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FERTILITY IMPLICATIONS OF ADDRESSING UNMET NEED FOR FAMILY PLANNING IN INDIA

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INTRODUCTION

India launched the national family planning programme in 1952, with the view to stabilize population at a level consistent with the requirement of national economy. India adopted many population policies with different strategies as per the requirement of time. Empirical studies show that the usage of contraception has increased in a rapidly both among educated and non-educated people, both in urban and rural areas and both poor and rich couples due to the availability of family planning methods but simultaneously there is a visible gap between demand and supply of contraception. In general parlance women are interested to use contraception but due to some circumstances they are not getting these opportunities. This demand-supply mis-match has given us a concept called the *"Unmet Need for Family Planning"*. The Population Policy 2000, which reiterates the voluntary and informed choice and maintaining a target free approach with continued family planning services. One of the major objectives of the Population Policy, 2000 is to address the unmet need for family planning.

According to the standard definition of unmet need for family planning used in the Demographic and Health Surveys (DHS), which includes all fecund women who are married or living in union, presumed to be sexually active, who wish to postpone the birth of their next child for at least two more years or who either do not want any more children and are not using any method of contraception. The unmet need also includes all pregnant married women whose pregnancies were unwanted or mistimed or who unintentionally became pregnant because they were not using contraception. Similarly, women who have recently given birth and are not yet at risk

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of becoming pregnant because they are amenorrheic have an unmet need if their pregnancies were unintended. Also women who became pregnant unintentionally because of contraceptive method failure are considered to have an unmet need for family planning.[1,2]

The causes of unmet need are complex in nature. Different empirical studies and surveys reveal a range of constraints which affect the risk of woman's childbearing process. For example, the fear of side effects of contraceptive methods, either they are misinformed or may have experienced it by themselves. Some are of the opinion that their husband's disapproval regarding the use family planning methods or oppose family planning themselves because of religious or personal reasons. Some women are uncertain about whether they will become pregnant or not that means they have an ambivalent attitude about whether they want a pregnancy. Some women do not have proper knowledge about the use of different family planning methods and finally some face problems due to lack of the availability of family planning methods. It may be due to weaknesses from supply side, no proper access to the methods.

According to the third round of the National Family Health Survey (NFHS-3), the unmet need for family planning in India was 12.8 percent and the unmet need for spacing and limiting were 6 percent and 6.8 percent respectively in 2005-06. The contraceptive prevalence (met need) of India was 56.2 percent. The total demand for family planning was 69 percent. A large section of currently married women were in the category of unmet need for family planning in India. The variation of unmet need is clear visible in different parts of the country. The north-eastern part of India has more percentage of unmet need compare to other part of India. The southern states have the lowest percentage of unmet need. Meghalaya occupies the highest rank in unmet need and unmet need for spacing

but Nagaland ranks the highest position in unmet need for limiting. Andhra Pradesh has the lowest level of unmet need and unmet need for limiting also but Himachal Pradesh has the least unmet need for spacing. As we know from different empirical studies by the demographers, the unmet need for family planning has a causal relationship with the fertility. But the question arises here whether there is any significant effect of unmet need for family planning of India on fertility reduction, if those needs are satisfied. The principal objectives of this study are to assess the demographic impact of addressing unmet need for family planning on fertility in India and all Indian states and also measure the demographic impact of addressing unmet need for family planning on fertility by different socio-economic groups.

METHODOLOGY

The data used in this analysis is based on the third round of National Family Health Survey (NFHS-3).[3] Before NFHS-3, there were two surveys (i.e. NFHS-1 and NFHS-2) in India. The National Family Health Survey (NFHS) follows the Demographic and Health Surveys (DHS) of the United States Agency International Development (USAID). The Third National Family Health Survey (NFHS-3) coordinated by the International Institute for Population Science (IIPS) under the aegis of the Government of India, was conducted in 2005-06. NFHS-3 had interviewed men aged 15-54 years and never married women aged 15-49 years, as well as ever-married women of age 15-49 years. Various questions on emerging issues such as perinatal mortality, male involvement in maternal health care, adolescent reproductive health, high risk sexual behavior, family life education, safe injections, and knowledge about tuberculosis were included in NFHS-3. The nationally representative sample consisted of 124,385 women in the age group 15-49 years and 74,369 men in

the age group 15-54 years belonging to 109,041 sample households. NFHS-3 also collected information on population and health indicators from slum and non-slum populations in eight cities, namely Chennai, Delhi, Hyderabad, Indore, Kolkata, Meerut, Mumbai, and Nagpur. There were three core questionnaires and the men's questionnaire.

