

Original Research Article

**Birth Spacing: Women's Knowledge, Methods Adopted and Barriers -
A study from Urban Tamil Nadu**

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Abstract

Back ground: WHO recommends a spacing of 2 to 3 years between births as it reduces the risk of infant and child mortality and maternal morbidity. Recent data shows that adoption of temporary methods are very low and discontinuation rates are high. This study explores women's knowledge on birth spacing, reasons for poor adoption of temporary contraceptives and barriers in using it. **Materials and methods:** It is a cross-sectional study conducted in a tertiary maternity hospital with 270 women who had delivered their second, third and above child were interviewed using a questionnaire. **Results:** Among all 39% had a birth interval <2 years between 1st and 2nd child. Almost 60% of women knew that a birth interval of three years is required, for improving the health of the mother and for taking care of the previous child. Copper-T (95.2%) and Oral Pills (24.8%) were known, yet not preferred because of the side effects (65%) and condoms known (38%), but not preferred mainly because of poor spousal support (40%). The other methods were least known. Abortion was also considered as a method of contraception (5.2%). Doctors were the main source of information about temporary methods of contraception (73.3%). Forty three percent had adopted temporary contraceptives of which 66% had used Copper-T and 28% condoms, however discontinuation rates within 3 years was 90%. Low perceived risk of pregnancy (53%), inadequate knowledge and fear of side effects of the contraceptive (27%), abortion as an option in case of conception (6%) and lack of spousal support (14%) were reasons for not adopting contraceptives. **Conclusion:** Knowledge on birth spacing is high yet observed birth interval was less. Wide knowledge-preference-practice gap in use of temporary contraceptives exists. Health-care providers should educate couples on the process of conception, need for spacing births, risks of induced abortions and promote use of temporary contraceptives giving various options.

Key words: Birth spacing, Contraceptives, Abortion

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Introduction

Tamil Nadu is one of the socially and economically progressive states in India with a population of 72 million, 48% urban and 52% rural. According to the 2011 census the literacy rate of the state is 80.3%, 86.8% for males and 73.8% for females.¹ The state fairs well in terms of indicators related to maternal and child health and has achieved a below-replacement total fertility rate of 1.8, with a contraceptive prevalence rate of 61.1%.² This is because the main focus of the family planning

programme is on permanent sterilization and that too on female sterilization. However, spacing between births appears as an issue of concern. NFHS-3 data shows that 26% of the births occur within 24 months and 59% within 3 years². SRS 2012, also gives a more or less a similar picture – 57.4% births had a birth interval less than the recommended period of 3 years³. After a live birth, the recommended interval before attempting for the next pregnancy should be at least 24 months as it reduces the risk of adverse maternal, peri-natal and infant health outcomes and in addition helps to breastfeed up to 2 years as per UNICEF's recommendation.⁴

According to DLHS 4, all the spacing methods together account for just around 2.7% compared to 50.6% by female sterilizations⁵. Few studies report that pregnancies are terminated to space births^{6,7}. Reports from NFHS-4 reveals that adoption of temporary methods is very low in the state with only 0.4% using Oral contraceptive pills (OCPs), 2.3% Intrauterine devices (IUDs) and 2.1% condoms and the unmet need for spacing is 5.13%⁸. High discontinuation rates of contraceptive use are also observed in Tamilnadu⁶. Studies across India have shown that the common reason for women seeking abortions is to limit or space births irrespective of the sex of the children.⁷

In this context, the present study was designed with an objective to understand women's knowledge on birth spacing, preferences and adoption of temporary methods and barriers in spacing births. Such information is crucial to educate women on the importance of birth spacing, and to promote temporary methods of contraception and to recommend strategies to increase birth spacing as it has a direct impact on maternal and infant mortality and morbidity.

Materials and Methods

This was a Cross-sectional study conducted at Institute of Social Obstetrics, Kasturba Gandhi Hospital and Government Hospital (ISOKGH&GH) a tertiary care hospital located at Chennai. The study was taken up with recently delivered mothers, and information was obtained about their knowledge and perception on spacing methods, methods adopted by them and the barriers they had in spacing their previous births.

