

How equitable is access to and use of reproductive health care and family planning services in Bangladesh? A review of the evidence

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1 Introduction

The South Asia (SA) region is one of the most populous in the world (1.46 billion) and second only to Sub Saharan Africa in terms of poverty incidence and low human development (UNDP HDR 2005). The population is also growing fairly fast at an average rate of 1.6 percent per annum, implying a doubling of the population size in four decades. High population growth in the context of endemic poverty dampens human development and adversely affects quality of life and health status of the population. The relatively poorer health and nutritional condition of women and children compared to adult men, resulting in persisting high maternal, infant and child death rates, is a powerful testimony to this situation.

Given that SA has also experienced sustained economic growth and visible improvement in aggregate levels of mortality and average life expectancy, progress in reproductive health (RH) outcomes particularly remain much below expectation (tfr, adolescent birth rate, mothers' weight, maternal mortality, low birth weight) compared to other developing areas. The other worrying feature is that even while there have been some gains in average RH outcomes, inequalities in outcomes with respect to socio economic status, location of residence and region loom large. The persistence and systematic nature of these differences raise the question of inequitable access to and consumption of health care and family planning services. In order to further improve the health status of the population, and especially of the poor, a major challenge facing SA countries is thus to address the question of inequitable access to reproductive health care and family planning (FP) services.

Although within SA there has been progress in RH outcomes in the last decade (since mid 1990s) not all countries have progressed at the same pace: Sri Lanka stands out in terms of improvement in RH outcomes and access to RH care, while Pakistan and Bhutan are laggards. Bangladesh falls in between these extreme positions, despite the fact that poverty incidence is higher, health expenditure is much smaller and consumption of qualified/trained health care is more limited compared to her SA neighbours (see Table 3). In this respect Bangladesh is quite unique to have achieved considerable improvement in RH outcomes without concomitant resource allocation or poverty reduction. Expanded access to and increased utilization of community based RH care is viewed as having contributed significantly to this achievement. However, socio economic differences, particularly rich-poor gaps, in RH care consumption are large and often quite resilient, indicating that services are not reaching all population groups equally. Thus, the

Bangladesh experience provides an opportunity to explore where policies and programmes have worked to expand access and utilization of RH/FP services and where

these have failed to reach the underserved and have been unable to reduce income gaps in access, with possible lessons to be drawn. This paper will review the Bangladesh experience with some comparisons with her SA neighbours.

2 Framework

Socio economic inequalities in health are not uncommon, but some differences are seen as unfair by society. The unfairness qualification invokes assessments of whether the inequalities are avoidable, hence unnecessary, as well as more complex ideas of distributive justice as applied to health (Evans et al 2001). While inequality is an empirical concept equity is a normative one and associated with social justice (Gwatkin 2002). Inequalities in RH outcomes can result from a variety of causes, but when differences are the direct result of unequal access to and utilization of RH care and FP services they are deemed inequitable¹. One way of reducing health inequities is therefore to address the question of unequal access to and use of health care by different population groups.

Access/use of health care/services depend upon many factors like income, education, sex and age, location of residence, ethnicity and caste. In poor countries like Bangladesh income emerges as the single most important determinant of consumption of health care. Income constraints on demand for health care are the strongest, although non income constraints (perception of care quality, awareness, cultural norms, discrimination) can be quite strong as well. In SA the salience of non income constraints is especially seen in the case of health care consumption by women because of patriarchal restrictions on women's mobility and norms of women's seclusion. In addition, in societies that practice gender biased allocation of resources and where women have less access to cash incomes than men, income constraints on demand for health care are also greater for women.

Differences in access and utilization can also exist because of supply constraints, such as distance of provider or health facility, lack of information about services, low standard of care and provider attitude. These supply constraints are also much greater for women than for men. Thus, it is hardly surprising that there are large and persistent socio economic gaps in the consumption of RH care and FP services that are both avoidable and unnecessary, or in other words, are inequitable.

