (Republic of Kenya, 1998).

3.2 The study population

This comprised of women who underwent BTL in 1994, those who underwent the procedure in 2004 as well as women currently attending antenatal clinics in the sampled hospitals in Nairobi. In addition, key informants comprising of people who not only understand but also influence reproductive health decisions of women in one way or the other were interviewed.

3.2.1 Inclusion criteria

- a) Clients who underwent BTL in the sampled hospitals in Nairobi in 1994.
- b) Clients who underwent BTL in the same hospitals in 2004.
- c) Clients attending antenatal clinics in the same hospitals currently who may want to do BTL in future.
- d) Key informants who understand and also influence reproductive health decisions of women in one-way or the other.

3.2.2 Exclusion criteria.

- a) Women in the selected hospitals using other modes of family planning.
- b) Women who underwent BTL in the selected hospitals in years other than 1994 and 2004.
- c) Women who had BTL in other hospitals not included in the study.
- d) Those who qualify for the study but have not consented to it.

3.3 Ethical considerations

Permission to carry out the research was sought from Kenyatta University and the ethical review committees of the specific health institutions sampled for the study. Interviewees were given comprehensive information on the study and asked for informed consent to participate. The information obtained has been kept in confidence and will only be shared by the involved hospitals for the purpose of planning. Names of patients were not recorded for study.

3.4 The study design

This was a comparative cross sectional study in which socio-demographic and reproductive health characteristics were defined for women who have ended or may decide to end their obstetric careers through BTL. Patients' records were obtained for the year 1994 and compared with those for the year 2004. The year 1994 was chosen because medical facilities normally discard records after ten years and so data for 1994 were the oldest available at the time of the study. In understanding the trends, the ten year interval was taken in the understanding that significant changes in socio-demographic and reproductive health factors occur gradually over time unless a major event such as war has happened in a country. Such major events had not been seen in Nairobi in the ten year span. A further comparison was made with data obtained through interviews with antenatal clients, key informants and through focus group discussions with women attending antenatal clinics in the sampled facilities.

3.5 Data collection methods and research instruments

3.5.1 Sampling

Nairobi province was purposively sampled for study because it is cosmopolitan with all ethnic groups in the country represented. In addition, it has a mixture of social classes as characterized by some of the worst slums in Africa (Kibera, Mathare) and some of the best high class areas (e.g. Karen , Kitisuru) and a variety of middle class settlements, (e.g. Buruburu, Langata). The education

background of Nairobi residents also ranges from professorship to illiteracy, representing a cross-section of the Kenyan population.

To come up with specific health facilities for study, cluster sampling was used.

The clusters included:

- a) Public facilities
- b) Private for profit facilities
- c) Non – profit non-governmental facilities.

Among these clusters, Pumwani Maternity Hospital was purposively sampled among the public facilities because it is the biggest of these in the province. Aga Khan Hospital represented the private for profit hospitals because it is the biggest in this cluster. Family Planning Association of Kenya facilities in the city represented the non-profit non-governmental cluster because they are the biggest in this cluster.

Probability proportional to size sampling was used to get the right numbers of subjects from each facility. According to the Kenya Demographic and Health Survey of 2003, 50% of family planning services are offered by public health facilities, 30% by private for profit facilities, and 20% by non-governmental not for profit facilities. These ratios were used for probability proportional to size sampling.

Systematic sampling was used in the sampled facilities to obtain patients' records and also to identify patients for interview. A focus group discussion was held on antenatal clients from each of the facilities. Key informants were conveniently sampled from clusters consisting of faith based, professional medical, and community based groups that influence opinions of women.

3.5.2 Sample Size Determination

The sample size for each of the two years and for interviewees were arrived at using the formula as used by Fisher *et al* (1998) shown below.

$$n = \frac{Z^2 pq D}{d^2}$$

Because the population of women undergoing the procedure in a year is less than 10,000 (estimated at 800 by Provincial Medical Officer), the correction factor was used as shown for n_f

$$n_f = \frac{n}{1+n/N}$$

n = the sample size

Z = the standard normal deviate (1.96), i.e 95% confidence interval

P = Proportion of the target population estimated to have a particular characteristics i.e. those who have done BTL = 0.12 (KDHS, 2003)

q = 1- p

d = degree of accuracy = 0.05

D = design effect. = 3 (i.e. the 3 clusters)

Therefore for each year studied (client records) and for interviewees:

$$n = \frac{(1.96^2 \times 0.12 \times 0.88 \times 3)}{0.05^2} = 486.8$$

$$n_f = \frac{486.8}{1 + 486.8/800} = 304.3 \sim 310$$

This was divided as follows based on known distribution of coverage of health services by the public, private for profit and non-profit health providers (KDHS, 2003): Pumwani Maternity Hospital 155, Aga Khan Hospital 93, and Family Planning Association of Kenya Clinics 62. Table 1 below summarizes how the distribution of the sample was arrived at:

Table 1: Distribution of client files, antenatal clients sampled per year of study

Type of facility	Facility sampled	KDHS Estimation of proportion of clients served (%)	Sample Representation out of 310 subjects
Public	Pumwani	50	155
Private for profit	Aga Khan	30	93
Private non-profit	FPAK	20	62

A total of 30 key informants were interviewed. These are people who influence reproductive health decisions of women in one way or another. Half of respondents were male and half female. These are shown in Table 2 below:

Table 2: Distribution of Key Informants

CATEGORY	NUMBER	PROPORTION (%)
1. Catholic Church leaders	5	16.63
2. Protestant Church leaders	5	16.63
3. Muslim leaders	3	10
3. Civil service officers	6	20
4. Reproductive health medical staff	6	20
5. Reproductive health and women advocacy groups	5	16.63
TOTAL	30	100

The given percentages were based on knowledge from the last census report and the Kenya Demographic and Health Survey. The Catholic Church leaders included priests, administrative staff and nuns. The same cadre of staff also

applied to protestant church leaders. The protestant churches leaders were from Anglican, Pentecostal, Methodist, Presbyterian and Jehova's Witness. Civil Service leaders came from ministries of Health, Education and Planning and National Development. Two middle level officers were interviewed from each ministry.

The medical staff were distributed as shown in Table 3 below:

Table 3: Distribution of Medical Staff Key Informants:

Doctors	2
Nurses	3
Pharmacy staff	1

The key informants from advocacy groups were from Planned Parenthood Federation of America, International Planned Parenthood Federation, FIDA, Maendeleo ya Wanawake, Law Society of Kenya and Family Planning Association of Kenya.

One focus group discussion was held per site giving a total of three focus group discussions. Each focus group was made up of eight participants whom were pregnant women attending antenatal clinics in the three sites.

3.6 Research Instruments

Secondary data from patients' records were collected using data sheets. Structured questionnaires were used to collect data from clients attending antenatal clinics who may want to undergo the procedure in future. Three focus group discussions, one at each of the hospitals, were carried out using an interview guide. Views of key informants were also obtained using a guide.

Data Management

Quantitative data was coded and managed by use of the Statistical Package for Social Sciences (SPSS) Software. Data was analyzed by use of two factors ANOVA with replication. Where ANOVA showed significant difference, Tukey test was used to separate the means. Paired t-test was used to assess the difference in parity and number of living children. Chi-square was used to analyze the difference between the distributions in ethnicity over time. Level of significance was given at 0.05. Data has been presented by use of frequency tables, pie charts and bar graphs while percentages were used to show proportions. Voice recording in focus group discussions were supplemented with notes taken during the discussions. The recorded messages were decoded and summarized together with the supplementary notes and the dominant themes deduced. The dominant themes have been presented verbatim and a comparison made for the different sample sites.

3.7 Limitations of the Study

The first part of the study involved collecting secondary data. The data was obtained from hospital records. The limitations noted at this point included the fact that the accuracy of the records could not be authenticated. Further, the data collected was not meant for research and so some records lacked crucial information needed for the research.

The second part of the study involved interviewing women who expressed a desire to undergo BTL in future. The limitation at this point is that this expression of interest does not necessarily imply that the women would finally undergo the procedure when time comes as indicated.

3.8 Strengths of the Study

The fact that secondary data from records was combined with primary data and that this reflected a reinstatement of the retrospective arm of the study with a prospective arm cancelled weaknesses associated with both types of study. This gives the results more authenticity.

CHAPTER 4: RESULTS

This chapter presents findings of the study including data extracted from medical records, interviews with antenatal clients, focus group discussions with antenatal clients, and interviews with key informants. The findings are presented in text form, summarized tables and charts.

4.1 Socio-Demographic and Reproductive Health Factors of Women Who Underwent BTL in 1994 and 2004

Hospital records for women who underwent BTL in the sites of study were retrieved and socio-demographic characteristics of the women studied. Table 4 below shows the numbers of records studied from the different facilities:

Table 4: Number of Files for Each Year Studied (1994 and 2004)

Facility	Number of Files	Proportion (%)
Pumwani	155	50
FPAK	62	20
Aga Khan	93	30
TOTAL	310	100

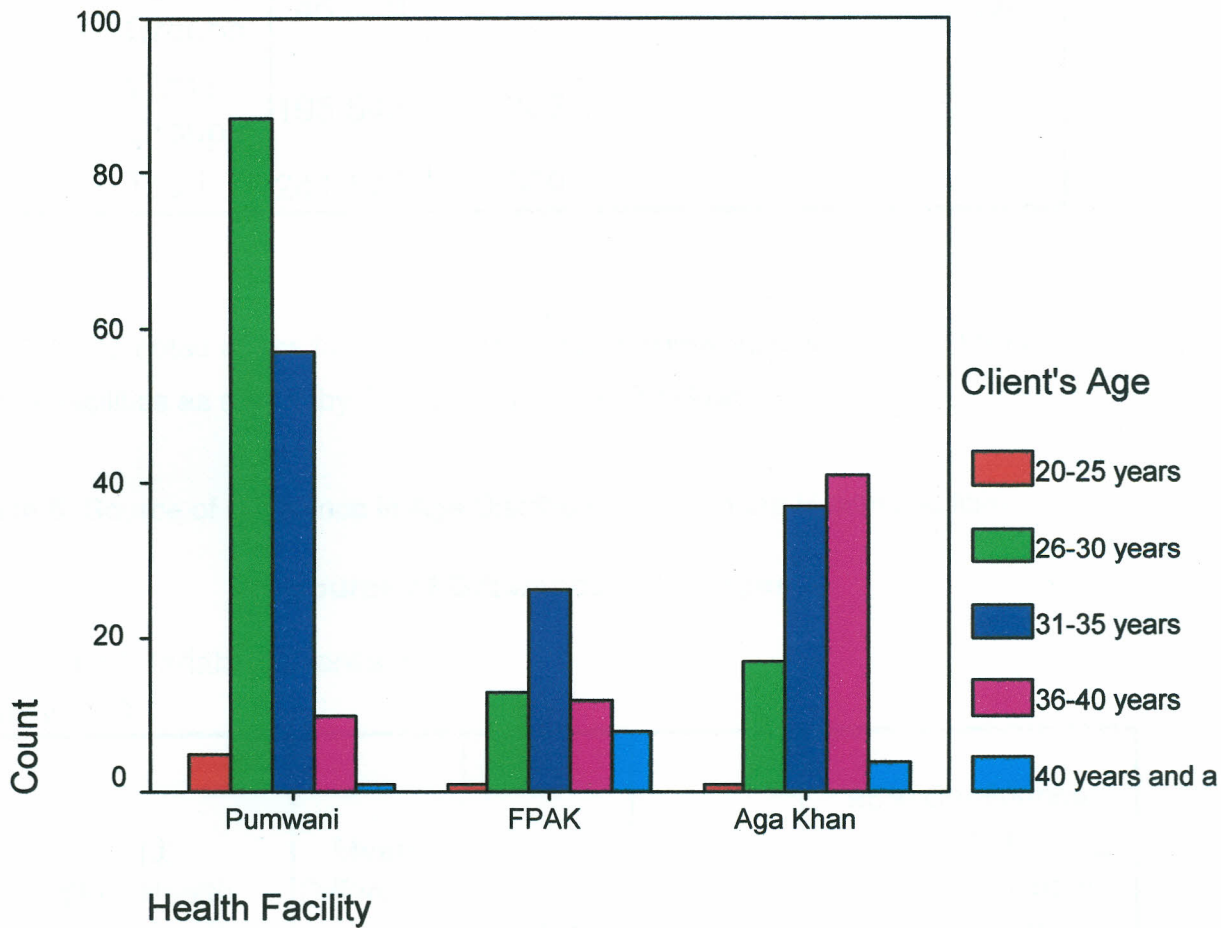
4.1.1 Age When BTL Was Done

1994 Findings

On average, women underwent BTL at 32 years of age. There was however a significant difference between age distributions ($F_{2,317} = 36.131, P=0.05$) in the three facilities with Pumwani recording the lowest ages at BTL followed by FPAK and then Aga Khan. The average BTL age in Pumwani was 30 years while in FPAK as well as Aga Khan it was 34 years. The modal age when BTL was done in Pumwani was 26-30 years, while in FPAK and Aga Khan it was 31-35 and 36-

40 years respectively. Figure 6 below shows the age distribution when BTL was done in the three facilities in 1994:

Figure 6: Age Distribution of Women Undergoing BTL in 1994



Hence, even though the average age at BTL was 34 years, modal age at BTL was different among the facilities. In fact the distribution of the ages of women doing BTL in the facilities was not the same. ANOVA for age distribution (Table 5) shows that the difference in age distribution in the facilities is significant:

Table 5: ANOVA for Age Distribution per Health Facility (1994 Clients)**ANOVA For Age in the Three Sites**

