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Original Article:

Supplementary Role of Health Metrics for Reducing Total Fertility Rate in a North-Indian State.

Author
Enakshi Ganguly,
Assistant Pofessor, Department of Community Medicine, SHARE India, MediCiti Institute of Medical Sciences, Medchal Mandal, RR District, Andhra Pradesh, India.

Address for Correspondence
Enakshi Ganguly,
Assistant Pofessor,
Department of Community Medicine,
SHARE India, MediCiti Institute of Medical Sciences,
Medchal Mandal, RR District,
Andhra Pradesh, India - 501 401.
E-mail: drenakshig@gmail.com

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Abstract: Reducing Total Fertility Rate (TFR) amongst rural Indian couples from the current level is a significant challenge to the population control policies relying solely on the Government efforts. REACH strategy, based on health metrics, succeeded in lowering the TFR below replacement levels in a rural population of more than 300,000 in Rajasthan. The REACH strategy was first developed and demonstrated success in decreasing TFR in a pilot project by SHARE India in Medchal region of Andhra Pradesh utilizing designated workers, and was replicated in Rajgarh District of Rajasthan in cooperation with Bhoruka Charitable Trust (supervisor of ICDS and NRHM health workers in Rajgarh) using Government health workers. The success of the REACH strategy in both Rajasthan and previously in Andhra Pradesh holds promise as a tool to reduce TFR in other areas of rural India.

Key Words: Total Fertility Rate; REACH Strategy; Health metrics; ICDS; Gender; Rajasthan; India

Introduction:

The National Population Policy 2000 envisages attaining replacement level fertility of 2.1 by 2016 in order to obtain a stable number by the middle of this century.(1) This however, looks like a distant dream in the light of the contribution to population growth by the backward Indian states. It has been emphasized in the NPP-2000 that the achievements in the backward states of UP, MP, Bihar, Rajasthan and Orissa will determine the time and the year in which the country is likely to achieve population stabilization. These states though account for 45% of population, their share in TFR gap is about three fourth.(2)

The Census of India 2001 revealed that since independence Rajasthan, a North – Indian state with poor maternal and child health indicators, continued to maintain its record of registering one of the highest population growth rates in the country. It's reported annual growth rate of 2.5 percent was around 30 percent higher than that recorded for the country as a whole. The most important reasons for the accelerating growth rate of population in Rajasthan are the nearly constant fertility and rapidly declining mortality. Due to two-third area of the State falling in arid and semi-arid region with chronic vulnerability to droughts, growing population is leading the State towards a man-made ecological disaster. It appears that during the remaining years of this critical decade (2001-11), Rajasthan will choose its demographic future by action or inaction.(1)

The age structure of Rajasthan's population is young. Around three-fifths of the total population is under 25 years of age and over 10 million are between 15-24 years. The proportion of the population in this age group is increasing fast. In order to achieve replacement levels, the contraceptive prevalence rate by modern methods must increase to 68 percent by the year 2016. The true focus therefore, clearly should be to address the unmet need for contraception in the state which happens to be quite high at 17.9% currently.(3)

The REACH (Rural effective Affordable Comprehensive Healthcare) strategy based on health metrics was devised and first implemented by SHARE INDIA in Medchal Mandal of with the primary goal of increasing the immunization coverage. The strategy consisted of identifying each house, with each household being censused and located with Global Positioning System (GPS) in 44 villages of Medchal Mandal, RR District, state of Andhra Pradesh having population of 42000. One Community Health Volunteer (CHV) was trained from each village to update the information every month about their constituency of 1000 members in 200 households.

