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RESEARCH ARTICLE

IMPACT OF FAMILY WELFARE SERVICES IN A RURAL AREA OF CENTRAL KERALA, INDIA

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Abstract

Family planning was considered the centre of our national development since 1952 and India is the first country in the world to launch National Programme for Family Planning for the same.

Objectives: To find the impact of family welfare services in Arpookara panchayat in Kerala and to find the prevalence and factors associated with the acceptance of contraception.

Methodology: This cross-sectional study was done among 650 eligible couples selected by Purposive sampling in Arpookara panchayat of Kottayam in Kerala, India. Data were coded and analysed using SPSSv20.0.

Results: 2.76% (18/650) of the study participants used any type of contraception to delay the first pregnancy. Only 2.8% accepted vasectomy. Hindu religion and nuclear family were found as independent predictors for accepting contraception.

Conclusion: Social factors of a couple do have an impact on family welfare indicators. Family planning in men should be encouraged with proper IEC activities.

Introduction:-

In 1952, India launched National Family Planning Programme, a first of its kind and since then had a long and tumultuous journey, and renamed as National Family Welfare Programme in 1979(Home | Ministry of Health and Family Welfare | GOI, n.d.; Pachauri, 2014). Family planning was considered the very centre of planned development of India in the third five-year plan (1961- 65). Policy and implementation under National Family Welfare Programme has been revamped several times inclusive of a coercive target approach, reproductive health and rights paradigm, incentives for contraception adoption and camps for family planning, among others to recent cafeteria approach with a basket of choices(Starbird et al., 2016). Currently it has been included under the umbrella of Reproductive, Maternal, Newborn and Child Health and Adolescents Program (RMNCH+A)(Singh et al., 2018).

Family planning affects population health in countless ways, the most elemental being securing human rights – ensuring that every birth is by choice and not chance, right to choose family size, better access to education and improved livelihood(Starbird et al., 2016). Not only does family planning fends off 32% of maternal deaths by

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reducing the chance of unsafe abortions, accidental pregnancies, high order birth and closely spaced pregnancies and almost 10% of childhood deaths, it has a pivotal impact on economic growth as well(Cleland et al., 2006). Furthermore, Spacing pregnancies at least 24 months apart is linked to reduction of stunting among under 5 children(Rutstein et al.,2014). It also has overarching benefits affecting all 17 sustainable development goals (SDGs). Investment in Family planning measures, steers the nation towards attainment of Sustainable Development Goals in an accelerated pace(Muttreja & Singh, 2018).

Kerala has been a pioneer in social development. Its social indicators are class apart with its sex ratio favouring women 1121 females for every 1000 males, 97.4% literacy rate and attaining below replacement level of fertility long back in 90s - an out of the box transition in fertility(National Family Health Survey-5, n.d.). The unmet need for family planning and spacing has reduced from 13.7%, 8.3% in 2015-16 to 13%, 7.2% in 2019-20 respectively; prevalence of unmet need was more among the urban women than rural women. India's Total Fertility Rate (TFR) has decreased to replacement level for the very first time but unfortunately Kerala has seen increased TFR from 1.6 in 2015-16 to 1.8 in 2019-20(National Family Health Survey-5, n.d.). This study is drafted to analyse the impact of family welfare services in Kottayam district in central Kerala, India.

Objectives: 1. To find the impact of family welfare services in Arpookara panchayat of Kottayam district in Kerala. 2. To find the prevalence and factors associated with the acceptance of contraception among the eligible couples in the study setting.