To know the potential significance of unmet need for family planning on fertility rates, the Westoff and Bankole[1] model has been used in this analysis. This model uses three models to calculate different levels of unmet need and its implication on fertility by satisfying those needs.

The first step in this analysis is to estimate the potential contraceptive use which is the sum total of unmet need for contraception and contraceptive prevalence. According to Westoff and Bankole,[1] due to the heterogeneity of the different kinds of 'unmet need', three alternatives of the kinds and amounts of unmet need that theoretically could be satisfied. Using the results from these models, assuming that should provide the maximum, minimum and most realistic estimates of potential use, estimate the implied Total Fertility Rates (TFRs) and the reductions in fertility associated with those estimates. The three models of potential use are described below.

First Model (Maximum Unmet Need Satisfied)

The first model assumes that all unmet need can be satisfied. That signifies mainly the maximum potential level of contraceptive use. The beauty of this model holds the argument that if all the unmet need were satisfied then the contraceptive prevalence will be at the maximum level.

First (Maximum Model) = met need (contraceptive prevalence) + unmet need for contraception (both the spacing and limiting).

Unmet need includes unmet need to space, unmet need for limit and unsure.

Second Model (Minimum Unmet Need Satisfied)

The second model estimates the minimum level of contraceptive prevalence. This model accepts women's reported intentions on the future course of contraceptive use.

Second (Minimum Model) = met need (contraceptive prevalence) + intend to use contraception for spacing and limiting or both.

Third Model (Realistic Unmet Need Satisfied)

The assumptions used in the first and the second models are clearly exaggerated. Not all of those with unmet need are likely to use contraception if available. On the other hand, some fraction of those who don't intend to use a method (or are uncertain) will use one. The third model contains the following assumptions:

1. That among women who need a means of spacing births, 20% of those who intend to use a method will not use one,

2. That among women who need a means of limiting births, 10% of those who intend to use a method will not use one,

3. That women in need who do not intend to use because they see themselves at low risk will not use; and half of the remaining women who do not intend to use a method will not use one.

These assumptions constitute the best guess or most realistic expectation of the amount of unmet need that can be satisfied.

Third Model (Realistic Model) = met need (contraceptive prevalence) + 80% of intend to use (spacing) + 50% of do not intend to use and unsure (spacing) + 90% of intend to use (limiting) + 50% don't intend to use and unsure (limiting).

From these three models we make a conceptual framework. From this conceptual framework it is easily understandable how addressing unmet need for family planning has an impact on fertility level by satisfying this unmet need.

Figure 1

A Schematic Diagram of Addressing Unmet Need based on the Westoff & Bankole Model

