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Gender Composition of Surviving Children and Contraceptive Use in Bangladesh

MCH-FP Extension Project (Rural)
Health and Population Extension Division

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Barkat-e-Khuda
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Contents

	Page
Abstract	iv
Introduction	1
Objective	2
Data and Setting	2
Results	4
Discussion and Conclusion	12
References	13
Table 1. Percentage distribution of women using family planning methods by gender composition of surviving children: Bangladesh	4
Table 2. Percentage distribution of variables by year and living children used in Logistic Regression	7
Table 3. Logistic Regression showing the odds ratio of women contracepting by selected characteristics and years	9
Fig. 1. Contraceptive prevalence rate (CPR) by area: 1983-1992 ...	2
Fig. 2. CPR by sex composition of living children of women at Sirajganj: 1983-1992	5
Fig. 3. CPR by sex composition of living children of women at Abhoynagar: 1983-1992	5

Abstract

This paper describes contraceptive use trends and its relationship to the gender composition of surviving children in Bangladesh, and investigates whether the gender composition of surviving children is a constraint to further rise in contraceptive prevalence.

Data for the present study come from two sources: a) The 1993-94 Bangladesh Demographic and Health Survey (BDHS), and b) the Maternal and Child Health-Family Planning (MCH-FP) Extension Project (Rural) of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). The 1993-94 BDHS, a national-level sample survey, provides data on demographic events and selected maternal and child health issues. A total of 8,174 women were interviewed in the rural sample. Data from MCH-FP were obtained from its Sample Registration System (SRS). The SRS data were based on interviews conducted at 90-day intervals since 1982, from a sample of 7,400 rural households. Descriptive results and logistic estimates are presented using data from 1984 through 1994.

Contraceptive prevalence rates (CPR), both at the national level and in the Extension Project areas, have increased over time. However, this increase seems to have levelled off as the gender composition of a couple's surviving children remains an important factor in determining contraceptive use. Women with at least one son and one daughter had a higher CPR compared to women with only sons or those with only daughters over the study period.

The findings are consistent with previous studies, and suggest that there is still gender preference in Bangladesh. Contraception among women with only daughters increased, and the use of family planning methods and the desire for smaller families have become behavioural norms. However, there is still no indication that the gap in CPR between women having both sons and daughters and women having only sons or only daughters has declined over time. This finding illustrates an important constraint under which the family planning programme operates in Bangladesh.

Introduction

The contraceptive prevalence rate (CPR) in Bangladesh in 1993-1994 was 45 per cent (1). Today, it is considerably higher in some areas of the country. For example, in Matlab, CPR is over 67 per cent, whereas in Abhoynagar, it is 53 per cent.

It is often argued that those who easily accept contraceptive methods have already been reached by the increased availability of supplies and services of the last decade, and that further work on improving the quality of care provided will be required to improve or even sustain the present CPR. Ahmed, 1981 (2), using data from a cross-sectional survey, found that women in Matlab had a larger family size preference and a stronger son preference. Several studies (3-6) have shown that certain gender compositions of surviving children in a family can hinder further decline in the total fertility rate. A study in Nepal found that sons were preferred to daughters, largely for social reasons rather than for economic reasons (7). Chowdhury, 1990 (3) found that the gender preference was stronger in areas where intensive family planning programmes prevail than elsewhere. The effect of gender composition becomes more evident as contraceptive prevalence goes up, particularly during the demographic transition period from high to low fertility. Rahman, 1993 (5) found that the preference issue was not limited to sons, but extended to daughters once the desire for a son was achieved. Sathar, 1988 (8) also found that the gender composition of families influenced reproductive behaviour in Pakistan. The author added that the desire for at least one son persists even when a mother has four daughters and no sons, and for one daughter when there are five sons and no daughter.

Figure 1 shows the trends in contraceptive use, both for Bangladesh and the Extension Project areas. Contraceptive prevalence rates have increased for all areas. In Sirajganj and Abhoynagar, the contraceptive prevalence rates in 1982 were 11 and 22 per cent respectively. The corresponding figures rose to 39 and 47 per cent in 1992. During the same period, the national CPR increased from 18 to over 40 per cent. The data indicate that fertility transition has already begun in Bangladesh. Given the rise in contraceptive prevalence in Bangladesh, it would be appropriate to

determine whether gender composition of surviving children has any effect on contraception.

