A STUDY TO ESTIMATE THE PREVALENCE OF UNMET NEED FOR CONTRACEPTION IN KANIYAMBADI BLOCK IN VELLORE DISTRICT OF TAMIL NADU.

A CROSS-SECTIONAL STUDY

DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE M.D. COMMUNITY MEDICINE EXAMINATION (BRANCH XV) OF THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY TO BE HELD IN MARCH 2010.

CERTIFICATE

This is to certify that "A **STUDY TO ESTIMATE THE PREVALENCE OF UNMET NEED FOR CONTRACEPTION IN KANIYAMBADI BLOCK IN VELLORE DISTRICT OF TAMIL NADU"** is a bona fide work of DR. MEENA SAGAR in partial fulfilment of the requirements for the M.D. Community Medicine examination (Branch XV) of The Tamilnadu Dr. M.G.R. Medical University to be held in March 2010.

GUIDE:

Dr. Kurien George, MD, MSc,
Professor of Community Medicine,
Christian Medical College,
Vellore.

HEAD OF DEPARTMENT:

Dr. K. R. John, DPH, MD, DNB,
Professor & Head,
Community Medicine Department,
Christian Medical College,
Vellore.

CO-GUIDE:

Dr. Jasmine Helan, M.D., MPH, DNB (MCH),
Professor of Community Medicine,
Christian Medical College,
Vellore.

ACKNOWLEDGEMENTS

I would like to thank the following for their help and support during the preparation of this thesis:

- First and foremost, my guides, Dr. Kurien George and Dr. Jamine Helan for their direction and encouragement. I especially thank Dr. Jasmine for spending long hours going through the manuscript and going out of her way to bring this thesis to a conclusion.

- To Dr. K. R. John, Head of the department for her support and readiness to help always.

- Dr. Jayprakash Muliyil for his advice.

- My colleagues who adjusted their work and supported me through completion of the thesis.

- My family members, especially my sister for funding the study, and my husband for his moral support.

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1. Introduction

The National Population policy 2000 states that the immediate objective is to address the unmet need for contraceptive services.(1) According to the latest census the population of India as on March 31, 2001 was 102.7 crores which is three times the population 50 years ago. As regards fertility rates, India may be able to achieve the population replacement level of TFR 2.1 only by 2016 against the NPP target of 2010.(2)

International Conference on Population Development held in 1994 at Cairo, resolved that the sexual and reproductive health of women be considered as a priority, since its effects extend into all other development goals and targets. It also underlined the importance of reproductive health from the point of view of sexual and reproductive health rights of women.

For decades the demographers could not come to a common ground with the women's rights proponents. Unmet need for contraception is a unique measure because it has the potential to address the concerns of the demographers and the rights proponents together.

Unmet need for contraception determines the percentage of fecund women in reproductive age group who want to delay or avoid childbirth but are not using any contraceptive method. Such an enquiry helps also to find out the reasons and therefore inform the family planning program about the needs of the community in terms of their fertility preferences.

India was one of the few countries who took the initiative to change her population policy from targets based approach to voluntary family planning programs at a time when the international community was not convinced about the effectiveness of such a strategy. Ever

since India has seen encouraging results in the states that have managed to implement the program adequately and effectively. But this success is distributed differentially across the various subgroups of women.

It is now well established that such an approach (voluntary family planning) achieves more than what the target based approach could have achieved.

India has the largest number of women who experience unwanted or mistimed pregnancy.(3) A considerable number of these women resort to unsafe abortion, putting their lives and reproductive health at risk.

This study seeks to determine the prevalence of unmet need for contraception and the reasons for its existence among married women in reproductive age group of 15-49 years in Kaniyambadi block.

2. Justification

Unmet need for contraception leads to unwanted child bearing. When people are motivated to reduce fertility but are not able to access contraceptive services, they suffer from unplanned pregnancy. Many of these pregnancies are aborted using unsafe abortion services. Improving contraceptive prevalence reduces both unplanned pregnancy and unsafe abortion.

In a study done in a rural community of Vellore district, temporary contraceptive method use was less than 3% and 28% of women in the study group had resorted to induced abortion. Most of the abortion providers were not qualified service providers.(4)

Existence of unsafe abortion in this community is a strong proxy to the existence of unmet need for contraception among women of reproductive age group.

This study is makes an attempt to measure the prevalence of unmet need and to study the causes of its existence in order to inform the family planning program so that services can be tailored according to evidence based need of the women in this community.

3. Objectives

1. To measure the prevalence of unmet need for contraception among married women between the ages of 15 and 49 years in Kaniyambadi block in Vellore District of Tamil Nadu.
2. To assess the knowledge about modern methods of contraception among married women of reproductive age 15 – 49 years among the same.
3. To identify the reasons for unmet need for contraception in this community
4. To study the factors associated with unmet need for contraception

4. Review of Literature

4.1 History

For decades, the international community has been concerned about the size of the world population and the rate at which it is growing. Promotion of contraception took a central place in the efforts to bring down the fertility rate.

In 1960s the governments became more worried about the problem of population growth. Donor countries began to push policies and programs on the developing countries. The approach towards family planning programs became target oriented. Individual motivation to limit the size of family was not considered enough to bring down the fertility to an acceptable level. This gave rise to debates like voluntary fertility control programs versus direct interventions ranging from incentives and disincentives to coercion. People reacted angrily to the governments who used coercion to meet the targets.

Some of the prominent demographers and economists brought out theories about why people who are poor and uneducated, should want large families. However, as family planning programs were implemented and the data looked at, the demand for family planning services was found to be high wherever the awareness about family planning options was spread. But this phenomenon remained unnoticed to the worried governments and international donor agencies.

A different viewpoint emerged in the 1970s. A World Population Conference took place in Bucharest in 1974. The economists prevailed in their position that structural social and economic conditions must change if fertility is to decline. Phrases like “development is the

best contraceptive" and "take care of the people and population will take care of itself" became popular as a new approach to the problem of population. This led to some governments slackening their efforts for population control. The funding for family planning stagnated after 1974(5), although some countries continued to fund family planning programs. This phase of ambivalence both on part of some governments and on part of the donor agencies did not allow the spread of family planning services as rapidly as they might have(6).

In the scientific literature, the existence of unwanted fertility was recognized with the help of surveys of knowledge, attitude and practices about birth control among the women in reproductive age group. The women who showed a discrepancy in their reproductive preferences and birth control practices constituted what was known as the KAP gap.

Researchers began to measure fertility, fertility preferences, contraceptive use and non use in order to obtain comparable data to both inform the family planning programs as well as to find out the demographic impact of voluntary family planning programs.

World Fertility Survey followed by the Demographic Health Survey measured the extent of unmet need for contraception and explored the reasons for non use. This data brought to light with considerable certainty that if women were enabled to achieve their own reproductive goals the use of contraception would exceed the national targets(6).

As the concept of unmet need evolved and the facts about the extent of unmet need and its impact on demographic goals came to light, efforts were being made to "shift the rationale for family planning in some countries and some agencies from macro demographic

considerations to individual choice and rights”(6). The idea that family planning was a human right was first recognized in the 1968 UN International Conference on Human rights in Tehran, Iran. Since the nineteenth century, feminists have talked about the idea of reproductive rights by advocating the principle of a woman’s right to “control her own body”. According to this school of thought the rationale of family planning is not to bring down the demographic indicators like birth rate or fertility rate per se, but to help individuals and couples to achieve their own childbearing intentions(7).

Researchers, demographers, economists and sociologists have ever since tried to influence the international development agenda in favor of one of the two schools of thought.

This culminated in the International Conference of Population and Development (ICPD) held at Cairo in 1994. By this time the world was in a state of demographic transition. As the fertility rates began to come down the international community came under the impression that the problem was solved. Funding for family planning programs decreased as the demographic crisis seemed to be under control. HIV/AIDS that comes within the purview of sexual and reproductive health was looked upon as a separate crisis and the international funding got diverted excessively towards HIV/AIDS programs and newer problems like population ageing and international migration(8). The problem of reproductive health and rights in its entirety remained unnoticed. ICPD 1994 came forward with a major shift in the justification for family planning programs. The importance of all couples and individuals having the right to freely and responsibly decide the number, spacing and timing of children, was underlined. The conference affirmed that sexual and reproductive health and rights were essential to empower women and achieve development. Universal access to reproductive health care no later than 2015 was agreed upon(9). Despite the recommendations of ICPD

1994, support for family planning did not gain importance on the international agenda. This was reflected in the Millennium Development Goals (MDG) conceived in 2000 at UN Millennium Summit held in New York. Sexual and Reproductive health was missing among the eight MDGs.

The MDGs which were developed over subsequent years consist of the following points:

1. Eradicating extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health
6. Combat HIV/AIDS, malaria and other diseases
7. Ensure environmental sustainability
8. Global partnerships

"Between 1995 and 2003, donor support for family-planning commodities and service delivery fell from US$560 million to $460 million"(8). Criticism was voiced by the advocates of sexual and reproductive health and rights following which the UN summit held in 2005 acknowledged the shortcoming of the MDGs and included universal access to reproductive health care by 2015 as one of the targets(10). Subsequently the Interagency and Expert Group on MDG indicators recommended that unmet need for family planning be used as an indicator of progress on this target(3).