Methodology:-

This cross-sectional study was done among 650 eligible couples (currently married couple with women in the reproductive age of 15 to 49 years) in Arpookara panchayat of Kottayam in Kerala, India. The sample size was calculated using the formula, $n= Z^2_{1-\alpha/2}pq/ d^2$, where, Zα is Z value of α error at 5%, i.e 1.96, p = 13.2% (total unmet need for family planning in rural Kerala, NFHS-4), q was 100 – p and d, relative precision, was taken as 20% of p. The calculated sample was 631 and 650 couples were included for the study. Arpookara panchayat has 4 subcentre areas (Karuppa, Karupputhattu, Villooni and Maniaparambu). Purposive sampling technique was used to select 163 eligible couples each from Karuppa and Karupputhattu subcentre areas and 162 each from Villooni and Maniaparambu subcentre areas. The study was commenced after the approval from Institutional Review Board. Data were collected after getting informed written consent from all the participants. Couples who were suffering from primary or secondary infertility and under the treatment for the same were excluded from the study. Details on age in completed years, education and occupation of both the spouses, religion, type of family, socio-economic status of couple according to modified Kuppuswamy scale, age at marriage of wife, age at first and last child births, birth interval, contraceptive usage immediately after the marriage and after the pregnancies, abortions, number of living children were collected using semi-structured interview technique.

Data Management And Analysis

Data were coded and entered in MS Excel and analyzed using SPSS v20.0. Quantitative variables were expressed as mean and standard deviation and qualitative variables were expressed in percentages. Chi-square test was used to find the association between different variables and contraceptive usage. Binary logistic regression was used to find the independent predictors for acceptance of any contraceptive technique.

Results:-

A cross-sectional study was done among 650 eligible couples in Arpookara panchayat of Kottayam, Kerala to find the impact of family planning services and the results are as follows.

Sociodemographic characteristics of the participants

The mean age of the women was 35.64 ± 6.79 years with minimum age of 20 years and maximum age of 49 years. The mean age of the men was 40.50 ± 7.01 years with minimum age of 23 years and maximum age of 60 years. Majority of the men had education of high school and above, 587/650 (90.30%) whereas women with education of high school and above was 624/650 (96%). Skilled works was the occupation among 34.5 % (224/650) of the men, followed by unskilled work 218/650 (33.5%) and 7 out of 650 (1.1%) were unemployed. Among the women 434/650 (66.8%) were unemployed. Majority of the study population belonged to the middle class according to Modified Kuppuswamy Socioeconomic Status scale. Table 1 shows the sociodemographic characteristics of the study participants.

Table 1:- Sociodemographic characteristics of the study participants.

Variables	Women	Men
Education	**Frequency (Percentage)**	**Frequency (Percentage)**
Illiterate	1(0.2)	3(0.5)
Primary school	2(0.3)	7(1.1)
Middle school	23(3.5)	53(8.2)
High school	273(42)	341(52.5)
Intermediate/ diploma	234(36)	169(26)
Graduate	116(17.8)	75(11.5)
Post Graduate	1(0.2)	2(0.3)
Total	650(100)	650(100)
Occupation		
Unemployed	434(66.8)	7(1.1)
Unskilled worker	49(7.5)	218(33.5)
Semiskilled worker	42(6.5)	57(8.8)
Skilled worker	45(6.9)	224(34.5)
Clerical/Shop/Farm	46(7.1)	120(18.5)
Semi profession	33(5.1)	22(3.4)
Professional	1(0.2)	2(0.3)
Total	650(100)	650(100)
Religion	**Frequency (Percentage)**	
Hindu	383(58.9)	
Christian	259(39.8)	
Muslim	8(1.2)	
Total	650(100)	
Type of family	**Frequency(Percentage)**	
Nuclear family	311(47.8)	
Joint family	339(52.2)	
Total	650(100)	
Socio economic status	**Frequency(Percentage)**	
Upper class	7(1.1)	
Upper-Middle	276(42.5)	
Lower-Middle	292(44.9)	
Lower class	75(11.5)	
Total	650(100)	

