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T.K. Sundari Ravindran

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T.K. Sundari Ravindran

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C O N T E N T S

A STUDY OF USER PERSPECTIVES ON THE DIAPHRAGM IN AN URBAN INDIAN SETTING

EXECUTIVE SUMMARY

This study attempted to examine user perspectives regarding the desirability of the diaphragm as a contraceptive method when included among other methods distributed freely through a Family Planning clinic. It sought to introduce on an experimental basis, the diaphragm into an ongoing and well established family planning clinic so as to increase the contraceptive choice for its clients. This was primarily a qualitative study aiming at understanding women's perceptions about the risks and benefits, the reasons for use of the diaphragm, and the practical difficulties they face in using it effectively. It also studied the influence of service delivery factors in acceptance of this method.

The study was part of a larger project of the Gender, Reproductive Health, and Population Policies research programme that explores aspects of female contraceptive needs and fertility regulation in various developing country contexts. The Indian component of this research project is being executed by a women's organisation, Rural Women's Social Education Centre, Chengalpattu, Tamil Nadu, in collaboration with researchers and non-governmental organisations from Tamil Nadu, Kerala and Orissa. Four studies have been undertaken in India, one of which is the present diaphragm study.

The study was conducted in an urban setting. Madras city, the capital of the southern state of Tamil Nadu was chosen as the experimental centre. Three clinics functioned as the service delivery sites of the diaphragm. Two of the delivery sites were family planning centres of the Punjab Association, a non-governmental organisation working in Madras, and the third clinic was run by the Women Doctors' Association. All three clinics cater predominantly to women from lower socio-economic backgrounds. The emphasis throughout the project was on **adding** the diaphragm to the present range of contraceptives and not on substitution to it. Information dissemination on diaphragms and other contraceptive methods was part of a comprehensive community out-reach programme on reproductive health education introduced in the catchment area of the three service delivery centres. The project was carried out between July 1994 and June 1995.

The process of carrying out the study was considerably hampered by delays in the supply of diaphragms. Diaphragms could not be included as part of the contraceptive package until late March 1995, and supplies fell short of demand. Under the circumstances, we have only been able to document the profile of diaphragm users as compared to all potential users, and their experiences with the diaphragm over the first month of use.

Overall, there were 97 acceptors of the method between March and April, and there is a large unmet demand for diaphragms. Women learnt to insert the diaphragm after a few tries in the clinic followed by trials at home. The median age of the diaphrgam acceptors was 23 and most had 1 or 2 children. Most had never used a contraceptive method before. 26 women

switched from pills, condom and the IUD to the diaphragm. Based on the information provided and use of the diaphragm over a month women perceived the key advantages of the method to be the absence of side effects, and the facility of need based use and not on a continuous or daily basis like the IUD or the pill. All but four women used the diaphragm during every sexual exposure. One very interesting finding is that sexual contact even among young couples, is limited to 4-5 times a month, and may be even less frequent when they have a baby less than a year old. Clearly, using a user-controlled method such as the diaphragm was appealing to the women studied. It is not clear though, whether the frequency of sexual contact in this group reflects the general picture, or whether this is a self-selected group which prefers the diaphragm for precisely this reason. In addition, the study found that the diaphragm answered the needs of women who wished to space as well those who wished to limit their children.

Irrespective of their educational level, women reported that the method was appropriate and easy to use. Husbands were generally supportive. Only one person had difficulties in insertion after returning home and was retrained. Absence of a bathroom or toilet at home did not pose a problem. All women preferred to use it with the spermicide. The method was not reported to be either messy or inconvenient. Maintenance and storage of diaphragms were not found to be problematic in this study. The kind and patient behaviour of the doctors towards their clients was cited by the latter as an important factor in their use of the diaphragm.

The study indicates that diaphragm is a suitable method of contraception for women. Women with limited education and living in resource poor settings were able to use it correctly. The investment of time and effort in community outreach and education, and good quality service delivery were important factors in the acceptance and use of the diaphragm. Finally, the study demonstrated that there is a demand for the diaphragm even in high contracepting communities.

1.0 **INTRODUCTION**

For centuries, women have used vaginal methods of contraception, from home made pastes and pieces of sea sponge to medically fitted diaphragms. Until the advent of other modern contraceptives like the IUD and the pill, the diaphragm was the most effective and widely used contraceptive in England, Holland, Germany and the USA. A survey in England in 1959 showed that 12% of contracepting couples used the diaphragm but by 1973 a survey, which covered Wales as well, found the proportion of users had dropped to 5% (Bone, 1973). Data from the National Fertility Study, USA indicated that although 9.9% of a sample of 3032 married couples were diaphragm users in 1965, only 5.7% of 3810 couples were using the method in 1970 (Rindfuss and Westoff, 1974). In Australia, a study conducted in 1973 of 2245 women revealed that only 0.8% of women chose the diaphragm for contraception (Leeton and Eyles, 1973).

The main reasons for low acceptability have been primarily intrinsic to the nature of the contraceptive. Users found it relatively inconvenient ("messy" and "inconvenient to use") and interfered with enjoyment (Bone,1973; Houser and Beckman, 1978). Moreover, the proper use of the diaphragm required a high motivation on the part of the user. For this reason, it was found to be effective only among upper and middle class women (Peel and Potts, 1969; Carpenter, 1972).