The concept of unmet need has found a common ground for the concerns of demographers and those of public health professionals and social scientists arguing for women's health and

rights.(3) It not only has the potential to take forward the ICPD 1994 recommendations for women's reproductive health, rights and development but also takes care of the population pressure.

Addressing unmet need for contraception offers many more health, social, and economic benefits: it can help reduce infant mortality, slow the spread of HIV/AIDS, promote gender equality, reduce poverty, accelerate socioeconomic development, and protect the environment.(11)

Poorly spaced pregnancies have been shown to be one of the reasons for low birth weight and prematurity. Also women with short interpregnancy intervals have been shown to make use of the prenatal services more irregularly than those with interpregnancy intervals longer than 18 months.(12) Given this evidence if the unmet need for spacing could be addressed fully, the morbidity in neonates due to low birth weight and susceptibility to infant mortality could be reduced. Also the regularity of pregnant women to attend prenatal services due to well spaced pregnancy would have a direct impact on the pregnancy outcomes.

4.2 Abortion

One of the consequences of high unmet need is unwanted pregnancies. Abortion is one of the ways with which women try to deal with unwanted pregnancy. Each year 42 million unwanted pregnancies result in abortions and 20 million of these abortions are unsafe. Measuring the incidence of unsafe abortion therefore gives an idea about the extent of unmet need for contraception. Surveys therefore have been conducted worldwide with partial

success in order to get data on abortions. It has been demonstrated that countries with the lowest use of modern contraception have the highest abortion rates.(13)

The risk of maternal death and morbidity associated with unsafe abortion is well documented. Worldwide, 65000 - 70000 deaths occur every year due to unsafe induced abortions. In South-Central Asia 6.3 million unsafe abortions took place in 2003 or 18 per 1000 women of reproductive age group. Almost all abortion deaths occur in developing countries. About half of all deaths from abortions are in Asia.(14) Data on unsafe abortion in India is scanty and difficult to obtain. Nevertheless a study done in 2006 demonstrated that unintended pregnancy rather than the sex of the child is the cause for most of these abortions.(15)

In Tamil Nadu, the Total Fertility Rate (TFR) has reached below replacement level(16). But the rate of induced abortions in Kaniyambadi Block points to the burden of unintended pregnancies and the use of family planning methods in this region. According to a study conducted in Kaniyambadi block 28% women opt for induced abortion and 1.5% have an induced abortion twice. Sixty five percent of the abortion providers identified were not qualified or registered as abortion providers.(4)

The fact that in this rural region (Kaniyambadi block) population pressure has begun to settle down and there is evidence of induced abortions performed mostly by untrained people, shows that the population policy has managed to move forward in achieving societal objectives but the task and responsibility of satisfying the stated reproductive wishes of individual women has fallen behind.

The benefits of reaching the replacement level of fertility rate cannot be realized fully unless the individual choice and rights of women whose fertility is aimed to be reduced are taken into consideration.

4.3 Status of women

The status of women has an important effect on their bargaining power in the family and the community. Harriet Presser in 1997 pointed out the lack of analysis of gender systems prevalent in most demographic studies and underlined the importance of this dimension in understanding the male and female reproductive behavior.(17) It has been difficult to find agreement in literature about the measures that should serve as indicators of the state of gender system prevalent in a community. Noting the complexity of the concept, K O Mason recognizes that fertility transition gets influenced by the "perceptions of child costs and benefits " depending on "whether sons and daughters have equal value to parents".(18) Similarly Easterlin describes the four proximate determinants of fertility – one of which is "acceptable sex composition of the surviving offspring".(19)

Subsequent to the growing realization that gender plays a role in fertility, studies done on fertility have asked women questions about their autonomy, personal freedom of movement, control over resources and wife-husband power relations. One of the pioneer studies was done on five Asian countries – India, Pakistan, Malaysia, Philippines and Thailand. The project's aim was to investigate the determinants of women's autonomy and power and their relationship to women's reproductive intentions and behavior. This was the first study that brought into light the concept of women's autonomy as one of the factors affecting fertility.(20)

DHS surveys have also been analyzed from a gender perspective. They show evidence of two models of reproductive behavior. According to the first model, demand for contraception comes from people with higher education and from those who live in urban areas from their childhood. These people are usually small in number. The demand for contraception is associated with male power and weak conjugal links.(21) Women are highly dependent and have little or no power of decision or are limited to some badly appreciated domestic duties.(22)

The second model is observed in young population. This model shows a strong link with the socioeconomic characteristics of the partner, high education and urban residence. Communication between husband and wife is more frequent about family planning and also there is approval of family planning by both partners. In this model, agreement between husband and wife is the best indicator of future adoption of family planning practice. (21)

Cosio-Zavala reports, “There is strong evidence that gender systems–as measured by region of South Asia persist in playing a strong role in explaining reproductive and contraceptive behaviors and choice, even after controlling for women’s autonomy. For the most part this influence surpasses that either nationality or religion.”(20)

In Tamil Nadu the status of women is believed to be relatively better than the Northern States. But there is also evidence that child sex ratio in the state has declined between 1991 and 2001. A study done on sex ratio at birth in Tamil Nadu based on the census data demonstrates that daughter deficit exists in more than half of the districts of this state.(23) The Child Sex Ratio (CSR) declined from 948 in 1991 to 939 in 2001.(24)

Deliberate extermination of persons of a particular sex (or gender) is known as gendercide.(25) A study done by the Community Service Guild of Madras found that "female infanticide is rampant" in Tamil Nadu, though only among Hindu (rather than Moslem or Christian) families. "Of the 1,250 families covered by the study, 740 had only one girl child and 249 agreed directly that they had done away with the unwanted girl child. More than 213 of the families had more than one male child whereas half the respondents had only one daughter."(26)

The two demographic patterns viz., low child sex ratio and existence of female infanticide observed in Tamil Nadu point to the gender inequality in terms of the lower value of the girl child as perceived by this community. Given the body of evidence about the influence of the perceived value of the girl child on the status and the bargaining power of women in the society and the family, the possibility of unintended pregnancies cannot be ruled out.

“Perhaps the most worrying message of the 2001 Census for Tamil Nadu is that unless efforts on a mass scale are urgently taken to address the issues of patriarchy, son preference and the neglect or worse in relation to the female foetus, infant and child, the decline in birth rates which are often celebrated unthinkingly by policymakers may well have been bought at the cost of grave gender inequality, with its own devastating long-run consequences.”(24)

One of the authors proposes that family planning policy must become a reproductive rights policy designed “to protect individuals from coercive efforts by both pronatalist and antinatalist forces at the state, community and family levels” (7, 27)

4.4 Concept of Unmet Need

The existence of unmet need for family planning was first demonstrated by knowledge, attitude and practice surveys. The proportion of women who were found to have a discrepancy between their reproductive intentions and their birth control practices was termed as the “KAP”gap. (28) These surveys were conducted in the 1960s and the 1970s.

The World Fertility Survey (WFS) was the first systematic international undertaking to collect and analyze demographic data between 1973 and 1984. 66 countries participated to obtain comparable data on human fertility. This survey was undertaken in the wake of conflicting literature on the impact of family planning programs on fertility.(29) These surveys brought the attention of the international community towards the magnitude of unwanted fertility. However, they did not include the women who wanted to space their pregnancies.

Westoff further refined the definition of the KAP gap and called it “unmet need for contraception” in surveys called Demographic and Health Survey (DHS). In the new definition he asked questions whether the woman was fecund or not, whether she was pregnant, whether she was breastfeeding and whether she was using a traditional method of contraception or not. The definition of unmet need for contraception has gone through refinements and modifications over the years. There is no universally accepted definition of unmet need for contraception. According to the standard DHS definition, “the unmet need group includes all fecund women who are married or living in union, and thus presumed to be sexually active, who either do not want any more children or who wish to postpone the birth of their next child for at least two more years but are not using any method of contraception.

The unmet need group also includes all pregnant married women whose pregnancies were unwanted or mistimed or who unintentionally became pregnant because they were not using contraception. Similarly, women who have recently given birth and are not yet at risk of becoming pregnant because they are amenorrheic have an unmet need if their pregnancies were unintended. In this formulation, women who became pregnant unintentionally because of contraceptive method failure are not considered to have an unmet need for family planning."(30).