Sample Size: Assuming that 59% of the women deliver with a birth interval of less than 3yrs. (NFHS-3)² with 95% confidence interval and an allowable error of 10%, the estimated sample size was 267, which was rounded to 270.

Study participants: Two hundred and seventy mothers who had delivered their second, third and above child in ISOKGH &GH between May and June 2016 were the study participants. All women who had delivered from 1st May 2016 onwards were included in the study till the required sample size was reached by end of June 2016, excluding women who were not willing to participate in the study which was about 5%.

Exclusion Criteria: Mothers who had a still birth/death of a child between the present and previous childbirth was excluded from the study, as the possibility of adopting a spacing method by them is very low as they would want another child.

Study instrument: The study participants were interviewed by the authors using a pretested semi-structured questionnaire.

Field definition: Birth spacing: For the study purpose birth spacing refers to the time interval from one child's birth date until the next child's birth date.

Ethics: Informed written consent was obtained from all the study participants. On completion of the interview with the questionnaire, women were briefed on the need for spacing births and the various methods available. Ethical clearance was obtained from the Institutional Ethical Committee of the Government Medical College, Omandurar Government Estate, Chennai.

Results

Two hundred and seventy women who had their 2nd, 3rd or more delivery at ISOKGH&GH between May and June 2016 were the study participants.

1. General Information:

Fifty percent of the women were in the age group of 26-30yrs, another 40% were between 20-25yrs and the remaining were above 30yrs. Ninety five percent of the women were literate and 69% of them had completed their high school education. Ninety six percent of the women were house wives and the remaining were self-employed or skilled workers. 17.8% of the women had been married before 18 years. Ninety two percent had delivered their second child and the remaining had delivered their third child. The spouses of these women were mainly in the age group of 26-30yrs – 49%, 32% were between 31-35yrs, 6.7% were less than 25yrs and 13% were above 35yrs. Ninety five percent of the spouses were literate and 70% of them have completed their high school education. Majority of the spouses were skilled workers -44%, the others were labourers-18.1%, self-employed-11.9%, clerical jobs and professionals -3.3%. Sixty nine percent of them belonged to the Nuclear families and remaining were from joint families. The Socio-economic status of the study participants was assessed using the BG Prasad's modified scale and most of them belonged to class 3&4.

2. Knowledge

Almost 90% of the woman knew that a birth interval of two to three years or more is required. Details of the birth interval suggested is given in Table-1, The main reasons quoted for spacing births is to take care of the previous child (67%) and for better health of the mother and new-born (21.9%).

Table – 1, Knowledge of Women on Birth Interval Required

S.No:	Birth Interval required	No: of mothers (%)
1	1 - 2 yrs	27 (10%)
2	2 - 3 yrs	80 (29.6%)
3	3 - 4 yrs	100 (37%)
4	> 4 yrs	63 (23.4%)
	Total	270 (100%)

Copper-T was the most popular method followed by condoms and Oral contraceptive pills [OCPs]. Abortion was also considered as a method of contraception. Details of the knowledge about temporary contraceptives are given in Table-2. The sources of information about contraceptives were Doctors (73.3%) nurses (8.9%), Mass media (10%) and friends (1.9%)

3. Temporary methods- Reasons for Preference & Problems expected

Only 5 women knew safe period could be followed as a method of contraception, but only 3 preferred it as it is natural method and the other two felt it was difficult to follow. Among 257 women who knew about Copper-T, only 89 preferred it, as it was considered to be effective (45), safe to use (12) and removable (32). The remaining did not prefer because of side effects like excess bleeding (26%), abdominal pain (17%), irregular menstruation (53%) and displacement (4%).