In developing countries, the diaphragm has never received wide acceptance, and it has seldom been actively incorporated into family planning programmes. By the mid seventies, diaphragm use was thought to have reached its peak in developing countries and unlikely to become a useful method (Potts, 1974). For instance, in the Philippines only about 9% of 9232 women interviewed in 1972 knew about the diaphragm, and less than one-half were using the method (Barretto, 1972). Abhyaratne and Jayewardene (1968) found that discontinuation rates were very high among diaphragm users in Colombo--the proportion of users fell from 44.3% to 12.1 % within three years of acceptance, some of them switching to the IUD and the pill. Studies in China have pointed that diaphragm users are mainly older women who are resistant to adopting newer methods (Djerassi, 1974). These findings suggest that acceptance and continuation of the diaphragm are similar to those of the condom, the other major barrier method.

The reasons commonly associated with the diaphragm's low acceptability have been:

- lack of privacy for insertion and removal.
- lack of ready source of water for cleaning the diaphragm.
- lack of sufficient motivation to use diaphragm for every act of coitus, thus reducing effectiveness.
- considered complicated and too much time for preparation.
- considered messy and unclean.
- inability to wash genitals immediately after coitus.

- difficulties in maintenance and storage.
- need for clinical service for initial fitting.
- need for constant supply of spermicidal cream or jelly.

Provider-dependent factors may also limit the acceptance and use of the diaphragm. In some countries, medical and family planning personnel are not adequately trained to fit the device, and those that are trained may not encourage it. Thus, lack of distribution is probably the result of lack of interest in the method as well.

Interest has revived in the use of female barrier methods, for broader reasons related to reproductive health particularly among women of developed countries. Also, recent studies indicate that although the numbers are small, the proportion of diaphragm users may be comparable to the percentage choosing other specialized methods like the progestin-only pill (Di Giacomo do Lago, 1993; Hassouna, 1981). Given this scenario the current study is timely.

2.0 THE PRESENT STUDY

The Indian Family Planning Programme does not currently promote the use of female barrier methods in its existing contraceptive range. The diaphragm had been briefly introduced in India during the First Five Year Plan Period (1951-56), and was at one time the most widely used method in the programme. It failed to make a significant impact on fertility and was subsequently discontinued. Distribution of diaphragms in selected clinics declined from 205,000 in 1965 to 10,000 in 1972. Use effectiveness then, was attributed to lack of necessary sophistication among the women who used the diaphragm.

The current study is therefore an attempt to examine user perspectives regarding the desirability of the diaphragm as a contraceptive method when included as a choice amongst other methods distributed freely by a Family Planning service centre. Underlying it is the concern that female contraceptive methods available as part of the Family Planning Programme in the country are nearly all provider dependent. The pill needs to be replenished, the IUD requires trained personnel for insertion and removal, and sterilisation can only be performed by medical personnel. The male methods, condom and vasectomy, depend on a spouse's cooperation. These factors remove the control of fertility away from women, to external forces. Promotion of female barrier methods such as the diaphragm would result in women retaining control over their choices and being less dependent on providers or spouses. On the other hand, use of the diaphragm in low resource settings may be problematic--their being less effective, coitus-related, difficult to maintain and use hygienically, including problems of privacy, and other cultural factors.

2.1 **Objectives**

The present study had two objectives, each addressed in a separate stage. First it proposed to introduce on an experimental basis the diaphragm in a well established family planning centre so as to increase the contraceptive choice for its clients. The purpose was to examine factors influencing the acceptance of the diaphragm when options were available by obtaining information from the users themselves.

The second stage of the study which will be undertaken in 1996 intends to follow all diaphragm users through a minimum of six months. The purpose is to understand the logistics, practical concerns and problems facing clients and ways in which these can be tackled. Thus varied issues as proper and regular use of the diaphragm, side effects, and partner attitudes could be studied. It also proposed to study the reasons for continuation and discontinuation; and compare the characteristics of the continuers with the discontinuers. The final aim was to examine the influence of service delivery factors as counselling, screening and training of users in the initial and continued use of the diaphragm.

In this report, the specific questions addressed refer to initial acceptance and include:

- Is there a demand for female barrier methods? If yes, why and if not, why not?
- What characteristics of female barrier methods appeal or do not appeal to women?
- Is demand related to demographic factors such as age, reproductive history, and socio-economic background? In what stage of the reproductive cycle is it most accepted?
- Is the diaphragm preferred as a method for spacing, delaying initial pregnancy or used in lieu of a permanent method?

2.2 **Study Centres**

The study was carried out in Madras city, Tamil Nadu. Tamil Nadu is a state with a high performance record in terms of family planning acceptance.

This experimental study needed a well established health and family planning infrastructure for implementation. At the same time, it needed to be carried out in medium-sized clinics without excessive bureaucratic control, and where it would be possible to ensure the provision of high quality services. For these reasons, we chose two clinics run by a non-governmental organisation, the Punjab Association (in Thiruvanmiyur and Royappettah) and one clinic run by the Women Doctor's Association (in Aminjikkari) as study centres.