		Sum of Squares	df	Mean Square	F	Sig.
Client's Age	Between Groups	46.029	2	23.015	36.131	.000
	Within Groups	195.548	307	.637		
	Total	241.577	309			

The difference noted arises from age distribution in Pumwani being different from the other facilities as shown by Tukey test in Table 6 below:

Table 6: Source of Difference in Age Distribution Among the Health Facilities**Source of Difference in the Ages**

Dependent Variable: Client's Age

Tukey HSD

(I) Health Facility	(J) Health Facility	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Pumwani	FPAK	-.71*	.120	.000	-.99	-.43
	Aga Khan	-.81*	.105	.000	-1.05	-.56
FPAK	Pumwani	.71*	.120	.000	.43	.99
	Aga Khan	-9.68E-02	.131	.740	-.40	.21
Aga Khan	Pumwani	.81*	.105	.000	.56	1.05
	FPAK	9.68E-02	.131	.740	-.21	.40

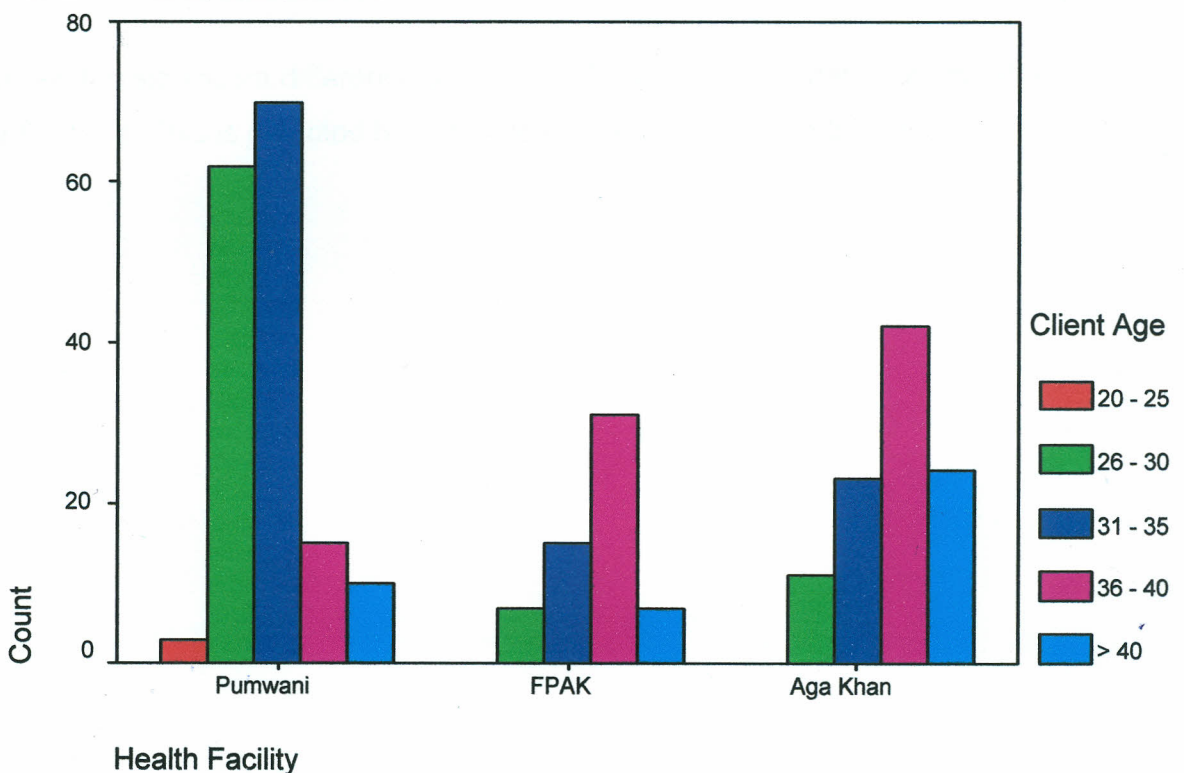
*. The mean difference is significant at the .05 level.

In summary, women who did BTL in the three facilities in 1994 had an average age of 32 years, Pumwani clients having a relatively lower age than the other two facilities.

2004 Findings

On average, women did BTL at 34 years of age. Age at BTL continued to remain significantly lower in Pumwani as compared to the other two facilities ($F_{2,317} = 45.033, P=0.05$). The average BTL age in Pumwani however increased from 30 to 31 years while in FPAK as well as Aga Khan it rose from 34 to 36 years in the ten year span. The modal age when BTL was done in Pumwani moved from 26-30 years in 1994 to 31-35 in 2004. The modal age in FPAK also moved from 31-35 to 36-40 years. The modal age in Aga Khan did not change and remained at 36-40 years. Figure 7 below depicts these findings:

Figure 7: Age Distribution per Health Facility, 2004



There was also a difference in the way the ages of women undergoing BTL in the three facilities were distributed. ANOVA for age distribution (Table 7) shows that the difference in age distribution is significant:

Table 7: ANOVA for Age Distribution in the Study Sites (2004)

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Client A Between Groups	75.923	2	37.961	49.716	.000
Within Groups	234.413	307	.764		
Total	310.335	309			

However, the significant difference arises from Pumwani being different from the other facilities. This is depicted by Tukey test as shown in Table 8 below:

Table 8: Source of Age Difference in the Study Sites (2004)**Multiple Comparisons**

Dependent Variable: Client Age

Tukey HSD

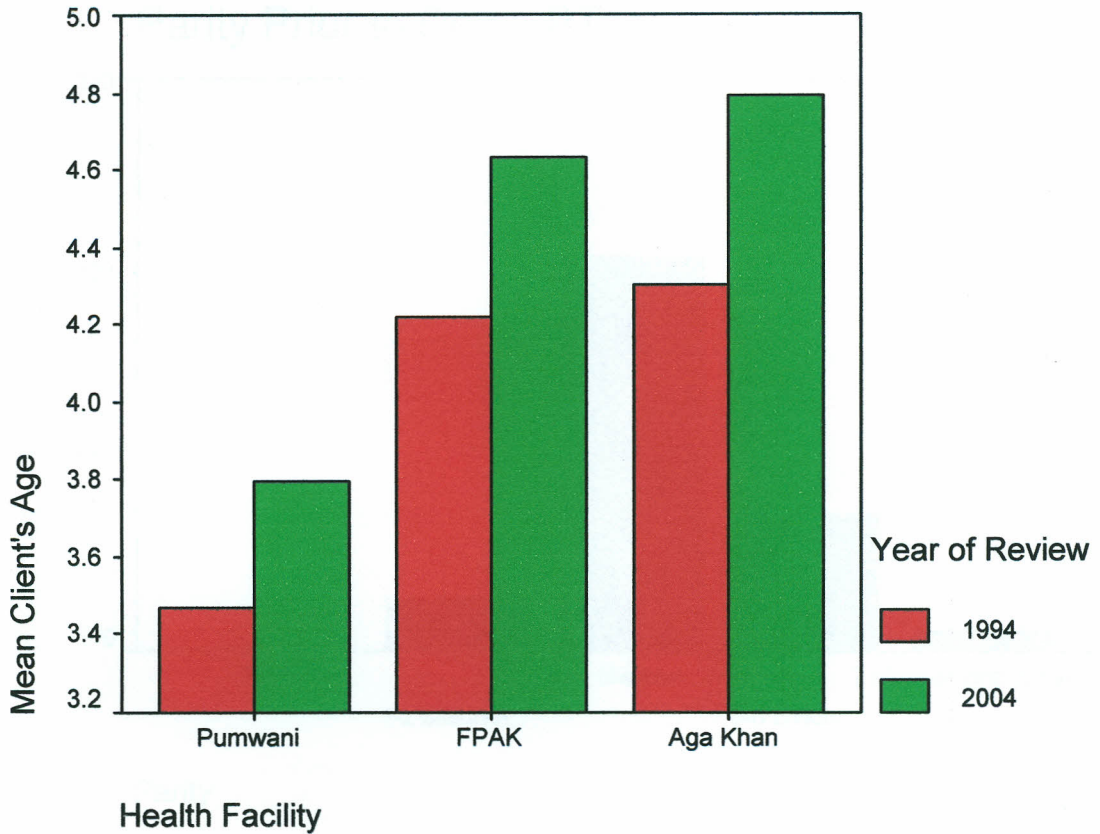
(I) Health Facility	(J) Health Facility	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Pumwani	FPAK	-.86*	.131	.000	-1.17	-.56
	Aga Khan	-1.06*	.115	.000	-1.33	-.79
FPAK	Pumwani	.86*	.131	.000	.56	1.17
	Aga Khan	-.19	.143	.367	-.53	.14
Aga Khan	Pumwani	1.06*	.115	.000	.79	1.33
	FPAK	.19	.143	.367	-.14	.53

*. The mean difference is significant at the .05 level.

In summary, women who did BTL in the three facilities in 2004 had an average age of 34 years. The age at doing BTL was significantly lower in Pumwani as compared to FPAK and Aga Khan.

Trends in Age When BTL Was Done: 1994 to 2004

Overall, there was a rise in the age when women did BTL. Women who did BTL in the three facilities in 2004 had an average age of 34 years, i.e., two years older as compared to 1994 when the average age was 32 years. In both years, Pumwani maintained a significantly lower age at BTL as compared to the other two facilities. In all the sites of study, however, age when BTL was done went up as shown in Figure 8 below:

Figure 8: Trends in Age When BTL Was Done: 1994 to 2004

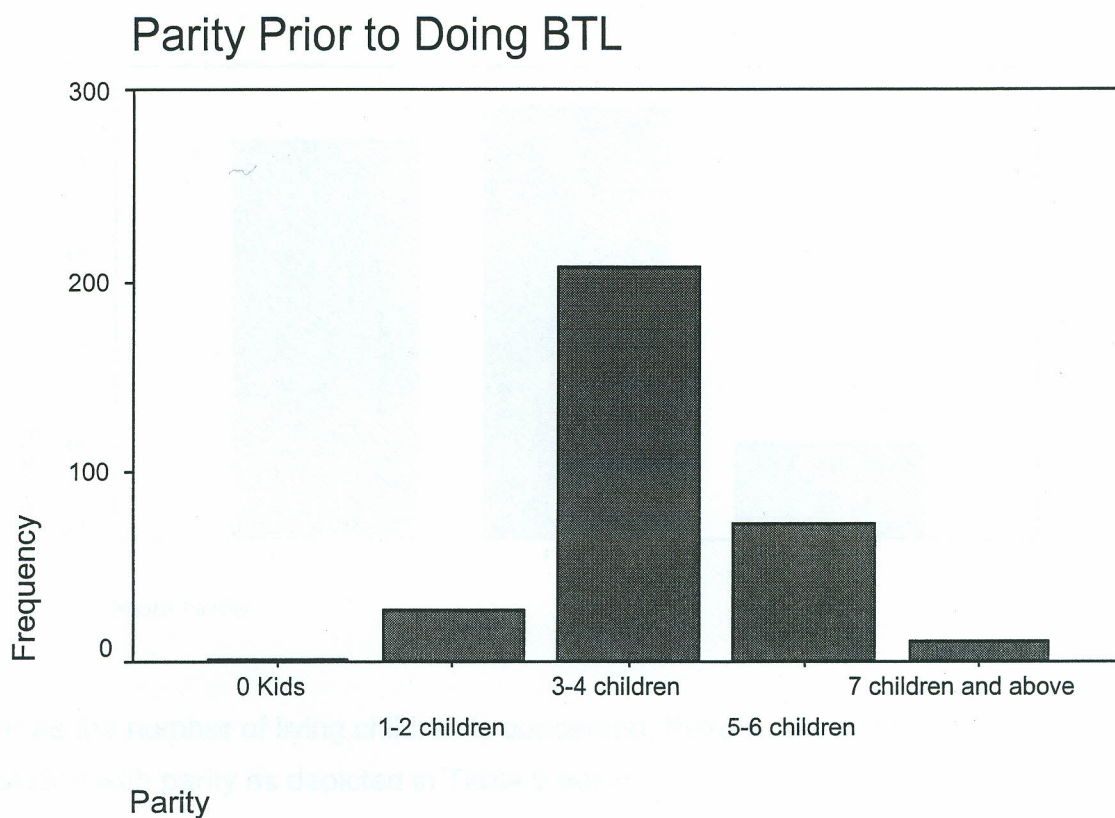
Note: mean client's age labels: 3 = 26-30 years; 4=31-35 years; 5=36-40 years

4.1.2 Parity and Number of Living Children When BTL Was Performed

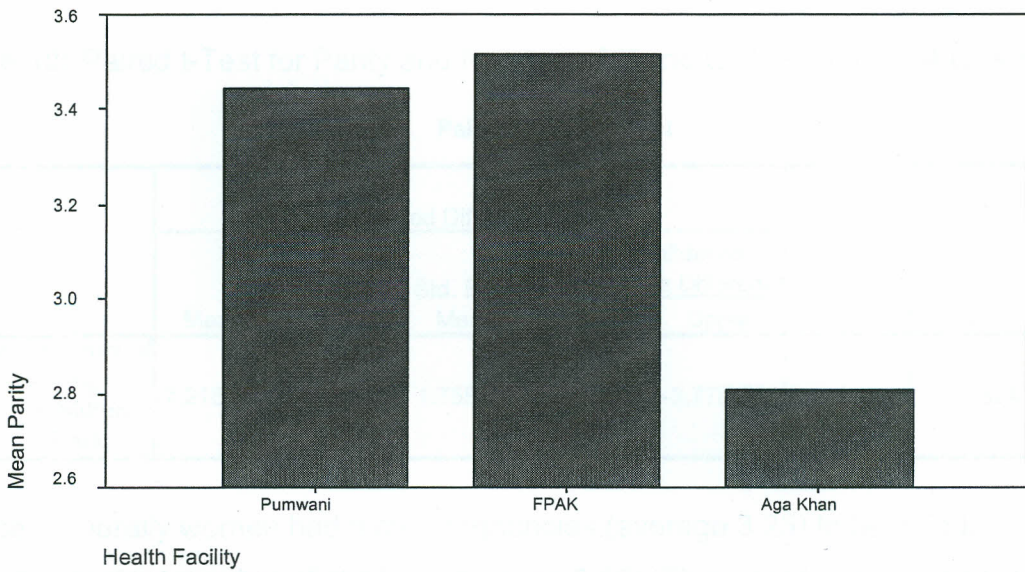
1994 Findings

On average, women had 3-4 (average number of children 3.19; average parity 3.25) pregnancies before doing BTL in the three sites in 1994 as shown in Figure 9 below:

Figure 9:



Parity was significantly low in Aga Khan as compared to FPAK and Pumwani ($F_{2,313} = 29.303, P=0.05$). While in FPAK and Pumwani the average parity was 5, in Aga Khan it was 4. Figure 10 below shows this difference:

Figure 10: Mean Parity Per Health Facility

As far as the number of living children is concerned, there was a strong correlation with parity as depicted in Table 9 below:

Table 9:**Correlation Between Parity and Number of Living Children**

		Parity	Number of Living Children
Pearson Correlation	Parity	1.000	.920**
	Number of Living Children	.920**	1.000
Sig. (2-tailed)	Parity	.	.000
	Number of Living Children	.000	.
N	Parity	306	305
	Number of Living Children	305	306

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

A paired t-test showed significant difference between parity and number of living children as shown in Table 10 below:

Table 10: Paired t-Test for Parity and Number of Living Children for 1994 Clients

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Number of Living Children - Parity	-7.21E-02	.31	1.75E-02	-.11	-3.77E-02	-4.121	304	.000

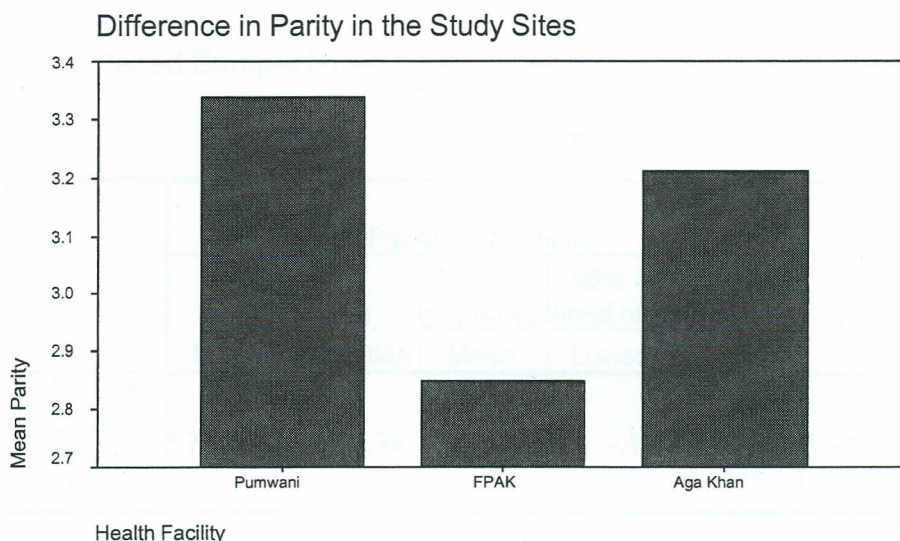
Hence, generally women had more pregnancies (average 3.25) to be able to have the desired number of children (average 3.19). This would imply that either pregnancies were lost or there were many early childhood deaths.

2004 Findings

Women had 3-4 pregnancies on average (average parity 3.06; average number of children 2.99) before doing BTL in the three sites in 2004.

Parity was significantly lower in FPAK (average 4) as compared to other clinics (average 5), ($F_{2,316} = 13.222$, $P=0.05$). Figure 11 below depicts these findings:

Figure 11:



As far as the number of living children is concerned, there was a significant correlation with parity as depicted in Table 11 below:

Table 11:

Correlation Between Parity and Number of Living Children

		Parity	Number of Living Children
Pearson Correlation	Parity	1.000	.864**
	Number of Living Children	.864**	1.000
Sig. (2-tailed)	Parity	.	.000
	Number of Living Children	.000	.
N	Parity	309	309
	Number of Living Children	309	310

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

A paired t-test (Table 12) still showed significant difference between parity and number of living children:

Table 12: Paired Sample t-Test for Parity and Number of Living Children

Paired Samples Test

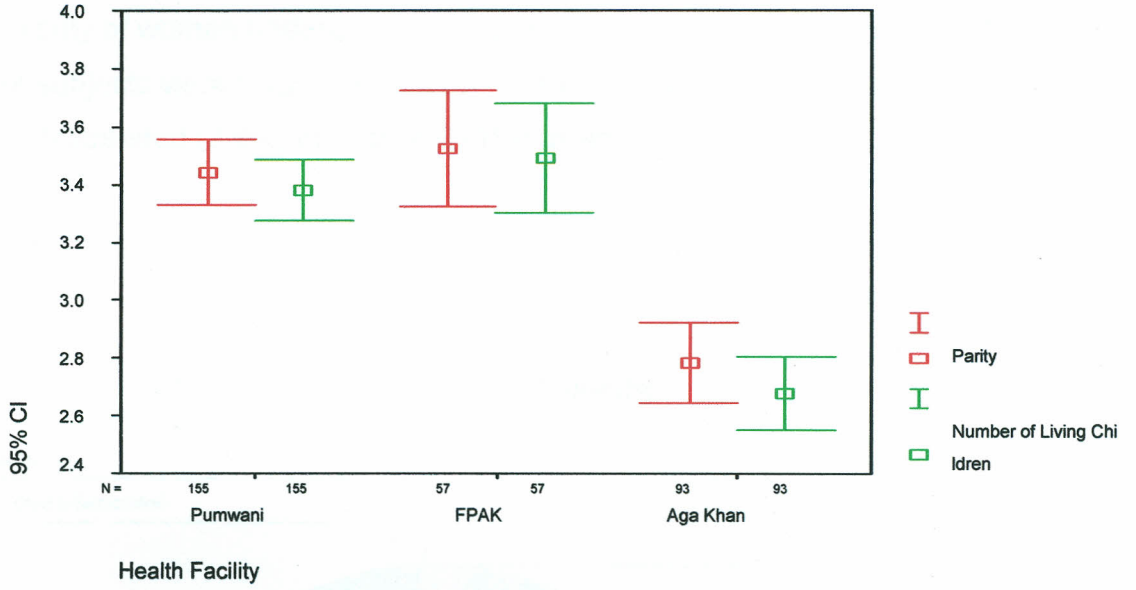
	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Number of Living Children - Parity	3.74E-02	.34	1.91E-02	-.12	4.98E-02	-4.580	308	.000

Hence, just like in 1994, it was necessary to have a higher number of pregnancies (average 3.06) to be able to attain a desirable number of children (average 2.99).

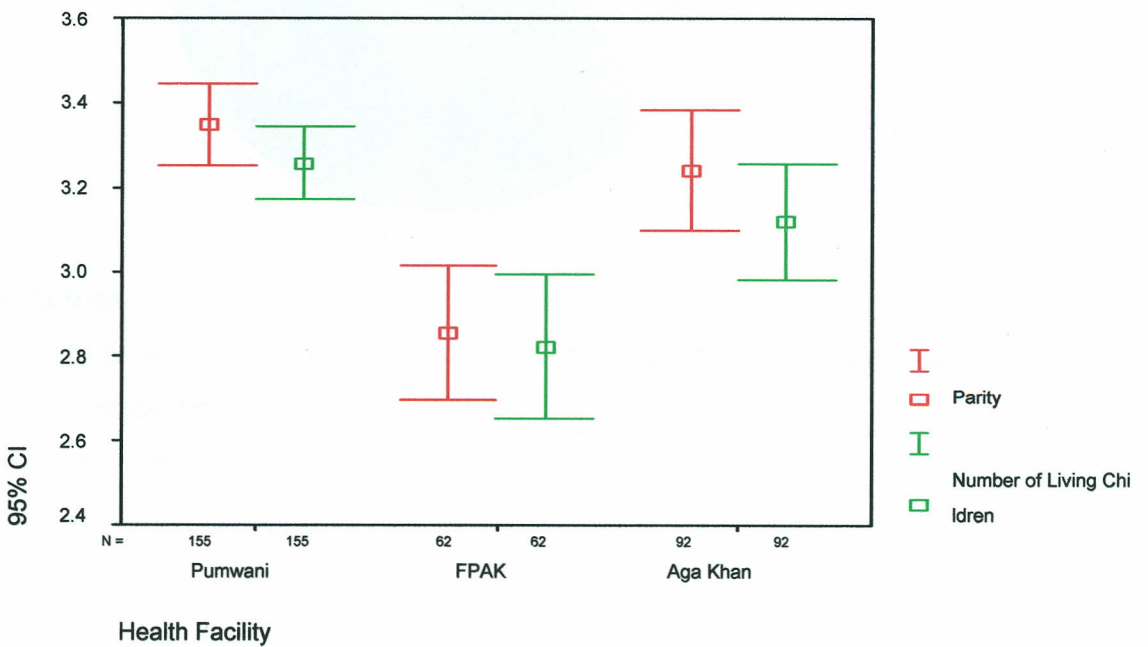
Trends in Parity and Number of Living Children 1994 to 2004

In 1994 as well as in 2004, the average parity before doing BTL was 3-4. There was a significant correlation between parity and number of living children in both years. This correlation was however not as strong in 1994 (when it was 0.864) as it was in 2004 (when it was 0.920) an indication that more pregnancies in 2004 did not end up in living children. This disparity arose mostly from clients having BTL in Pumwani and Aga Khan as shown in Figure 12 below:

Figure 12: Relationship Between Parity and Number of Living Children 1994



2004



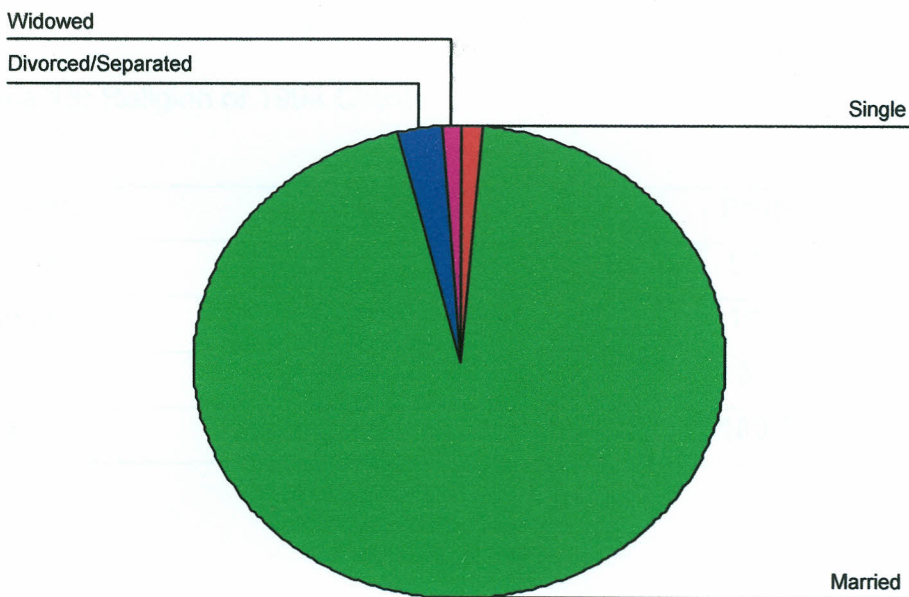
4.1.3 Marital Status of Women Undergoing BTL

1994 Findings

The majority of women undergoing BTL were married. It is however notable that 1.3% of subjects were single. The rest were either married (93.5%), divorced/separated (2.9%) or widowed (1%) as shown below:

Figure 13:

Marital Status of 1994 Clients



2004 Findings

The majority of women undergoing BTL were married. Their proportion was 93.1%. The proportion of single people was 3.9%. Others were divorced/separated (1.1%) or widowed (0.9%).

Trends in Marital Status: 1994 – 2004

In both years, the proportion of married women doing BTL remained unchanged at 93%. The proportion of single people doing BTL, however, tripled from 1.3 to 3.9%.

4.1.4 Religion of Women Undergoing BTL

1994 Findings

A majority of files (291) did not have religion of clients recorded. The insignificant number that had this record showed that the majority of women who went for BTL were Protestants, there were some Catholics and Muslims as well as shown in Table 13:

Table 13: Religion of 1994 Clients

Religion	Frequency	Proportion (%)
Protestant	11	57.9
Catholic	2	10.5
Muslim	6	31.6
Total	19	100.0

2004 Findings

The majority of files (242) had religion of client recorded. While the majority of clients were protestants, Catholics and Muslims were also represented as shown in Table 14 below:

Table 14: Religion of 2004 Clients

Religion	Frequency	Proportion (%)
Protestant	181	58.4
Catholic	36	11.6
Muslim	19	6.1
Other	6	1.9
Total	242	100.0

Trends in Religion of Women Doing BTL: 1994 to 2004

Due to inadequate recording of this variable in clients' files in 1994, the correct trends in the religion of women doing BTL over the ten year period cannot be inferred. It is, however, notable that all the major religions, were represented over the period.