Among 67 women who knew about OCPs, only 7 preferred it as it requires spousal support. The others feared of the side effects like headache and weight and the possibility of forgetting to take it. Only 5 knew about EOCPS, yet did not prefer and considered it unreliable. Though 97 women knew about condoms, only 35 preferred to use it as it was safe to use (21), No side effects (11) and painless (3). The remaining knew yet did not prefer because of poor spousal support (39), fear of tear/slip (11),

high failure rate (8) and difficulty in keeping it at home (4).

Table-2. Temporary methods of Contraception known to Women

S.No:	Contraceptive	No: of Women (in%*)
1	Copper- T	257(95.2%)
2	Condoms	97(35.9%)
3	OCPs	67(24.8)
4	Abortion	14(5.2%)
5	Natural method (following Safe Period)	5(1.9%)
5	Emergency Oral Contraceptive Pills (EOCPS)	5 (1.9%)
7	Injectable contraceptives	2(0.7%)

*Total would exceed 100% since some women knew about one or more methods

4. Birth Interval & Methods Adopted

Of the 270 women, 242 women had delivered their second child and remaining had delivered their 3rd child. Not a single mother had her 4th or more delivery. Thirty nine percent of the women had a birth interval (BI) of less than 2 yrs, and 66% less than 3yrs between their 1st and 2nd child. Only 43% had adopted some method of contraception to space their births. Copper-T was the most adopted – 66% followed by condoms - 28% and others were much less. The discontinuation rates by 2 years were high for both Copper-T and Condoms – 57% and 87% respectively. Of the 28 women who had delivered their 3rd child, 10 had a BI of less than 3 years and 6 less than 2yrs. 13 of them used Copper-T, OPs& one used condom.

5. Barriers

i. Spacing between the 1st and 2nd Child:

116 women adopted one or the other contraceptive method of which 105 discontinued before 3yrs. Four out of 6 women who followed safe period discontinued due to poor spousal support. Among women who used copper-T, 66 discontinued for reasons like bleeding (17%), abdominal pain and discomfort (20%), Irregular menstruation (21%) and the remaining wanted another child. Of the 4 women, who had used OCPs 2 discontinued because

of the side effects and the other two missed to take it regularly. Fifteen out of the 30 condoms users discontinued due to lack of spousal support, another 12 had difficulty in keeping it at home and the remaining wanted another child.

One hundred and fifty-four women did not adopt any contraceptive between the 1st and 2nd child. Low perceived risk of pregnancy and poor knowledge on return of fertility was the main reason for not adopting any contraceptive (53%). The other reasons for not adopting any contraceptive is given in Table-3

Table-3. Reasons for not adopting any Contraceptive

S.No	Reasons for not adopting any contraceptive	Women (%)
1	Low perceived risk of pregnancy & lack of knowledge on return of fertility	53%
2	Side effects of contraceptives	16%
3	Abortion as an option in case of conception	6%
4	Poor knowledge on use of contraceptives	11%
5	Lack of spousal support	14%
	Total	100

ii. Spacing between the 2nd and 3rd Child:

Of the 28 women who had delivered their 3rd child, 13 used Cu T, 3 OCPs & one used condoms. Among the 17 contraceptive users, 2 who used Copper T, and 3 who used OCPs discontinued because of the side effects.

6. Abortion

Seventeen percent of the women had an abortion between the first and second child of which 61% had induced abortion and the remaining was spontaneous. The main reason for an induced abortion is to take care of the previous child which was very small (78%) and the other reason was poor health of the women to continue the pregnancy (18%). Among the 28 women who had their 3rd delivery, 6 had an induced abortion once and this was to take care of the previous child.

7. Male participation in spacing births

Birth spacing / using a contraceptive was mainly a responsibility of women (51%) and 29% did not discuss it with their spouses. Women were asked to

discontinue contraceptive in case of complaints (14%) and 6% reported poor spousal support for use of condoms (6%).