The definition of unmet need has been evolving as the understanding of the concept developed. The estimates of unmet need fluctuate according to the criteria used in the definition. A comparative analysis of WFS data collected from 18 countries demonstrated that the average level of unmet need among married women who wanted to limit pregnancy in all countries ranged from 7 percent to 40 percent. The wide range resulted from the differences in the inclusion and exclusion criteria used(31). The definition of unmet need has met with criticism in terms of its capacity to capture only those who are non-users and are at risk of unintended pregnancy which results in exclusion of a few other groups(like unmet need among men and unmarried women) who should be considered as having unmet need for family planning. Dixon Mueller and Germain have argued that even those women who are using ineffective method or using a method incorrectly or using a method that is unsafe or unsuitable, should be included in the unmet need group(31). Govindaswamy et al have suggested that high risk groups like the very young and the very old women who have a low perceived risk of pregnancy should be included in the definition of unmet need. (32) Bongaart proposed since women having unmet need for spacing will at some point move out of the group of unmet need when they begin to want a child, the measure of unmet need should be a steady state measure rather than a current state measure. His model accounts for

the reduced length of time a woman would spend with an unmet need for limiting births if her need for spacing births was met during the course of her reproductive years.(3, 30) Some researchers assert that women using traditional methods of contraception should be considered as having unmet need since they are using methods that are ineffective.(31, 33). This definition was applied to a large scale comparative study on unmet need in more than 40 developing countries. (34) The resulting estimate of unmet need in developing countries was almost 50% higher, with a total of 3 in 10 women having an unmet need for a modern method of contraception. Pregnant and amenorrheic women have been considered to have an unmet need if they have intention to avoid or delay the next pregnancy even if they said that their current pregnancy or the most recent pregnancy was a wanted pregnancy at the time of survey regardless of their fertility intentions at the time of conception. (35) Ross and Winfrey determined that if the measure of unmet need took into account the future fertility intentions of pregnant and amenorrheic women the estimate of unmet need would increase by 50% and one third of women would have unmet need for family planning.(36)

Researchers have argued that the preferences of husbands should also be considered while estimating unmet need because the results of all unmet need studies are applied to couples and not to women alone. Various algorithms have been suggested for couples with dissimilar fertility preferences.(35) The estimate of unmet need according to this method will come to be less than that estimated by the standard DHS definition, since unmet need will be considered only if both the members of the couple report a desire to delay or avoid pregnancy. Given all the criticisms and suggestions, the DHS definition continues to be used for measurement of unmet need of contraception.

The estimate of unmet need along with the proportion using contraception has been called the total demand for family planning. Its usefulness lies in informing family planning programs about the group of women who might be receptive to family planning program efforts and in evaluating the effectiveness of these efforts. It is also useful in determining the potential impact of family planning on the fertility as there is an association between the contraceptive prevalence and fertility.(37)

Apart from DHS, Center for Disease Control also has been conducting similar surveys since 1980s. These surveys are called RHS – Reproductive Health Survey. These surveys like DHS are also administered to nationally representative samples of women of reproductive age group in developing countries.(36) The difference in the definition of unmet need used by CDC lies in the fact that pregnant and amenorrheic women are included in the unmet need group. But the DHS measure of unmet need can be derived from the CDC data to achieve comparability. (3)

4.5 Theoretical explanation for unmet need

A theoretical model has been developed by Bhushan in order to understand the dynamics of the underlying factors that govern the unmet need of contraception. Conventionally, the decision making regarding fertility was thought to be like the decision making for a consumer product in which the couple weighs the benefits of having a child against the investment required for avoiding a child. The analogy however has been challenged as pregnancy is something that can happen unless an active effort is made to avoid it. So, it is not like acquiring a book, since the book will not be bought unless the person wants to buy it, rather it

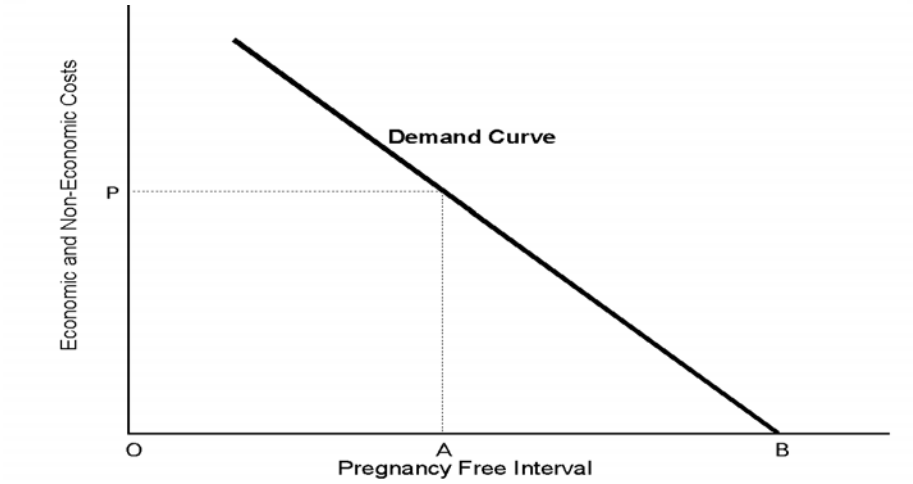
is more like a membership to a book club that sends a book regularly unless an effort is made to convey a refusal to accept the book.

Given the above understanding of the decision making for contraception or child, the following microeconomic model has been suggested.

Couples have a potential demand for contraception when they see a gain in avoiding the next child-birth for a certain period. Preventing a birth demands a cost. Couples choose that level of contraception at which the "marginal gain in utility of preventing a birth is equal to the marginal disutility of contraception." The demand for contraception may be derived from the demand for preventing a birth which can be quantified as a pregnancy-free interval. This demand is based on the economic-framework that balances the demand for preventing a birth with the monetary and non-monetary costs, given preferences, family resources, contraceptive methods available, perceived probability of conception, and prices.

The downward sloping demand curve for contraception indicates that for this couple, the lower the perceived cost of contraception the longer they will use contraception, other factors being equal. If contraception is perceived to have no cost the duration of contraception will be the distance OB. If the perceived cost is positive, they will use contraception for the duration OA.

Figure 1.1 Demand curve for contraception



Source: Bhushan I. Understanding unmet need. Working Paper Number 4. Baltimore: Johns Hopkins University School of Public Health, Center for Communication Programs; 1997 November

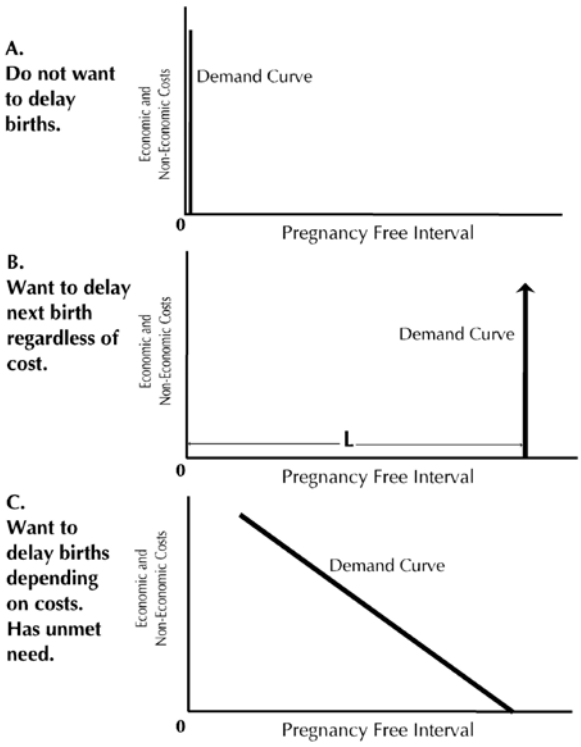
The above framework shows that the use and non use of contraception and therefore the existence of unmet need is dependent upon the interplay between two factors: the slope of the demand curve and the magnitude of the perceived cost of contraception. A steeper curve signifies higher motivation.

The following three graphs are representative of three situations:

A. The couple does not want to delay birth – therefore no unmet need
B. The couple wants to delay birth irrespective of cost – therefore no unmet need
C. The couple wants to delay birth depending on costs – therefore has unmet need

In the above three situations, it becomes clear that couples represented in 2.3A and 2.3B have a demand curve that is inelastic and therefore unmet need cannot exist in these two types of couples, whereas the couple represented by 2.3C has a demand curve that is not perfectly inelastic and therefore they have unmet need.

. Figure 1.2 **Three types of demand for contraception** (30)



Thus, for the existence of unmet need, two conditions must be met:

1. demand curve should not be perfectly inelastic
2. the perceived cost of contraception should be high(30)

4.6 Levels of Unmet Need for Contraception

4.6.1 Asia

The highest estimates of unmet need in Asia are for Pakistan (33 percent), Cambodia (30 percent), and Nepal (28 percent), while the lowest values are for Vietnam (5 percent) and Moldova (7 percent). The spacing and limiting components of unmet need are fairly evenly divided except in Pakistan where the emphasis is on limiting. In contrast, the actual use of contraception is concentrated among limiters in these Asian countries. The percentage of total

demand satisfied is highest in Vietnam (94 percent) and now averages around 85 percent in half of these countries.(37)

In India according to NFHS 3 data, unmet need for family planning is 12.8 percent. The contraceptive prevalence rate is 64%.(16) Given the strong association between fertility and unmet need it is necessary to consider the Total Fertility Rate and Age Specific . The Total Fertility Rate in India is 2.68, while the TFR in rural India is 2.98.(16)

The age- specific fertility rates (ASFR) indicate that the fertility is maximum at the age of 20-24 years of age, the rural ASFR (2.96) being higher than the urban (2.06). “The TFR decreases steeply by the household’s wealth index, from 3.9 children for women living in households in the lowest wealth quintile to 1.8 children for women living in households in the highest wealth quintile. Fertility transitions in other countries have shown that fertility differentials typically diverge early in the transition and reconverge (though rarely completely) toward the end of the transition as fertility approaches the replacement level. NFHS-3 shows that India as a whole still has substantial fertility differentials with the largest differentials in TFR by the wealth index quintiles. “(16)

4.6.2 Sub-Saharan Africa

In the sub-Saharan Africa, the overall unmet need averages 25 percent. In West Africa unmet need ranges from 16-34 percent. A similar level of unmet need is seen in East and Southern Africa 13-38 percent.(37) The total demand for family planning in sub-Saharan Africa averages 44 percent of married women. Three-fifths of this demand is for spacing, rather than limiting, births. However, there are regional differences between the Western and middle

Africa and the Eastern and Southern Africa.(38) The total demand for family planning in Western Africa is 42% and that in eastern and southern Africa is 57% (37).