4.1.5 Education of Women Doing BTL

1994 Findings

Out of 310 files, 305 had education recorded. The results were as follows in Table 15:

Table 15: Education of Women Doing BTL in 1994

Level of Education	Frequency	Proportion (%)
Not educated	25	8.2
Primary education	138	45.2
Secondary education	111	36.4
Post secondary ed.	31	10.2
Total	305	100.0

The majority of women doing BTL had primary education (44.5%). While secondary educated women were 35.8%, post secondary educated women were only 10.2%. Only a small minority (8.1%) had no education.

The lower the education was, the higher the number of children that women tended to have.

2004 Findings

Out of 310 files, 308 had education recorded. The results were as follows in Table 16:

Table 16: Education of 2004 Clients

Level of Education	Frequency	Proportion (%)
Not educated	9	3.0
Primary education	103	34.1
Secondary education	97	32.1
Post secondary ed.	93	30.8
Total	302	100.0

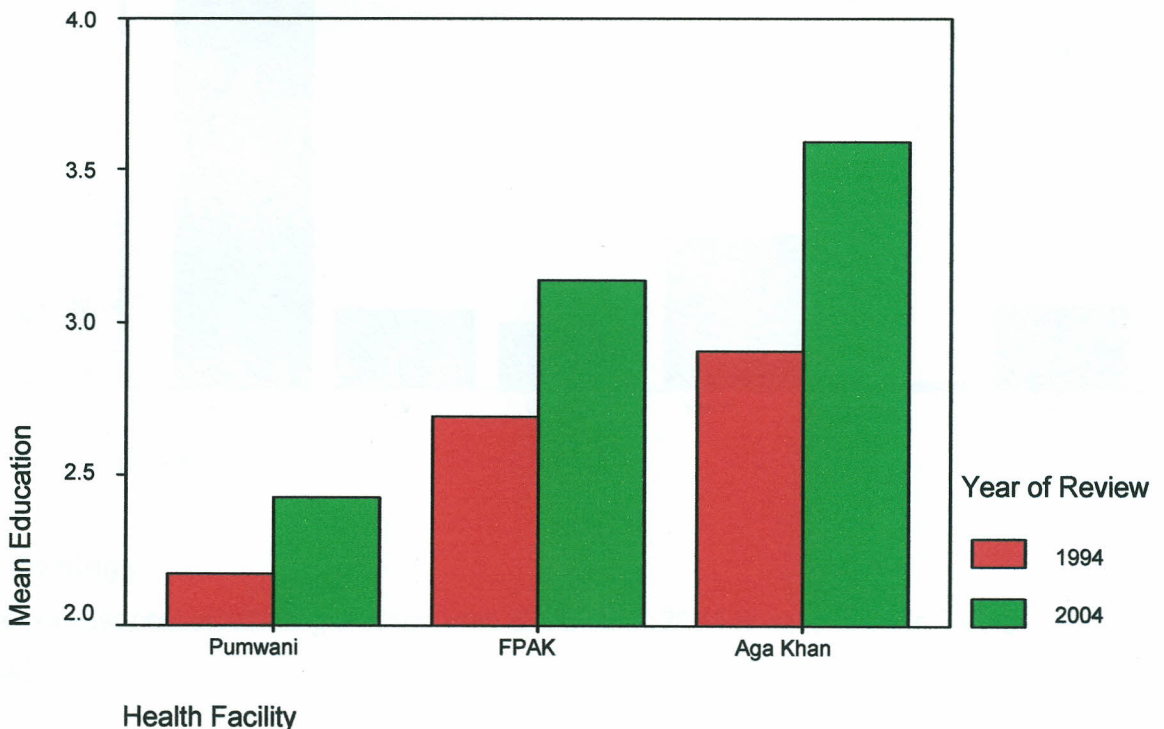
Among the women doing BTL in 2004, there was a near equal representation from those who have gone through the three levels of education (primary, secondary and post secondary). The ratio of those not having any education was 3%. More educated women tended to have less children before having BTL.

Trends in the Education of Women Undergoing BTL

Unlike in 1994 when the majority of women doing BTL had primary education (45.1%), there was a near equal representation from primary, secondary and post secondary educated women in 2004. Women undergoing BTL were better educated in 2004 with the ratio of those not having any education falling from 7.8% in 1994 to 3% in 2004. Like in 1994, the more educated women tended to have less children before having BTL.

Pumwani, on average, had the least educated women throughout. This was followed by FPAK while Aga Khan had the most educated women doing BTL. Overall, however, there was a general increase in the level of education across the three sites over the ten year period as shown in Figure 14 below:

Figure 14: Trends in Education: 1994 to 2004

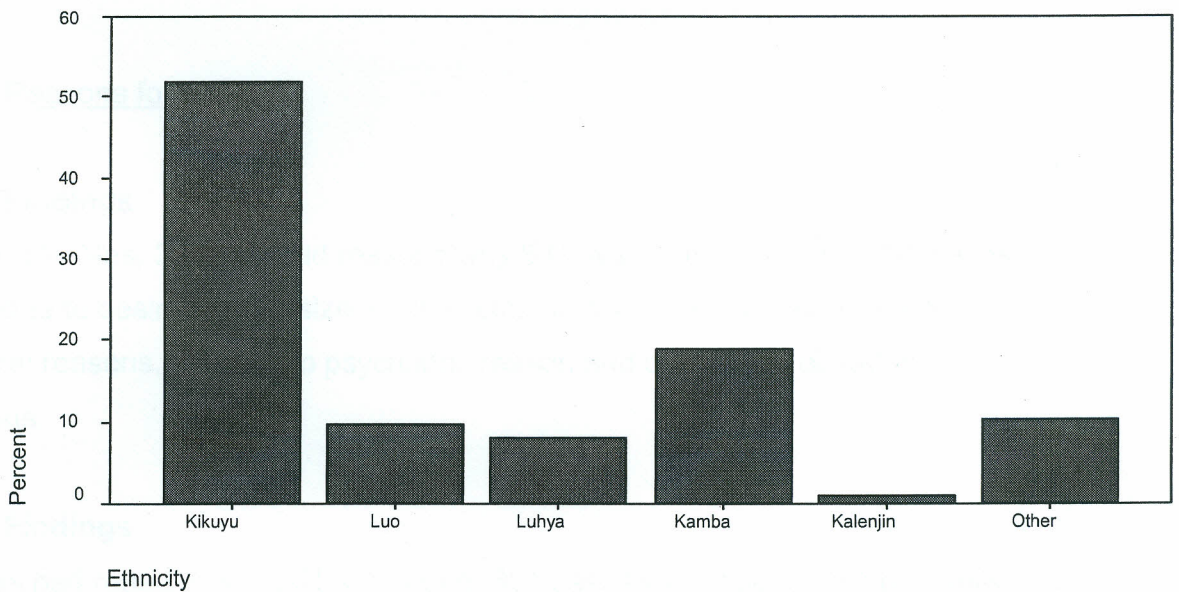


4.1.6 Ethnicity And BTL

1994 Findings

To infer how much traditions influenced decisions to do BTL, the ethnicity of women doing BTL was studied. The five big tribes were individualized and the rest were put in one group as others. The results showed that 51.6% of women doing BTL were from the Kikuyu community. Those from the Kamba community were 18.8. The rest of the communities had percentages of less than 10. This is shown in Figure 15 below:

Figure 15: Ethnicity of Women Doing BTL in 1994



2004 Findings

Ethnic representation among women who did BTL in 2004 is as shown in Table 17 below:

Table 17: Ethnicity of 2004 Clients

Ethnic Group	Frequency	Proportion (%)
Kikuyu	137	44.9
Luo	41	13.4
Luhya	25	8.2
Kamba	49	16.1
Other	53	17.4
Total	305	100.0

Trends in Ethnic Representation: 1994 to 2004

Overall, the proportions of the ethnic representations did not change over the ten year period.

4.1.7 Reasons for BTL**1994 Findings**

Out of 310 files, 306 files had reasons why BTL was done. Of these, 300 cases were due to desired family size. Of the remaining 4 cases, two were due to medical reasons, one due to psychiatric reason and one due to obstetric reasons.

2004 Findings

All files had reasons why BTL was done; 301 cases were due to desired family size. Of the remaining 9 cases, four were due to medical reasons, one due to psychiatric reason, three due to obstetric reasons and one due to economic reasons.

Trends in Reasons for Doing BTL: 1994 to 2004

The main reason why BTL was done in both years was due to desired family size.

4.2 Socio-Demographic and Reproductive Health Factors Supported by Women Hoping to Undergo BTL in Future

To be able to define trends further in socio-demographic and reproductive health factors affecting women's decision to terminate their obstetric lives by BTL, women attending antenatal clinics in the study sites were interviewed on what they support as far as factors relating to BTL are concerned. To define trends in religion, ethnicity and marital status, interviewees details for these variables were taken from their medical files. A total of 310 participants were interviewed. The distribution was as follows in Table 18:

Table 18: Distribution of Respondents (ANC Clients Interviewed)

Health Facility	Frequency	Proportion (%)
Pumwani	155	50.2
FPAK	62	20.0
Aga Khan	93	30.0
Total	310	100.0

4.2.1 Right Age for BTL

Participants were asked whether there is a right age to stop child bearing. The majority (67%) agreed that there was a right age. Those agreeing were further asked to state the right age. The responses were as shown in Table 19:

Table 19: Views of ANC Clients on the Best Age to Stop Bearing Children

Age Preferred in years	Frequency	Proportion (%)
20 – 25	2	1.0
26 – 30	14	6.7
31 – 35	119	56.9
36 - 40	47	22.5
Above 40	27	12.9
Total	209	100.0

Age 31-35 (average 34) was the most preferred by respondents. This agrees with what was noted in 2004 patient files. Comparing the preferred ages in the different sites, Pumwani, just like in 2004, maintains an average age of 31 years while FPAK and Aga Khan maintain the higher age of 36 years and so maintain a significant difference with Pumwani as shown in Table 20 below:

Table 20: ANOVA For Best Age To Stop Bearing Children in the Different Sites

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
what is the best age to stop bearing children	Between Groups	18.920	2	9.460	15.575	.000
	Within Groups	125.118	206	.607		
	Total	144.038	208			

Table 21: Source of Difference Among the Sites on Best Age to Stop Bearing Children

Multiple Comparisons

Dependent Variable: what is the best age to stop bearing children

Tukey HSD

(I) Health Facility	(J) Health Facility	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Pumwani	FPAK	-.5727*	.134	.000	-.8867	-.2588
	Aga Khan	-.6364*	.127	.000	-.9338	-.3389
FPAK	Pumwani	.5727*	.134	.000	.2588	.8867
	Aga Khan	-6.36E-02	.142	.896	-.3971	.2698
Aga Khan	Pumwani	.6364*	.127	.000	.3389	.9338
	FPAK	6.364E-02	.142	.896	-.2698	.3971

*. The mean difference is significant at the .05 level.

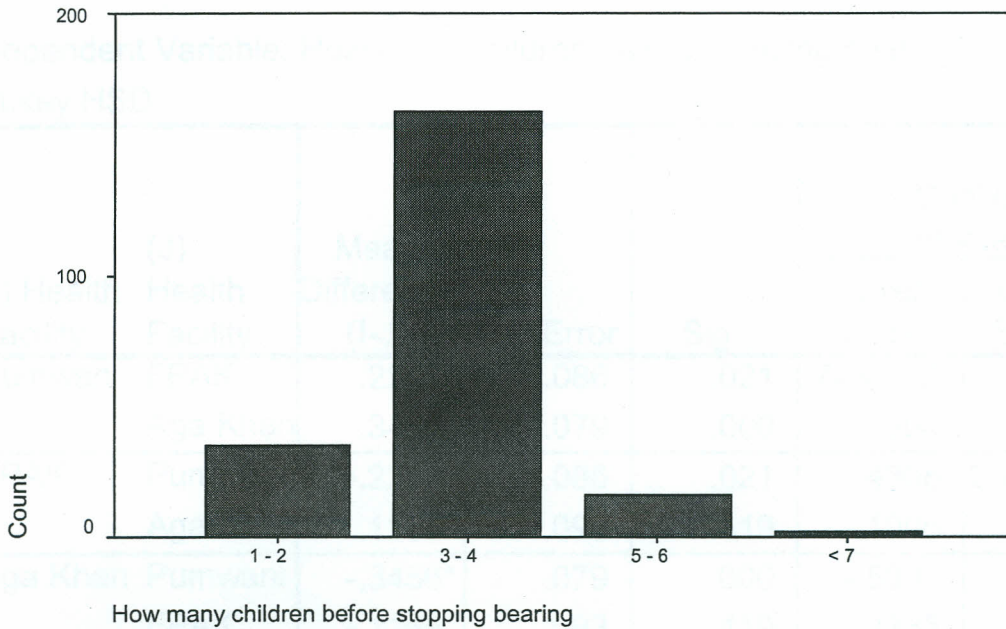
The findings are more confirmatory of what is happening now (as seen in 2004 data) than predictive of what may happen in future.

4.2.2 Parity and Number of Living Children When BTL Should Be Performed

When asked whether there is a right number of children that one should have before stopping child bearing, 70% of the 310 participants who responded agreed that there was an ideal number.