All three clinics are located in the city of Madras and cater to the poor urban population. The clinics in Royapettah and Aminjikkarai offer out-patient services, while the the Punjab Association Clinic in Thiruvanmiyur has 15 beds and has facilties to cater to in-patients. Apart

from the provision of contraceptive counselling, supplies and/or services, the clinics also offer a wide range of gynaecological services. Contraceptive methods provided include oral contraceptives, IUDs and condoms, and the out-patient clinics refer sterilisation patients. Among the services provided at the in-patient clinic at Thiruvanmiyur are MTP services, sterilisation, and delivery care. Finally, the Punjab Association also functions as an IPP-V centre.

The catchment area of these three centres consists of a conglomeration of urban slum settlements. The Thiruvanmiyur area consists of 1227 households and a population of 6224; Royappettah--1054 households and a population of 4758; Aminjikkarai--1052 households and a population of 4566. Over three-fifths of the women in all the areas were contraceptive users, with an overall CPR of 66 percent. These and other details on the project sites are given in Table 1.

Most of the families reside in huts, and a small number live in asbestos sheet houses or brick houses. While the access to toilets is nearly universal (public or private toilet facilities), less than a quarter of the houses have access to bathrooms (there are no public bathrooms). Water supply is from public taps or tankers supplying water once a day. Of the three areas, Royappettah has a more socioeconomically heterogenous population with some living in concrete structures, albeit old and rented. All areas are close to the main road, well connected by buses, and within a 1 km distance from schools, medical facilities and shops.

2.3 **Inclusion Criteria**

The study covered clients from the three communities described above, which formed part of the catchment area of the three study centres. Never-users, current users of temporary methods, and past users who request contraceptive services were counselled for all available methods including the diaphragm. Several counselling sessions were held where information was provided on all methods of contraception, doubts cleared and answers to various health concerns provided. Women who were currently pregnant (134), and those who had adopted female sterilization (1211) were not included in the study. Thus by this criteria, 1084 women were included in the study. Although by including past users in the study we ran the risk of biasing the choices, by restricting the study to never-users, the population at our disposal would have been greatly reduced. Women who had received counselling in all the available methods, had freely chosen the diaphragm and were willing to participate in the study were considered as study-subjects. It was made clear that no woman was obliged to participate in the study, and that diaphragm availability was not restricted to study participants.

Participants who chose to use the diaphragm were screened for the following contraindications:

- abnormalities in vaginal anatomy that may interfere with fit and placement of diaphragm.

- presence of Reproductive Tract Infections (RTIs).

They were also cautioned about:

- allergy to spermicide or latex.

- toxic shock syndrome or repeated urinary tract infections.

All participants were also told of the possibility of method or user failure, leading to pregnancy. They were assured in such an event, of referral to or provision of medical termination of pregnancy if they should so desire.

3.0 THE PROCESS

3.1 Guiding principles

Introduction of diaphragms as a method of contraception in the three urban poor communities was done as part of a comprehensive health education and services package with a primary focus on reproductive health. The project team invested considerable time and energy in building a rapport with the community, and in organising health education meetings. Information on all methods of contraception was disseminated, and diaphragm introduced as one of these methods. Every attempt was made to ensure free and informed choice of any method of contraception.

3.2 Staff training

Three field investigators, three counsellors and three health educators were recruited, as well as a field supervisor. Dr. Sumathy S. Rao, formerly of the Department of Public Health, Government of Tamil Nadu, served as an expert consultant to the project as well as research coordinator. Her considerable expertise in health education and community outreach proved to be a major asset to the process of introducing diaphragms into the community. All the field staff had experience in working at the grassroots with women on health and education. Dr. Sowmini and Dr. Hyma Balachandran of the Women Doctors' Association, and Dr. Bela Suryakumar of the Punjab Association were in-charge of the participating centres. They carried out training workshops on diaphragm insertion for the staff.

There was an initial four-day training of staff, and thereafter, monthly training workshops to both reinforce and upgrade information and skills. Besides, the field staff were trained in-service through being involved in numerous community-organising tasks (described below) with the guidance of the expert consultant and the doctors in the participating centres.

The initial four day training was held during July 1994. Besides a detailed introduction to the objectives of the research project and to the roles and responsibilities of different members of the research team, topics covered included:

- learning about our reproductive systems: menstruation, conception, child birth, contraception

- reproductive health: concepts, common reproductive health problems

- various contraceptive methods/devices and their characteristics
- an introduction to the diaphragm
- gender issues in reproductive health and well-being
- the FP programme of the government, and what it offers; expanding choice; the new 15 point programme of the Tamil Nadu government
- the role of counselling in contraceptive service delivery
- community-based health education; communication techniques such as drama, puppet shows and role plays
- preparation of learning and teaching aids for use in the community

3.3 **Community Out-reach Activities**

Community out-reach activities constituted the prime thrust of this study project, which went far beyond data collection and follow-up care of acceptors strictly required for the purpose of the study.

Health Education

Immediately after the training, the study team began its community out-reach work. A door to door introduction of the team and the project, followed by community meetings initiated the study. Subsequently, a team of three members (health educator or supervisor; field investigator; counsellor) made daily visits to the community for a few days, to acquaint themselves with the community's profile.

Each study site was divided into three areas, and each worker was assigned one area for making daily house visits. The workers prepared a register of women in the reproductive age group, and made regular visits to these households. Health education was carried out through house visits, informal group meetings, and mothers' meetings organised thrice a month, one for each area. During the first three months the workers visited about 20-25 households every morning.