4.6.3 Near East/North Africa

The countries in this region are Armenia, Egypt, Jordan, Morocco and Turkey. The total unmet need ranges from 6% in Turkey to 39% in Yemen. The total demand satisfied ranges from 90% in Turkey to 36% in Yemen. Except Yemen, this region resembles Asian countries with respect to unmet need and the preference of limiting methods over spacing methods.

4.6.4 Latin American/Caribbean region, Europe and USA

The prevalence of unmet need in Latin American and Caribbean region varies from 6% to 40%. In Europe the level of unmet need varies from 2.5-3% in Belgium and Spain to 35.8% in Bulgaria.(39) In the United States, the rate of unintended pregnancy is endemically high. Approximately half of the 6 million annual pregnancies are unintended and almost half of these are ended in abortion, for 1.3 million abortions in 2000. The United States has the highest rates of abortion and adolescent pregnancy of any Western developed country.(39)

4.7 Trends of Unmet Need

A decline in unmet need has been noticed in almost all the 44 countries of the developing world, that have more than one survey done overtime, in an analysis done by DHS on surveys done between 1983 and 2005. The exceptions are Morocco and Kazakhstan in the region of

Asia and Near East/North Africa where no decline has been seen. Pakistan has witnessed an increase in unmet need.

4.7.1 India

Unmet need in India varies from 5% in Andhra Pradesh to 35% in Meghalaya.(16) Over the last six years the overall unmet need in India has come down from 19% reported in survey done in 1992(37) to 16%(40) in survey done in 1998(37, 40) to 13% according to survey done in 2005 The decrease is in most part attributed to the decrease in unmet need for spacing.(16) Given the relationship between contraceptive use (and therefore unmet need) and fertility rate, the decline in fertility rate has been noticed to have slowed down, attributed mostly to the rural part of India. (16) This indicates that the unmet need in rural areas is not keeping pace with that in the urban areas. The contraceptive prevalence rate in married women according to NFHS-3 is 56.3% for any method and that for modern method it is 48.5%. NFHS 2 had reported current use of any method 48.2% and that for modern method 42.8%.(40).

The rural – urban divide in terms of unmet need and fertility rate serves as an indicator of the health disparity existing in the current phase of demographic transition that India is passing through.

The Latin American and Caribbean countries have also shown a general trend of decline in unmet need, the exception being Nicaragua where it has remained the same as before.

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West Africa shows small changes in some countries while in many others the level of unmet need has increased. A similar trend has been seen in Southern and East Africa whereas the level has shown no change in Sub- Saharan Africa.

4.8 Reasons for Unmet Need

The reasons that most women with unmet need give for not using contraception fall into two main categories:

1. Weak Motivation
2. High perceived cost of contraception

Reasons that come under weak motivation for contraception are:

a) Ambivalence about future childbirth

b) Perceived low risk of conception

4.8.1 Ambivalence about future childbirth

The most common reason given is that they want children. But at the same time women also say that they want the next child later. These women have been called by Westoff as being ambivalent about future child-bearing. These responses are received from women who have an unmet need for spacing and who are ambivalent about the timing of the next child. Ambivalence has been studied with class differentials in Ireland. The study demonstrated that more people in the lower socioeconomic class report unplanned sex than in the higher socioeconomic class.(41) In NFHS data in India, ambivalence about future pregnancy does

not figure as one of the reasons attributed to the existence of unmet need among women who do not intend to use contraception in the future.

4.8.2 Perceived Low Risk of Conception

When women believe that they are at low risk to become pregnant, they are unlikely to use contraception. There are two main reasons given by women which make them believe that they are at low risk of conception.

1. low perceived fecundity
2. infrequent sexual activity

In India the most common reason given by women for not using contraceptive method is related to low perceived risk of conception. The largest number(26%) report themselves to be subfecund or infecund followed by menopause or hysterectomy(15%) followed by those who believe they will not conceive because of infrequent sexual activity(11%).(16)

Young women however believe that they may be too young to conceive. This is particularly true for adolescents. (30)

4.8.3 High Perceived Cost of Contraception

“The two most important obstacles to implementing fertility preferences in contraceptive practice is the feeling that such behavior would be unacceptable on social or cultural grounds and women’s perception that such behavior would conflict with their husbands’ fertility preferences or views about family planning”(42) Another factor that has been shown to correlate closely with women’s acceptance of contraception is the woman’s knowledge of the

source of supply. There is evidence from previous studies that travel time is an important factor responsible for affecting decisions regarding practice of contraception.(43)

Low status of women is an important obstacle that has been difficult to quantify or measure but whenever it has been studied, it has shown a considerable influence on the decision – making about contraceptive use. “Where the status of women is low, social barriers to accessing family planning methods can be more formidable than financial costs. Working in Matlab, Bangladesh, Phillips and his colleagues (1996) describe a common situation for many young women who, in order to seek help for a problem with a contraceptive, must discuss any visit to a clinic with their husbands. The husband, in turn, will talk about it with his mother. By the young wife’s calculation, the social costs of managing a contraceptive problem actually may be greater for her than the cost of bearing and rearing another child (Phillips et al. 1996).”(43)

A person adopts a certain behavior based on two factors: personal and social. Personal factor is the person’s own perspective of what is right and what is wrong, social factor relates to how much importance this person gives to what some of the other people think if he or she adopted a certain kind of behavior. (30)

Given the body of evidence in favor of the influence of the socio-cultural factors that add to the perceived cost of contraception Bhushan classified the costs into three categories:

1. Economic costs
2. Physiological and psychological costs
3. Social, Familial and Personal Costs.

Classification of Perceived Costs of Contraception (30)

1. Economic Costs

    Search and information acquisition

    Out of pocket cost

    Travel and time costs

    Recurrent Follow up and visit costs

2. Physiological and psychological costs

    Discomfort

    Fear of permanent or serious damage to health

    Anxiety over contraceptive failure

    Perceived irreversibility of method

3. Social, familial and personal costs

    Threat to social norms

        Non conformity with religious and moral beliefs

        Social disapproval and fear of sanction

    Threat to familial harmony

        Disharmony in the extended family

        Need to communicate with spouse about sex

        Spousal opposition to contraception

    Threat to personal adjustment

        “Loss of inner control”

Threat to sexual pleasure and spontaneity

Fear of approaching service providers

Violation of modesty and privacy in sexual matters

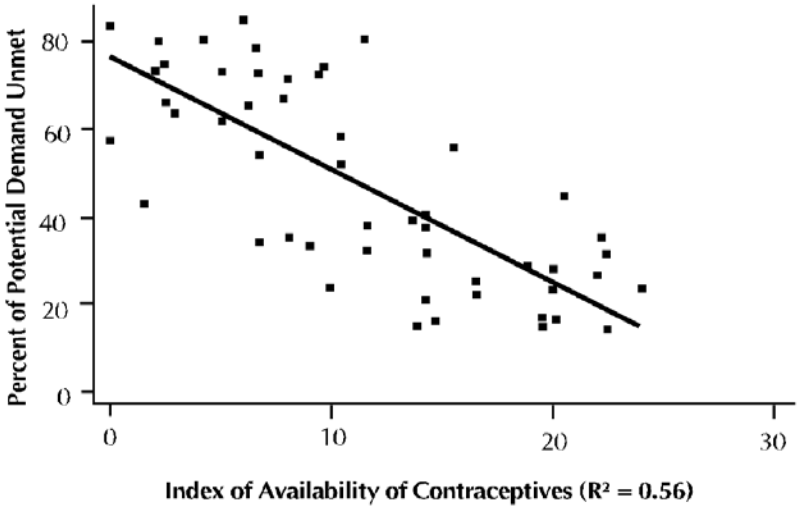
Contravention of expected gender role

In recent studies undertaken to study the effect of geographical and physical availability of contraceptives, it has been noticed that these two factors do not affect the extent of unmet need in that particular area.(30)

Qualitative aspect of availability has been cited as a more important and a neglected aspect of family planning. There is evidence in literature that adding one more contraceptive method to the range of methods already offered results in a net gain in contraceptive use. Judith Bruce includes six components in quality of service: 1. choice of methods; 2. information given to clients; 3. technical competence of providers; 4. proper counseling; 5. follow-up and continuity mechanisms; and 6. an appropriate constellation of services.(45) Research undertaken to explore the influence of these components on reproductive behavior has focused primarily on contraceptive use rather than unmet need.(30)

Bhushan analyzed data available from 103 countries. He used the availability of method choice as the independent variable and calculated the variance of the percent of potential demand unmet. Unmet need has been found to correlate well with potential total demand, or motivation for fertility regulation. The scatter plot between the potential demand unmet and the availability of method choice confirmed that as the availability of choice increases the potential demand unmet decreases.