Figure 1 — A Schematic Diagram of Addressing Unmet Need based on the Westoff & Bankole Model
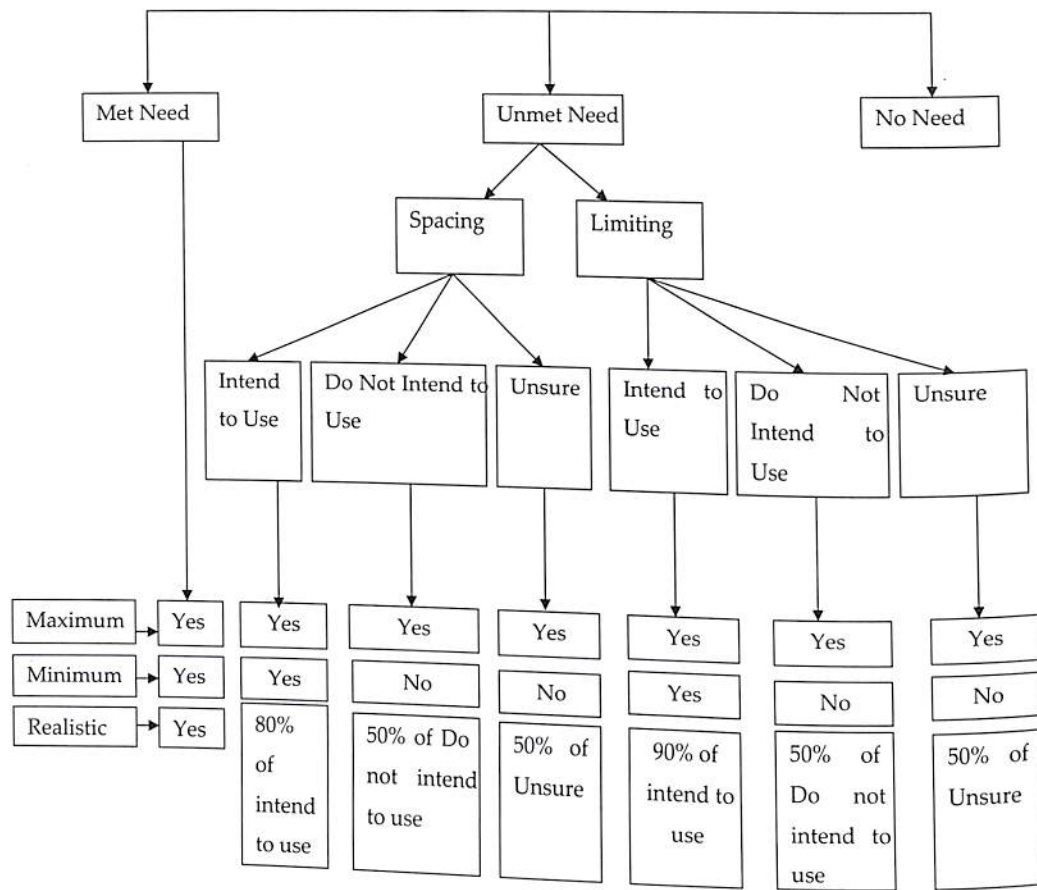
Implications of fertility

After estimating the potential use of family planning with the three different sets of alternatives, the Total Fertility Rates (TFRs) are derived by applying these alternatives. To get the respective fertility and its implication on fertility reduction, the Bongaarts's proximate model is applied.

Bongaarts[4-7] has refined the list of "intermediate variables" suggested by Davis and Blake and proposed a list of four intermediate variables and termed them as the "proximate determinants of fertility". The fertility inhibiting effects of four principal variables are measured in the model by four indices, which are defined as follows:

C_m = index of marriage (equals of 1 if all women of reproductive age are married and 0 in the absence of marriage).

C_c = index of non-contraception (equals 1 in the absence of contraception and 0 if all fecund women use 100% effective contraception).

C_a = index of induced abortion (equals 1 in the absence of induced abortion and 0 if all pregnancies are aborted) in a given time period.

C_i = index of lactational infecundability (equals 1 in the absence of lactation and 0 if the duration of infecundability is finite).

The basic relations between the indices and the cumulative fertility measures are

$TFR = C_m * C_c * C_a * C_i * TF$. By changing the prevalence of contraception (C_c), the implied fertility levels are derived.

$$TFR_0 = C_m * C_c * C_i * C_a * TF$$

$$TFR_1 = C_m * C_{c1} * C_i * C_a * TF$$

$$= (C_{c1}/C_c) C_m * C_c * C_i * C_a * TF$$

$$= (C_{c1}/C_c) TFR_0$$

(TFR_0 = Current Fertility Rate, TFR_1 = New Fertility Rate, TF = Total Fecundity Rate)

The further fertility rate is calculated with the help of present total fertility rate by applying different degree of contraceptive prevalence according to our assumptions.

$$TFR_0 = C_m * C_c * C_i * C_a\, TF$$

By changing C_c to address the unmet need we can write the equation as:

$$TFR_1 = C_m * C_{c1} * C_i * C_a * TF$$

$$= (C_{c1}/C_c) * C_m * C_c * C_i * C_a * TF$$

$$= (C_{c1}/C_c) TFR_0$$

To calculate the contraceptive prevalence (C_c) we have to use the index of non-contraception. As we know $C_c = 1 - (1.08 * u*e)$.