Those who said there was an ideal number were then asked to state what the right number is. An overwhelming 75% said the right number was 3-4 children as depicted in Figure 16 below:

Figure 16: Desired Number of Children Before Stopping Child Bearing



Hence, just like in 1994 and 2004 when women had 3-4 pregnancies on average before doing BTL prospective BTL clients would, on average, prefer to have a similar number. However, the average preferred number of children is significantly higher in Pumwani (5) as compared to the other two facilities (4). This is shown in Table 22 below:

Table 22:

ANOVA for Preferred Number of Children

		Sum of Squares	df	Mean Square	F	Sig.
How many children before stopping bearing	Between Groups	5.059	2	2.530	10.185	.000
	Within Groups	52.899	213	.248		
	Total	57.958	215			

Table 23: Source of Difference on the Preferred Number of Children**Multiple Comparisons**

Dependent Variable: How many children before stopping bearing
Tukey HSD

(I) Health Facility	(J) Health Facility	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Pumwani	FPAK	.2291*	.086	.021	.743E-02	.4308
	Aga Khan	.3456*	.079	.000	.1604	.5307
FPAK	Pumwani	-.2291*	.086	.021	-.4308	2.74E-02
	Aga Khan	.1165	.093	.419	-.1006	.3335
Aga Khan	Pumwani	-.3456*	.079	.000	-.5307	-.1604
	FPAK	-.1165	.093	.419	-.3335	.1006

*. The mean difference is significant at the .05 level.

These findings are quite similar to what was noted in 1994 and 2004. The distribution of desired parity before doing BTL was, however, not similar to any of the two years as shown in the following figures 17 to 18:

Figure 17:

A Comparison of Desired Number of Children Per Health Facility in Prospective BTL Clients:

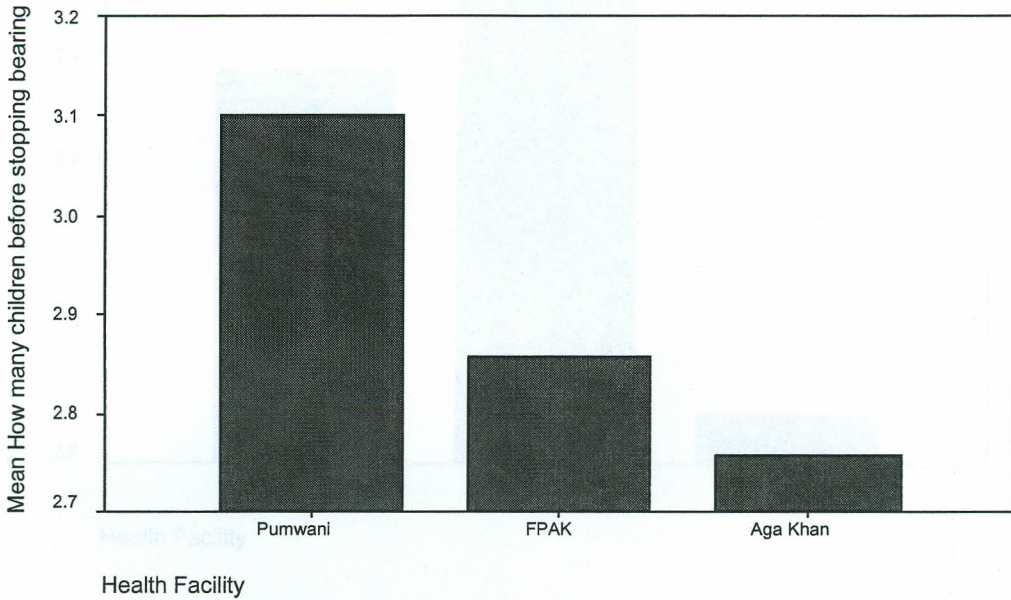


Figure 18:

A Comparison of Number of Living Children Before BTL Per Facility in 2004

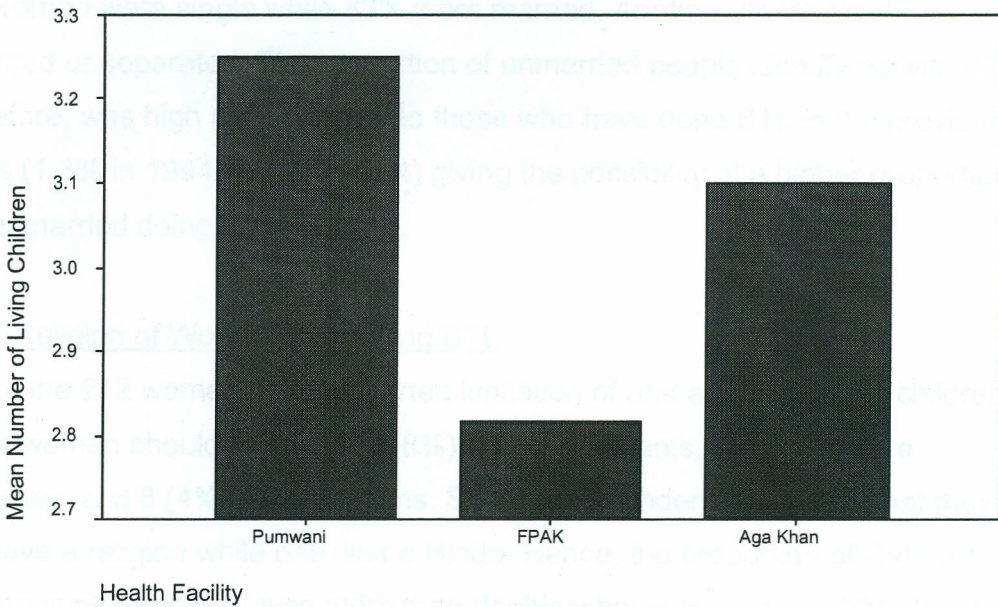
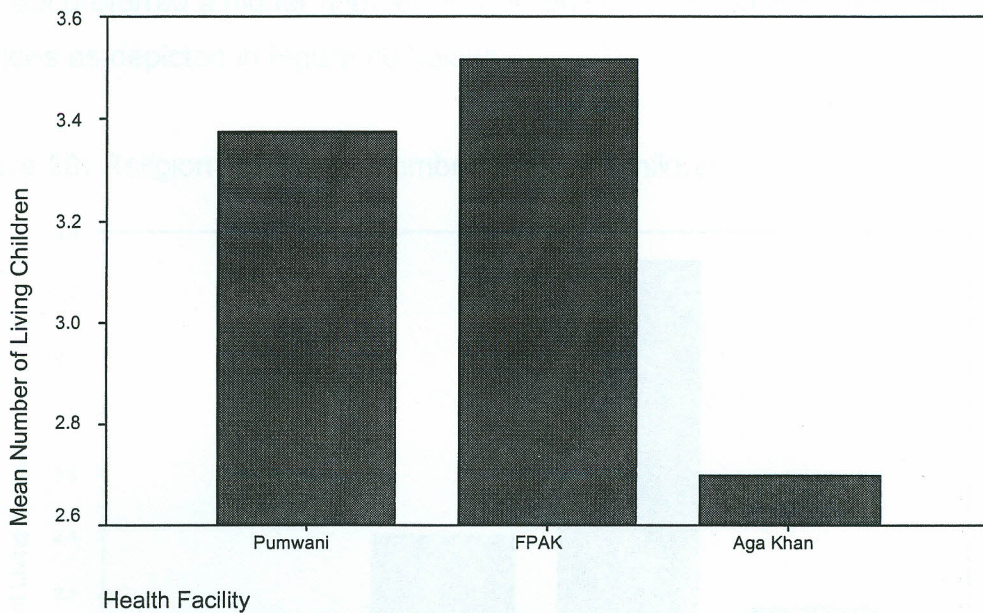


Figure 19:

A Comparison of Number of Living Children Before BTL Per Facility in 1994



4.2.3 Marital Status of Women Supporting BTL

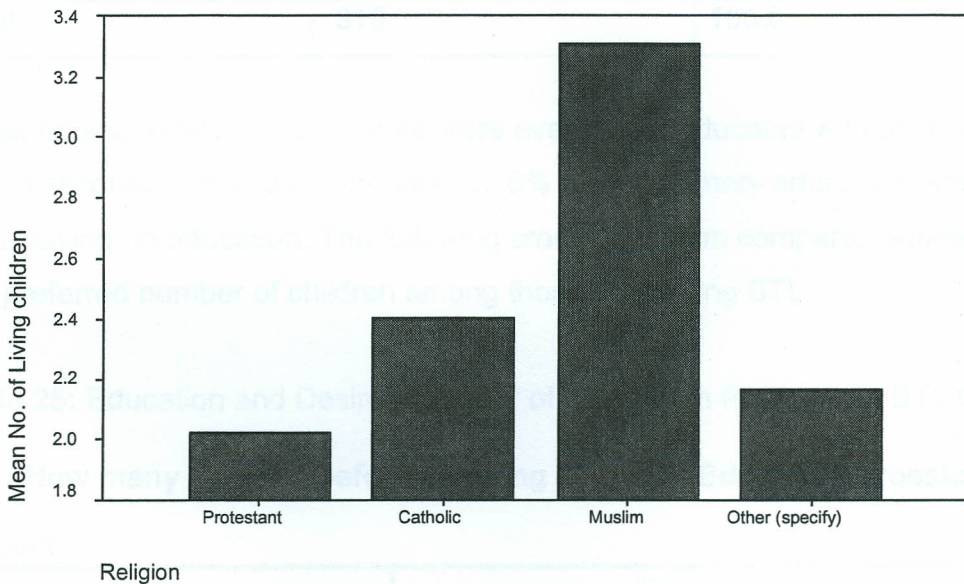
The marital status of women who supported termination of obstetric life at some age and with a given number of children was assessed. It was found that 15% of the women were single while 83% were married. Another 2% were either divorced or separated. The proportion of unmarried people identifying with BTL, therefore, was high as compared to those who have done BTL in the previous years (1.3% in 1994, 3.9% in 2004) giving the possibility of a higher proportion of the unmarried doing BTL in future.

4.2.4 Religion of Women Supporting BTL

Out of the 212 women who supported limitation of age and number of children that a woman should have, 145 (68%) were protestants, 56 (26%) were Catholics, and 8 (4%) were Muslims. Some 2 respondents indicated that they did not have a religion while one was a Hindu. Hence, the proportion of Catholic women supporting BTL was more than double what was seen in 2004 (11%).

The dislike among Muslim women for BTL was obvious given that the proportion who underwent BTL in 2004 was 5.8% and those supporting the procedure among antenatal mothers was only 4%. In fact even the Muslims who supported BTL still preferred a higher number of children compared to the others from other religions as depicted in Figure 20 below:

Figure 20: Religion and Mean Number of Living Children



4.2.5 Education of Women Supporting BTL

More than half (77.7%) of interviewees had secondary education and above, 18.7% having primary education, and 3.5% had no education as shown in Table 24 below:

Table 24: Education of Women Interviewed

Level of Education	Frequency	Proportion (%)
Not educated	11	3.5
Primary education	58	18.7
Secondary education	108	34.8
Post secondary ed.	133	42.9
Total	310	100.0

Those hoping to have BTL in future were even better educated with 81% of them having secondary education or more, 17.6% having primary education, and only 1.3% having no education. The following cross tabulation compares education and preferred number of children among those supporting BTL.

Table 25: Education and Desired Number of Children in Prospective BTL Clients**How many children before stopping bearing * Education Crosstabulation**

Count	Education				Total
	Nil	Primary	Secondary	Post-secondary	
How many children 1 - 2		2	8	25	35
before stopping bear 3 - 4	3	29	55	76	163
5 - 6		6	8	2	16
< 7		1	1		2
Total	3	38	72	103	216

Unlike in 1994 when the majority of women doing BTL had primary education (45.1%) and in 2004 when those in primary, secondary and post secondary were the same, antenatal clients supporting BTL had more education as shown in the cross tabulation in Table 24 above.

4.2.6 Ethnicity of Antenatal Clients Supporting BTL

Out of the 310 interviewees, 305 revealed their ethnicity as follows:

Table 26: Ethnicity of Clients Interviewed

Ethnic Group	Frequency	Proportion (%)
Kikuyu	147	48.2
Luo	29	9.5
Luhya	24	7.9
Kamba	19	6.2
Kalenjin	5	1.6
Other	81	26.6
Total	305	100.0

Those who supported BTL were represented as follows:

Table 27: Ethnicity of Antenatal Clients Supporting BTL

Ethnic Group	Frequency	Proportion (%)
Kikuyu	106	49.8
Luo	25	11.7
Luhya	18	8.5
Kamba	16	7.5
Kalenjin	5	2.3
Other	43	20.2
Total	213	100.0

The ethnic distribution did not differ between those supporting BTL and the general population of interviewees as shown by the paired t-test:

Table 28:

Paired t-Test for Women Intending to do BTL in Future and the General Population of Interviewees among the Ethnic Groups:

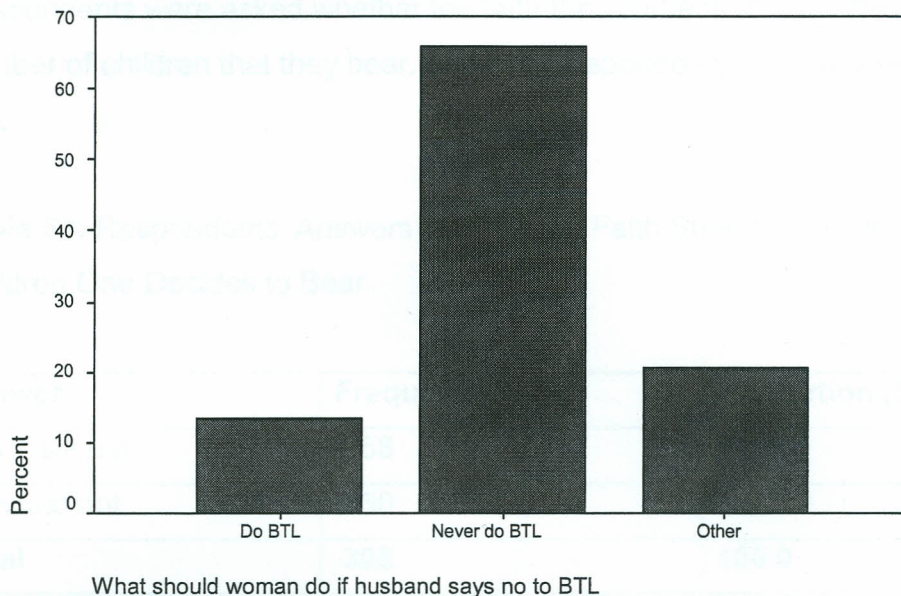
Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	GENPOP - TLPOP	6.667E-02	3.3726	1.3769	-3.4727	3.6060	.048	5	.963

This result shows that there is no difference in the distribution of the two populations. Hence, ethnicity does not appear to be a driving factor for BTL.