Ten CHVs supervised by one health supervisor, and two health supervisors coordinated by one Coordinator collected and scrutinized household data that was entered by data entry operator and managed by a data manager. Eligible couples of child bearing age were identified and followed every month for early detection of pregnancy. Pregnant women were followed through delivery and then each infant was followed for immunization and any infant deaths. The data collected was updated weekly and village-wise alerts reports, consisting of names of infants due for immunization but not immunized, were generated. Reports were passed on to Health functionaries and their supervisors to immunize the unimmunized children. If the infants were not immunized within 2 weeks, REACH vaccinator vaccinated the child. This resulted in more than 95% complete immunization as per the national Government's Universal Immunization Program schedule. Although REACH has shown that 95% children can be completely immunized, it is costly to implement in the present form. Therefore, the challenge was to establish the core of REACH strategy that could be adapted at minimal cost to perform social audit and generate reports of unimmunized children to alert health care workers and their supervisors for timely intervention.(4)

The improvised model was implemented in Rajasthan on a larger population using support only from the Government functionaries and setting up a health metrics system on similar lines as the state of Andhra Pradesh. The household data collected in the process was used not only for improving immunization services, but also for motivating eligible couples to adopt a suitable contraceptive method to limit family size. The primary role of REACH was to inform the women, and their husbands, of their options of sterilization once they had borne their desired number of children, and refer them to the nearby health facility for the surgery.

The present paper examines the supplementary role of health metrics to reduce the existing persistently high Total Fertility Rate (TFR) levels in one block of the state. The objectives were to study the fertility patterns and calculate and compare the TFR levels of Rajgarh block in Churu District of Rajasthan, to the rest of the state and India.

Methodology:

The study was conducted in Rajgarh block of Churu District in Rajasthan during 2008-09. 225 villages in the Rajgarh block were included in the study, where a house to house survey was conducted by the REACH Project. A total population of 3,09,481 residing in 53,163 households was thus covered. 30,914 eligible couples in the age group of 15-49 years from this area were included in the study. All villages in this area received family planning services by the Accredited Social Health Activists (ASHA, a functionary of National Rural Health Mission) and village ANM. The Rajgarh town was not covered in the project area, due to its urban nature, availability of adequate medical and health facilities and high mobility of the population and the consequent difficulty of maintaining dynamic database for such population.

The ICDS and NRHM (National Rural Health Mission) health staff in this area included a Child Development Project Officer (CDPO); 12 Lady Health Supervisors (LHS); 81 Auxillary Nurse Midwives (ANMs); 274 Anganwadi workers and 250 Accredited Social Health Activists (ASHAs). To implement and test the REACH strategy, Bhoruka Charitable Trust (BCT) supplemented it with a data management staff consisting of 1 field supervisor, 1 data manager and 5 data entry operators, and equipment. Training on software was provided for data manager and data entry personnel by SHARE INDIA. At the village level, ASHA was trained in data collection, reporting, identification of pregnant women and motivation of women on different aspects of maternal and child health care, and for adopting some family planning method. She was entrusted with the task of tracking all eligible couples to generate dependable and timely data for providing family planning services.

ASHA provided the data collected by her monthly in prescribed format to the REACH staff, which was regularly subjected to quality checks by LHS for completeness and consistency, and was then entered in a computer to prepare a database, which in turn, generated periodic reports of eligible couples. This list was sent to the ASHA workers to provide services in the next round of their visit to the households under the supervision of the LHSs, who motivated the couples for family planning and facilitated the adoption of a suitable method to the willing couples, with emphasis on male participation. Other data were also generated simultaneously like the list of unimmunized children, pregnant women due for antenatal care, delivery etc.

The data entered till 2009 was analyzed using Microsoft Access software. Descriptive statistics was used to report the background population characteristics and independent variables. Contraceptive prevalence rates were depicted using suitable graphs.

Results:

The mean age of the population of Rajgarh block was 27.2 years. About 30% of the population was under 15 years of age, about 64% were between 15-59 years, and 7% was 60 years and above. The dependency ratio was 54% in Rajgarh block. Of the 53, 163 households, majority (97.8%) were Hindus and the rest were Muslims. About 60% belonged to backward castes, 22.3% to scheduled caste and 3.3% to scheduled tribes, forming a total of about 86%. The sex ratio of the population was found to be 875 females per 1000 males.