u = contraceptive prevalence among married women of reproductive age (MWRA)

e = average use-effectiveness of contraception

According to Bongaarts, the standard values of use-effectiveness of different contraception are as follows. Sterilization - 1.0, IUD - 0.95, pill – 0.90, and other (traditional) – 0.70. After calculating and adjusting different indices of non-contraception (C_c), the various implied fertility rates are calculated.

RESULTS AND DISCUSSION

Analysis of different contraceptive prevalence levels and implied fertility rates of India and its states

After calculating the unmet need and met need for family planning in India and its states, three different models like Maximum, Minimum and Realistic unmet need satisfied is calculated according to the three alternatives. Basically, these models are the levels of contraceptive use by satisfying the different unmet needs as taken in alternatives. The first model is equivalent to meeting the total demand for family planning though it is unrealistic. The second model calculates the future intention of contraceptive use from the unmet need i.e., intention to use. That is why the second or minimum model gives less percentage of need satisfied than the first or maximum model. The first two models are different from the third one. In case of second model the use of only future intention of women is considered but in third model the inclusion of some fraction of those who do not intend to use the method and uncertain as well as a fraction of those who intend to use is taken into account, because contraceptive practices may change in future and they may also intend to use. In case of realistic or third model the sets of assumption yields the estimates of potential use quite close to the second model, which is the most conservative among other models. Thus, the third model gives us a very conservative estimate of the contraceptive use by satisfying the unmet need.

In maximum model, after adding all the unmet need for family planning into the met need, the contraceptive prevalence in India is 69 percent. The maximum model shows the actual demand for family planning in India and its states. The percentage of contraceptive prevalence of minimum model is obviously less than the maximum need satisfaction model. Unlike previous maximum models, here only those who intend to use contraception is

added in the met need. As intention to use contraception varies among women in the states, the need satisfaction also varies in minimum model compared to maximum. The contraceptive prevalence in India would then be 65.2 percent. It decreases near about four percentage points from maximum model. The realistic model is more or similar to the minimum model for India and its states. The contraceptive prevalence of India is 65.8, just increased less than one percentage point over the minimum model.

The current rate of fertility and the current method of use of family planning (as in NFHS-3) are known. The figures of implied Fertility Rate are estimated through the Bongaarts proximate determinants model. In the maximum model, the fertility rates are low compared to other two models because it supposes all unmet need as met need. The sharp reduction of fertility is visible in the maximum level of fertility compared to the current level. The fertility level in the minimum and the realistic model are more or less equal. In the realistic model, the implied fertility rates are less than the current Total Fertility Rate. The implied Fertility Rate is 2.1 from the current level of 2.68 with a reduction of 22 percent in India. The result clearly shows the satisfaction of unmet need of family planning gives the replacement level of fertility in India.

In all but ten states the elimination of unmet need theoretically reduces the Total Fertility Rate to the replacement level of fertility. But it is clear from the Table 1 that, by satisfying the unmet need we are able to control fertility to a significant level. The highest reduction of fertility is visualized in the state Mizoram, and the lowest reduction occurred in Andhra Pradesh, Manipur, Punjab and Delhi with 35 percent and 13 percent, respectively (Table 1 Figures 2 & 3).

TABLE 1

Contraceptive prevalence level and their implied Fertility Rates, India and States