Discussion

Gen information

Ninety percent of the mothers were between the age group of 20 to 30yrs, which is normally expected. The literacy rate of women (98.4 %) and their spouses (96%) was higher than State’s literacy rate – 73.44% & 86.77%. Women who were married before 18yrs were 17.8%, this was higher than the State’s data from NFHS-4 – 13%. Almost ninety percent of the mothers had delivered their 2nd child, while the remaining had delivered their 3rd child. Not a single mother had come for their 3rd or more delivery. Such a scenario is possible in view of the low fertility rate of the state - 1.8.

I. Knowledge

i. Birth Interval

Most of the women knew that a BI of 2 -3 years, is required to take care of the previous child and for the health of the mother and new born as observed in other studies^{9,10}, unlike few studies where women’s knowledge score on birth spacing was less¹¹. Literate mothers knew more about the importance of about birth spacing as seen in other studies^{9,12}.

ii. Temporary Methods of Contraception

Adequate knowledge on temporary methods of contraception among women is crucial to space births. Our study findings show that all women knew at least one or the other temporary contraceptive methods, yet knowledge on individual methods varied widely. Except for Copper- T, the knowledge levels on OCPs and condoms was found to be low as observed in many studies.^{9,12} Natural methods, injectable contraceptives and EOCPS were least known by our study participants contrary to few studies where women had a good knowledge on these methods^{9,12,13}

All the temporary methods of contraceptives including EOCPS are freely available in all the public health institutions in the state even in the Primary Health Centres yet a big knowledge gap seems to exist which has to be addressed. Even in Kerala a state with a high literacy rate, only 70% knew about temporary methods of contraception.¹⁰ A recent study from Tamilnadu shows that providing information booklet and health education to women has improved knowledge and utilisation.¹¹

A study from Tamil Nadu revealed that 87% women considered abstinence as a spacing option¹⁴, contrary to our findings were none considered it as an option. Five percent of women in our study have mentioned induced abortion as a method of contraception, similar to a study findings from Nagpur (11.7%)⁹.

iii. Source of information about spacing Methods

Our study findings show that doctors were the main source of information about contraceptives followed by health workers and that media had a relatively less role as observed in a study from Pudhucherry,¹⁵ but contrary to this another study from Tamil Nadu projects media as the main source of information as seen in rural Maharashtra also^{9,16}. A study from Andhra Pradesh shows that family and friends have been the main source of information about contraceptives (67.8%), mass media was the next(8.8%) , while health personnel was the least (4%)¹⁷. As the source of information varies from place to place family planning programmes should strengthen their communication network and deliver information through multiple sources.

II. Temporary Methods of Contraception –

Reasons for Preference & Barriers for preferring

i. Reasons for preference

Most of the studies done have been assessing women on their knowledge on contraceptives and comparing it with practice. In addition to knowledge, our study looked into preference/ non-preference for each of the temporary method and the barriers in using it, as it is essential to plan and promote spacing methods. Copper-T and Condoms seemed to be relatively preferred as seen in other studies¹⁵. Copper-T was preferred as it is safe, effective and removable and condoms as it is safe and painless. EOCPS and natural methods were least preferred.

ii. Barriers in preferring

Spousal support was a main barrier in adopting spacing methods, while women not opting for Copper-T were because of the side effects like excessive bleeding, irregular menstruation, abdominal pain and also the possibility of displacement. OCPs were also not the choice of women as they were concerned about the side effects of vomiting, head ache and weight gain and also fear that they might forget to take it routinely, such fear of side effects and belief that contraceptives affect the health of the women have been observed in many studies.^{9,18,19} Though women

preferred condoms the problems were that it requires the support of the husband and the difficulty in keeping it safe at home. Fear of tear/ slipping of condoms were other reasons mentioned. Poor support from male partners was found to be universal.²⁰⁻²²

III. Birth Interval and Method Adopted

Short birth interval is observed in spite of the high literacy level. Attitude of educated women is believed to be in favour of adequate spacing but actual practice seems to differ. A study from Bangladeshh as also come out with similar findings that short birth intervals were observed in women with higher education.²³ Studies have shown that neonatal and infant mortality is highest for birth to pregnancy intervals of 18 months and is slightly increased for 18 -27 months²⁴. Studies demonstrate that a birth interval of 3 to 5 years could increase chances of infant and maternal survival by 2.5 times more than children born at an interval of 2 years or fewer¹⁵. Pregnancy intervals of less than 6 months are associated with an increased risk of preterm births, low birth weight and small for gestational age. It also has a negative impact on the health of the mothers as she will not have enough time to recuperate from her pregnancy and her nutritional reserves would be depleted due to pregnancy, child birth and lactation¹¹.