A total of 69,730 fertile individuals were found to have adopted some method of family planning, out of which 43,852 (62.89%) were permanent methods. Among the permanent methods to limit the number of children, tubectomy was found to be the predominant method practiced by 42,441 (97.38%) women, followed by vasectomy among 1072 (2.46%) males. Hysterectomy was done among 339 (0.77%) women of the reproductive age group. The distribution of the prevalent methods of family planning is depicted in Figure1. Some couples were found to use more than one method at the same time. The total contraceptive prevalence rate was 61.3 per cent.

Sterilization operations were conducted for 43,731 (99.72%) of the acceptors at a government facility, whereas private sector contribution was only 115 (2.62%) operations. In addition, 6 (0.01%) operations were carried out at a rural health centre run by an NGO.

The mean age of women who underwent tubectomy was 33.42 years (SD= 5.55), whereas it was slightly lower for men (32.55 years, SD= 5.76) who underwent vasectomy. The practice of family planning was found to be higher among Hindus (66.6%) than among Muslims (50.6%). Of all enrolled women, 3096 were pregnant during the project period (2008-09), whose mean age was 24.18 years (SD= 3.99). They were not included in the present analysis.

Figure 1. Distribution of Family Planning Method use in Rajgarh Block

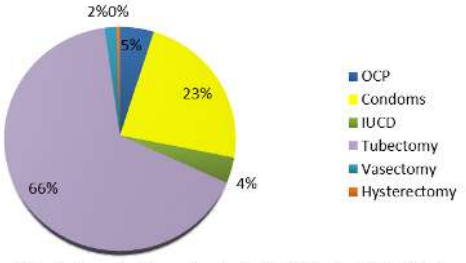
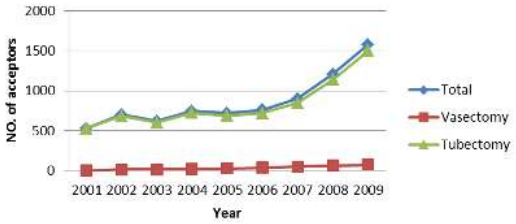


Figure 2. Trends of accepting Permanent methods of Family Planning in Rajgarh block



By age, the contraceptive prevalence was seen to increase steadily from 13% for women aged 20-24 to a peak of 89% for women aged 40-44 years ($p<0.05$), and then declining marginally to 86% for older women aged 45-49 years. Likewise, contraceptive prevalence increased sharply from 17.5% for first parity women to 73.7% for second parity women ($p<0.05$), and further to 81.8% for women of third parity. About three fourth (77%) of women with two or more children had undergone sterilization.

From the gender perspective, male child preference was clearly evident from the fact that only 538 (1.74%) couples adopted some family planning methods after having 2 or more daughters, whereas 12,854 (41.58%) couples adopted family planning after having 2 or more sons ($p<0.05$). The mean number of children in these families was 2.64 (SD= 0.95). The mean number of children born to these couples was 1.54 males (SD= 0.72) and 1.32 females (SD= 1.16). This did not vary depending of the sex of the eligible individual who adopted a method, with a mean of 2.87 children (SD= 1.14) among couples choosing vasectomy as the preferred method for limiting the family size. An overall upward trend for accepting permanent methods of family planning was observed in both sexes, though a large gap existed among the males and females ($p<0.05$) (Figure 2).

Table 1: Age- Specific Fertility rates in Rajgarh Block during 2009

Age group	Female Population	Births	ASFR
15-19	15565	165	0.0106
20-24	13254	2730	0.206
25-29	14494	1866	0.129
30-34	11442	468	0.041
35-39	9727	130	0.013
40-44	6386	35	0.005
45-49	10986	8	0.0007
Total	**81854**	**5402**	**0.4053**

ASFR- Age –Specific Fertility rate

To assess the fertility impact of contraceptive prevalence, computation of age specific fertility rates was done (Table 1) and total fertility rate (TFR) was calculated. The Total Fertility rate (TFR) was estimated to be 2.03 children per women for the year 2009. The peak fertility was observed for the 20-24 years age group. Fertility rates declined sharply after the age of 25. Women aged 40-44 and 45-49 years showed extremely low fertility levels. 53% of total fertility was accounted for births in the age group 15-24 years, whereas the contribution of women aged 35 years and above to total fertility was just about 5%.