Impact of Family Planning services

The mean age of women at marriage was 23.30 ± 3.30 years with minimum age 14 years and maximum 38 years. The mean age of women at first child birth was 24.15 ± 3.51 years with minimum 16 years and maximum 40 years. The mean age of women at last child birth was 27.66 ± 4.12 years with minimum 18 years and maximum 48 years. Only 2.76% (18/650) of our study participants used any type of contraception after marriage to delay the first pregnancy. Five couples did not have children and they did not fit into infertility definition since they are married for less than 6 months during the period of study. When analysing only those who have children, about 57.1% (368/645) had their first pregnancy within 1 year of marriage. Majority of the participants (401/650, 61.7%) had 2 living children. Five hundred and nine couple had more than 1 children and the interval between first and second pregnancy was more than 3 years in majority of them (314/509, 61.68%). About 108 couples had more than 2 children and the interval between the second and third pregnancy was more than 3 years in 59.25% of them (64/108). Two couples had 4 children each. Around 120 women (18.5%) experienced at least one abortion in their life. Figure 1 shows the usage of any method of contraception technique followed by the study participants to delay the first pregnancy and also to limit the family size. About 95.2% (619/650) were using any type of temporary or permanent contraceptive techniques after the last child birth (Intrauterine devices 44.8%, Tubectomy 27.1%, Vasectomy 2.8%, natural and barrier techniques 20.6%). Table 2 explains the impact of family planning services in the study area.

Figure 1:- Contraception usage to delay the first pregnancy and to limit the family size.

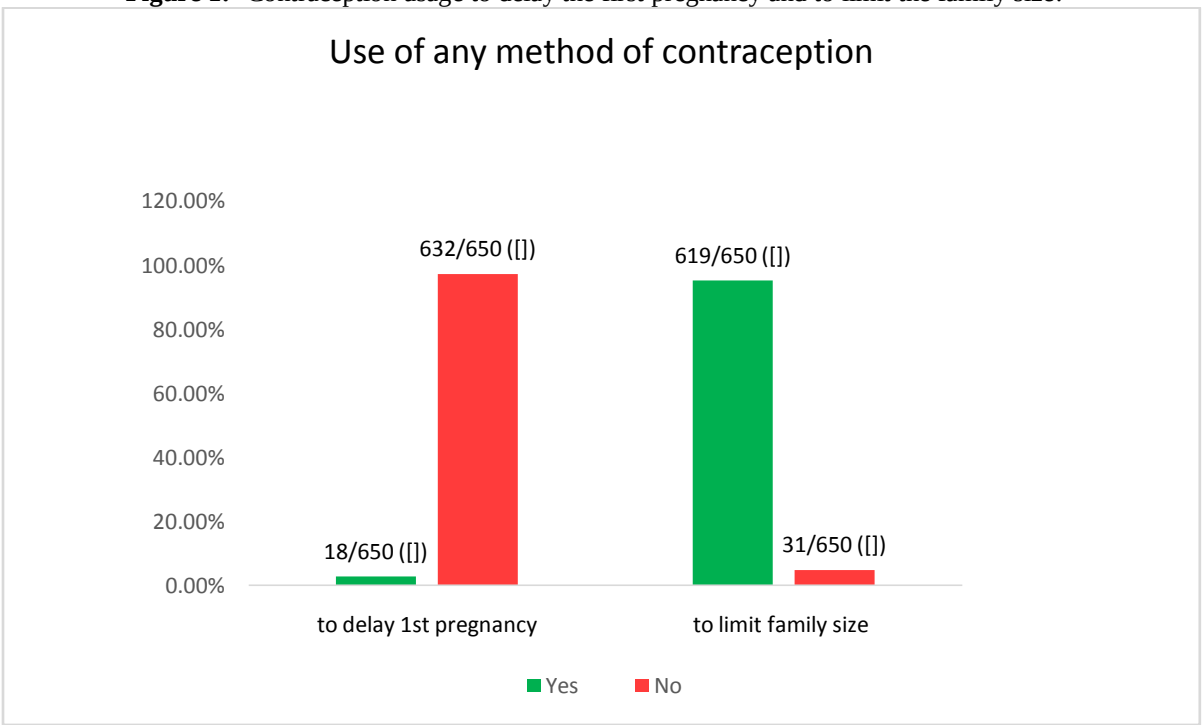

Table 2:- Impact of Family Planning services among the study participants.