There is some evidence of a declining effect of sex preference on contraceptive use, however. Chowdhury, 1993 (9), using longitudinal data from Matlab, found that although sex preference did not change during the 1977-1988 period, there was a decline in the effect of sex preference on contraceptive use. A study in India (10) further found that, because of relatively smaller family size preference in urban areas where contraceptive prevalence is high, the effect of gender composition on contraceptive use is not strong. Data for almost all of the above-mentioned studies come from pilot projects. Thus, a study using national-level data would be useful.

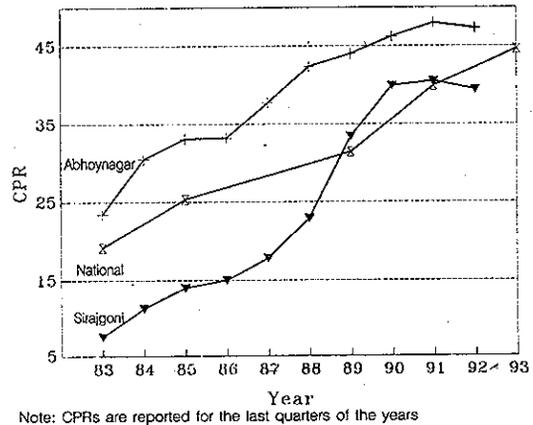


Fig. 1: Contraceptive prevalence rates (CPR) by area: 1983-1993

Data for almost all of the above-mentioned studies come from pilot projects. Thus, a study using national-level data would be useful.

Objective

This study analyzes the trends in contraception over the last ten years by gender composition of surviving children, and investigates whether gender composition is a deterrent factor to further rise in CPR.

Data and Setting

Data for the present study come from two sources: a) The 1993-94 Bangladesh Demographic and Health Survey (BDHS), and b) the Maternal and Child Health-Family Planning Extension Project (Rural) of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B).

BDHS, a national-level survey, provides data on demographic and selected maternal and child health issues. A total of 8,174 interviews were

conducted in the rural sample. Information on their background characteristics, reproductive history, knowledge and practice of family planning methods, fertility preference, occupation and husband's background was collected. For the purpose of this study, data from BDHS were selected from rural areas only, so that they were comparable to data from the Extension Project areas. The Extension Project, a collaborative effort of ICDDR,B and the Ministry of Health and Family Welfare (MOHFW), is an operations research project in rural Bangladesh, which was set up in 1982 to transfer the successful elements of the Matlab maternal and child health-family planning pilot programme to the broader public sector (11). Over time, the Project has expanded its mandate to carry out operations research and field-test new interventions in the MCH-FP programme, especially in the areas of management improvement, quality of care, and sustainability. The project areas are located in Sirajganj *thana* of Sirajganj district and Abhoynagar *thana* of Jessore district. Since mid-1994, the Project has also been operating a laboratory area in Mirsarai *thana* of Chittagong district, though this study does not use any data from Mirsarai *thana*. The two sites, namely, Sirajganj and Abhoynagar, differ in terms of their socio-economic and demographic indicators. A comparative description of the two project sites at Sirajganj and Abhoynagar has been reported elsewhere (12).

To assess the demographic impact of the Project and its effects on health and family planning service delivery, a surveillance system was set up in the Project field sites. The system, known as the Sample Registration System (SRS), has been in operation since 1982, and consists of quarterly longitudinal surveillance of a representative sample of approximately 4,200 households at Sirajganj and 3,200 households at Abhoynagar (13). This longitudinal database is derived from interviews conducted at 90-day intervals. Although routine surveillance was initially limited to demographic events (births, deaths, migration, and changes in marital status), data collection was expanded in 1984 to include additional information on contraceptive use, as well as contacts between mothers and the government health and family planning outreach workers (14-15). SRS has been augmented by detailed baseline surveys and a series of cross-sectional surveys on socioeconomic, attitudinal and behavioural characteristics of the population under surveillance.

Results

Table 1 shows the trends in contraceptive use among women by the gender composition of their surviving children, using the 1993-94 BDHS data. Differentials in the use of family planning methods were observed for women with different gender compositions of surviving children. Thirty-six per cent of women with only daughters used contraceptives compared to 46 per cent with only sons and 54 per cent with at least one son and one daughter.