A wide range of topics were covered in the monthly meetings. Learning about the female body was the starting point. The specific topics discussed include conception, pregnancy and child birth; care during pregnancy and postpartum; pregnancy and delivery related health problems; gynaecological health problems such as white discharge and painful urination; STDs, HIV/AIDS; and, methods of contraception, with a detailed introduction to the working, and pros and cons of each method. Besides, topics related to child health such as diarrhoeal diseases and oral rehydration, nutrition, worm infestation, skin diseases, measles and other common

communicable diseases were also taken up. A variety of communication tools were used, besides flash cards, charts and pamphlets, such as puppet shows, videos;

audio taped plays and question/answer sessions; role plays and street theatre. Material on methods of contraception (separate pamphlets for male sterilization, female sterilization, oral pills, condoms, natural methods, diaphragm) abortion, treatment of white discharge and UTIs, antenatal and postnatal care were distributed. Health education aids were prepared by the staff based on local needs, and they also collected material from a variety of sources such as the TB hospital, AIDS cell, Directorate of Public Health, and NGOs.

Reports of these meetings reveal active participation by the local women in posing questions, clarifying doubts, and expressing their opinions. In many of the monthly meetings described above, contraception and the diaphragm was one of the topics of discussion, after the main topic had been covered. The women often had several questions about the diaphragm, and the IUD.

Questions and comments commonly raised about the diaphragm were:

- Will we not need a doctor's help to insert this each time ?
- Can we use it during menstruation ?
- Will it have side effects like the CuT ?
- The rim of the diaphragm seems too thick.
- Using the diaphragm daily is a bother.
- Will it not get lost in your insides?

Referral for reproductive health problems

Women reporting a reproductive health problem were referred to the Punjab Association (PA) Clinics and to the Women Doctor's Association (WDA) Clinic, and their compliance with treatment was actively followed up. Given Dr. Sowmini's considerable expertise in the area of STDs, and the presence of an excellent laboratory attached to the WDA clinic, women from all three sites were referred there for persistent RTIs. About 30 women from the three communities have been treated for RTIs, STDs, and UTIs, and referred for gynaecological problems such as prolapse and incontinence.

Other activities

The study team established a very good rapport with the community through numerous activities. Whenever possible, they have tried to help women with any problem brought up during the house visits. Some examples of these are an eye camp for the elderly, and a general health check-up camp with experts from different specialisations.

To promote local leadership, `link leaders' were identified in each area from among active participants in the monthly meetings, who then received training both in the community and in occasional workshops conducted at the project office. Meetings to celebrate World Literacy day; World AIDS day; International Women's day; World Health day, were held in the communities, and major festivals like Dassera, Deepavali and Pongal were also celebrated through cultural programmes.

The staff members worked in close cooperation with the workers of the Noon-meal Centres of the Tamil Nadu government, the Family Welfare Centre staff, the local school and with any other welfare project operating in the area. They actively assisted the Family Welfare Centre nurse in her tasks: immunisation, antenatal care and distribution of iron and folic acid tablets, and referred women for sterilisation in one of the sites: Aminjikkarai.

3.4 **Diaphragm Introduction**

The diaphragms used in the study were the Wideseal diaphragms made of silicone, marketed by the Milex company. Each diaphragm came with a kit including a compact container to store the diaphragm, and 20 disposable packs of SHUR-SEAL gel packs. The active ingredient of the gel was Nonoxynol 9 (2% concentration) and each gel pack had a net weight of approximately 6gms.

Introduction of the diaphragm could not proceed as planned because of the non-availability of the diaphragm for distribution until late March 1995. However, practical training workshops on the diaphragm were held in the interim using a few sample diaphragms.

When several women began to show an interest in using the diaphragms, workshops were held, about once in two or three months in the clinics, to teach women how to insert the diaphragms. Models were used to demonstrate to the women the female genito-urinary system, and for diaphragm insertion. The first of these was held in September 1994. Several women participated in the workshops, while a few came forward for a diaphragm fitting by the clinic doctor. The appropriate size was determined by the doctor using fitting rings. After the size was determined, the woman was given an opportunity to try putting it in and taking it out on her own. In all the study areas, the most appropriate diaphragm size was either 60mm or 65mm. No woman in the study qualified for a diaphragm size bigger than 65mm. The doctors reported that in some instances the diaphragms had enough space to fit a second cervix.

A list of women who would like to use the diaphragm was prepared and regularly updated, even while we waited for the clearance to supply these. The diaphragms became available for distribution in late March 1995. Given the long waiting list of potential clients, a camp approach had to be adopted to cater to all the women within a short period of time. A two day camp was held during 21-22 March 1995, in which women who had opted for the diaphragm over the previous three months were fitted with it. About 60 women adopted the method during these two days. An additional 37 women adopted the method during April, after which supplies ran out again. Thus by the end of June 1995, there were 97 diaphragm users in all.

4.0 THE STUDY METHODOLOGY

A base line survey was carried out between November 1994-March 1995 to collect information on all women in the reproductive age group who were not adopters of a permanent method of contraception (and therefore potential diaphragm users). The survey covered all women falling in this category, and not a sample. Data collected included socio-economic backgrounds, reproductive and contraceptive histories of the women.

Follow-up of diaphragm acceptors within the first month after acceptance started from April 1995. In-depth, open-ended interviews were carried out during the first follow-up visit to

document user perceptions on issues such as the method's comfort and convenience, partner attitudes, health consequences, and other factors influencing the use, maintenance, and desire to continue or discontinue the method.