Variables	Frequency	Percentage
Number of living children		
0	5	0.8
1	136	20.9
2	401	61.7
3	106	16.3
4	2	0.3
Total	650	100.0
Interval between marriage and 1st Pregnancy		
< 1 year	368	57.1
1-2 years	219	33.9
3-4 years	49	7.6
≥ 5 years	9	1.4
Total	645	100
Interval between 1st and 2nd pregnancy		
< 3 years	195	38.3
3 -6 years	281	55.2
7-10 years	26	5.1
> 10 years	7	1.37
Total	509	100
Interval between 2nd and 3rd pregnancy		
< 3 years	44	40.7
3 -6 years	52	48.14
7 -10 years	12	11.1
Total	108	100
Age of mother at birth of 1st child		
≤ 18 years	19	2.9
19-21 years	137	21.2
22-25 years	285	44.2

26-30 years	183	28.4
> 30 years	21	3.3
Total	645	100
Age of mother at last child birth		
≤20 years	18	2.8
21-25 years	183	28.4
26 -30 years	298	46.2
31-35 years	123	19.1
≥ 36 years	23	3.5
Total	645	100
Abortion		
No	530	81.5
Yes	120	18.5

Factors associated with Family Planning services

Association of study variables with the use of contraception was statistically analysed using chi-square test and represented in Table 3 and Table 4. Upper class and upper-middle class families were found to follow any of the contraceptive techniques to delay the first pregnancy (chi-square value 6.19, p value 0.013). On the contrary, after child birth, lower-middle class and lower class were found to use contraception to limit the family size (chi-square value 4.17, p value 0.041). Couples living in nuclear family were found to use contraception to limit the family size (chi-square value 6.33, p value 0.012). Couples with Hindu religious belief was found to have statistically significant association in following contraceptives to limit family size (chi-square value 4.6, p value 0.032). Wife's education, husband's education and the occupation of wife did not have statistically significant association with the usage of contraception to delay the first pregnancy and also after completion of the family.

Table 3:- Association of different variables with contraception usage to delay the first pregnancy.

Variables		Contraception		P value
		No	Yes	
Wife Education	Till middle school	26 (100%)	0	
	High school and above	606 (97.1%)	18 (2.9%)	0.35
Husband education	Till middle school	61 (96.8%)	2 (3.2%)	
	High school and above	571 (97.3%)	16 (2.7%)	0.837
Wife Occupation	Till Semi-skilled	512 (97.5%)	13 (2.5%)	
	Skilled & above	120 (96%)	5 (4%)	0.351
Husband Occupation	Till Semi-skilled	277 (98.2%)	5 (1.8%)	
	Skilled & above	355 (96.5%)	13 (3.5%)	0.175
Socio economic status	Upper & Upper middle	270 (95.4%)	13 (4.6%)	
	Lower middle & upper lower	362 (98.6%)	5 (1.4%)	**0.013***
Type of family	Nuclear family	301 (96.8%)	10 (3.2%)	
	Joint family	331 (97.6%)	8 (2.4%)	0.057
Religion	Christian & Muslim	373 (97.4%)	10 (2.6%)	
	Hindu	259	8	0.768

		(97%)	(3%)	

*Statistically significant with p value < 0.05

Table 4:- Association of selected variables with the current usage of any contraceptive techniques to limit the family / for spacing of pregnancy.