4.2.7 Spousal Consent and BTL

Interviewees were asked whether it is necessary for a woman intending to have BTL to seek the consent of the spouse. The majority (81%) said yes while the rest (19%) said no. Hence, the majority would want the man to give consent. Asked what a woman should do if the husband refused to grant consent, the majority said that the woman should never undergo BTL. This is depicted in Figure 21 below:

Figure 21: What a Woman Should Do When a Husband Says No to BTL

4.2.8 Traditions and BTL

Respondents were asked whether their traditions regulate the number of children that a woman bears. The majority of respondents (99%) said their traditions do not advise limiting the number of children. Only 1% agreed that the traditions do limit the number of children. Asked however whether these traditions should be obeyed, 97.6% said no.

Table 29: Respondents' Answers on Whether Traditions Should be obeyed

Answer	Frequency	Proportion (%)
Yes, obey	11	3.8
Do not obey	273	93.8
Other	7	2.4
Total	291	100.0

Hence, respondents did not consider culture an important factor in influencing their decision to stop or not to stop child bearing.

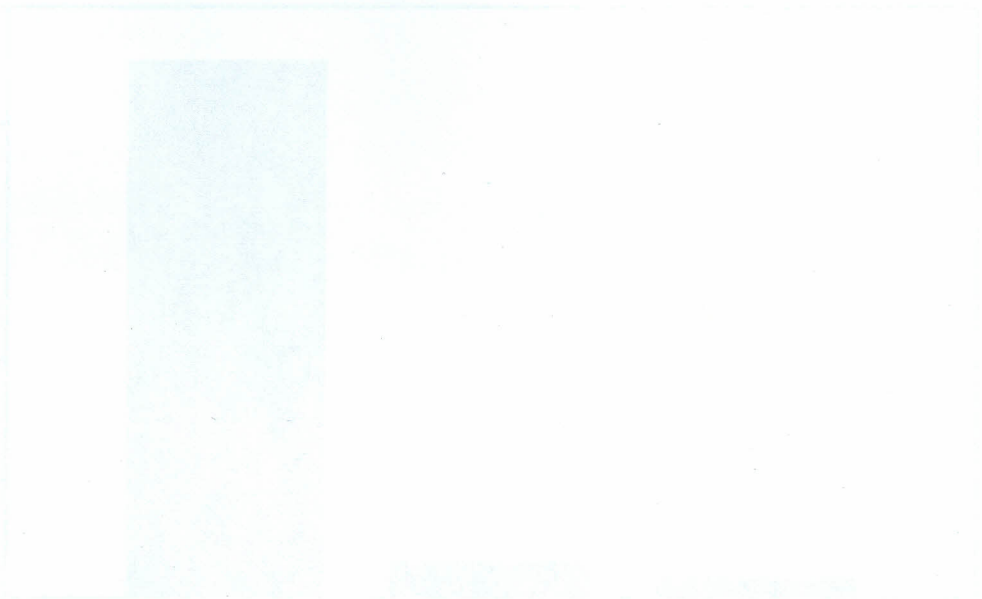
4.2.9 BTL and Religion

Respondents were asked whether the faith they confess should affect the number of children that they bear. 81.2% of respondents said no while 18.8 said yes.

Table 30: Respondents' Answers on Whether Faith Should Affect the Number of Children One Decides to Bear

Answer	Frequency	Proportion (%)
Yes it should	58	18.8
It should not	250	81.2
Total	308	100.0

Figure 22: Key Informants' Views on Whether there is a Right Age to Bear Child



4.3 Views of Key Informants

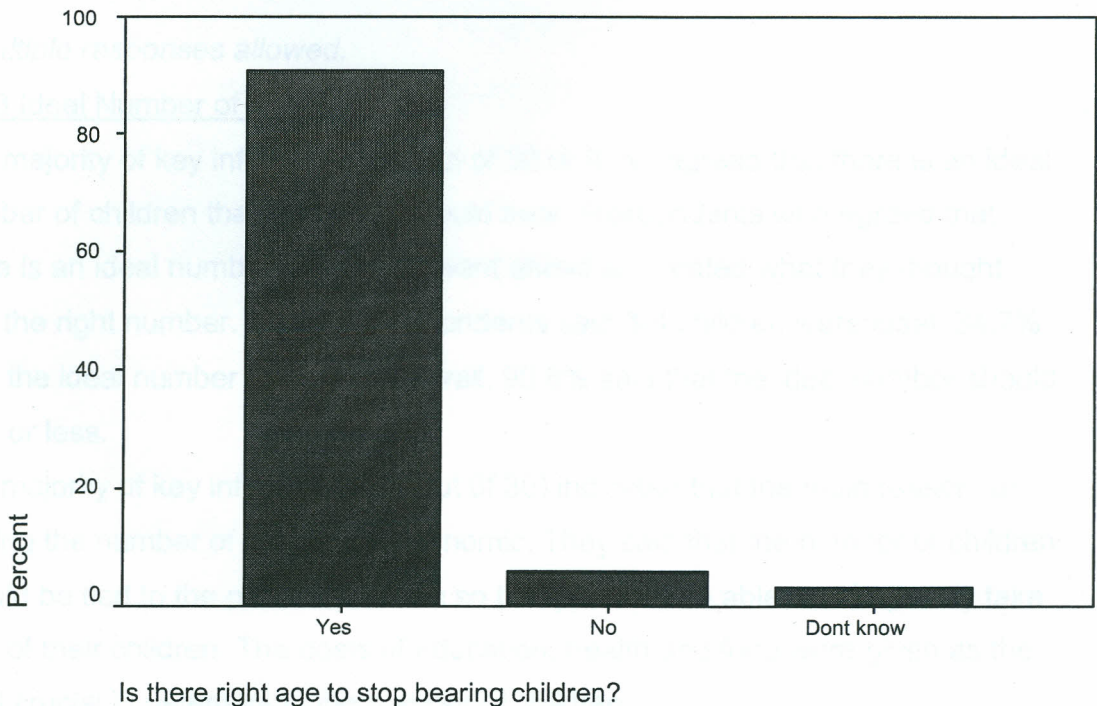
4.3.1 Details of Respondents

A total of 30 informants were interviewed. Their backgrounds cut across the common religions in Nairobi, the medical profession and leaders in various government ministries and advocacy groups. These are people who influence reproductive health decisions of women in one way or another. Half of respondents were male and half female.

4.3.2 The Right Age to Stop Bearing Children

Irrespective of their background, there was a general agreement among the key informants that there is a right age to stop child bearing as exhibited by 93% of respondents. This is depicted in Figure 22 below:

Figure 22: Key Informants' Views on Whether there is a Right Age to Stop Child Bearing



The preferred age to stop bearing children were given as follows: 61.2% said the right age is forty and above; 25% said the age is 36-40 years; 12.1% said the age is 31-35; only 1.5% of interviewees thought women should stop bearing children before the age of 30. In other words, 86.2% of opinion leaders said that the right age to stop bearing children is after 35 years. The reasons given for stopping child bearing at the chosen ages were as shown in Table 31 below:

Table 31: Main Reasons for Stopping Child Bearing at Some Age

REASON	NUMBER OF RESPONSES
1. To allow parents adequate time to fend for and adequately educate their children before parents retire.	20
2. For the good health of the mother and the baby	18
3. So that women have time to develop their careers and also compete effectively with men in the development of the country.	5
TOTAL	43*

*Multiple responses allowed.

4.3.3 Ideal Number of Children

The majority of key informants (25 out of 30 or 83%) agreed that there is an ideal number of children that a woman should bear. Respondents who agreed that there is an ideal number of children went ahead and stated what they thought was the right number. 52.3% of respondents said 3-4 children were ideal. 34.7% took the ideal number to be 1-2. Overall, 90.6% said that the ideal number should be 4 or less.

The majority of key informants (28 out of 30) indicated that the main reason for limiting the number of children is economic. They said that the number of children should be tied to the parent's income so that parents are able to adequately take care of their children. The costs of education, health and food were given as the most crucial in determining the number of children.

4.3.4 Single People and BTL

The majority of informants (80%) said that single people should not undergo BTL. Only 20% think they should. The main reason for this refusal was that a woman may choose to get married later and if she is unable to bear children, the marriage is unlikely to last. The religious leaders indicated that they would hesitate to bless such a marriage.

Those who supported BTL in single people were either activists for women's rights or medical professionals. The overriding reason for them was that women should be able to make reproductive health decisions that are good for them without the influence from any quarters.

4.3.5 BTL and Husband's Consent

Of the respondents interviewed, 93.3% said that the husband's consent must be sought before BTL is done. Only 6.7% said that the consent of the husband is unnecessary. Should the husband object to the BTL, 83.3% of respondents said that the BTL should never be done. Only 6.6% said that the woman can as well go ahead and have the BTL. 10.1% said that an alternative method of family planning can be used as further plea is made to the husband.

The overriding reason for involving the husband in this decision was given as harmony in marriage. Out of the 30 informants, 28 indicated that committing oneself to marriage was consent to joint reproductive health decisions. They also indicated that it was crucial for the man to support a wife on matters of reproduction and child bearing and also provide financial support for such. Failure to get the man's consent would deprive the woman of this support.

4.3.6 Religion, Traditions and BTL

Should one's faith affect the number of children that one bears? Most of the informants (93.3%) did not agree. Only 6.7% agreed. The religious leaders indicated that God expects responsible behaviour from men and it would be foolhardy to have the number of children that a parent cannot care for. The Catholic leaders, however, indicated that they are opposed to artificial and unnatural forms of family planning including BTL. Respondents from women activist groups indicated that religion should not be used as a scapegoat for irresponsible reproductive health decisions.

The majority of informants (25 out of 30) also said that traditional values of their communities should not stop women from limiting the number of children they would want to have. Further, 83.3% of informants said that traditions pertaining to limiting numbers of children should not be obeyed. Only 10% of respondents thought that these traditions need to be obeyed.

4.4 Focus Group Discussion Results

In an attempt to define qualitative data as far as socio-demographic and reproductive health factors affecting BTL are concerned, three focus group discussions, one per study site, were conducted. Each focus group was made up of eight participants randomly selected among clients attending antenatal clinics. A questionnaire guide was used to guide the discussions. Results were as follows:

4.4.1 Age for Stopping Child Bearing

All the groups agreed that women should stop child bearing at some age. 'When your children reach child bearing age, it is a shame for you also to walk around pregnant,' said a woman from Pumwani.

'It is better to have all the children you want before thirty five then concentrate on bringing them up,' stated a participant from Aga Khan.

There was no agreement, however, on the right age to stop child bearing. 'The issue really is whether one has had the right number of kids,' said a participant from FPAK, 'rather than the age of bearing them'

'And you must be sure that you can have a child any time should the man want one,' stated a participant from Pumwani, 'or he will marry another woman.'

Hence, the age to stop child bearing looked a complex factor influenced by many variables.

4.4.2 Number of Children

Women were asked what they thought was the right number of children that a woman should have before stopping child bearing.

'Any number is fine as long as it is more than ten,' said a participant from Pumwani.

'It's a decision to be discussed with the man,' said a participant from Aga Khan, 'although I will convince him to stop after this pregnancy.' The participant was carrying her third pregnancy.

'I have a girl' said a participant from FPAK, 'if I get a boy,' she continued, 'then I will not mind stopping, though you never know what these African men will want.'

'Even if I wanted to stop, my mother-in law will not stomach it,' said a participant from Pumwani, 'and remember the son must obey her.'

Generally, women needed to consult and think for some time before giving a figure to the number of children to be born.

4.4.3 Views About BTL

The predominant view in Pumwani was that BTL is ungodly and should not be allowed. 'My religion does not allow it so I can't do it' said one participant. 'Those doing that operation (BTL) should know that they will be judged by God,' said another participant.

'Even though I am a Catholic, I will go for it,' said one participant from FPAK.

'It is better than taking these hormones every day,' said a participant from Aga Khan, 'I would advice my friends to do it.'

Asked whether it would be necessary to seek the husbands consent before doing BTL, all groups said it was important.

'If you want to be divorced then do it without him knowing,' said a participant from Aga Khan.

'Yes, it is important for the sake of peace in the house,' stated a participant from FPAK.

Concerning single people undergoing BTL, there was divided opinion.

'Only a prostitute can do that,' said a participant from Pumwani.

'It's okay as long as they know what they are doing,' said a participant from Aga Khan.

It was however stated that such women should avoid the operation if they still hope to marry.

There were no reservations about unemployed women doing BTL as long as it would not make the man abandon her.

It was also stated that most cultures do not allow BTL and that the older members of the community would not approve of it.

'You don't have to tell them that you have done it anyway,' concluded one participant.