States	Contraceptive Prevalence (%)				Current Rate	TFR			% Reduction in TFR		
	Need satisfied					Need satisfied			Need satisfied		
	Met Need	Maximum	Minimum	Realistic	TFR	Maximum	Minimum	Realistic	Maximum	Minimum	Realistic
Jammu & Kashmir	52.6	67.1	63.6	63.8	2.38	1.70	1.86	1.85	29	22	22
Himachal Pradesh	72.6	79.8	78.4	78.3	1.94	1.40	1.51	1.51	28	22	22
Punjab	63.2	70.6	68.1	68.6	1.99	1.64	1.76	1.73	18	12	13
Uttaranchal	59.3	70.2	68.5	68.1	2.55	1.92	2.02	2.05	25	21	20
Haryana	63.4	71.8	69.3	69.7	2.69	2.10	2.28	2.25	22	15	17
Delhi	66.9	74.7	71.9	72.6	2.13	1.75	1.89	1.86	18	11	13
Rajasthan	47.2	61.8	59.2	58.6	3.21	2.30	2.47	2.50	28	23	22
Uttar Pradesh	43.6	64.7	59.1	59.7	3.82	2.62	2.94	2.91	31	23	24
Bihar	34.1	56.9	51.8	51.7	4.0	2.62	2.92	2.93	35	27	27
Sikkim	57.6	74.6	71.5	71.2	2.02	1.26	1.40	1.42	38	31	30
Arunachal Pradesh	43.2	62.2	55.4	57.1	3.03	2.04	2.39	2.31	33	21	24
Nagaland	29.7	56.0	40.8	46.8	3.74	2.45	3.19	2.90	35	15	23
Manipur	48.7	61.1	55.7	57.4	2.83	2.30	2.53	2.46	19	11	13
Mizoram	59.9	77.2	71.3	72.3	2.86	1.47	1.95	1.87	49	32	35
Tripura	65.7	76.0	73.0	73.5	2.22	1.69	1.84	1.82	24	17	18
Meghalaya	24.3	59.4	32.0	44.4	3.8	2.16	3.45	2.86	43	9	25
Assam	56.5	67.1	63.6	64.4	2.42	1.97	2.12	2.09	18	12	14
West Bengal	71.2	79.3	77.5	77.4	2.27	1.74	1.86	1.86	23	18	18
Jharkhand	35.7	58.9	54.5	53.9	3.31	2.12	2.35	2.38	36	29	28
Odisha	50.7	65.6	61.7	62.0	2.37	1.64	1.84	1.82	31	22	23
Chhattisgarh	53.2	63.3	61.6	61.1	2.62	2.01	2.11	2.14	23	19	18
Madhya Pradesh	55.9	67.3	65.8	65.1	3.12	2.26	2.37	2.43	28	24	22
Gujarat	66.6	74.7	72.8	72.8	2.42	1.84	1.99	1.99	24	18	18
Maharashtra	66.9	76.2	74.3	74.1	2.11	1.46	1.59	1.60	31	25	24
Andhra Pradesh	67.6	72.3	70.3	70.9	1.79	1.47	1.61	1.57	18	10	13
Karnataka	63.6	73.2	70.3	70.7	2.07	1.43	1.62	1.60	31	22	23
Goa	48.2	61.2	54.2	56.7	1.79	1.39	1.60	1.52	23	11	15
Kerala	68.6	77.5	74.5	75.0	1.93	1.38	1.57	1.54	28	19	20
Tamil Nadu	61.4	70.0	68.2	68.0	1.8	1.34	1.44	1.44	26	20	20
India	56.2	69.0	65.2	65.8	2.68	1.90	2.13	2.10	29	20	22