Data of service-delivery factors is based on informal interviews with service providers, and direct observation.

A total of 222 women had indicated their desire to use the diaphragm in the baseline survey. However, due to the waiting period and the shortfall in supply subsequently, only 97 were able to receive supplies; most of the others had adopted other temporary methods. As a result the diaphragam acceptors are not representative of those who wanted to accept the method. We are therefore not in a position to address several of the questions we started with, regarding differences in characteristics of women who adopted the diaphragm versus those who adopted other temporary methods during the study period. The number of diaphragm users by site is given in Table 2.

Further, we have been able to follow-up the women only once, within the first month of their acceptance of the method, and to interview them. We present therefore a documentation of the profile of women who are currently diaphragm users as compared to all potential users identified by the survey, and their views of and experiences with using the diaphragm in the very first month of acceptance. Also as the maximum duration of use was two months, there is no data on use-effectiveness or continued use over a period of six months.

Despite these limitations, the study provides useful pointers on the desirability of diaphragms from poor women's point of view, their ability to learn to use it correctly and regularly despite lack of basic amenities and privacy.

5.0 RESULTS

5.1 Characteristics of Diaphragm Acceptors

Of the 97 users, base line data is not available for 15 women (Table 2). Most of these have moved into the area since the survey (7), were away at their mother's place for delivery at the time of the survey (6), and 2 were from outside the study area. While the quantitative information presented is based on the 82 users for whom the baseline information is available, the qualitative information relates to all the 97 users.

Table 3 shows that there were a total of 1084 women in the reproductive age groups who were either using a temporary method of contraception (297), or were not using any method of contraception at the time of the base line survey (96 ever users and 691 never users). The 82 diaphragm acceptors therefore represent 8 per cent of potential users in the study area during the period covered by the study, or about 4 percent of all non pregnant women of reproductive age (2295), including those sterilized (1211).

Socio-economic characteristics

A few socio-economic indicators (education, work status, husband's occupation, number of rooms in the house, and access to bathrooms and toilets) were measured to detect differences, if any, in diaphragm use. Statisticlly non-significant differences were observed in diaphragm use by all the variables considered.

Contrary to expectations, a slightly higher proportion of illiterate women are diaphragm users (9 per cent) when compared to women with at least one year of education (7 per cent) (see Table 4). Similarly, a greater proportion of women whose husbands were illiterate (9.5 per cent) are users as compared to women whose husbands were not illiterate (7.1 per cent) (see Table 5).

The vast majority of study participants (92 per cent) do not work outside the home (see Table 6). However, more women from among those who are employed outside the house, particularly domestic servants, are diaphragm users (10 per cent) than those who are home based (7.3 per cent). The proportion of diaphragm users is a little higher among women whose husbands are salaried workers, with little difference between those married to men in blue collared and white collared jobs (Table 7).

While more women from houses which had three or more rooms are diaphragm users (9.9 percent) than those who have one or two rooms (7.4 percent), nearly as many women from one room houses are diaphragm users as are from two room houses (Table 8). Privacy may thus be a facilitating factor, but living in a one room abode is not a major barrier to adoption of this method.

A rather unexpected finding is the indication that the presence or absence of either a bathroom or a toilet makes no difference to diaphragm acceptance. A equal proportion of women with and without access to a bathroom, or to a toilet, are currently diaphragm users (Tables 9 and 10). Clearly women are able to incorporate hygienic use and maintenance of the diaphragm into their daily routines.

Demographic Characteristics

A higher proportion of married women in the 15-19 age group are diaphragm users (13.5 percent) when compared to other age groups (7 percent). Specifically, 7.9 per cent of women in the 20-24 age group used the diaphragm followed by 7.4 per cent in the 35-39 age group. There were no acceptors among those over forty who formed 2 per cent of current non-users of contraception. Practically all the women in this last age group have undergone sterilisation (Table 11). The data suggest that the diaphragm has an important role in delaying births, among younger women whose needs are not served by the methods currently available in the programme.

There are no diaphragm users from among nulliparous women, and women with parity 1 were as likely to be users (8.7 percent) as those with parity two or more (8.1 percent)(Table 12). Those with one surviving child were represented twice as frequently among diaphragm

users than those with two or three children (Table 13), and none of the women with four or more living children were diaphragm users. Also, no signficant differences arise in diaphragm use by the sex of surviving children.

In terms of prior use of contraception, of the 82 diaphragm users for whom we have data, 26 have switched to the diaphragm--from the pill (16), condom (4) and IUD (6). 4 were past users of the IUD, but current non-users. Nearly two-thirds (63 %) were never-users. In other words, 9 percent of temporary method users had switched and 7.5 percent of never users had accepted the diaphragm (see Table 3). The high frequency of switching suggests dissatisfaction with the method currently used, and there is no doubt that the diaphragm widens the contraceptive choice of the study participants.

5.2 **Service Delivery Factors**

Counselling and information was already given in the community over repeated contacts, and women came to the clinic only after they had decided to use the diaphragm. We had provided for clinic based counsellors in each of the three clinics. However, both the prolonged period of community based education and the `diaphragm camps' did not provide scope for carrying out a typical single contact counselling session in the clinic. Given that in most instances counsellors had not only talked to the diaphragm acceptors over several months, and always accompanied them to the clinic for screening, treatment of infections or insertion of diaphragm, the need for a separate counselling session at the clinic did not arise.