Table 1: Percentage distribution of women using family planning methods by gender composition of surviving children: Bangladesh

Gender composition of surviving children	%	(N)
No children	14.6	(981)
Only daughter(s)	35.9	(1,165)
Only son(s)	45.9	(1,394)
Son(s) and daughter(s)	53.9	(4,098)

Source: 1993-94 BDHS

Figure 2 and 3 show, respectively, the trend in contraceptive use among women by gender composition of their surviving children at Sirajganj and Abhoynagar. It is evident that women with at least one surviving son and one surviving daughter contracepted at a higher level than women with surviving children of other gender compositions. This was true for both the project areas. Also, while all groups with surviving children experienced a sharp rise in CPR during the 1986-1990 period, the gap, in 1990, between the women with at least one son and one daughter and the women with only sons or only daughters widened dramatically, revealing the desire for more children in the latter groups. There is no evidence from either of the two Extension Project areas that women with only sons contracepted at a

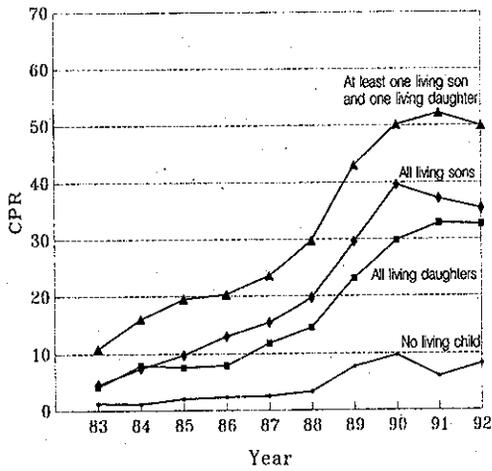


Fig. 2: CPR by sex composition of living children of women at Sirajgonj: 1983-1992

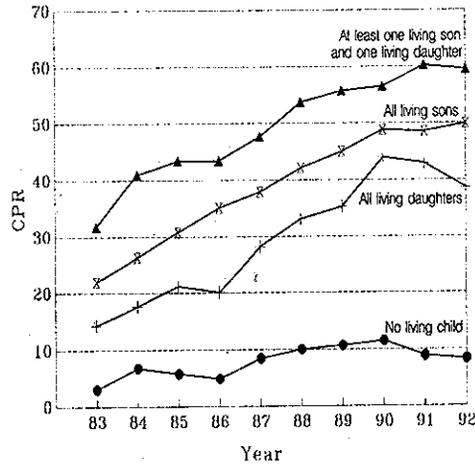


Fig. 3: CPR by sex composition of living children of women at Abhoynagar: 1983-1992

higher level than women with both sons and daughters at any point during 1986-1990. Moreover, in 1990, the gap in CPR among women with only daughters and only sons has been narrowing at Sirajganj and widening at Abhoynagar. This illustrates that as CPR rises, gender preference of an area becomes evident. At Sirajganj, women with only sons wanted a daughter, and at Abhoynagar women with only daughters wanted a son. It became evident, in 1990, that women wanted children of both gender, and this desire for children was reflected in CPR.

The trend in contraceptive prevalence among all three groups of women with surviving children (women with surviving daughters only, women with surviving sons only, and women with at least one surviving child of each gender) followed the overall CPR trend. That is, when the overall contraceptive prevalence moved up or down, CPR among these three groups also moved up or down. The rise and fall in CPR of the three groups followed a similar direction and proportion, and this was true during the entire 1986-1990 period. However, this trend in CPR among women with different gender compositions of children was not evident throughout the 1990-92 period.

Logistic regression procedures have been used for assessing the unique effect of the gender composition of surviving children on contraception. The distribution and the reference categories of variables included in the model are shown in Table 2. The socioeconomic, demographic and programmatic variables included as controls are maternal education, area of dwelling unit, maternal age, and visit of the Family Welfare Assistant (FWA). Since the level of contraception varied among the five divisions of the country as well as the two project sites, area was also included as a control variable. The gender composition of surviving children was recorded as a series of dummy variables, with women having at least one son and one daughter set as the reference category.

The results of the logistic analysis are shown in Table 3. The dichotomous dependent variable, use of contraception, assumes the values of 1 if a woman used contraception and 0 if a woman did not. To facilitate interpretation, co-efficients were exponentiated to reflect odds ratios in comparison to the omitted reference categories (RC). Three time periods were chosen to determine the effect of time on the variables: 1984 was chosen as the base period since the longitudinal data on contraception were available beginning 1984; 1988 was chosen as the mid-period; and 1992 was the end of the study period. Additionally, the analysis used another variable, women with three or fewer children (small family) who were less likely to achieve the desired gender composition of children, and women with four or more children (large family). It was expected that the effect of the gender composition of surviving children on contraception would be greater among women with three or fewer surviving children than among women with four or more surviving children.