Figure 1.3 **Available method choice and potential demand unmet in 103 developing countries**. (30)



Knowledge has been shown to have a negative correlation with unmet need (46), given the problems that other factors may be affecting the level of unmet need in the user and the non user group. However, controlling for education and residence in urban area, the relation between unmet need and knowledge remains the same.(30) Evidence demonstrates that over half of women using oral contraceptives and one third of those using intrauterine devices discontinue within one year. Side effects of contraceptives, major and minor are the main reason for discontinuation.(47) If a woman discontinues and is not able to switch to another method quickly she has an unmet need. A substantial proportion of women who state side effects as reason for not using contraception have never used contraceptives before. (48) Communication between husband and wife about family planning has been seen to be positively related to contraceptive use.(49, 50) Women with unmet need are generally known to be silent about family planning preferences at home, many of these women have been found to have perceived spousal opposition whereas the spouse does not object to contraception. Where spousal opposition exists, contraceptive use is low, since husband's support plays a major role in women's contraceptive use.(51)

5. MATERIALS AND METHODS

5.1 Setting

The study was conducted in Kaniyambadi Block, the field practice area of the Community Health Department of the Christian Medical College and Hospital, Vellore.

5.2 Study Design

This was a cross-sectional study.

5.3 Sample Size

The sample size was calculated using the formula $4\ pq/d^2$.

Taking ‘p’ as 10% (ref) and precision as 20% (relative) the required sample size was 900.

5.3.1 Sampling

The population frame was Kaniyambadi block which has a total of 83 villages with a total population of 105867. The Community Medicine Department has a database which holds a detailed census of the number of married couples in each village under their purview, their demographic characteristics and the location of their residences using a Global Positioning System.

For sample selection, a two stage sampling technique was used. Nine villages were randomly chosen from the 83 villages in the block. A line listing was made of the eligible couples in each of the nine villages. A simple random sample of 100 married women in the 15 to 49 years age-group was then taken from each village list and these couples were approached for consent for participating in the study. If a woman did not consent, the next nearest house which had an eligible participant was interviewed.

5.4 Field Methodology

A structured questionnaire, modified from the standard DHS survey questionnaire, was translated into Tamil and then back-translated to English to test for accuracy and the process repeated until there was good agreement between the translated and back-translated versions. This was administered to the respondents and their responses recorded. The questionnaire was adapted form the Demographic and Health Surveys (DHS) questionnaire. Pertinent sections were extracted and translated into Tamil as described. The questionnaire had 4 sections as described below.

Section 1:Concerning demographic data and baseline characteristics of husband and wife.

Section 2: Reproduction: Data on number and timing of live and still births and pregnancies and children.

Section 3: Contraception: Details on current knowledge, attitudes and practices regarding contraception and sources.

Section 4: Fertility preferences regarding current and future preferences for contraceptive use and desired number of children.

5.5 Data Entry and Analysis

The data was entered using EpiData, a free data entry software. Analysis was carried out using Statistical Package for Social Sciences (SPSS Version 12.0). Relevant prevalences and their confidence intervals were determined and tabulated. Cross-tabulations were also carried to assess factors associated with unmet need.

5.6.1 Inclusion Criteria

Married women between the ages of 15 and 49 years

5.6.2 Exclusion Criteria

- Women with psychiatric morbidity
- Difficulty in hearing or speech

5.7 Definition of terms

5.7.1 Unmet Need

The unmet need group includes all fecund women who are married or living in union, and thus presumed to be sexually active, who either do not want any more children or who wish to postpone the birth of their next child for at least two more years but are not using any method of contraception. The unmet need group also includes all pregnant married women whose pregnancies were unwanted or mistimed or who unintentionally became pregnant because they were not using contraception.(30)

5.7.2 Knowledge Index

Total Knowledge score for an individual was calculated by summing up the scores for knowledge about items relating to family planning in the questionnaire. Total scores were then divided into 2 categories of “Low” and “High” Knowledge Categories, using the 50% percentile as the cut off point.

5.7.3 Infecund

This DHS definition (3) considers a woman infecund if she:

- was married for at least five years preceding the survey and did not use a contraceptive method, did not have a birth during that time and was not pregnant at the time of the survey;

- is neither pregnant nor postpartum amenorrheic, but has not menstruated for at least six months; or
- indicated in response to questions regarding fertility intentions or her reason for not using contraception that she is menopausal, has had a hysterectomy or otherwise cannot get pregnant.

6. RESULTS

The required sample size for this study was 900. From the randomly chosen nine villages, 850 women were interviewed, which was 94.4% of the requisite number.

Baseline characteristics

The mean age of women in the study was 33.4 years and standard deviation (SD) 7.9 years and mean age of their husbands were 40.8 years and SD 9.0 years.

Table 6.1 Baseline characteristics

Variable	**No.**	**%**
Parity (n=850)		
> 2	350	41.2
0 - 2	500	58.8
Occupation (n=848)		
Housewife and working	238	28
Housewife	610	71.8
Total live children at home (n=850)		
> 2	263	30.9
0 – 2	587	69.1
Urban or rural (n=850)		
Rural	568	66.8
Urban	282	33.2
Illiterate (n=850)		
Yes	182	21.4
No	668	78.6
Education (n=850)		
0 – 8th Standard	371	43.6
> 8 Standard	479	56.4

Table 6.1 shows the percentage of women who were illiterate in the sample. Illiterate here means those women who could neither read nor write. 21.4% of the women were illiterate. Table 6.1 also shows the distribution of women according to number of years of schooling

they received. There were 56.4% women who have completed more than 8 years. The table shows the percentage of women according to the number of children born to them who are currently alive. The percentage of women having two children or less was 69.1%. The rest had 3 or more children. The percentage of women not gainfully employed was 71.9%.

Table 6.2.1 Need for contraception

Contraception category	**No.**	**%**	**95% C.I**
Met need	592	69.6	66.5-72.6
No need	178	20.9	18.3-23.8
Need for limiting	37	4.4	3.2-5.9
Need for spacing	43	5.1	3.8-6.7
Total	850	100	

Demand for contraception = Met + Unmet need = (592 + 37 + 43) = 672 = 79.06%

The prevalence of unmet need was calculated in this study as per the flow chart (Figure 6.1). The total number of women eligible for the study was 850. From this group those that were already using contraception currently were excluded which left 258 women. Of these, 38 were currently pregnant and 220 were not. Among the 220 non-pregnant women, 100 women were infecund by definition and 120 fecund. Among the pregnant women 32 were intended pregnancies, 1 was unwanted (unmet need for limiting) and 5 were mistimed (unmet need for spacing). Among the fecund women, 36 wanted no more (unmet need for limiting), 34 wanted children later but not currently (unmet need for spacing), 4 were unsure about their future pregnancy preferences (unmet need for spacing) and 46 wanted a child as soon as possible (no need for contraception).

Table 6.2.2 Prevalence of unmet need for contraception

Unmet need	No.	%	95% CI
Yes	80	9.4	7.6-11.6
No	770	90.6	88.4-92.4
Total	850	100	

Thus the cumulative unmet need for contraception is 9.41% (95% CI 7.6-11.6) of which 4.35% (95% CI 3.2-5.9) is for limiting and 5.06% (95% CI 3.8-6.7) is for spacing (Tables 6.1, 6.2).

Table 6.3 Current contraceptive use

Method	Frequency	Percent
Female sterilization	578	68.0
IUD	8	0.9
Implants	1	0.1
Pill	1	0.1
Male sterilization	2	0.2
Condom	2	0.2
None	258	30.4
Total	850	100.0

Table 6.3 shows the percentage of women using different contraceptives. Among all the methods of contraception, the one method being used by the largest number of women is female sterilization (68.0%) in the entire sample of 850 women. All the other methods together are being used by only 1.5%. The use of IUD is the second most popular method though the numbers are very few. Male sterilization is a very infrequent method.

Table 6.4 Unmet need in different age groups and current use of contraception

Age Group	Total (% within unmet need)		Currently using any method of contraception within each age-group	
	No	%	Yes	%
15 – 19	9	1.1	1	11.1
20 – 24	114	13.4	30	26.3
25 – 29	177	20.8	110	62.1
30 – 34	149	17.5	120	80.5
35 – 39	184	21.6	149	81.0
40 – 44	116	13.6	100	86.2
45 - 49	101	11.9	82	81.2
Total	850	100	592	69.6

Table 6.4 shows the women divided into contraceptive users and non users in different age groups. Figure 6.2 illustrates this. Here contraceptive use means use of modern or traditional method of contraception.

Among the 9 women in the age group 15-19 yrs, 8 women do not use any contraception. The percentage of women using contraception increases as the age increases up to 44 years and then comes down by small percentage.

Table 6.4.1 Knowledge about contraception

Knowledge Category	Frequency	Percent
Low	623	73.3
High	227	26.7
Total	850	100.0

Knowledge regarding contraceptive methods was assessed as described in materials and methods. The highest possible score was 14 and lowest was 0 (one mark for each correct answer). The mean score for this sample was 5.01 (S.D. 2.88) and the median score was 5. A score of 6 was chosen as a cut-off for categorizing into high and low knowledge categories

(Low is score from 0 to 6, High is greater than 6), based on the assumption that women should be aware of 6 out of the 9 most common methods of contraception. There were 623 women (73.3%) in the low knowledge category and 227 women (26.7%) in the high knowledge category. The population in general had poor knowledge about the various contraceptive methods.