Women were taught how to insert the diaphragm at the clinic. While the diaphragm was inserted, the doctor would explain to the client what she was doing, and point to the posters stuck by the side of the examining table. The women were asked to practise insertion on their own at least twice, walk around with the diaphragm and feel comfortable, before they left the clinic. They were also advised to practise insertion and removal at home. There has so far been only one instance of a woman not being able to insert the diaphragm after the initial fitting at the clinic. The field staff brought her back to the clinic, and the service providers taught her once again.

As mentioned earlier, all women opting to use the diaphragm were screened for contraindications. In only one instance was a potential user found unsuitable. She had an IUD without being aware of it. Further, the IUD was imbedded in the cervical canal, which required surgical removal. She was referred to the Kilpauk teaching hospital, and although advised to return for the diaphragm after the removal, she was not willing to adopt any method of contraception thereafter. Since a number of women were treated for RTIs in the waiting period before diaphragm availability, presence of RTIs did not feature as a problem at the time of insertion.

Service providers' attitudes to the diaphragm, as compared to the other methods they provided, underwent a significant change during the course of the study period. One of the doctors had believed that the diaphragm would not be a convenient method for young women because of a high level of sexual activity. This did not turn out to be the case (see discussion in the next section). Women's willingness and ability to learn to use the diaphragm was also an open question as far as the service providers were concerned, and they report being pleasantly surprised

by the encouraging response. They do however, have apprehensions about the method's potentially lower effectiveness, particularly related to sterilization and IUDs.

Acceptors mentioned that the kindness shown by the doctors, their willingness to explain diaphragm use in detail, and their patience in insertion training were important factors in their motivation for use of the method.

Further, two of the nurses in the Punjab Association hospital in Thiruvanmiyur themselves started using the diaphragm, and were very positive about the method. This is also likely to have been a factor in convincing the other women of the method's desirability.

5.3 **Dynamics of Use**

Women reported practising diaphragm insertion at home for a couple of days before they felt confident to use it. A few said that they felt slight discomfort at first because of incorrect insertion, but later realised that when the diaphragm was correctly in place, there was no discomfort. All women reported that they applied spermicide within the dome and rim of the diaphragm. They also reported that application of the spermicide acted as a lubricant. On average, a 6gm spermicide packet was used for two applications.

They inserted the diaphragm in the bathroom or toilet, even if these were public facilities. Removal was sometimes in the bathroom, and sometimes at home behind closed doors. All of them washed the diaphragm in luke warm water, powdered it and stored it in the container. The container was safely kept in a cupboard or in the trunk box containing their clothes.

All women but four reported using the diaphragm every time they had sexual intercourse. The defaulters had various problems: the sudden arrival of the husband one afternoon from work followed by sexual intercourse; presence of relatives in the house which made taking the diaphragm out from the trunk a little tricky (the woman did not want them to know); and forgetting to take the diaphragm along when travelling.

The reason for regular use of the majority turned out to be rather unexpected: infrequent sexual contact. No one reported more than 4-5 sexual contacts over the one month during which they had used the diaphragm. Qualitative information suggests that several of the husbands were migrant workers or worked on night shifts and their work schedules determined the frequency of sexual intercourse. It appears that the women prefer a method they could use as the need arose than one which was either in their body or had to be taken everyday. The discomfort and side effects of other methods was also a contributory factor.

Only one instance of a husband not being in favour of the diaphragm was cited. The woman, however, went ahead and used the diaphragm, and the husband did not find out till he was told! Women also reported that there was no feeling of discomfort or difference during sexual intercourse, to the extent that the husbands did not even realise its presence.

5.4 **Reasons for the Acceptance of the Diaphragm**

A total of 97 women accepted the diaphragm and several more were willing to use it but

could not be part of the study due to the constraints of diaphragm supply. There appear to be several reasons for the popularity of the diaphragm. One appears to be the satisfaction of unmet need for contraception by the diaphragm. The range of methods usually offered in the family planning programme do not seem to address the specific needs of these women. For instance, the diaphragm suited women with intermittent sexual exposure. In addition, women reported the lack of side effects and discomfort associated with other methods, particularly the IUD, as a positive feature of the diaphragm.

Women who had switched from the IUD and the pill said they preferred the diaphragm because it did not harm or affect their health. These perceptions are however based on the information provided and their experience over one month of diaphragm use. Women whose partners were earlier using the condom said that they felt safer, and more in control using the diaphragm because their husbands sometimes forgot or were reluctant to use the condom, depending on their mood. One woman said that since she had a small baby and did not want to get pregnant again, she used to avoid sex and this often led to bitter quarrels between herself and her husband. With the diaphragm, this situation has changed.

Finally, the community outreach activities and the behaviour of the doctors at the clinics were important catalysts. The approach of the community outreach workers was different from the family planning motivators who work in the same areas. The lack of pressure and treatment for all ailments helped the credibility of the study. In addition, the behaviour of the doctors at the clinics which was unlike that at public clinics which the women normally used was a positive element.

