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Role of Contraception in Birth Spacing in Kerala

THE family welfare programme in India overstressed, until recently, permanent methods of contraception, namely male and female sterilisation. Although a widespread IUD programme was in the offing as early as 1965-66, reports of side-effects, damaging rumours and inadequate follow-up services soon created a backlash to the programme. Adequate groundwork was not done prior to the massive introduction of the Lippes' loop programme especially on the rural masses in India. Acceptance, and more so sustained use of non-terminal methods needs a tremendously high motivation. The use of oral pills, the most popular non-terminal method in the West, has been delayed in India for long and it has been propagated only in recent years.

Because of the many problems related to the large-scale implementation of non-terminal methods, the terminal methods were excessively popularised in India. While this has produced reasonable results, the tendency towards stagnation of birth rate during the last decade, in spite of increasing levels of 'couple protection' has created extreme concern over the contraceptive service delivery system and use dynamics at all levels of policy planning, implementation and evaluation. The imperative need for spacing between births, apart from limitation of family size, is increasingly felt. This has resulted in a review of our policy on contraceptive promotion and an enhanced thrust is now placed on the rapid promotion of non-terminal methods such as IUD and the Pill for spacing births, considering that terminal methods are accepted, by and large, by fairly older couples with larger family size. It is encouraging to note that the IUD and pill programmes are gaining momentum in recent years, in particular in Kerala. Against this backdrop, it is highly relevant to assess the impact of the use of temporary methods in spacing births for p»)licy formulation. Information on this matter being scarce, a study was conducted in Trivandrum, Kerala by the Population Research Centre, University of Kerala in an attempt to fill the lacuna.

The Study

The study was conducted in the Pangappara PHC area of Sreekarian Panchayat on the outskirts of Trivandrum city. A sample of 200 currently married women, aged 20-35 years, with two or three living children and with a history of contraceptive use, along with a matching sample of non-acceptor women were planned to be covered. The final sample

consisted of 201 users and 219 non-users. The field enumeration was conducted during December 1987 and February 1988.

Information on Lhe following socio-economic and demographic variables was collected: age and age at marriage of women, level of education, occupation, number of children born and living, desired number of children, duration of breast-feeding for each child, date of resumption of menstruation, duration of the use of contraception, duration of separation of spouses and preferred birth intervals.

The term contraceptive 'user* here refers to women who reported a history of the use of IUD, oral pills, Norplant and other conventional contraceptives and those who had undergone medical termination of pregnancy for spacing births.

Findings

Socio-economic and Demographic Characteristics

The socio-economic and demographic characteristics of the contraceptive users and non-users are presented below.

Table 1 presents the percentage distribution of users and non-users by age, age at marriage, parity, desired family size, religion, education and occupation. More than half of the 'users' (57 percent) are less than 30 years of age while only one-third of the 'non-users' (36.5 per cent) are of that age. It is encouraging to note that comparatively younger women resort to contraceptives for spacing their children. The average age of users is 28 years and that of non-users, 30 years. The age at marriage does not show much variation between users and non-users; users have only a slightly higher average age at marriage (20.1 years) than non-users (19.9 years). The majority of women in both groups are of second parity. The mean parity for both is 2.2.

Desired family size is an indicator of fertility potential in a community and hence a crucial determinant of prospective contraceptive behaviour. Those who desire a smaller number of children will be more prone to accept some method of contraception. This is confirmed in the present study also. The users had desired a lesser number of children. The majority (89.5 per cent) of the acceptors and 73 percenfof the non-users desired two children. The average desired family size is 2.2 children for acceptors and 2.3 for non-acceptors.

Our analysis supports the well-established fact that education is positively associated with contraception. Nearly half of the users have an educational attainment of above secondary school while only 39.5 per cent of the non-users have that level of education. But nearly the same percentage in the two groups attained some college education. The majority of the women are unemployed. Among both groups, only 13 per cent have employment outside the home.

The religious distribution of users and non-users shows, by and large, little difference. Around 93 per cent of the sample women are Hindus. Among the users, however, the proportion of Muslims is less.