Table 6.5 Univariate analysis of factors associated with unmet need (excluding those with "No need")

Variable	Unmet Need (n= 80)	Met Need (n= 592)	O.R.	95% CI	Chi^2 p value
Education					
0 – 8 yrs (n=294)	20 (25.0%)	274 (46.3%)	0.39	0.23 - 0.66	< 0.001 *
> 8 yrs (n=378)	60 (75.0%)	318 (53.7%)			
Illiterate					
Yes (n=152)	8 (10.0%)	144 (24.3%)	0.35	0.16 - 0.74	0.004*
No (n=520)	72 (90%)	448 (75.7%)			
Parity					
>2 (n= 326)	5 (6.3%)	321 (54.2%)	0.06	0.02 - 0.14	< 0.001 *
0 – 2 (n=346)	75 (93.9%)	271 (45.8%)			
Age					
</= 30 years (n=251)	74 (92.5%)	177 (29.9%)	28.92	12.36 - 67.68	< 0.001 *
> 30 years (n= 421)	6 (7.5%)	415 (70.1%)			
Knowledge					
Low (n=257)	55 (68.8%)	568 (66.8%)	0.78	0.48 - 1.29	0.009 *
High (n=415)	25 (31.2%)	202 (33.2%)			
Occupation					
Housewife and working (n=197)	5 (6.3%)	192 (32.4%)	0.14	0.06 - 0.35	< 0.001*
Housewife alone(n=475)	75 (93.8%)	400 (67.6%)			
Husband approves					
Yes (n=416)	42 (52.5%)	374 (63.2%)	0.67	0.38 - 1.19	0.227
No (n=140)	20 (25.0%)	120 (20.3%)			

* = significant at the 0.05 level; O.R. = Prevalence Odds Ratio

Table 6.5 shows met and unmet need in women according to different background characteristics. This table brings out the significant differences that exist in met and unmet

need of women belonging to different subgroups in each category. Women who are not educated or educated up to 8th standard have a significantly lower unmet need than the women with education higher than 8th standard. The women with low knowledge about contraceptive methods have a significantly lower unmet need than the women with higher knowledge. Women 30 years of age or younger have significantly higher level of unmet need as compared to women more than 30 years of age. Women with 2 children or less have a significantly higher level of unmet need that the women with more than 2 children. Literate women have higher level of unmet need than the illiterate women. Unemployed women have a higher level of unmet need than the employed women.

Table 6.6 Factors associated with unmet need- multivariate analysis (excluding those with "No need")

Variables	B	Sig.	Odds Ratio	95% C.I. for Odds Ratio	
				Lower	Upper
Age > 30 years	-2.792	.000	.061	.026	.146
Parity > 2	-2.089	.000	.124	.048	.322
Housewife & working	-1.505	.002	.222	.084	.588

Tables 6.6 shows the output of multivariate analysis carried out on variables found to be significantly associated with unmet need in univariate analysis in Tables 6.6. A backward conditional logistic regression was carried out with the dependent variable as unmet need. The predictor variables that were significant negative predictors of unmet need after controlling for other factors were: house wife and employed, parity greater than two, and age greater than 30 years. These were all protective factors with regard to unmet need. These variables were significant independent negative predictors of unmet need. The strongest negative predictor was age > 30 years with an Odds ratio of 0.061, meaning that those who

were less than or equal to 30 years of age had a 16.4 times (1/ 0.061) greater odds of having unmet need as compared to those that were above 30 years of age.

Table 6.7 Knowledge about contraceptive methods among contraceptive users, non-users and total.

Method	**Non-users n=258**		**Users n=592**		**Total n=850**	
	No	**%**	**No**	**%**	**No**	**%**
Female sterilization	232	89.9	591	99.8	823	96.8
Male sterilization	177	68.6	423	71.5	600	70.6
“Pill”	104	40.3	441	74.5	545	64.1
IUD	166	64.3	408	68.9	574	67.5
Injectables	148	57.4	311	52.5	459	54.0
Implants	32	12.4	68	11.5	100	11.8
Condoms	113	43.8	282	47.6	395	46.5
Female condoms	53	20.5	122	20.6	175	20.6
Diaphragm	11	4.3	26	4.4	37	4.4
Foam or jelly	13	5.0	26	4.4	39	4.6
Lactational amenorrhoea	55	21.3	146	24.7	201	23.6
Rhythm method	26	10.1	48	8.1	74	8.7
Withdrawal	1	0.4	60	10.1	61	7.2
Emergency contraception	51	19.8	123	20.8	174	20.5

Table 6.7 illustrates the number of women distributed according to their ability to name a contraceptive method or recognize it when told about it. There are 11 contraceptive methods (both modern and traditional) about which questions were asked. The most well known contraceptive method is female sterilization, followed by IUD, followed by the Pill. More users knew about the pill than the non users. The number of women who knew about

condoms was 43.8% among non users and 47.6% in users. 24.7% of the users knew about lactational amenorrhoea. 10.1% of users knew about withdrawal method, very few non users knew about this method. 10.1% of non users knew about rhythm method whereas very few users knew about this method. The knowledge of modern methods was generally lower in non users than the users.

Table 6.8 Opinion regarding approval of contraception (women)

Approve	Frequency	Percent	Valid Percent
Yes	555	65.3	65.3
No	240	28.2	28.2
Unsure	54	6.4	6.4
Missing	1	0.1	0.1
Total	850	100.0	100.0

Table 6.8 shows the number of women who approve or disapprove of contraception. 65.3% approve of contraception while 28.2% disapprove. The rest were unsure in the sense that they did not have any strong opinions regarding contraception.

Table 6.9 Intention for future contraceptive use

Use contraceptive in future	Frequency	Percent
Yes	3	3.8
No	69	88.5
Total	72	92.3

Table 6.10 illustrates the intention to use contraceptive method in future. This was asked to women who are fecund, non pregnant and do not want child at all or later but are currently not using any contraception. Among the women who satisfy the above-mentioned characteristics, 88.5% women do not intend to use contraception in future.

Table 6.10 Reasons for non-use of contraception in the future

Reason	Frequency	Percent
Infrequent sex	11	15.3
Want as many children as possible	2	2.8
Husband opposed	1	1.4
Knows no method	1	1.4
Health concerns	7	9.7
Fear of side-effects	1	1.4
Others	3	4.2
Don't know	46	63.9
Total	72	100.0

Table 6.10 illustrates the number of fecund, non pregnant, non users who do not want child or want later according to the reasons given for non use. The reason given most commonly is the perception that they can't get pregnant or are having infrequent sex (15.3%). A large percentage of women said 'Don't know' in answer to this question (63.9%).

Table 6.11 Desired number of children

Desired number of children	Frequency	Percent
1	21	2.5
2	621	75.1
3	142	17.2
4	36	4.4
5	5	.6
6	2	.2
Total	827	100.0

Table 6.11 shows the number of women according to how many children they stated as their ideal number of children. A large number (73.1%) desire only two children. 21.7% women desire three or more children.

7. DISCUSSION

7.1 Baseline characteristics

Among all the women interviewed, a large proportion (73.4%) belongs to the age group 20-39 years (Table 6.6). NFHS 3 reports a decline of the percentage of women between two age groups: 15-19 years and 45-49 years.(16) However in this study the age group (15-19years) represents the smallest section of married women (1.1%) following which the percentage of women across different age groups follows an undulating pattern ending at 11.9% in the oldest age group (45-49 years). Given the limitations of current age and number of years married by recall, 53.3% of women were married between 15-19 years of age.

The proportion of women found illiterate in Kaniyambadi block in this sample was half of the national estimate {21.4% (95% CI 18.8 – 24.3)} (Table 6.4); nevertheless given the importance of this demographic variable this proportion is substantial. The percentage of women who had an education of more than 8 years is 56.4% (95% CI 53.0-59.7) (Table 6.4). The mean number of years of education is 6.78 (SE 0.28, CI 6.23 -7.34) showing little educational achievement among married women of reproductive age group in Kaniyambadi block. In India, the mean number of children born to a woman who are living is 2.52. Looking at the mean number of children ever born in different age groups in India, there is still a substantial percentage of women (12%) in the age group (15-19 years) who already have a child.(16) The mean number of children currently alive, per woman is 2.05 (S.E. 0.047, C.I. = 1.97 - 2.15). However, 31% women have more than two children (Table 6.4). The fact that the number of women in the age group of 15-19 years is small indicates that the age at marriage for most women has gone above 19 years.

This increase in the age at marriage however should have reflected in an improvement in the mean number of years of education received. The fact that the mean number of years of education is 6.78 indicates that there may not be enough opportunity for empowerment of girls in this rural community.

NFHS 3 reports 42.8% women in reproductive age group as unemployed in India.(16) 71.8% (95% CI 68.6 – 74.7) women in Kaniyambadi have been found to be unemployed in this study (Table 6.4). This employment status when considered with the low mean number of years of education strengthens the earlier argument that the opportunity for empowerment of girls may not have improved, given the fact that the stalling of the decline in fertility observed in NFHS 3 data has been shown to be because of the deceleration seen in fertility decline in rural India. In India, 64% women in reproductive age-group practice contraception. Tamil Nadu has 61.4% women using contraception with female sterilization being the most popular method of contraception.(16) In Kaniyambadi block 69.6 percent (95% CI 66.5 – 72.6) women in reproductive age group use a method of family planning (Figure 6.1, Table 6.2).

7.2.1 Levels of Unmet Need for Contraception

The average prevalence of unmet need among married women of age 15-49 is 9.4% (95% CI 7.6 – 11.6) in Kaniyambadi block (Table 6.2.2). Considering the levels of unmet need in different regions of the world, this estimate comes closest to the unmet need in the region of North Africa and West Asia (10%).(3) The region of Southeast Asia has a total unmet need of 11%.