Maternal Age When BTL is Carried Out

As stated in literature review, women worldwide, on average, undergo BTL in their 20s and 30s, up to early thirties (World Federation of Obstetrics and Gynaecology, 1990). The advancement of Voluntary Surgical Contraception, 1990, states that the risk to the mother is especially high at age 35 years or older. However, a study by the WHO (1994) average age at BTL was 32 years, tallying very well with what is known worldwide. Ten years later, this average had risen to 34 years with the use of RU-486 (mifepristone and FPAA) falling the risky age of 35 years. Frey (1998) echoed this point and only confirmed that their report mirrored the figure of 32 years. It is important to note that the trend is towards increasing the age at which BTL is carried out. This trend was further supported by a study that showed that women who had BTL at the age 30 or less were more likely to regret the decision than those who had BTL at the age 35 or older. This is a trend that is likely to continue as women become more educated and more aware of their reproductive health. The WHO (1994) also noted that women who had BTL at the age 35 or older were more likely to regret the decision than those who had BTL at the age 30 or younger. This is a trend that is likely to continue as women become more educated and more aware of their reproductive health. There are traditional factors such as a preference for a larger family that

CHAPTER 5: DISCUSSION

This study looked at the socio-demographic and reproductive health factors associated with stopping child bearing in those doing BTL. This was done to study trends in these factors with the aim of relating them to socio-economic growth given that reproductive health indicators have been used to assess socio-economic progress (as in Millennium Development Goals). Hence, favourable trends would imply a road map to positive socio-economic development and vice versa. The desirable trends were well defined through literature review while the findings of the study have shown the trends in the study area. The discussion below relates the study findings to the ideal as defined in the literature review.

5.1 Maternal Age When BTL is Carried Out

As noted in literature review, women worldwide, on average, undergo BTL in their late twenties to early thirties (World Federation of Health Agencies for the Advancement of Voluntary Surgical Contraception, 1987). Medically the risk to the mother is especially high at age 35 years and above (William, 2000).

The 1994 average age at BTL was 32 years, tallying very well with what is known worldwide. Ten years later, this average had risen to 34 years with two sites (Aga Khan and FPAK) hitting the risky age of 36 years. Pregnant women interviewed only confirmed that they would maintain the figures seen in 2004. It appears that the trend is towards stopping child bearing at an advanced age.

This fact was further confirmed by key informants. A significant 86% of them said that the right age to stop child bearing is after the age of 35 years. Given that these informants influence women's decisions in one way or the other, the shift to older ages before stopping child bearing is likely to worsen.

Focus group discussions brought out the complexity that surrounds stopping child bearing. There are traditional factors such as a mother and her daughter not

being pregnant at the same time, the desires of the husband, security in marriage and economic considerations among others.

In summary, women in the sites where the study was done are ending their obstetric careers at an older age than they did ten years ago. The age is likely to rise in future. This does not augur well for their well being. As the age goes above 35 years, a higher maternal mortality rate is likely to be seen due to the rise in risks associated with such pregnancies. This will negate expectations of achieving a reduction in maternal mortality as targeted in Millennium Development Goals.

5.2 Parity And Number of Living Children When BTL is Done

Maine (1982) notes that chances of having complications of pregnancy are especially high after the third pregnancy. William (2000) specifically identifies the fifth pregnancy and others there after as high risk. While having three to four children may be bearable it is obviously not safe to have the fifth. Maternal mortality rises sharply after the fourth pregnancy.

The average number of children before doing BTL remained at 3-4 in 1994 and in 2004. Antenatal clients also supported this number of children before stopping child bearing. A significant 90.6% of key informants indicated that it is better to have a maximum of 4 children then stop child bearing. Hence, there is consistency in maintaining the number of children at three to four. This is healthy and promises a better future in reducing maternal mortality and fostering socio-economic growth.

Among the sites of study, Pumwani maintained a worrying trend. The average number of children remained at five throughout. At focus group discussion, it was mentioned that a woman should even have ten children. Unless this tendency is attended to, it is likely that in future the overall average number of children before BTL may be influenced by those accessing services in Pumwani.

The observed difference in Pumwani could be related to the socio-economic status of clients seen there. The cost of BTL in Aga Khan is KSh 25,000 or more.

In FPAK it costs KShs 5000 or more while in Pumwani it is KShs 1000 or more. It would appear that clients who seek services from Pumwani are of the lower socio-economic class.

Education is also a confounding factor. The modal educational level of women doing BTL in Pumwani in 1994 was primary level. At that time, the modal levels of education in both FPAK and Aga Khan was secondary level. In 2004, the mode in Pumwani remained at primary level while in both FPAK and Aga Khan it moved to post-secondary level. This trend was maintained in the antenatal clients supporting BTL. This observation proves the assertion that more educated women want fewer children than less educated ones because they are no longer bound by cultural and religious beliefs such as the number of children born being 'upto God' (Programme on Population East-West Centre, 1996). It could be a major factor in Pumwani, making the average number of children before BTL significantly higher than in the other two facilities.

The other worrying trend is that the correlation between parity and number of living children weakened in the ten year span (from 0.918 to 0.866). This means that more pregnancies did not end up in living children in 2004 as compared to 1994. There are two possibilities to this scenario: perinatal, neonatal and child mortality rates could have gone up. If this is the case, then the implication is that women would have to conceive more times to maintain the desired number of children. This would obviously multiply their risk of dying from pregnancy related complications.

The second possibility is that more women could be terminating their pregnancies. Given that the Kenyan law does not allow abortion on request and that currently most of such abortions could be illegal and done under unsafe conditions, this increases maternal mortality (Ministry of Health, 2004). The third possibility could be a combination of both factors. Whatever the cause of this scenario, it increases maternal mortality which is a negative indicator for socio-economic development.

In summary, women maintained a 3-4 number of children at BTL in 1994 and 2004. This trend is likely to continue to the future as reinforced by views of antenatal clients and key informants. However, this may depend on the direction trends in socio-economic status and education of women take, this being a major determinant on the decision to do BTL as is well exemplified by clients getting services from Pumwani in this study. The cause of weakening correlation between parity and number of living children in the ten year span is not clear but is a negative factor to development.

5.3 Marital Status, Spousal Consent And BTL

From literature, empowered women will make reproductive health decisions which favour development irrespective of what the community or their spouses may want (WHO 1994). Single women, under these circumstances, will be able to choose any method of family planning including BTL and the community will respect the decision. The husbands' consent will not be relevant for women who are in marriage.

In 1994, only 1.3% of women who had BTL were single. This proportion rose to 3.9% in 2004. The rising trend is more likely in future as 15% of those supporting BTL in the antenatal clinics were found to be single. Further, 20% of key informants support BTL in single people. There is, all the same, a very strong feeling among the opponents of this fact. As stated by some focus group members in Pumwani, 'only prostitutes can do that.'

As far as spousal consent before doing BTL is concerned, 19.2% of women attending antenatal clinics said it was not necessary. However, only 6.4% of key informants supported this. Hence, there is a strong support to have the husband's consent before doing BTL. Reasons given by key informants and in the focus group discussions included harmony in the family and preventing divorce as well as ensuring that the man does not marry another woman.

There is nevertheless a growing trend, therefore, for single women to have BTL, a pointer to the increasing empowerment of women in Nairobi. This empowerment is being cautiously handled among married women so as not to interfere with marital harmony by upholding spousal consent before doing BTL.

5.4 Religion and BTL

Most religions are pronatalistic (Rosenfield *et al.*, 1990). While Protestants do not reject the use of modern contraceptives, Catholics and Muslims openly oppose them. These religions can therefore encourage high parity and deliveries in elderly women with the risk of increasing maternal mortality. This may hinder the achievement of Millennium Development Goals.

In 1994, the religions of women undergoing BTL were not recorded in most files. Only 23 out of 320 files had this factor recorded. This made analysis impossible, although all the major religions under study were represented in the 23 files (i.e. Catholics, Protestants and Muslims). It appears that taking this record was not given priority in 1994 in the study sites. There is also a possibility that most clients shied off from divulging their religion possibly because BTL was discouraged by their religions.

In 2004, 75.3% of files with religion recorded were Protestants. Only 14.6% were Catholics. The proportion of Muslims was even less at 7.7%. Although the exact proportions of representation of various religions is not known among the child bearing women in Nairobi, the fact that there was representation across the board means that there are overriding factors other than religion that make women to go for BTL. Education of women is a known possible factor to this (WHO, 1994; Fredman, 1959). Empowering women economically is also known to make them accept contraception more and could be a factor (WHO, 1994). Whatever the case may be, these are pointers to socio-economic advancement, i.e. the fact that women will abolish risks associated with child bearing by undergoing BTL irrespective of their religion.

5.4.3 Religion, women doing BTL

On interviewing antenatal clients, 68% of those supporting BTL were protestants, 26% were Catholics, and 4% were Muslims. This implies that in future there may be more Catholics doing BTL while the resistance among Muslims may continue. The overriding factors for BTL other than religion may therefore be getting stronger among Catholics while affecting Muslims less and less.

5.4.4 Religion, the future

Further, 81.5% of antenatal clients interviewed said that religion should not determine the number of children that one chooses to have. This view was reinforced further by 90.1% of key informants. Hence women are likely to have BTL in future irrespective of their religious beliefs. Even though there were some very strong anti-BTL sentiments based on religion by key informants as well as in Focus Group Discussions, the view of one lady from FPAK seems to be carrying the day: 'Even though I am a Catholic, I will go for it.'

5.5 Family and BTL

5.5.1 Education and BTL

Education is an important factor in acceptability of contraceptives including BTL. Literature shows that the more educated a woman is, the more she is likely to take up a modern contraceptive method. In 1994, the majority of women doing BTL had primary education (45.1%). While secondary educated women were 36.2%, post secondary educated women were only 10.8%. Only a small minority (7.8%) had no education.

5.5.2 Age and BTL

This trend changed in 2004 and it was found that averagely one third of the women had primary education, one third secondary education and one third post secondary education. The women were better educated with the ratio of those not having any education falling from 7.8% to 3%.

Antenatal clients that supported BTL were even better educated with 81% of them having secondary education or more, 17.8% having primary education, and only 1.4% having no education.

Generally, therefore, women doing BTL tend to be the educated as time passes by. It is possible that the proportion of educated women is steadily increasing in the study population over time so that the result of what is being seen is due to increasing education of the girl child. It is also possible that there is a general rise in literacy levels in the community so that women seeking BTL are generally better educated than ten years ago.

Whatever the case may be, the trend is desirable, showing that there is an increasing number of educated women visiting the health facilities to do BTL. These better educated women are an asset in improving socio-economic development. The worrying paradox, however, is that the more educated women (as those seen in Aga Khan) are tending to do BTL late at ages with higher risk for mortality. It is therefore not clear whether education is contributing to increase in risks or otherwise.

Ethnic backgrounds did not seem to influence trends in BTL among the study

5.6 Ethnicity and BTL

As shown by Malnos (1968), traditional beliefs among the Kenyan ethnic groups encourage women to bear children and this belief is intricately connected to the wishes of the ancestors and the gods. Giddens (2000), has concluded that a big family in Africa proves a high standing in society. By looking at the ethnic representation of women doing BTL and the changes in the representation, it is possible to infer how much the traditions are impacting on the decision to do BTL over time.

The Kikuyu community consistently led in the proportion of women doing BTL (52.2% in 1994, 45.4% in 2004 and 49.5% in antenatal clients supporting BTL). On interview of antenatal mothers, however, there was no difference in distribution between the general population of interviewees and those intending to do BTL in future as far as their ethnicity was concerned. Hence, ethnicity did not determine the desire to do BTL.

There was also no significant difference in ethnic representation of the Kikuyus in those who did BTL in 1994, those who did in 2004 and those hoping to have the operation in future ($\chi^2 df_2 = 0.0097, P = 0.05$). It therefore appears that changes in ethnic practices among the Kikuyu have not influenced decisions much as far as BTL is concerned to shift these proportions.

The proportions of Luos were 9.4%, 13.3% and 12.0% in 1994, 2004 and in antenatal clients respectively. There was no significant difference in these proportions ($\chi^2 df_2 = 0.0592, P = 0.05$). This consistency in proportions again indicates that ethnic influence may not contribute much in deciding to do BTL. The trend in the rest of the ethnic communities remains similar with no difference in distribution over time.

Ethnic backgrounds do not seem to influence trends in BTL among the study population. This reinforces the belief expressed by key informants and antenatal clients who were interviewed and responded overwhelmingly that child bearing should not be influenced by traditions. This trend augers well for the future of socio-economic development given that African communities are pronatalistic and this may be at the expense of the health of mother and baby.

Mental Status

There is a growing trend for single women to do BTL. This is due to the increasing empowerment of women at the study sites as they are now able to make their own decisions on their reproductive health. The trend in the future of BTL is expected to increase as more women are empowered. The social norms and values of the study sites are changing and the empowerment of the women is a key factor in this change.