TABLE 1 :SOCIO-ECONOMIC AND DEMOGRAPffIC CHARACTERISTICS OF USERS AND NON-USERS OF CONTRACEPTIVES

Characteristic	*Users*	*Non-users*
	N = 201 %	N = 219 %
Age (years) 20-24	18.9	8.2
25-29	38.3	28.3
30-34	34.3	49.3
35+	8.5	14.2
Mean	28.4	30.2
Age at Marriage (years)		
15-19	47.8	50.2
20-24	41.8	41.6
25-29	10.4	8.2
Mean	20.1	19,9
Parity		
2	81.6	72.6
3	18.4	27,4
Mean	2.2	2.3
Desired Family size		
1	—	0.9
2	89.5	73.1
3	10.5	25.5
4	—	0.5
Mean	2.1	2.3
Education		
Illiterate	1.9	0.9
1-4	8.5	11.9
5-7	11.8	20.0
8-10	17.6	27.7

Table 1 *(contd, on* page 42)

Table *1 (contd, from* page 41)

Characteristic	*Users*	*Non-users*
	N = 201	*N = 219*
S.S.L.C. & under graduates	41.8	31.3
Degree holders	8.4	8.2
Occupation		
House wife	87.3	86.2
Self employed	1.9	0.1
Govt. servant	8.5	8.2
Coolie	2.3	5.5
Religion		
Hindus	93.5	92.7
Christians	4.0	3.7
Muslims	2.5	3.6

Contraception and Spacing

Table 2 gives the percentage distribution of users and non- users by the interval between

TABLE 2 : MOTHERS BY FIRST BERTH INTERVAL

Interval (in months)	*Ever users (%) N = 201*	*Non-users (%) N = 219*
9-11	30.3	21.9
12-14	32.8	29.7
15-17	11.4	12.8
18-20	6.0	4.6
21-23	6.5	6.9
24-26	4.0	7.3
27-29	2.5	4.1
30-32	1.5	5.0
33-35	1.5	2.7
36 and above	3.5	5.0
	100.0	100.0
Mean	16.1	18.3
S.D	8.7	9.5

marriage and first live birth (hereafter called first interval). None of the total 420 women had had resorted to any form of contraception to postpone the first birth. Nearly 30 per cent of the users and 22 per cent of the non-users had their first birth before completing the first anniversary of their marriage. Nearly one-fourth of the non-users had two years of first interval while the corresponding proportion for the users is only 13 per cent Average first intervals for the users and non-users are 16.1 months and 18.3 months respectively and the difference found statistically significant.

Age and the interval between first and second live births (second interval) of women are presented in Table 3. There were 97 women who had a history of contraception during the second interval. More than half the women had their second birth 3.5 years after first delivery. It is encouraging that more than 37 per cent of the women had their second child only after four years. The mean second interval is 46.5 months. The women of 25-29'years of age have the highest mean interval of four years (48.1 months), although the age differentials are not significant, the average age of the users is found to be 28.4 years.

TABLE 3 : MOTHERS BY AGE AND SECOND INTERVAL (CONTRACEPTIVE USERS)

Birth Interval	*Age*					
(months)	*20-24*	25-29	*30-34*	*35+*	*Total*	%
	-	-	-	-	-	
13-15	-	1	-	-	1	1.0
16-18	-	-	-	-	-	-
19-21	-	-	2	-	2	2.0
22-24	1	1	1		3	3.1
25-27	-	1	2	1	4	4.1
28-30	1	-	-	2	3	3.1
31-33	4	3	5	1	13	13.4
34-36	1	3	2		6	6.2
37-39	3	7	4	-	14	14.4
40-42	2	1	1	1	5'	5.2
43-45	-	1	4	-	5	5.2
46-48	1	4	-	-	5	5.2
49+	4	17	12	3	36	37.1
Total	17 (17.5)	39 (40.2)	33 (34.0)	8 (8.3)	97	100.0
Mean	47.8	48.1	45.3	44.4	46.5	
S.D	12.9	14.4	16.1	17.2	16.1	

TABLE 4 : MOTHERS AGE AND SECOND INTERVAL (NON-USERS)

Interval	*Age*					
(months)	*20-24*	25-29	*30-34*	*35+*	*Total*	*%*
<12	1	-	1	1	3	0.9
13-15	2	10	9	6	27	8.4
16-18	5	6	14	4	29	9.0
19-21	2	14	18	7	41	12.7
22-24	7	12	18	5	42	13.0
25-27	8	16	13	4	41	12.7
28-30	7	10	14	4	35	10.8
31-33	1	6	14	1	22	6.8
34-36	3	6	6	2	17	5.3
37-39	-	5	10	1	16	4.9
40-42	1	1	8	-	10	3.1
43-45	.1	3	4	-	8	2.5
46-48	1	6	2	1	10	3.1
49+	-	5	13	4	22	6.8
Total	39	100	144	40	323	100.0
%	12.1	30.9	44.6	12.4	100.0	
Mean	25.8	28.5	29.8	26.5	28.5	
S.D	7.8	11.3	12.4	13.1	11.8	

The distribution of non-users by age and second interval is given in Table 4. There ar> 323 women who did not use any contraceptives during the period between their first and second deliveries. Nearly 44 per cent of these women had their second birth before two years. Only 6.8 per cent had their second birth after four years. The mean sdcond interval for the non-users is 29 months. A difference of nearly 18 months is seen between the users and non-users in their average second birth intervals. Among the non-users, the women of 30-34 years age group have the highest mean interval of 44.6 months. The younger as well as the older women have, on an average, only one year interval between the first and second births. The average age of the non-users is found to be 29.6 years.