In this paper we examine utilization of RH care and FP services in Bangladesh from an equity perspective, focusing on inequalities in use according to income/wealth, region, location of residence, education and age. The analysis is based on a review of published literature and secondary information, primarily relying on national DHS data and other survey data when available. Comparison with SA countries will be provided whenever possible. The paper is organized as follows: the next two sections examine inequalities in RH outcomes and use of RH care, followed by a discussion on determinants of RH care seeking behaviour in section 5, an examination of the differentials in sources of obtaining care in section 6, with a final section on discussion and policy implications.

¹ Indirect mechanisms operate as well such as differential risk and vulnerability (nutritional status, occupation, geographic exposure, etc).

3 Inequalities in reproductive health status (outcomes)

In this paper RH status of women is assessed using the following outcomes: total fertility rate (TFR), median months since the last birth, proportion of adolescent women who have begun childbearing, maternal mortality ratio, mean body mass index (BMI) and low BMI. Bangladesh has achieved considerable improvement in RH status of women during the last decade and half, but not all indicators have improved to the same extent. Improvement has been most notable for fertility level; there have been some limited improvement in birth spacing, nutrition and maternal mortality, while improvement in age at onset of childbearing has been the slowest.

The salience of the total number of births that a woman has during her lifetime for her RH status is undisputed. Fertility declined sharply from a TFR of 6.3 in 1975 to 3.0 in 2001-03, with a decade of stagnation during the 1990s (BDHS 2004, pp53). All age groups of women and all regions of the country experienced this decline in fertility level, which is also confirmed by the declining proportions of currently pregnant women². A comparison with the mean number of children born to women at the end of their childbearing period (i.e. aged 40-49 years), which is an indicator of past fertility, shows an average decline of two children per woman (from 5 to 3).

Early onset and frequency of childbearing both have important implications for women's health. Short birth intervals are associated with an increased risk of death for mother and child, hence birth interval is a good indicator of maternal health status. Birth intervals are generally long in Bangladesh and the median interval was 39 months in 2004. This interval has steadily increased from 35 months in 1993-94 and 37 months in 1996-97, indicating improved health status of mothers (BDHS 2004, pp57). Teenage mothers are more likely to suffer from complications during delivery resulting in higher morbidity and mortality for themselves and their children. Hence, adolescent childbearing is also an indicator of the general health status of a woman. There has been only a small decline in the proportion of teenage mothers over time, from 35 percent to 33 percent in five years between 1999 and 2004 (BDHS 2004). The sluggish pace at which the age at first birth in Bangladesh has risen is a major women's health concern, not to mention the direct effect on population growth momentum.

The estimates of maternal mortality are often of unreliable quality as these are based on recall data such as verbal autopsies or sibling history. Maternal mortality ratio (MMR) based on sibling deaths show a steady but non significant downward trend over time, from 514 per 100,000 live births in the late 1980s, 485 in the early 1990s, 449 in the late 1990s, to 400 in the three years prior to the 2001 survey (K Hill et al 2003, pp30). The 2001 estimated maternal mortality ratio was 322 per 100,000 live births, but this is believed to be an underestimate. Since nearly half of maternal deaths occur during pregnancy (48%), one fifth (21%) during delivery and 31 percent post partum the importance of antenatal care cannot be over emphasized (K Hill et al 2003).

A woman's height can be a predictor of the risk of a difficult pregnancy, given the relation between height and pelvic size, and the risk of giving birth to low birth weight babies is also higher among women of small stature. The cutoff point for low (risky)

² This proportion declined from 12.5% in 1975 to 6.6% in 2004 (BDHS 2004, pp54).

height is taken to be between 140 and 150 centimeters. In Bangladesh the mean height of women with children under five was 151 cm in 2004 and has not changed since the mid 1990s and the proportion of women with height under 145 cm has remained around 16 percent up to 2004. Differences in height by socio economic characteristics are minimal (BDHS 2004, pp182). However, trends in BMI, which is used to measure thinness or undernutrition³, shows visible improvement in mothers' nutrition. Since 1996-97 the BMI has increased steadily from 18.8 to 19.7 in 2004 (20.2 for ever married women aged 15-49 years), consequently the proportion of underweight mothers with BMI below the cutoff of 18.5 continued to drop, from 52 percent in the mid 1990s to 38 percent in 2004, a decline of 27 percent in less than a decade (BDHS 2004, pp183). An indirect evidence of improvement in women's nutritional status is the steady decline in neonatal mortality rates from 52 per 1,000 live births in the early 1990s (1989-93) to 41 per 1,000 live births in early 2000 (1999-2003). Neonatal mortality and low birth weight are the direct result of biological factors of which maternal nutrition is an important factor.