CHAPTER 6: CONCLUSIONS, RECOMMENDATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

6.1 Conclusions

a) Maternal age

Women from the study sites (which reflect on women in Nairobi) are ending their obstetric careers at an older age than they did ten years ago. The age is likely to further increase in future. As the age goes above 35 years, a higher maternal mortality rate is likely to be seen due to the rise in risks associated with such pregnancies as evidenced by literature review. This is likely to negate achievement of Millennium Development Goals and hence reflects negative economic development.

b) Parity and Number of Children

The women studied maintained a 3-4 number of children at BTL in 1994 and 2004. This trend is likely to continue to the future as reinforced by views of antenatal clients and key informants. According to literature, the number is acceptable as far as pregnancy risks to the mother are concerned and maintaining it will not worsen maternal mortality. This is good for socio-economic growth.

c) Marital Status

There is a growing trend for single women to do BTL, a pointer to the increasing empowerment of women in the study sites so that they are able to make decisions on their reproductive health. As stated by WHO (1994), this ability to make decisions goes hand in hand with education and economic empowerment of women. This could be what is going on and is good for the economic advancement of the country.

d) Spousal Consent and BTL

Married women as well as opinion leaders support spousal consent before BTL is done. The majority insist that BTL should never be done if the husband refuses to give consent. The proportion of men who would stop their wives from doing BTL was not defined by the study. The number of married women doing BTL in the study population in future is likely to depend on the desires of the husband. This means that married women are not free to decide on BTL which may lead them to having undesired pregnancies, high parity and increased risks for maternal mortality. This is against the Millennium Development Goals and so a negative indicator for socio-economic development.

e) Religion and BTL

More women are having BTL irrespective of their religious beliefs and key informants as well as antenatal mothers support this. This is likely to lower maternal mortality and enhance economic advancement. This is because most religions are pronatalistic and may not consider risks for maternal mortality in advocating for uncontrolled fecundity.

f) Education and BTL

There is an increasing number of educated women doing BTL, a pointer to the fact that there may be an increase in the proportion of educated women. This increase in education is a good marker for advancement of women which is good for economic development.

g) Ethnicity and BTL

Ethnic backgrounds do not seem to influence trends in BTL. This augers well for the future of socio-economic development given that African communities are pronatalistic and this may not consider maternal age and parity of the mother as risk factors to maternal mortality thereby negating the achievement of Millennium Development Goals.

6.2 Recommendations

- a) There is need to educate women as well as key informants in Nairobi on the dangers of pregnancy at ages above 35 years. Players in the development sector, e.g. the government and non-governmental organizations working in the areas of population and development should do this.
- b) Religions that oppose contraception need to reconsider their stand as more of their faithful take up contraceptive methods in disregard of their faith. The Catholic church especially and Islam to some extent need to take up this challenge.
- c) Men (husbands) should be targeted with education and advocacy on the importance of BTL given that women (wives) will depend on their consent to have the operation. Medical health personnel, reproductive health practitioners and other players in the development sector should take up the challenge.

6.3 Suggestions for Further Research

Further research is necessary to define the following:

- a) Why the age at stopping child bearing is on a persistent increase among women in the study population.
- b) Reasons for disregarding religion in making decisions on BTL.
- c) Reasons for disregarding traditional African beliefs in choosing to limit parity and number of living children among women doing BTL in Nairobi.
- d) The causes of weakening correlation between parity and number of living children among women doing BTL in Nairobi.
- e) How the age at first pregnancy is changing given that the age at BTL is rising.
- f) Further issues of sexuality and reproductive health in this study if Grounded Theory is applied in the study.

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APPENDICES**APPENDIX 1: DATA COLLECTION TOOLS**

The tools for this study were used to collect data in an attempt to define trends in socio-demographic and reproductive health characteristics of women undergoing BTL in Nairobi. The factors were studied for the year 1994 and compared with those for the year 2004 (ten years apart). Hospital records were used from Pumwani Hospital, Aga Khan Hospital, and the Family Planning Association of Kenya clinics in Nairobi. In addition, women attending antenatal clinics in these facilities were interviewed using a structured questionnaire and focus group discussions to get their views on factors associated with BTL. Key informants were interviewed to find out their views on the subject.

A: PATIENT RECORD DATA COLLECTION SHEET

1. Year
2. Health facility
3. Client age (a) ≤ 20 (b) 20 – 25 (c) 26 – 30 (d) 31 – 35 (e) 36 – 40 (f) ≥ 40
4. Parity (a) 0 (b) 1 – 2 (c) 3 – 4 (d) 5 – 6 (e) ≤ 7
5. Number of living children (a) 0 (b) 1 – 2 (c) 3 – 4 (d) 5 – 6 (e) ≥ 7
6. Marital status (a) single (b) married (c) divorced/separated (d) other(specify)
7. Religion (a) Protestant (b) Catholic (c) Muslim (d) other (specify)
8. Education (a) Nil (b) Primary (c) Secondary (d) Post-secondary
9. Ethnicity
10. Reasons for BTL
 - a. Desired family size
 - b. Other (specify)

B: ANTENATAL CLIENT INTERVIEW QUESTIONNAIRE

Client Details

1. Health facility
2. Client age (a) ≥ 20 (b) 20 – 25 (c) 26 – 30 (d) 31 – 35 (e) 36 – 40 (f) ≤ 40
3. Parity (a) 0 (b) 1 – 2 (c) 3 - 4 (d) 5 – 6 (e) ≤ 7
4. Number of living children (a) 0 (b) 1 – 2 (c) 3 - 4 (d) 5 – 6 (e) ≤ 7
5. Marital status (a) single (b) married (c) divorced/separated (d) other(specify)
6. Religion (a) Protestant (b) Catholic (c) Muslim (d) other (specify)
7. Education (a) Nil (b) Primary (c) Secondary (d) Post-secondary
8. Ethnicity

Client Opinions

9. Is there a right age to stop bearing children (a) Yes (b) No
10. If yes what is the best age to stop bearing children?
(a) ≥ 20 (b) 20 – 25 (c) 26 – 30 (d) 31 – 35 (e) 36 – 40 (f) ≤ 40
10. Is there an ideal number of children (a) Yes (b) No
12. If yes how many children should one have before stopping to bear children?
(a) 0 (b) 1 – 2 (c) 3 - 4 (d) 5 – 6 (e) ≤ 7
13. Should single people do BTL? (a) Yes (b) No

14. If a married woman opts to do BTL should the husband consent? (a) Yes (b) No
15. What should a woman do if the husband says no to BTL? (a) Do BTL (b) Never do BTL (c) Other (specify)
16. Should your faith affect the number of children that you decide to bear? (a) Yes (b) No (c) Other (specify)
17. Is it according to tradition to limit the number of children that one bears? (a) Yes (b) No (c) Other (specify)
18. Should we obey the tradition (a) Yes (b) No (c) Other
19. What do you generally think about women who go for BTL

C: FOCUS GROUP DISCUSSION GUIDE QUESTIONS

1. Is there an ideal number of children that a woman should have?
2. At what age should a woman stop giving birth?
3. What do you think about women who go for BTL?
4. Should a woman seek the husband's permission to go for BTL?
5. What is your view on women who are single and go for BTL?
6. Do you think BTL is godly?
7. Would you be supported if members of the community where you come from learnt that you were going for BTL?
8. If one was to do BTL what age would you recommend for the decision to be made?

D: KEY INFORMANT INTERVIEW GUIDE

1. Is there a right age for a woman to stop bearing children?
2. If yes what is the age?
3. Why should women stop giving birth at the age you have mentioned?
4. Is there an ideal number of children that a woman should aim to have before stopping child bearing?
5. If yes how many children should one have before stopping?
6. Should single people do BTL? Give reasons for your answer.
7. If a married woman opts to do BTL should the husband consent? Give reasons for your answer.
8. What should a woman do if the husband says no to BTL?
9. Should your faith affect the number of children that you decide to bear?
10. Is it according to our communities' tradition to limit the number of children that one bears?
11. Should we obey the tradition?
12. What do you generally think about women who go for BTL

APPENDIX 2: ABSTRACTS FOR CONFERENCES/PUBLICATION

ABSTRACT: 1

PAPER PRESENTED AT THE KENYA OBSTETRICAL AND GYNAECOLOGICAL SOCIETY ANNUAL CONFERENCE, NYERI, FEBRUARY 2007, BEING PUBLISHED IN THE AUGUST 2007 EDITION OF THE EAST AFRICAN JOURNAL OF OBSTETRICS AND GYNAECOLOGY

TOPIC: Trends in Development Related Factors Affecting Women Undergoing Voluntary Surgical Contraception in Nairobi Province, Kenya

AUTHORS: Joachim Osur; Alloys Orago; Lawrence Oteba

Background:

An intricate relationship exists between economic development and maternal health. As a result, maternal health is being used as an indicator for development in the Millennium Development Goals. Goal number five seeks to reduce maternal mortality, which currently stands at 414 per 100,000 live births, by 75% by 2015. The performance of bilateral tubal ligation (BTL) officially marks the end to risks associated with pregnancy in women. As such, BTL is a landmark family planning method that impacts directly on a country's development. The decision to do BTL is however influenced by many factors. These same factors affect maternal health and because they also affect development, maternal mortality becomes a relevant indicator for development as used in the Millennium Development Goals. Against this background, little is known about trends in factors that relate to maternal mortality and which are finally abolished by doing BTL.

Objectives:

- d) To establish the socio-demographic and reproductive health profiles of women who underwent BTL in 1994, 2004 and those intending to have the procedure in future.
- e) To establish trends in the socio-demographic and reproductive health factors of women undergoing BTL between 1994 and 2005.
- f) To determine whether the trend in socio-demographic factors is towards positive or negative socio-economic growth.

Methods:

This was comparative cross-sectional study which established trends in development factors affecting women undergoing BTL between 1994 and 2005. Key informant interviews and focus group discussions were included to explain the established trends. Data was obtained from 960 participants, 620 being hospital records, half of which were for 1994 and half for 2004. Interviews were done with 310 antenatal clients and 30 key informants in 2005. In addition, 3 focus group discussions were conducted with antenatal mothers. Data was managed using Statistical Package for Social Sciences (SPSS).

Results:

The results showed that the age at which BTL is being done has risen from 32 to 34 years between 1994 and 2004 and is likely to rise further in future, a factor that is likely to increase maternal mortality and is a negative indicator of socio-economic development. Using ANOVA, the mean age at BTL was found to be significantly different among the centres of study (Pumwani, Aga Khan and FPAK). Tukey test showed that the difference arose from Pumwani having a consistently low age at BTL compared to the other centres. The number of living children remained consistent at 3 to 4 children before undergoing BTL. Paired t-test showed that there was no significant difference in parity and number of living children over the period. However, the correlation between parity and number of living children weakened from 0.92 to 0.86 over the period, a factor that increases risk of maternal mortality given that fewer pregnancies are leading to a desired number of living children with time. The influence of religion and traditional beliefs was found to play a weakening role in deciding on BTL with representations in women undergoing BTL coming from all the major religions. Empowerment and education of women were found to be on the increase and to play a positive role in choosing to have BTL. While only 10% of women undergoing BTL had post-secondary education in 1994, this figure rose to 33% in 2004. Further, it was found that 80% of married women would not undergo BTL without their husbands' consent, a position supported by 94% of key informants.

Conclusions:

Socio-demographic and reproductive health profiles of women remained dynamic over the ten year period, most of the changes being positive and towards improved economic advancement. A few negative traits persist though and include tendency to deliver at advanced maternal age, weakening correlation between parity and number of living children and inability of married women to independently make reproductive health decisions.

ABSTRACT 2

PAPER PRESENTED AT THE 2ND AFRICAN CONFERENCE ON SEXUAL HEALTH AND RIGHTS, JUNE 19TH TO 21ST 2006 NAIROBI, KENYA

TOPIC: Trends in Development Related Factors Affecting Women Undergoing Voluntary Surgical Contraception in Nairobi Province, Kenya

AUTHORS: Joachim Osur; Alloys Orago; Lawrence Oteba

ABSTRACT

An intricate relationship exists between economic development and maternal health. As a result, maternal health is being used as an indicator for development in the Millennium Development Goals. Goal number five seeks to reduce maternal mortality, which

currently stands at 590 per 100,000 live births, by two thirds by 2015. The performance of bilateral tubal ligation (BTL) nearly abolishes risks associated with pregnancy in women. Hence, nearly all risks associated with maternal mortality end with performance of this operation. As such, BTL is a landmark family planning method that impacts directly on a country's development. The decision to do BTL however is influenced by many factors. These same factors affect maternal health and because they also affect development, maternal mortality becomes a relevant indicator for development as used in the Millennium Development Goals. Against this background, little is known about trends in factors that relate to maternal mortality and which are finally abolished by doing BTL. This comparative cross-sectional study defined trends in socio-demographic and reproductive health factors in women undergoing BTL in Nairobi and related the trends to socio-economic development. The trends were studied over the span 1994 to 2005. Data was obtained from 620 hospital records, half of these being for 1994 and half for 2004. Interviews were done with 310 antenatal clients and 30 key informants. In addition, 3 focus group discussions were conducted with ante-natal mothers. Data was managed using Statistical Package for Social Sciences (SPSS). The results showed that the age at which BTL is being done has risen from 32 to 34 years between 1994 and 2004 and is likely to rise further in future, a factor that is likely to increase maternal mortality and is a negative indicator of socio-economic development. Using ANOVA, the mean age at BTL was found to be significantly different among the centres of study (Pumwani, Aga Khan and FPAK). Tukey test showed that the difference arose from Pumwani having a consistently low age at BTL compared to the other centres. The number of living children remained consistent at 3 to 4 children before undergoing BTL. Paired t-test showed that there was a significant difference in parity and number of living children over the period. The correlation between parity and number of living children weakened from 0.92 to 0.86 over the period, a factor that increases risk of maternal mortality given that fewer pregnancies are leading to a desired number of living children with time. The influence of religion and traditional beliefs was found to play a weakening role in deciding on BTL with representations in women undergoing BTL coming from all the major religions. Empowerment and education of women were found to be on the increase and to play a positive role in choosing to have BTL. While only 10% of women undergoing BTL had post-secondary education in 1994, this figure rose to 33% in 2004. Further, it was found that 80% of married women would not undergo BTL without their husbands' consent, a position supported by 94% of key informants. It is recommended that women and key informants be educated on the dangers of pregnancies at ages above 35 years; that religions that oppose contraception review their stand as faithful disregard their advise; and that men be targeted with advocacy and education on the importance of BTL because women depend on them for consent to undergo the procedure. Players in the areas of population and development will find results of this study important in planning interventions to enhance socio-economic development in Nairobi.