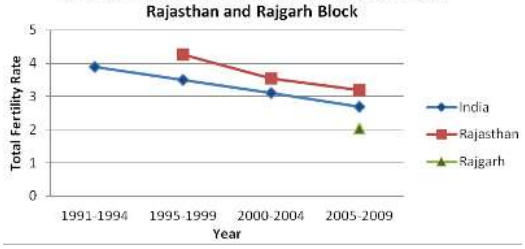
Discussion:

The total contraceptive prevalence was found to be 61.3%, which was higher compared to 55.5% reported by DLHS-3 for rural Rajasthan. Use of spacing methods, condom use in particular, was higher compared DLHS-3 Report.(5) The practice of family planning was much higher among females (97.38%) than among males (2.46%), pattern similar to NFHS-3 reports for rural areas in the state (32.2% females and 0.5% males). The acceptance of two child family norm appeared to be widespread in the project area. Male child preference was reflected from the number of permanent method acceptors among 42% couples after having two sons, which was nearer to the national NFHS-3 figures of 79.2%, whereas much lower for two daughters at about 2% compared to 18.2% according to NFHS-3 for rural areas.(6) Reports indicate that son preference is very strong in states like Uttar Pradesh, Bihar and Rajasthan, which leads to larger families as couples continue to have children until they reach their desired number of sons, (2) which was an evident feature in the present population of Rajgarh block as well determining their contraceptive choices and acceptance.

Almost all the sterilization operations were conducted at a government facility, which is a strong indicator of utilization of public sector facilities for family planning. The promotional role of REACH for increasing the utilization of the public health system well above the overall national average of 88% (6) is evident from this finding.

Fertility in the project area was found to have declined to below replacement level. A TFR of 2.03 children per woman was estimated for the year 2009. The NFHS-3 revealed that the TFR for the state of Rajasthan as a whole was 3.6 in 2005-06 which comes very close to 3.5 estimated by SRS in 2006.(3) The Directorate of Economics and Statistics, Rajasthan reported the TFR to be 3.3 births per women compared to the National figure of 2.6 during the year 2009. Churu district had a high TFR of 4.2 births per woman according to this report.(7) As compared to these figures, fertility levels in REACH villages are much lower (Figure 3).

Fig. 3. Trends of Declining Total Fertility Rate in India, Rajasthan and Rajgarh Block



The age specific fertility rates followed the expected bell shaped pattern. The peak fertility was observed for the 20-24 years age group. The observed fertility was characterized by a substantial amount of early childbearing with 53% of total fertility contributing to births in the age group 15-24, and the contribution of women age 35 years and above to total fertility being about 5% only. Because of growing number of women accepting sterilization at younger ages and at lower parities, the fertility impact of contraception has been quite dramatic in bringing down the TFR to below replacement level.

High quality computerized health metrics are critical for improving the effectiveness of field health workers. Regularly updated lists of eligible couples are a very useful

tool not only to increase work efficiency of health workers, but also helping them for 'meeting the targets' well beyond the prescribed limits. In addition, such lists assist supervisors of field workers to improve accountability. These two factors together resulted in reducing TFR in the present study. The major limitation in this study however, was the failure to prospectively follow the beneficiaries beyond the year 2009, which would have helped to construct a declining fertility trend in the area. A marginal increase in cost was involved for computerizing survey data and generating reports on a regular basis, and it was felt that the benefits achieved far outweighed the expenditure. Calculation of the costs and benefits, however, is beyond the scope of the present paper.

It is possible that government health functionaries can implement the REACH strategy without partnering with an NGO. This possibility may be field tested in some selected areas. Although this database has been most successful with vaccination programs, it has also proven to be helpful in other areas like tracking antenatal care visits and delivery sites for pregnant women in the present study.

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