Table1: Socio economic differences in reproductive health outcomes of ever married women 15-49 years, Bangladesh 2004

Background Characteristics	TFR ¹	Mean CEB for women 40-49 yrs old	Median months since last birth	% adolescent who have begun child bearing ²	MMR ³	Mean BMI ⁴	% Low weight ⁵
Residence							
Rural	3.2	5.3	38.7	34.7	326	19.8	37.1
Urban	2.5	4.4	42.8	26.1	262	21.5	25.0
Division							
Barisal	2.9	5.5	41.6	29.5	387	19.9	37.8
Chittagong	3.7	5.6	36.8	27.7	325	20.2	32.9
Dhaka	2.9	4.9	39.7	31.5	320	20.4	34.0
Khulna	2.8	4.5	49.4	37.7	351	20.5	29.2
Rajshahi	2.6	4.9	43.5	42.3	223	19.9	34.2
Sylhet	4.2	5.8	33.7	19.0	471	19.3	47.6
Education							
No education	3.6	5.3	38.8	46.5		19.5	40.1
Pri incomplete	3.3	5.4	39.5	45.8		19.9	36.2
Pri complete	2.9	5.0	39.5	37.1		20.4	31.7
Sec incomplete	2.7	4.3	40.2	27.2		20.8	27.9
Sec or higher	2.2	2.8	44.1	15.5		22.4	17.3
Wealth index							
Lowest	4.0	5.4	36.5	40.9	343	18.9	47.1
Second	3.2	5.6	39.1	39.2	302	19.3	40.5
Middle	3.0	5.3	39.5	25.2	473	19.7	35.6
Fourth	2.3	5.1	41.3	21.9	268	20.4	31.3
Highest	2.5	4.3	45.5	28.5	208	22.3	17.2
Total	3.0	5.1	39.3	32.7	322	20.2	34.3

Source: BDHS 2004

Note: 1=women age 15-49 years; 2=women age 15-19 years; 3=maternal deaths per 100,000 live births in 2001 ; 4=BMI is weight in kilograms divided by height in meters squared; 5=BMI<18.5

³ BMI is weight in kilograms divided by height in meters squared. A cutoff point of 18.5 is used to indicate acute under nutrition (BDHS 2004, pp182).

Despite improvement in average RH outcomes, however, there are large and persistent inequalities in all these outcomes according to residence, region and socio economic status (see Table 1). Disparities are quite systematic and consistent across all indicators. In general women living in rural areas have worse outcomes compared to women living in urban areas, with women living in urban slums possibly faring the worst (according to the Maternal Mortality Survey of 2001 estimated MMR for non metropolitan urban areas was 344). Consistent spatial differences exist, with Khulna and Rajshahi divisions generally having relatively better outcomes, Dhaka and Barisal having middle outcomes, and Sylhet and Chittagong having the worst. Surprisingly, Sylhet and Chittagong have relatively later onset of childbearing than other regions but this is not reflected in either TFR or MMR. Socio economic differences according to woman's education level and household wealth are also quite systematic.

Even the TFR, which has declined significantly, shows differences by all the background characteristics: on average women in rural areas have 0.7 births more than women in urban areas, women in Sylhet have 1.2 births more than average, women with no education and the poorest women have roughly 1.5 births more than women with secondary or higher education and the richest women. The extent of decline in fertility (roughly measured by the difference between TFR and CEB for women 40-49 years old) has also not been similar for all groups. Decline in fertility was greater for rural compared to urban women, for women in Rajshahi compared to women in Sylhet, and for women with no education compared to women with secondary or higher education, suggesting a catching up tendency for relatively disadvantaged groups.