Some views on the types of women who might be helped by the diaphragm include:

- women who had infants and were breastfeeding, and who also therefore had sex infrequently.
- women who were unable to undergo sterilisation because of poor health.
- women who had small children and would prefer to wait for two or three years before adopting a permanent method
- women whose husbands were working on jobs that kept them away from home a lot of the time
- older women who had sex infrequently, but could `get caught' nevertheless, with an unwanted pregnancy.

The general feeling was that the method did not particularly require sophistication, education or facilities beyond the basics. According to one of the respondents,`It (effective use of the diaphragm) all depends on the woman's *"samarthyam*"' - cleverness, ability to convince her husband, level of motivation. And there was evidence of a very high level of all these among the women.

In conclusion, women's response to the diaphragm as a contraceptive method of choice

was very encouraging, and in fact far beyond expectations. It is unfortunate that the study could not assess acceptability because of problems of diaphragm supply. Our findings show that even women in resource poor settings are able to use the diaphragm consistently and correctly, if adequate training support is provided and if the quality of care is good. Several of the problems in use identified by studies from other developing countries were not an issue here at least in the short period following adoption. Inclusion of the diaphragm among the methods offered by the FP programme would meet the needs of a not insignificant proportion of women at least in those states of India where women do not need convincing about the benefits of contraception, but are looking for a more appropriate method given their specific circumstances.

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Table 1: **Total Population and Households in the Study Site**

Area	Households	Population	Children 0-5 years	Currently married women	Ante-natal mothers	Users of permanent methods	Users of temporary methods	Non users	CPR
Royapettah	1054	4758	1403	714	53	347	74	240	63.7
Aminjikarai	1052	4566	1331	787	43	443	79	222	70.2
Thiruvanmiyur	1227	6224	1666	928	38	421	144	325	63.5
Total	3333	15548	4400	2429	134	1211	297	787	65.7

Table 2: **Total Number of Diaphragm Users by Study Site**

Diaphragm Users	Royappettah	Aminjikkarai	Thiruvanmiyur	Total
Enumerated in base line	27	23	32	82
Moved in later/outsider	7	3	5	15
Total	34	26	37	97

Table 3: **Contraceptive Status before Acceptance of Diaphragm**

Contraceptive use status	Royappettah		Aminjikkarai		Thiruvanmiyur		Total	
	Diaph. user	All	Diaph. user	All	Diaph. user	All	Diaph. user	All
User of temporary method	7	74	11	79	8	144	26 (8.8)	297
Ever user, current non-user	3	40	0	10	1	46	4 (4.2)	96
Never user	17	200	12	212	23	279	52 (7.5)	691
Total	27	314	23	301	32	469	82 (7.6)	1084

Note: 15 diaphragm users were not enumerated in the base line

Table 4: **Diaphragm Users by Years of Schooling**

Years of schooling	Royappettah		Aminjikkarai		Thiruvanmiyur		Total	
	Diaph. user	All	Diaph. user	All	Diaph. user	All	Diaph. User	All
0 years	2	55	11	114	16	157	29 (9%)	326
1-4 years	1	19	0	11	2	32	3 (4.8%)	62
5-9 years	12	126	10	114	13	204	35 (7.9%)	444
10-12 years	10	102	2	55	1	69	13 (5.8%)	226
13+ years	2	12	0	7	0	7	2 (7.7%)	26
Total	27	314	23	301	32	469	82	1084

Table 5: **Diaphragm Users by Husband's Years of Schooling**

Years of schooling	Royappettah		Aminjikkarai		Thiruvanmiyur		Total	
	Diaph. user	All	Diaph. user	All	Diaph. user	All	Diaph. user	All
0 years	4	40	9	79	7	91	20 (9.5%)	210
1-4 years	0	10	0	5	2	22	2 (1.5%)	37
5-9 years	8	119	10	113	14	210	32 (7.2%)	442
10-12 years	12	125	3	89	8	133	23 (6.6%)	347
13+ years	3	20	1	15	1	13	5 (10.4%)	48
Total	27	314	23	301	32	469	82	1084

Table 6: **Diaphragm Users by their Occupational Status**

Occupation	Royappettah		Aminjikkarai		Thiruvanmiyur		Total	
	Diaph. user	All	Diaph. user	All	Diaph. user	All	Diaph. user	All
Home Based	25	305	19	251	29	439	73 (7.3%)	995
Domestic servants	2	7	3	25	2	14	7 (15.2%)	46
Unskilled manual workers	0	0	0	5	0	3	0	8
Skilled/Blue collar jobs	0	0	0	15	1	4	1 (5.2%)	19
Teachers, nurses, office workers	0	2	1	5	0	9	1 (6.3%)	16
Total	27	314	23	301	32	469	82	1084

Table 7: **Diaphragm Users by Husband's Occupation**

Occupation	Royappettah		Aminjikkarai		Thiruvanmiyur		Total	
	Diaph. User	All	Diaph. User	All	Diaph. User	All	Diaph. User	All
Unskilled manual	7	103	15	196	17	230	39 (7.4%)	529
Skilled manual	9	111	3	32	5	111	17 (6.7%)	254
Salaried Blue collar	7	45	3	42	4	53	14 (10 %)	140
Business/trade	1	24	1	12	4	49	6 (7.1%)	85
Salaried White collar	2	22	1	12	1	10	4 (9.1%)	44
Others	1	9	0	7	1	16	2 (6.3%)	32
Total	27	314	23	301	32	469	82	1084