In India the prevalence of unmet need is higher (12.8%) than the unmet need estimated in Kaniyambadi block. The unmet need found in urban India is 9.7% which is somewhat similar to the unmet need seen in this region. Other background characteristics of urban women and those in Kaniyambadi block have also been found to be similar; for example, percentage of women who are unemployed is 71% [Kaniyambadi 71.8% (95% CI 68.6 – 74.7)] (Table 6.1) in both groups, those who have not gone to school are 17% in Kaniyambadi and 22% in all the urban areas in India.

The contraceptive prevalence rate which is also called met need is 69.6% (95% CI 66.5 – 72.6%) (Table 6.2.1, 6.2.2). The met need for family planning in India is 53.6%.(16) In the urban part of India, met need amounts to 64% while in rural India met need is 53%(16). An overall met need of the whole of India thus, hides urban and rural differences, Kaniyambadi block being one of the rural regions in South India where the met need could be improved, as agreed upon in ICPD 1994 that all women should have universal access to reproductive health by 2015.

Total demand for family planning is a measure that exposes an important difference between two regions with same unmet need. For example, Niger and Bangladesh are two countries who have the same level of unmet need (18%) but are at two very different stages of fertility transition. In Bangladesh 64% women want to limit childbirth while in Niger only 23.1% want to limit pregnancy. A higher percentage of women in Bangladesh (72%) have been able to implement their fertility preferences than in Niger (20%). This difference could be exposed in terms of demand for family planning, as it can be deduced from the above-mentioned figures that the demand for family planning in Bangladesh is higher than in Niger.(30)

The total demand for family planning in Kaniyambadi is 79.1% (Unmet + Met need). This indicates that this part of rural South India is in a state of fertility transition when the motivation for fertility regulation is high. However the gain that we expect from fertility regulation can only be realized if fertility spacing happens as adequately as limiting.(52) It is well documented that the benefits of family planning as an important economical preventive intervention in achieving the MDGs, extend into almost all the development goals in some way or the other. Reducing the number of people in a given region does reduce the pressure on resources, but it does not have a direct impact on the health of individuals. Spacing births is a measure that produces reductions in infant mortality, malnutrition and anemia in mothers. If the total demand for family planning is broken up into the demand for spacing and limiting, the disproportionate emphasis on limiting becomes clear. The demand for spacing in Kaniyambadi block is only 6.5% (1.4 + 0.6 + 4 + 0.5) while the demand for limiting is 72.5% (68.2 + 0.1 + 4.2) (Figure 6.1). The measure of the total demand for family planning therefore hides the fact that women consider contraception only when they have completed their family. This also indicates that the resolution of ICPD 1994, that every individual has the right to decide when and how many children to have, is only half fulfilled. Women in Kaniyambadi are not getting to choose when to have their next childbirth.

7.2.3 Unmet Need for Spacing and Limiting Births among Married Women

Women with unmet need can fall under two categories: those who wish to delay or space their births and those who wish to have no more children. Both groups of women are at risk of unwanted pregnancy, but appropriate contraceptive methods may differ for women who wish to eventually have a child or another child and women who do not want to have any (or more) children. In India the unmet need for spacing is 6.2% while that for limiting is 6.6%. Following the same pattern, the unmet need for spacing in Kaniyambadi block is 5.1 % while

that for limiting is 4.3 %. Even though the percentages appear small, if this percentage were to be applied to the target population of approximately 19000 women in reproductive age group in Kaniyambadi block, it would show the actual number of women who have unmet need for spacing (817) and for limiting (950). Above 1500 (actual no. 1767) women in the block have an unmet need.

7.3 Use of Contraception

Currently in Kaniyambadi block, there are 69.6% (95% C.I. 67.07 – 72.23) married women in reproductive age group who are practicing contraception (Figure 6.1, Table 6.4). Distribution of contraceptive users across different age groups indicates a progressive increase in the use of contraceptive methods from the youngest age group up to 40-44 years age group, beyond which it declines but remains at 81.2% (Table 6.4). In the 20-24 years age group, there are 74% of women who are not using contraception, while 40% are not using in the 25-29 years of age. 20-29 years is the time when women make most of their fertility decisions about spacing. This group of women if counseled about contraception could make a difference in improving the contraceptive prevalence of temporary methods. Also the period from 20-29 years of age is the most productive time in terms of participation in employment opportunity. Emphasizing about spacing methods to this group of women could have an important effect of improving their motivation and opportunity to empower themselves.

The extent of the use of various methods of contraception further indicates the emphasis laid on female sterilization as a method of contraception. 68.0% of all married women of reproductive age group in Kaniyambadi block have used female sterilization as their method of contraception (Table 6.3). In India the highest percentage of female sterilization is

reported in the state of Andhra Pradesh (63%), while in Tamil Nadu the percentage of women sterilized is 51.9%.(16)

The distribution of users of female sterilization in different age groups in Kaniyambadi reveals that women as young as 20-24 age group had used this method. 69% of all women who had used female sterilization fell between the ages of 20-39 years.

7.4 Knowledge about contraception

A mean score of 5.01 meant that on an average, the women in the population were aware of at least five different types of contraceptive methods. There were 9 common methods of contraception and a knowledge of at least 6 from among these could be expected. Knowledge about contraception as a whole was, therefore, was poor.

7.5 Unmet Need for Contraception in Subgroups of Married Women

7.5.1 Age

The level of unmet need is highest in the youngest age group and declines in the older age groups in Kaniyambadi block. When just two groups were considered (Table 6.5), one 30 years or less and the other group with more than 30 years age, 29.5% of the younger women were found to have unmet need while 1.4% of the older women had unmet need (O.R. 28.92; Chi sq 118.03 p value < 0.001). This pattern is similar to most developing countries outside of Sub- Saharan Africa. In Sub-Saharan Africa the unmet need is equally high in the young and old women in some countries, while high only in the older age group in other countries.(3) The significantly higher unmet need seen in the younger women shows one or both of the following:

1. Women are moving towards small family norms
2. Younger women are not able to access contraceptive methods for some reason.

The distribution of demand for family planning across different age groups indicates that a larger proportion for older age groups have a demand for family planning than the youngest women. This makes the argument stronger that younger women are not able to access family planning methods as easily as the older age groups.

7.5.2 Parity

Most of the other developing countries where younger women have higher unmet need the levels are highest among those who had three children or more. India and Dominican Republic are two exceptions where unmet need is highest among women who have one or even no children. (3)

The chi square test showed a significant association between parity and the level of unmet need. The women were divided into two groups according to number of children (one group with more than 2 children, other group with 0-2 children). The group with 0-2 children was found to have a significantly higher level of unmet need (21.7%) than the group with more than 2 children (1.53%) (O.R. 0.06; Chi sq 64.93, $p < 0.0001$). This also brings to light the fact that a larger proportion of women with less than two children are not able to get their fertility choices fulfilled.

7.5.3 Education

Educated women are expected to have lower unmet need than uneducated women. In Kaniyambadi block, the women who had schooling from 0-8yrs were found to have lower level of unmet need (6.8%) than those who were educated for more than 8 years (15.9%). The association was tested with Chi square and found to be significant (O.R. 0.39; Chi sq 12.97, $p < 0.001$) (Table 6.5). This is very different from what is generally seen among groups with different levels of education. This probably is an indicator of the fertility transition that Kaniyambadi block is experiencing as a result of the socioeconomic development. As more women get educated more than eight years they begin to want to limit or delay pregnancy, while the number of children desired by lesser educated women remains more than the number desired by educated women, so the expressed unmet need remains low in lesser educated women. The access to the family planning services however may not have been keeping pace with the growing demand for family planning.

7.5.4 Literacy

Literacy is the functional ability to be able to read and write. Among the illiterate women, there are 5.3% women who have reported unmet need while there are 13.8% women in the literate group who have reported unmet need (O.R. 0.35; Chi sq 8.262, p value <0.004) (Table 6.5). This is consistent with the pattern seen among educated and uneducated women in Kaniyambadi.

7.5.5 Employment

A comparison of the levels of unmet need in employed and unemployed women reveals a higher level of unmet need (15.8%) in unemployed women than in the employed women (2.5%). (O.R. 0.14; Chi square 23.32, p value < 0.0001). Employed women are not only empowered because of financial independence and knowledge but also over-burdened by the increased load of work. This situation works toward a choice of smaller family and effective implementation of fertility preference.

7.5.6 Use of contraception across age groups

Currently in Kaniyambadi block, there are 69.6% (95% C.I. 67.07 – 72.23) married women in reproductive age group who are practicing contraception (Figure 6.1, Table 6.2.1). Distribution of contraceptive users across different age groups indicates a progressive increase in the use of contraceptive methods from the youngest age group up to 40-44 years age group, beyond which it declines but remains at 81.2% (Figure 6.2, Table 6.4). In the 20-24 years age group, 74% of the women are not using contraception, while 40% are not using in the 25-29 years age group. Ages 20-29 years is the time when women make most of their fertility decisions about spacing. This group of women if counseled about contraception could make a difference in improving the contraceptive prevalence of temporary methods. Also the period from 20-29 years of age is the most productive time in terms of participation in employment opportunity. Emphasizing about spacing methods to this group of women could have an important effect of improving their motivation and opportunity to empower themselves. Short birth intervals are known to have a negative effect on the care of the

children and the nutrition of both the children and the mother. Spacing therefore is an important practice that can benefit the mother and her children

The extent of the use of various methods of contraception further indicates the emphasis laid on female sterilization as a method of contraception. 68.0% of all married women of reproductive age group in Kaniyambadi block have used female sterilization as their method of contraception (Table 6.3). In India the highest percentage of female sterilization is reported in the state of Andhra Pradesh (63%), while in Tamil Nadu the percentage of women sterilized is 51.9%.(16)

The distribution of users of female sterilization in different age groups in Kaniyambadi reveals that women as young as 20-24 age group have used this method. 69% of all women who have used female sterilization fall between the ages of 20-39 years (Table 6.4).