Variables		Final Contraception		P value
		No	Yes	
Wife Education	Till middle school	2 (7.7%)	24 (92.3%)	0.475
	High school and above	29 (4.6%)	595 (95.4%)	
Husband education	Till middle school	3 (4.8%)	60 (95.2%)	0.647 Fishers exact t test
	High school and above	28 (4.8%)	559 (95.2%)	
Wife Occupation	Till Semi-skilled	27 (5.1%)	498 (94.9%)	0.36
	Skilled & above	4 (3.2%)	121 (96.8%)	
Husband Occupation	Till Semi-skilled	7 (2.5%)	275 (97.5%)	**0.017***
	Skilled & above	24 (6.5%)	344 (93.5%)	
Socio economic status	Upper & Upper middle	19 (6.7%)	264 (93.3%)	**0.041***
	Lower middle & upper lower	12 (3.3%)	355 (96.7%)	
Type of family	Nuclear family	8 (2.6%)	303 (97.4%)	**0.012***
	Joint family	23 (6.8%)	316 (93.2%)	
Religion	Christian & Muslim	24 (6.3%)	359 (93.7%)	**0.032***
	Hindu	7 (2.6%)	260 (97.4%)	

*Statistically significant with p value < 0.05

Multivariate analysis

Variables which were found to have statistically significant association with the current use of any contraceptive technique using bivariate analysis were the couples living in nuclear family, Hindu belief, husband having occupation involving semi-skilled and unskilled works and socio-economic status of lower-middle class and lower class. Binary logistic regression model was used to find the independent predictor for the acceptance of contraceptives after 1 child birth/current contraceptive usage and the results were explained in table 5. Hindu religion and nuclear family were found as independent predictors for accepting any of the contraception method to either limit the family size or for spacing the pregnancies. This model had Cox & Snell R square value of 0.029 and Nagelkerke R square value of 0.091.

Table 5:- Binary Logistic Regression.

Variable	B	S. E	p value	OR	95% CI
Religion (Hindu)	1.045	0.442	0.018	2.843	1.195 to 6.767
Socio-economic status (lower and upper-middle class)	0.461	0.412	0.263	1.585	0.707 to 3.555
Husband occupation	0.789	0.472	0.095	2.201	0.872 to 5.551

(unskilled and semi-skilled works)					
Nuclear family	0.943	0.425	0.026	2.568	1.117 to 5.902
Constant	1.832	0.291	0.000	6.247	

B- regression coefficient; OR –Odds ratio; S.E –Standard error; CI – Confidence interval.

Discussion:-

The mean age of marriage for women was 23.30 ± 3.30 years, with minimum age 14 years and maximum 38 years in our study, similar to studies by Makade KG et al (2013), Mathew et al (2015), Thadathil S et al (2016) and Kamath et al(2019),. Chaudhary et al (2021), reported lower mean age at marriage (15.82 ± 1.92) probably due to high prevalence of child marriage in Jaipur. Whereas the mean age at marriage was 30.95 ± 6.421 in a study by Nair et al (2017),. Age at marriage has got an undeniable negative impact on fertility. As the age at marriage progresses, so does the awareness on contraception. Moreover, early marriage results in longer reproductive life further increasing fertility.

The mean age of women at first child birth and last child birth were 24.15 ± 3.51 years with minimum 16 years and maximum 40 years and 27.66 ± 4.12 years with minimum 18 years and maximum 48 years, respectively. Similar results were observed by Mathew et al (2015), Chaudhary et al (2021) but Chaudhary A et al (2017) reported lower mean age contributed to early marriage.

In our study, about 57.1% (368/645) became pregnant within 1 year of marriage. Only 2.76% (18/650) used contraceptive techniques to delay the first pregnancy similar to Chaudhary A et al (2017). This highlights the fact that conception immediately following marriage has been an age-old social expectation in our society. Failure to conceive instils fear of infertility; forcing women to prove their fertility by conception within a year of marriage.