FIGURE 2

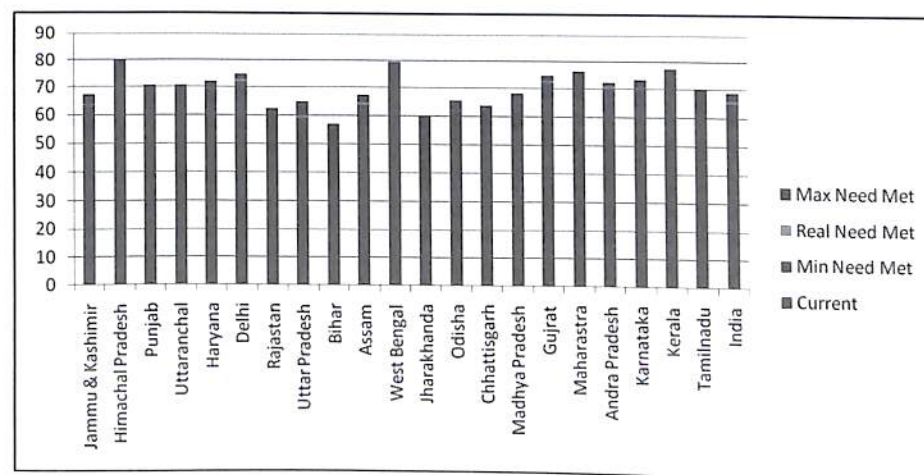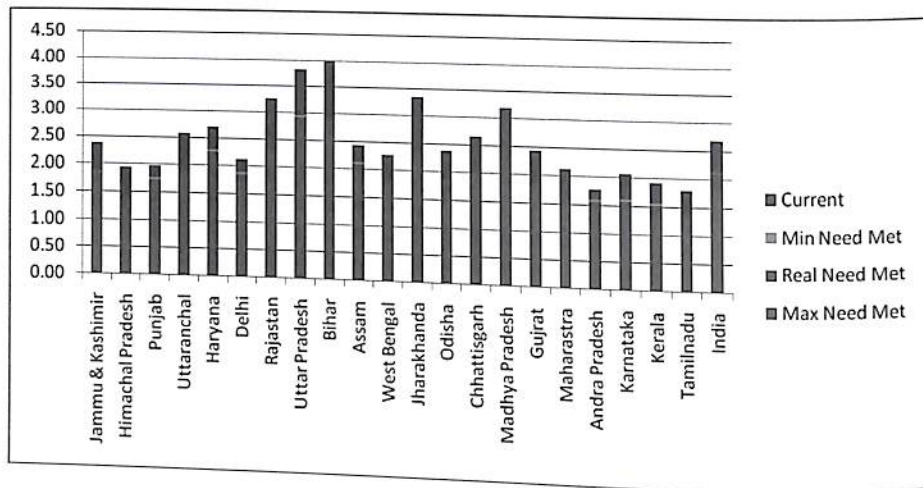**Contraceptive Prevalence Rate of larger states under different levels of satisfying unmet need**

FIGURE 3

Total Fertility Rate of larger states under different levels of satisfying unmet need

Analysis of different contraceptive prevalence levels and implied fertility rates among socio-economic groups

While analyzing the potential demographic significance of unmet need for family planning by different socio-economic variables on fertility, the social indicators of women taken in the analysis are place of residence, education, religion, social group and the economic variable of women is wealth index.

Contraceptive prevalence in the maximum model is obviously greater than the current rate. The maximum model indicates the actual demand for family planning. The minimum model shows a low level of contraceptive use for all socio-economic variables as compared to the maximum model because here intention to use of contraception of unmet need is used. The difference between the realistic model and minimum model is more or less equal.

After calculating the potential demand by different models according to alternatives now discuss its demographic implications on fertility. The Total Fertility Rate in the maximum model is obviously less than the current level of contraceptive

users as this model satisfied all the unmet need. In the minimum model the total fertility rate is more than the maximum model and obviously less than current rate because the future intention of using contraception is less than the total unmet need. The theoretically best guess, the realistic model, the Total Fertility Rate is more or less equal to the minimum model. The percent of reduction is just fractional difference between the last two models. The urban population shows a below replacement level of fertility but the percentage reduction is high in case of rural areas. The different layers of education level has shown a below replacement level of fertility but in case of no education the total fertility rate would remain above the replacement level even if all the need is met. In case of religion, Hindus could achieve the replacement level of fertility but the percentage reduction in fertility rate is higher among Muslims than Hindus. In the social group, other backward caste and the other category show below replacement level of fertility. Except the very poor women, all other women are able to achieve the below replacement level of fertility (Table 2 and Figures 4 & 5).