The results of logistic regression show the effect of the gender composition of surviving children on contraception, controlling for the effects of other socioeconomic, programmatic and demographic characteristics. In general, gender preference, which was evident in families of three or fewer children, was not apparent in the families of four or more children. In small families, women with only daughters were less likely to contracept compared to women with at least one son and one daughter during the entire study period. With the exception of 1984, women with smaller families and only sons were also less likely to use a family planning

Table 2: Percentage distribution of variables by year and living children used in Logistic Regression

Variable	BDHS (Rural)		Extension Project (Rural)					
	1993-94		1984		1988		1992	
	LE 3 child	4+ child	LE 3 child	4+ child	LE 3 child	4+ child	LE 3 child	4+ child
Sex composition								
Only daughter(s)	26.4	2.6	25.9	3.0	25.6	3.1	25.7	3.6
Only sons(s)	31.7	3.0	31.5	5.0	31.2	4.2	31.0	4.4
Both sexes (RC)†	41.9	94.4	42.6	91.7	43.2	92.8	43.3	92.1
Age of women								
<20 years	13.9	-	15.5	-	12.2	-	9.6	-
20-29 years (RC)	61.7	16.7	62.6	18.7	62.4	13.8	58.7	9.8
30-39 years	19.8	46.9	15.6	54.7	19.8	52.5	26.0	48.3
40+ years	4.6	36.4	6.8	26.6	5.6	33.7	5.8	41.9
Education								
No education (RC)	56.0	64.9	70.9	76.3	66.6	75.2	61.0	71.5
Some education	44.0	35.1	29.1	23.3	33.4	24.8	39.0	28.5
Sleeping rooms^a								
One room (RC)	53.9	36.2	40.6	28.7	33.8	26.4	31.6	27.1
Two rooms	26.0	39.3	45.3	52.0	49.1	51.4	49.6	50.4
Three rooms or more	20.1	24.5	14.1	19.3	17.1	22.2	18.8	22.5

Contd...

Table 2 (Contd.)

Variable	BDHS (Rural)		Extension Project (Rural)					
	1993-94		1984		1988		1992	
	LE 3 child	4+ child	LE 3 child	4+ child	LE 3 child	4+ child	LE 3 child	4+ child
FWA visit^b								
No visit	52.4	56.7	36.9	35.0	26.4	27.9	15.5	17.6
1-2 visits (RC)	21.5	17.8	48.9	51.6	31.3	30.1	23.9	24.2
3+ visit	26.1	25.5	14.3	13.3	42.4	42.0	60.6	58.2
Area^c								
Rajshahi/Sirajganj(RC)	29.6	24.5	41.8	46.2	28.4	35.0	31.5	38.9
Khulna/Abhoynagar	14.1	12.4	33.2	31.0	28.0	22.0	35.5	26.6
Chittagong/Gopalpur	18.8	24.6	14.3	13.2	9.2	9.0	-	-
Barisal/Fultala	10.8	11.4	10.7	9.7	8.8	7.2	-	-
Dhaka/Natural Area	26.7	27.1	-	-	25.6	25.9	33.0	34.5
N	4,150	2,495	2,960	2,091	4,575	3,244	4,048	2,613

^a Housing space for Extension Project data (≤ 150 , 151-300 and 300+ sq. ft.).

^b Number of visits within six months for BDHS data and twelve months for Extension Project data.

^c Sirajganj, Abhoynagar, Gopalpur, Fultala and Natural area Bagherpara and Keshobpur are considered to be within the Extension Project.