Only 43% had adopted some method of contraception. Copper-T was the most adopted method followed by condoms and others were much less. Less adoption of temporary methods and high discontinuation rates have been observed in other studies also.^{13,19} A positive trend was witnessed in a study from Maharashtra where more than 50% had adopted spacing methods like condom and Copper-T with very low discontinuation rates¹⁴. Study findings show a wide gap exists between the actual knowledge, preference and use of contraceptive methods as seen in other studies from different parts of India.^{8,14,18}

IV. Barriers in adopting spacing methods

Though side effects of the contraceptives and lack of support from husband and health issues were mentioned as reasons the main reason was low perceived risk of pregnancy and lack of knowledge of return to fertility. Similar findings have been observed and discussed in few studies.^{21,25-27} Common reasons mentioned in other studies like preference for son, family pressure and lack of

access to contraceptive were not observed in the present study.^{8,12-14} Study findings showed that Birth spacing / using a contraceptive was mainly a responsibility of women, which was not discussed many times between the couple.

V. Abortion

Induced abortion has been considered by women as method to avoid unwanted pregnancy.

The main reason for terminating pregnancy is to take care of the previous child which is still small and mother's own health as observed in another study from Kancheepuram district. However this study also mentions that limiting family size and poor economic status of the family were other reasons for induced abortion.²¹ Another population based study in India also concludes that unintended pregnancies rather than sex of the previous child have been the reason for abortion. The study adds that rising educational levels of women may be the reason for increase in abortions.⁷

Findings of a survey done in Tamil Nadu by the Department of Population studies, Coimbatore in 2004, shows that chance of inducing abortion increases with the order of birth and urban women start inducing pregnancies at lower order of pregnancy compared to rural women. Induced abortions are being used as a method of contraception or as a backup to temporary methods of contraception.²⁸

Limitations of the study

Information related to birth spacing between the 2nd and 3rd child may not give a complete picture since only 28 out of the 270 study participants were women who had their third delivery.

Conclusion

Knowledge on the importance of birth spacing among women was found to be high yet the birth intervals were less. Knowledge of Copper-T was high followed by condoms and OCPs. Women hardly knew about other spacing methods. Mere knowledge does not seem to guarantee use. Discontinuation rates of contraceptives were also found to be high. Side effects of the contraceptives, misconceptions about contraceptive use, low perceived risk of pregnancy and lack of knowledge of return to fertility and poor spousal support have been the reasons for not adopting spacing methods. Induced abortion is considered as a method of

contraception and is considered as a backup in case of conception.

Lack of spousal support is also a major barrier in spacing births; this is because of poor participation of men in reproductive health²⁹. The concept of male involvement in maternal health is now being advocated as an essential element of World Health Organization's initiative for making pregnancy safer and various studies have highlighted the importance of involving men in Family Planning, a probable solution to help women get spousal support and to make men understand their responsibilities.^{29,30} Health Planners should develop strategies to promote use of temporary contraceptives by involving men and making focused couple counselling in all health facilities as an integral part of Family Welfare Programme. Such counselling sessions should be used to educate couples on the process of conception, importance of birth spacing, risks of induced abortion and information on the various contraceptives available including the natural methods and ECOPs, giving them an option to choose what suits them. In addition, counselling should help to clear the prevailing misconceptions and support women coming with problems while using a contraceptive. Appropriate Health messages should be disseminated through mass media and all public health facilities should arrange for easy access to contraceptives. A multi-pronged approach is therefore needed to translate women knowledge on birth spacing into practice.

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Conflict of Interest - Nil

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