Majority of the study participants had 2 living children (401/650, 61.7%). Similar trend was observed by Nair et al (2017) and Mathew et al (2015). Dey et al (2009) and Sreedevi et al (2022) had reported high order births in their study. Kerala being progressive state, there is less preference for son thereby restricting their family size. In our study, 61.68% (314/509) had more than 3 years interval between 1st and 2nd pregnancies which is higher than the National average as evident from NFHS-5(National Family Health Survey-5, n.d.). Shorter birth intervals pose serious risks to both mother and the baby. With better literacy and quality healthcare services culminating in declining Infant & Perinatal Mortality paved the way for Kerala to achieve longer birth intervals.

One hundred and twenty women (18.5%) had at least one abortion in their life time. This is higher than the national average ascertaining that education plays a crucial role in the choice and right of women to make reproductive decisions on their own body.

The prevalence of any type of contraceptive usage after the last child birth was found to be 95.2% (619/650). Analogous prevalence was observed by Thulaseedharan JV et al (2018). Nair et al (2017) and Mukherjee et al (2021) reported much lower prevalence. The dissimilarity can be attributed to difference in study period and subjects. The contraceptive technique adopted by majority of them in our study were intrauterine devices (44.8%), followed by tubectomy (27.1%), natural/barrier techniques/pills (20.6%) and vasectomy (2.8%) and this finding was comparable to Mukherjee et al wherein intrauterine devices (37.2%) was the most common contraceptive used followed by tubectomy (28%). Mathew et al (2015) and Thadathil S et al (2016) in their study reported that tubectomy (48% and 18% respectively) was the most common contraception used followed by Intrauterine devices, condoms and oral contraceptive pills. Benny et al (2013) and Thulaseedharan JV et al (2016) reported lowest IUCD usage (0.7% and 2% respectively). This further throw light on the heterogenous preferences and regional differences in choosing IUCD necessitating basket of choices.

In our current study, participants belonged to upper and upper-middle class families were found to had used contraceptive techniques to delay the first pregnancy (chi-square value 6.19, p value 0.013) as observed by Dommaraju P (2009). Kerala has the best aggregate wealth index of 1300 as per NFHS 5 in spite of low percentage of increase from 2015-16(National Family Health Survey-5, n.d.). Economy, better literacy among women , priority on career progression has increased autonomy of decision making among women and delaying the age of parenthood.

Couple with the husband's occupation involving unskilled or semi-skilled works (chi-square value 5.735, p value 0.017), nuclear family (chi-square value 6.33, p value 0.012), socioeconomic class of lower-middle class and upper-lower class (chi-square value 4.17, p value 0.041) and those who were following Hindu faith (chi-square value 4.6, p value 0.032) were found to have statistically significant association in using any of the contraceptive techniques to either limit the family size or to space the pregnancies. Sreedevi A et al (2022), Makade KG et al (2013), Thadathil S et al (2016) and Walvekar PR (2012) also reported that contraceptive use was higher among lower and lower middle social class and among unskilled workers. There is better access to contraception across social barriers depicting the success in breaching the unmet need in family planning. Also, people with economic constraints tend to marry early and complete the family making them more receptive to contraception.

Hindu religion and nuclear family were found as independent predictors for acceptance of any of the contraceptive techniques, to space the child births or to limit the family size. Thadathil S et al (2016) observed significant association between Joint family and contraceptive usage. Whereas Kamath et al (2019), Mukherjee et al (2021) and Walvekar PR (2012) also found significant association between nuclear family and contraceptive usage. Nuclear family enforces economic independence, freedom on decision and less likely to be influenced by others on contraceptive decisions. As in our study Sreedevi A et al (2022) and Walvekar PR(2012) reported significant association between Hindu religion and contraceptive acceptance as there is less religious restriction.

Conclusion:-

Social determinants play a major role in the acceptance of contraceptive techniques and in turn affect the indicators of family welfare services. The rate of vasectomy was less even among the community with good literacy rate. With proper information, education and communication activities and motivation, more men should be encouraged to accept terminal method of contraception.

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