TABLE 2

Contraceptive prevalence level and implied Fertility Rates among socio-economic groups, India

Socio-Economic Variables	Contraceptive Prevalence (%)				TFR				% Reduction in TFR		
	Need satisfied				Current Rate	Need satisfied			Need satisfied		
	Met Need	Maxi-mum	Mini-mum	Reali-stic	TFR	Maxi-mum	Mini-mum	Reali-stic	Maxi-mum	Mini-mum	Reali-stic
Place of Residence											
Urban	64	73.7	71.4	71.5	2.06	1.53	1.66	1.66	26	19	19
Rural	53	67.2	63.7	63.8	2.98	2.07	2.30	2.29	31	23	23
Education											
No Education	52.1	65.8	61.8	62.4	3.55	2.49	2.81	2.75	30	21	23
Less than 5 years	63.2	73.5	70.9	71.1	2.45	1.73	1.91	1.89	29	22	23
5 to 7 years	58.7	71.2	68.6	68.3	2.51	1.73	1.90	1.91	31	24	24
8 to 9 years	58.5	72.0	69.7	69.0	2.23	1.55	1.67	1.70	30	25	24
10 to 11 years	59.7	71.8	69.5	69.1	2.08	1.51	1.62	1.64	27	22	21
More than 12 years	62.3	73.0	71.0	70.6	1.8	1.40	1.47	1.49	22	18	17
Religion											
Hindu	57.8	69.7	67.2	67.0	2.65	1.90	2.05	2.07	28	23	22
Muslim	45.7	64.6	57.5	59.3	3.09	2.11	2.48	2.38	32	20	23
Social Groups											
SC	55	68.4	65.7	65.5	2.92	2.04	2.22	2.24	30	24	23
ST	48.1	62.1	58.1	58.6	3.12	2.23	2.49	2.45	29	20	21
OBC	54	67.5	64.2	64.3	2.75	1.92	2.12	2.12	30	23	23
Others	62	73.3	70.2	70.5	2.35	1.70	1.89	1.86	28	20	21
Wealth Index											
Poorest	42.2	60.4	55.4	56.0	3.89	2.65	3.00	2.96	32	23	24
Poorer	51.1	65.9	62.3	62.4	3.17	2.19	2.43	2.43	31	23	23
Middle	56.8	69.7	66.5	66.6	2.58	1.78	1.98	1.97	31	23	24
Richer	62.5	73.2	70.9	70.7	2.24	1.59	1.74	1.75	29	22	22
Richest	67.5	75.6	73.7	73.7	1.78	1.39	1.48	1.48	22	17	17

Figure 4

Contraceptive Prevalence Rate by different socio-economic groups under different levels of satisfying unmet needs
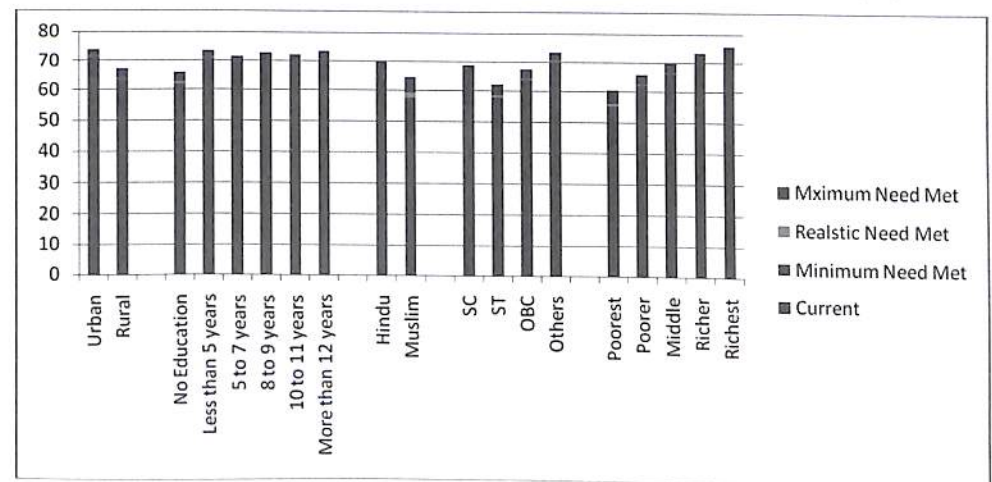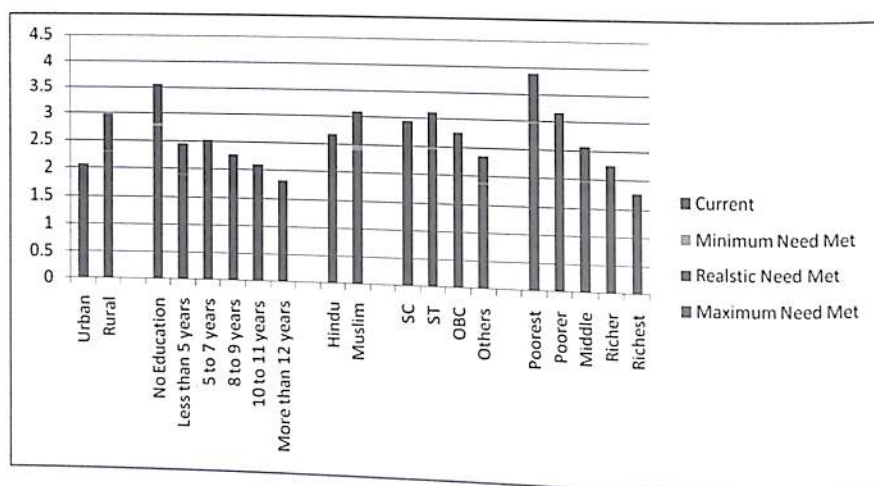
Total Fertility Rate by different socio-economic groups under different levels of satisfying unmet need