The duration of use of contraceptives after first birth is presented in Table 5. Nearly two-thirds of the women used contracepti ves for a period of 20 or more months. Only 8 per cent used for less than 10 months. The average duration is found to be 20.9 months. Again, we have found a strong positive correlation (r = 0.71) between duration of contraceptive use and spacing.

TABLE 5 : MOTHERS BY SECOND INTERVAL AND DURATION OF CONTRACEPTIVE USE

Interval	*Duration of use (in months)*					
(months)	5-9	*20-14*	*15-19*	20-24	25+	*Total*
13-15	1	-	-	-	-	1
16-18	-	-	-	-	-	-
19-21	1	1	-	-	-	2
22-24	2	1	-	-	-	3
25-27	1	1	-	2	-	4
28-30	-	-	2	1	-	3
31-33	2	*5*	2	4	-	13
34-36	-	2	2	1	1	6
37-39	-	2	2	6	4	14
40-42	-	-	-	1	/4	5
43-45	1	-	-	4	-	5
46-48	-	-	-	3	2	*5*
49+	-	-.	3	6	27	36
Total	8	12	11	28	38	97
%	8.3	12.4	11.3	28.9	39.1	100.0
Mean	26.8	31.3	40.5	413	53.6	43.9
S.D	8.6	5.4	11.7	10.4	8.6	13.0

Desired Birth Interval

An important motivational factor for contraceptive use for spacing is the preferred delay f subsequent conception. So the women were asked whether they desired their next delivery certain period after the previous delivery. All the users had certain time preference for their scond delivery although all could not achieve it. Nearly three-fourths of the users and two-lirds of the non-users preferred an interval of 3-5 years. Among both groups, only a very mall percentage wanted a duration of two years. About 28 per cent of the non-users did not ave any specific preference. The mean preferred birth interval for the users as well as on-users was about 44 months which is quite high and encouraging.

Breast-feeding

Both at the individual and cross-country levels, duration of breast-feeding correlates with irth spacing (Jain and Bongaarts 1981, McCann et al. 1981; Van Ginniken 1977; among

TABLE 6 : DURATION OF BREAST FEEDING AND SECOND BIRTH INTERVAL

Birth Interval (months)	*Duration of Breastfeeding (in months)*											
	0-11		*12-17*		*18-23*		*24-29*		*30+*		*Totol*	
	U	*NU*	*U*	*NU*	*U*	*NU*	*U*	*NU*	*U*	*NU*	U	*NU*
<12	-	*3*	-	-	-	-	-	-	-	-	-	3
13-15	-	*15*	1	12	-	-	-	-	-	-	1	27
16-18	-	14	-	13	-	2	-	-	-	-	-	29
19-21	-	9	2	26	-	6	-	-	-	-	2	41
22-24	-	1	3	17	-	21	-	3	-	-	3	42
25-27	-	2	2	8	2	26	-	5	-	-	4	41
28-30	-	2	2	10	1	17	-	4	-	2	3	35
31-33	3	-	2	-	3	7	3	15	2	-	13	22
34-36	1	-	1	-	2	1	1	12	I	4	6	17
37-39	-	-	4	-	3	1	6	10	1	5	14	16
40-42	1	-	-	-	2	-	-	10	2	-	5	10
43-45	-	-	2	-	2	2	1	6	-	-	5	8
46-48	-	-	-	-	1	2	4	6	-	2	5	10
49+	-	-	11	-	6	5	8	13	11	4	36	22
Total	5	46	30	86	22	90	23	84	17	17	97	323

U - Users ; NU - Non-users

others). Table 6 shows the distribution of users and non-users by their second birth interval (between I and II births) and the duration of breast-feeding during the interval. Most of the users (95 per cent) had breast-fed their first child for a period of one year or more while the corresponding percentage for non-users is 86 per cent Nearly half of the users as well as non-users have breast-fed their first child for 2-3 years. The average duration of breast-feeding of the users was 21.7 months and of non-users, 19.1 months. Thus, an average user had breast-fed her child only 2.6 months more than her counterpart and this difference appears inadequate to offset or reduce the impact of their contraception for spacing.

Further, the duration of post-partum amenorrhoea was almost the same (around four months) for users and non-users in the birth intervals studied. This implies that post-partum amenorrhoea has not played any role in determining the differentials in spacing among users and non-users.