7.6 Factors associated with unmet need

Logistic regression analyzes the contribution of each predictor variable independent of other predictor variables. In other words, the confounding effect of other variables is controlled for mathematically. Variables found to be significantly associated with the outcome (unmet need) in univariate analysis were analyzed and the outcome showed house wife and employed, parity > 2 and age > 30 years to be strong negative predictors of unmet need (O.R. 0.284, 0.19 and 0.078 respectively) (Table 6.6). These were discussed earlier in the univariate analysis. Education > 8^{th} standard and illiteracy have not shown up as significant predictors of unmet need and were probably spuriously associated with unmet need.

7.7.1 Knowledge about Contraceptive methods

Knowledge of contraceptive methods is an essential step in the ladder that leads to a final decision to use contraception or not. The prevalence of knowledge about 11 modern methods and 3 traditional methods was estimated among users and non users of any method of contraception, separately. The women were required to name contraceptive methods and recognize the ones they could not name. The percentages of women having knowledge about different methods are presented in (Table 6.7)**.** The largest percentage of women among non users and users knew about female sterilization. However, the proportion among users is larger than that among non users.

Only 40.3% of women among non-users knew about contraceptive pills, while the percentage was 74.5% among users. Given, the widespread availability of the contraceptive pills and the fact that they can be obtained free of cost, the low knowledge indicates the need for program efforts to disseminate information more effectively.

The effect of low knowledge about condoms is evident from the low percentages of women who knew about male condoms. 43.8% of women among non users knew about male condoms and 47.6% of women among users had knowledge about male condoms. Comparing this with the percentage of women who said that their husbands used condoms (0.2% of all contraceptive use), it can be deduced that increasing knowledge may have an effect on the use of barrier contraception in the community, notwithstanding the importance it has in preventing transmission of HIV/AIDS.

NFHS 3 reports 70.9% of all currently married women in rural areas know about condoms. The difference with the national figures indicates that there are significant differences from region to region.

The difference in the knowledge of condoms and female sterilization raises concern about the imbalance in the dissemination of knowledge about permanent and temporary methods of contraception. The knowledge of IUD is similar in both the groups; however the difference between the knowledge about female sterilization and IUD remains considerable. The final outcome of which method of contraception will be accepted however, does not depend solely on the information disseminated. There are several other factors that play a major role in acceptance of a method of contraception, even so, the right to know about the various methods is one of the basic sexual and reproductive health rights that every woman must be given, in order to empower them to make informed choices.

The knowledge gap for temporary methods shows a need for a major shift of motive and motivation of family planning program from demographic concern to sexual and reproductive health rights of women, if the resolution of ICPD 1994 is to be implemented meaningfully. 93.2% women in the sample of 850 could name at least one source of modern contraceptive methods. Of these 76% identified private providers and an equal percentage identified government health services as providers.

7.8 Attitudes toward Contraception

When women were asked whether they approved of contraceptive methods or not, it was found that 28.2% of women did not approve of contraception. 6.4% were not sure (Table

6.8). Disapproval of contraception forms part of the perceived high cost of contraception which includes both monetary and non monetary costs. Approval by husband is said to be an important influence in the final acceptance of contraceptive method. 56% women reported that their husband approved of contraception, while a considerable 24.1% reported disapproval by husband. Almost 20% women reported no knowledge of husband's approval. This indicates the communication gap that exists between spouses on matters of contraception in Kaniyambadi block. Literature provides evidence that improving the communication between spouses about contraception has a significant effect on the acceptance of contraception.(49, 50).

7.9 Intention to use contraception in future

Among the fecund, non pregnant women who are currently not using any method of contraception 88.5% women expressed no intention to use any contraceptive method in future. (Table 6.9)

7.10 Reasons for non-use of contraception

Table 6.10 shows the distribution of reasons given for non use by fecund non pregnant women who are currently using no method of contraception. 63.9% of women did not give any reason for not using contraception. Apart from these a considerable 15.3% women expressed a low perceived risk of conception. Fear of side effects and lack of knowledge did not figure as important barriers to the use of contraceptive method.

7.11 Fertility Preferences

In the entire sample of 850 women, 85.8% women preferred not to have any more children. This strengthens the finding that more women are moving towards small family norm. 5.4% wanted a child later and therefore represent the group that would be receptive to temporary methods of contraception. 1.2% women reported ambivalence about the future pregnancy plan. Ambivalence adds to the prevalence of unmet need and also the burden of unwanted or mistimed pregnancy.

7.11.1 Desired Ideal Number of Children

Desired fertility is a variable, the measurement of which has made the world realize that if women were allowed to achieve there own fertility goals, the fertility rate of the country would reach below the national target. This has helped the concept of unmet need gain a stronger ground on the international agenda.

In India 58% of married women want two children while 22% want three children.(16) The desire for two children has become prevalent among women in Kaniyambadi block. The mean number of children born to a woman and currently alive in this region is 2.06 (SE 0.047, 95% CI 1.97 – 2.15). Given the aforementioned statistics, the goal of bringing down the fertility appears to have been achieved; however differences have been found in the subgroup analysis. The gap existing in the subgroups needs to be bridged with a focused and rights based approach. In the present study, 75.1% of the women said two children as the ideal number of children (Table 6.11).

8. Limitations

1. Unmarried women and adolescents were not included in the study. Inclusion of this group would have given a higher prevalence of unmet need.
2. This study is done in an area where two parallel systems provide public health services. One is the government health system and the other is an NGO that has been working in this area for the last 20 years. This area gets high quality public health services delivered in the villages. Similar results may not be found in other areas.

9. Summary

This was a cross-sectional study carried out in a rural population in Tamil Nadu, to determine the prevalence of unmet need for contraception, the knowledge, attitude and practices about contraception and to determine the reasons for non – use. A total of 850 married women between the ages of 15 and 49 were included in the study. The study used a two stage sampling technique and 9 villages were selected from 83 villages in the population frame. A structured questionnaire was used to collect information from the participants after having taken consent.

The prevalence of unmet need for contraception found in Kaniyambadi block is 9.4%. Out of this, the unmet need for limiting is 4.35%, while the unmet need for spacing is 5.1%. The met need for contraception is 69.6% and therefore the total demand for contraception is 79.0%.

Subgroup analysis revealed 29.5% of women younger than 30 years have an unmet need for contraception while only 1.4% of women of age 30 years or more have unmet need for contraception. Unmet need for contraception was seen in 21.7% of women with two or less children, while only 1.5% of women with more than 2 children have unmet need.

Women living close to urban area have a lower prevalence of unmet need (8.5%), while those living in rural areas have a prevalence of 9.5%. Women educated 8 years or less have a prevalence of 6.8% while those educated more than 8 years have 15.9% of women with unmet need. Illiterate women have a lower prevalence of unmet need (5.3%) than the literate women (13.8%). Unemployed women have a prevalence of 15.8%, which is higher than that seen in the employed women (2.5%).

Knowledge about contraception was found highest about female sterilization among both users and non users with little difference between the two, however the finding that raises concern is the difference in the knowledge about sterilization and that about condoms.

Female sterilization is most commonly used method of contraception. 68% women have been sterilized. One of the possible reasons are the benefit of free delivery if sterilization is accepted after the delivery and free treatment for the baby till one year of age.

Disapproval of contraception exists in almost one fourth of the women (28.2%). and one fourth of the husbands (as reported by the women -24.1%). Communication gap exists between 20% of the couples.

A large number of women want no more children (85.8%). The mean number of children at home for a woman is 2.06. 75% of women report 2 children as the ideal no. of children.

Specifically targeting women who are fit for spacing and encouraging them to space their second and later children would be a worthwhile option in family planning practice for the population. Adding a parameter to assess the unmet need for spacing in the population database would be a step to facilitate this process.

10. Recommendations

The measure of unmet need for contraception is different from most other indicators in the sense that it shows the gap between what has been achieved in terms of what women want rather than some number or rate that the demographers want to achieve. The Total Fertility Rate of Tamil Nadu is 1.8, a level that is well below replacement level. The contraceptive prevalence rate being above 60% in Kaniyambadi, a Net Reproduction Rate = 1 has been achieved.

However, the significant differences found in the prevalence of unmet need in various subgroups shows that inequity still exists in this community.

The most preferred method of family planning is female sterilization. There is evidence in literature that excessive use of sterilization and very little spacing would not give India as much demographic benefit in the long run as she might have got with an adequate component of spacing along with sterilization.(52)

The recommendation to the family planning program is to try to bridge the gap of contraceptive services between the subgroups and to lay an equal emphasis on spacing and limiting childbirth. To facilitate this, a database tailored to monitor unmet need in the various sub-groups can be established. Health education during antenatal period about spacing methods, emphasizing spacing methods during newly married couples meeting and including men in counseling and health education about contraception.

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