CONCLUSION

The important question in the Population Policy[8] today is whether the level of unmet need for family planning in India is high enough to have a significant impact on fertility if unmet needs are satisfied. To understand this question, with the help of Westoff and Bankole[1] model and Bongaart's[4-7] proximate determinants of variables, have made certain alternatives and computed the implied fertility rates. The interesting finding is that India would be able to achieve the replacement level of fertility if we are able to satisfy the unmet need. There is a strong potential demographic significance of addressing unmet need on fertility. A large number of states would able to achieve the replacement level of fertility and some states like Haryana, Rajasthan, Uttar Pradesh, Bihar, Arunachal Pradesh, Nagaland, Manipur, Meghalaya, Jharkhand and Madhya Pradesh would approach for the replacement level of fertility. The demand for children in these states is above the replacement level. The maximum percentage of reduction in Fertility Rate is observed in Mizoram whereas Andhra Pradesh, Manipur, Punjab and Haryana have the minimum reduction since the unmet need in these states is very low.

The results also show the different levels of contraceptive prevalence and its impact on fertility by satisfying the unmet need of various socio-economic factors and the results are quite satisfactory. Urban women compared to rural women are below the replacement level of fertility. Women having education are able to reach the replacement level of fertility while among women with no education the Fertility Rate remains above the replacement level. Among religious groups the Hindus could achieve the replacement level of fertility. Women in the category of other backward class and general category are able to reach replacement level than scheduled caste and scheduled tribe women. Except the very poor women, all other women achieve the replacement level of fertility.

The policy implications seem clear from our analysis. The amount of unmet need is great enough to have a significant impact on fertility if it could be satisfied. Sections of the society like scheduled tribes and scheduled castes, basically in rural areas, have a mis-match of demand and supply of family planning programme. Besides, the uneducated women have huge unmet need for family planning. There is also ongoing debate on the high Fertility Rate of Muslim women which could be possible to reduce to a maximum extent by satisfying the unmet need. The basic question here is to check the unwanted live births because currently married women already have a demand for the family planning services. So it needs immediate action by our programme administrations at both centre and state level and mainly at the panchayat level for effective implementation of the family planning programme. There is a need for proper coordination among different layers of administration which is essential to bring down fertility to replacement level. The immediate objective of the Population Policy 2000, in addressing the unmet need for family planning can be fulfilled in this way.

The village health workers, leaders of self help groups, and members of panchayat raj institutions should be more active at the grassroots level and identify the groups with a need and give them proper information and services. It should be the right of women to decide whether she will use family planning method or not, rather the family and society as she takes the risk of child birth. The government programme and society must ensure that the women and overall couples receive reproductive health care services of a high quality of their choice at the time they want without cost of time and money. Success in this effort will go a long way in achieving population stabilization, ensuring good reproductive health and enabling couples to achieve reproductive rights.

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