[†] Reference category

Table 3: Logistic Regression showing the odds ratio of women contracepting by selected characteristics and years

Variable	BDHS (Rural)		Extension Project (Rural)					
	1993-94		1984		1988		1992	
	LE 3 child	4+ child	LE 3 child	4+ child	LE 3 Child	4+ Child	LE 3 child	4+ child
Sex composition								
Only daughter(s)	0.42***	0.64	0.34***	0.99	0.49***	0.51**	0.54***	0.44***
Only son(s)	0.66***	1.27	1.59***	1.04	0.73***	1.30	0.75***	0.92
Both sexes (RC)†	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Age of women								
<20 years	0.74**	-	0.44***	-	0.56***	-	0.56***	-
20-29 years (RC)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30-39 years	1.87***	1.40**	1.42**	1.30	1.85***	1.52***	1.81***	1.96***
40+ years	0.64**	0.86	0.90	0.73*	0.85	1.08	1.17	1.45*
Education								
No education(RC)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Some education	1.46***	1.24*	1.76***	1.76***	1.64***	1.43***	1.29***	1.16
Sleeping rooms^a								
One room (RC)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Two rooms	0.94	1.13	1.18	1.06	0.94	1.10	1.02	0.98
Three rooms or more	1.03	1.10	1.17	0.59**	0.77*	0.86	0.98	0.92

contd...

Table 3 (Contd.)

Variable	BDHS (Rural)		Extension Project (Rural)					
	1993-94		1984		1988		1992	
	LE 3.child	4+ child	LE 3 child	4+ child	LE 3 Child	4+ Child	LE 3 child	4+ child
FWA visit^b								
No visit	0.54***	0.43***	0.80	0.74*	0.70***	0.93	1.14	1.00
1-2 visits (RC)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
3+ visits	1.39***	1.33*	1.67***	1.48**	1.84***	1.73***	2.04***	2.31***
Area^c								
Rajshahi/Sirajgonj(RC)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Khulna/Abhoynagar	0.95	0.73*	2.92***	3.87***	2.36***	2.81***	1.31**	1.33*
Chittagong/Gopalpur	0.26***	0.31***	2.11***	2.35***	2.11***	1.99***	-	-
Barisal/Fultala	0.62***	0.47***	2.62***	3.36***	2.56***	2.54***	-	-
Dhaka/Natural area	0.49***	0.63***	-	-	2.17***	1.75***	1.20*	1.01
Intercept	0.75***	0.81***	0.13***	0.17***	0.24***	0.21***	0.50***	0.36***
-2LL	5075.38	3137.71	333.00	219.76	504.76	235.80	328.01	175.40
DF	14	13	13	12	14	13	12	11
N	4,150	2,495	2,960	2,091	4,575	3,244	4,048	2,613

*** P<.001; ** P< .01; * P<.05.

^a Housing space for Extension Project data (≤ 150 , 151-300 and 300+ sq.ft.).

^b Number of visits within six months for BDHS data and twelve months for Extension Project data..

^c Sirajgonj, Abhoynagar, Gopalpur, Fultala and Natural area Bagherpara and Keshobpur are considered to be within the Extension Project.

^t Reference Category.

method than women with both sons and daughters. In 1984, women with only sons were more likely to use a family planning method than women with both sons and daughters. In large families, the contraceptive behaviour of women with only sons was similar to that of women with both sons and daughters. Whereas in 1988, women with large families and only sons had a higher probability of using contraception than women with sons and daughters, though this difference was not statistically significant. No differential contraceptive behaviour between the two groups of women with only daughters and women with both sons and daughters was evident from the national data set or the early period (1984) of the Extension Project data. Perhaps, in large families, women with several sons or women with several daughters believed that they would not get the desired gender composition of children, even with an additional child. In the subsequent period (1988 and 1992), women with large families and only daughters contracepted at a lower rate than women with both sons and daughters.

Significantly higher contraception was evident among women with some education. This was true of both the small and large families, and was evident from both BDHS and the Extension Project data. The effect of size of sleeping room (a proxy for wealth) on contraception was not consistent. Women with three or fewer children, regardless of their household economic condition, used contraception at the same rates, with the exception of 1988 when women from wealthy families with three or fewer children contracepted at a lower rate. Again, with the exception of 1984, there was no difference in the contraceptive behaviour of women with four or more children, regardless of their household economic condition. In small families, there was no significant difference in the use of contraceptives between Rajshahi and Khulna divisions. However, in the Extension Project areas, women from Abhoynagar, Fultala, Bagherpara, and Keshobpur in Khulna division contracepted almost two to three times higher than those from Sirajganj in Rajshahi division throughout the study period. In large families, women from Khulna division were less likely to contracept than those from Rajshahi division. The Family Welfare Assistant (FWA) visitation also emerged as a significant predictor of contraception. This was true, regardless of family size. Women having three or more visits in a one-year period (six month period for the BDHS data) had consistently higher

contraception rates than women who had only one to two visits. Both the BDHS and the Extension Project data showed that women with three or fewer children who received no FWA visits were less likely to use contraception from 1984 through 1988 compared to women receiving one to two visits. The difference between these two groups disappeared in 1992. One or two visits from an FWA were clearly not enough to motivate women to adopt contraception successfully.