The Interval Between Second and Third Births

Among the total 420 sample women, only 97 had three children, 29 of whom used some method of contraception for spacing between their second and third deliveries. The average

TABLE 7 : DURATION OF CONTRACEPTIVE USE DURING THE INTERVAL BETWEEN SECOND AND THIRD BIRTHS

Duration (in months)	*Percentage*
10-14	6,9
15-19	17.2
20-24	37.9
25-29	24.2
30+	13.8
Total	100.00
N	29

ages of the users and non-users are 30 and 31.7 years respectively. More than 50 per cent of the users and non-users are between 30 and 34 years of age.

A vast majority of the users (90 per cent) had their third birth two years after their second births while only half of the non-users did so. The average third 'interval' of users is 44.5 months while the corresponding figure for non-users is only 28.3 months.

The duration of use of contraceptives during the third interval is given in Table 7, Among the users, 13.8 per cent used contraceptives for more than 2.5 years and the majority (76 per cent) for more than 20 months. The mean duration of use was two years.

The distribution of users and non-users by their third birth interval and preferred interval shows that only a very small percentage (nearly 3.5 per cent) among the users and 6 per cent among the non-users wanted a child within three years of the second deiivery. About 27 per cent of the non-users have no preferred third interval; all those who had some preferred timing for the next delivery were users.

The duration of breast-feeding for the third child of both users and non-users is presented in Table 8.

TABLE 8 : DURATION OF BREASTFEEDING FOR THE THIRD CHILD—USERS AND NON-USERS

Duration (in months)	*Users (%)*	*Non-users (%)*
<12	6.9	7.4
12-17	13.8	19.0
18-23	31.0	41.2
24-29	27.6	16.2
30-35	13.8	8.8
36 and above	6.9	7.4
Total	100.0	100.0
N	29	68

More than half the women in both groups breast-fed their third child for about two years. The mean duration of breast- feeding for users and non-users is 23.4 months and 18.9 months respectively. The difference in the mean durations does not, however, appear statistically significant. The mean post-partum amenorrhoea during the interval lies between four and five months for both users and non-users.

Open birth interval

In a study of birth spacing, it is not enough to focus only on closed birth intervals: open intervals may also be studied. Not all women accept a permanent method of contraception even though they have achieved the desired number of children. They may adopt temporary methods for some time and go in fc: sterilisation later. In the present sample, among the 323 second- parity women, 97 used temporary methods of contraception after second birth, 85 per cent of whom underwent sterilisation afterwards.

The mean open birth interval for the sample women is three years (36.8 months). Nearly one-fourth of the women had an open birth interval of two years while above 57 per cent had completed more than four years at the time of survey.

Summary and Conclusion

A study of 420 rural women, aged 20-35 years with two or three living children was conducted in a PHC area on the outskirts of Trivandrum city to delineate the impact of contraception on spacing births. Out of the total sample, 201 women were users of temporary methods such as IUD and the pill and the rest were non-users. The field investigation was conducted by two senior staff members of the Population Research Centre, Trivandrum during December 1987 and February 1988.

The mean age of the users is 28 years and that of non-users, 30 years. For both groups, the mean age at marriage is around 20 years. The majority of women had two living children. Only 97 (23.1 per cent) had a third child.

For the analysis, the history of contraceptive use during four intervals, namely (a) the interval between marriage and first birth, (b) interval between first and second live births, (c) interval between second and third births and (d) the open interval are considered.

None of the women reported any contraceptive use during the first interval, i.e. to postpone the first pregnancy. A sizeable proportion of women used contraceptives to postpone later pregnancies. The mean second interval for users was 46.5 months while for non-users it is only 28.5 months. There is a strong positive correlation *(r*=0.7) between the duration of contraceptive use and spxing. The user-non-user differentials of the durations of breast-feeding and post-par-tum amenorrhoea do not seem significant enough to offset the effect of contraception for spacing. The third and the open interval are significantly influenced by contraceptive use. Our findings provide a clear empirical evidence of the positive role of non-terminal contraceptive methods in postponing pregnancies. The relationship suggests that decii nes in the proportion of women using contraceptives may result in shorter birth intervals and increased completed family size unless they are offset by increased breast-feeding.

References

1. Jain, Anrudh K. and John Bongaarts, i981. Breastfeeding: Patterns, correlates, and fertility effects. *Studies in Family Planning* 12 (3) (March): 79-99.
2. McCann, Margaret et al., 1981. Breastfeeding, fertility, and family planning, *Population Reports,* Series J, 24.
3. Van Ginneken, Jeroen K., 1977. "The impact of prolonged breast-feeding on birth intervals and on postpartum amenorrhoea," fa W.Henry Mosley (ed.), *Nutrition and Human Reproduction,* New York, Plenum Press: 175-95.