Table 8: **Diaphragm Users by Number of Rooms in the House**

Number of rooms	Royappettah		Aminjikkarai		Thiruvanmiyur		Total	
	Diaph. users	All	Diaph. users	All	Diaph. users	All	Diaph. users	All
1	10	105	16	202	29	392	55 (7.9)	699
2	10	160	7	86	3	68	20 (6.4)	314
3	3	23	0	10	0	6	3 (7.7)	39
4	2	13	0	0	0	2	2 (13.3)	15
5+	2	13	0	3	0	1	2 (11.7)	17
Total	27	314	23	301	32	469	82	1084

Table 9: **Diaphragm Users by Access to Bathroom**

Access to bathroom	Royappettah		Aminjikkarai		Thiruvanmiyur		Total	
	Diaph. users	All	Diaph. users	All	Diaph. users	All	Diaph. users	All
Yes	5	66	9	80	17	260	31 (7.6)	406
No	22	248	14	221	15	209	51 (7.5)	678
Total	27	314	23	301	32	469	82	1084

Table 10: **Diaphragm Users by Access to Toilet**

Access to toilet	Royappettah		Aminjikkarai		Thiruvanmiyur		Total	
	Diaph. user	All	Diaph. user	All	Diaph. user	All	Diaph. user	All
Yes	20	256	21	245	30	435	71 (7.6)	936
No	7	58	2	56	2	34	11 (7.4)	148
Total	27	314	23	301	32	469	82	1084

Table 11: **Age Distribtuion of Diaphragm Users**

Age in years	Royappettah		Aminjikkarai		Thiruvanmiyur		Total	
	Diaph. user	All	Diaph. user	All	Diaph. user	All	Diaph. user	All
15-19	4	24	0	31	8	34	12 (13.5)	89
20-24	14	145	10	117	14	216	38 (7.9)	478
25-29	5	82	9	89	6	125	20 (6.8)	296
30-34	2	36	3	43	2	54	7 (5.3)	133
35-39	2	19	1	20	2	29	5 (7.4)	68
40+	0	8	0	1	0	11	0 (0.0)	20
Total	27	314	23	301	32	469	82	1084

Table 12: **Parity Status of Diaphragm Users**

Parity	Royappettah		Aminjikkarai		Thiruvanmiyur		Total	
	Diaph. user	All	Diaph. user	All	Diaph. user	All	Diaph. user	All
0	0	32	0	28	0	44	0 (0)	104
1	11	107	11	130	15	186	37 (8.7)	423
2	11	114	9	95	12	139	32 (9.2)	348
3	3	36	3	35	3	62	9 (6.8)	133
4+	2	25	0	13	2	38	4 (5.3)	76
Total	27	314	23	301	32	469	82	1084

Table 13: **Diaphragm Users by Number of Surviving Children**

Number of surviving children	Royappettah		Aminjikkarai		Thiruvanmiyur		Total	
	Diaph. user	All	Diaph. user	All	Diaph. user	All	Diaph. user	All
0	1	43	1	53	0	81	2 (1.0)	177
1	17	133	15	143	24	218	56 (11.3)	494
2	8	117	6	88	7	120	21 (6.5)	325
3	1	13	1	13	1	40	3 (4.5)	66
4+	0	8	0	4	0	10	0 (0.0)	22
Total	27	314	23	301	32	469	82	1084

Table 14: **Diaphragm Users by Number of Surviving Male Children**

Number of surviving male children	Royappettah		Aminjikkarai		Thiruvanmiyur		Total	
	Diaph. user	All	Diaph. user	All	Diaph. user	All	Diaph. user	All
0	12	139	8	136	14	224	34 (6.8)	499
1	12	135	12	132	18	191	42 (9.2)	458
2	3	36	3	29	0	45	6 (5.5)	110
3+	0	4	0	4	0	9	0 (0.0)	17
Total	27	314	23	301	32	469	82	1084

Table 15: **Diaphragm Users by Number of Surviving Female Children**

Number of surviving female children	Royappettah		Aminjikkarai		Thiruvanmiyur		Total	
	Diaph. user	All	Diaph. user	All	Diaph. user	All	Diaph. user	All
0	11	142	15	154	12	229	38 (7.2)	525
1	14	132	5	127	17	183	36 (8.1)	442
2	1	34	2	16	3	43	6 (6.5)	93
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4+	2	25	0	13	2	38	4 (5.3)	76
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3	1	13	1	13	1	40	3 (4.5)	66
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	Diaph. user	All	Diaph. user	All	Diaph. user	All	Diaph. user	All
0	12	139	8	136	14	224	34 (6.8)	499
1	12	135	12	132	18	191	42 (9.2)	458
2	3	36	3	29	0	45	6 (5.5)	110
3+	0	4	0	4	0	9	0 (0.0)	17
Total	27	314	23	301	32	469	82	1084

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Number of surviving female children	Royappettah		Aminjikkarai		Thiruvanmiyur		Total	
	Diaph. user	All	Diaph. user	All	Diaph. user	All	Diaph. user	All
0	11	142	15	154	12	229	38 (7.2)	525
1	14	132	5	127	17	183	36 (8.1)	442
2	1	34	2	16	3	43	6 (6.5)	93
3+	1	6	1	4	0	14	2 (8.4)	24
Total	27	314	23	301	32	469	82	1084