Discussion and Conclusion

The gender composition of surviving children appears to be an important factor in contraception differentials. CPR has risen considerably in all families with surviving children. However, the increase has tapered off since 1990, and the gap in CPR between the women with at least one son and one daughter and the women with only sons or only daughters has widened dramatically, revealing the desire for more children in the latter groups.

This finding substantiates the evidence of earlier findings that women want daughters in addition to sons. This appears to be true in both the Project sites, despite the differences in their socio-demographic conditions. Contraception is lower among women with only sons and only daughters than among women with sons and daughters. This implies that women prefer sons, but once they have a son, they also want a daughter. This finding illustrates an important constraint under which the family planning programme operates. Unless a strong demand for smaller family size becomes the norm, regardless of the gender composition of the children, gender composition of surviving children will continue to be a constraint to rise in CPR in rural Bangladesh.

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MCH-FP Extension Work at the Centre

An important lesson learned from the Matlab MCH-FP project is that a high CPR is attainable in a poor socioeconomic setting. The MCH-FP Extension Project (Rural) began in 1982 in two rural areas with funding from USAID to examine how elements of the Matlab programme could be transferred to Bangladesh's national family planning programme. In its first years, the Extension Project set out to replicate workplans, record-keeping and supervision, within the resource constraints of the government programme.

During 1986-89, the Centre helped the national programme to plan and implement recruitment and training, and ensure the integrity of the hiring process for an effective expansion of the work force of governmental Family Welfare Assistants. Other successful programme strategies scaled up or in the process of being scaled up to the national programme include doorstep delivery of injectable contraceptives, management action to improve quality of care, a management information system, and developing strategies to deal with problems encountered in collaborative work with local area family planning officials. In 1994, this project started family planning initiatives in Chittagong, the lowest performing division in the country.

In 1994, the Centre began an Urban MCH-FP Extension Project in Dhaka (based on its decade long experience in urban health) to provide a coordinated, cost-effective and replicable system of delivering MCH-FP services for Dhaka urban population. This important event marked an expansion of the Centre's capacity to test interventions in both urban and rural settings. The urban and rural extension projects have both generated a wealth of research data and published papers.

The Centre and USAID, in consultation with the government through the project's National Steering Committees, concluded an agreement for new rural and urban Extension Projects for the period 1993-97. Salient features include:

- To improve management, quality of care and sustainability of the MCH-FP programmes
- Field sites to use as "policy laboratories"
- Close collaboration with central and field level government officers
- Intensive data collection and analysis to assess the impact
- Technical assistance to GoB and NGO partners in the application of research findings to strengthen MCH-FP services.

The Division

The reconstituted Health and Population Extension Division (HPED) has the primary mandate to conduct operations research to scale up the research findings, provide technical assistance to NGOs and GoB to strengthen the national health and family planning programme.

The Division has a long history of accomplishments in applied research which focuses on the application of simple, effective, appropriate and accessible health and family planning technologies to improve the health and well-being of the underserved and population-in-need. There are several projects in the Division which specialize in operations research in health, family planning, environmental health and epidemic control measures which cuts across several Divisions and disciplines in the Centre. The MCH-FP Extension Project (Rural), of course, is the Centre's established operations research project but the recent addition of its urban counterpart - MCH-FP Extension Project (Urban), as well as Environmental Health and Epidemic Control Programmes have enriched the Division with a strong group of diverse expertise and disciplines to enlarge and consolidate its operations research activities. There are several distinctive characteristics of these endeavors in relation to health services and policy research. First, the public health research activities of these Projects focus on improving programme performances which has policy implications at the national level and lessons for international audience. Secondly, these Projects incorporate the full cycle of conducting applied programmatic and policy relevant research in actual GoB and NGO service delivery infrastructures; dissemination of research findings to the highest levels of policy makers as well as recipients of the services at the community level; application of research findings to improve programme performance through systematic provision of technical assistance; and scaling-up of applicable findings from pilot phase to the national programme at Thana, Ward, District and Zonal levels both in the urban and rural settings.



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