Outcome ratios between women in rural areas and women in urban areas, between women in Sylhet and Rajshahi, between women with no education and women with secondary or higher education and between the poorest women (lowest wealth index) and the richest have been calculated to highlight the relative degree of inequality arising from different background characteristics (Table 2). Ratios indicate that inequalities in all RH outcomes related to education and wealth are generally larger compared to inequalities related to location of residence and region. Women with no education and the poorest women (lowest wealth quintile) are likely to have 1.6 times higher fertility and risk of maternal death compared to women with secondary or higher education and the richest women, women in Sylhet face more than twice the risk of maternal death as women in Rajshahi.

Table 2: Comparison ratios for assessing socio economic inequalities in RH outcome, 2004

Ratio	TFR	Median months since last birth	% adolescent who have begun child bearing ²	MMR	Mean BMI	% Low weight
Rural-urban	1.28	0.90	1.33	1.24	0.92	1.48
Sylhet-Rajshahi	1.50	0.80	0.45	2.11	0.96	1.39
No edu-sec higher edu	1.64	0.88	3.0	-	0.87	2.32
Poorest-richest	1.60	0.80	1.44	1.65	0.85	2.74

Source: Calculated from Table 1

Thus, the greatest sources of inequality in RH outcomes derive from household wealth and woman's education, while residence location and region also generate inequality in outcomes of lesser magnitude. The poor-rich gap in TFR has declined since the mid 1990s but the gap has actually increased for the proportion of under weight women (low BMI)⁴. This suggests both that the pace of improvement in an outcome could be directly related to the degree of reduction in inequality and but also that reduction in inequality may not automatically accompany improvement in aggregate RH outcomes.

A comparison of RH outcomes for the seven South Asian countries shows that Bangladesh is a fairly good performer given that both total health expenditure as percent of GDP and per capita health expenditure is the lowest in the region (Table 3). Bangladesh (and India) has a relatively poorer maternal health outcome in terms of the percent of low birth weight babies, which is a direct consequence of poor maternal nutrition. But has relatively better outcomes in terms of both maternal mortality and fertility level. These outcomes are difficult to reconcile with the relatively lower level of resources available for health, and suggest that resource scarcity need not necessarily constrain efforts at improving RH outcomes. It is therefore worthwhile to identify factors that have contributed to increased use of RH care services in Bangladesh despite low level of health expenditure.

Table 3: Health expenditure, RH outcomes and RH care utilization in South Asia, early 2000

Country	Health expenditure		Maternal/women's health outcomes			RH care utilization	
	Public HE as % GDP 2002	Percapita HE (ppp\$) 2002	% infants low birth weight 1998-2003	MMR 2000	TFR 2005	CPR 1995-2003	% births attended by skilled personnel
Bangladesh	0.8	54	30	380	3.2	58	14
India	1.3	96	30	540	3.1	48	43
Pakistan	1.1	62	19	500	4.3	28	23
Sri Lanka	1.8	131	22	92	2.0	70	97
Nepal	1.4	64	21	740	3.7	39	11
Bhutan	4.1	76	15	420	4.4	19	24
Maldives	5.1	307	22	110	4.3	42	70

Source: UNDP Human Development Report 2005

⁴ The poor-rich ratio was 1.73 for TFR and 1.97 for percent of women with low BMI in 1996-97 (Gwatkin et al 2000).

4 Inequalities in use/consumption of RH care

Consumption of RH care will be examined by looking at use of the following service components: any antenatal care (ANC) use, tetanus toxoid (TT) use, use of skilled (medically trained) birth attendants at delivery (SBA), postnatal care (PNC) use, treatment received for complications, proportion of live births delivered through caesarian sections, any contraceptive use, modern contraceptive use, condom use, use of injectible methods of contraception, use of male contraception and unmet need for family planning.

Although the consumption of pregnancy related health care and use of modern contraceptives expanded significantly in Bangladesh, this expansion was not uniform for all components of health care. Antenatal care use from a medically trained provider increased sharply in the recent past, from one third of all women (having a birth in the five years) in 1999-2000 to nearly half (49%) in 2004 (BDHS 2004, pp135). On the other hand, postnatal care use did not increase very much in the same period, rising from 14 percent in 1999-2000 to only 18 percent in 2004. The proportion of births attended by medically qualified or skilled personnel was a mere 13 percent while trained traditional birth attendants assisted in another 14 percent of deliveries. However, these proportions have also remained static in the recent past. Use of facility based delivery care is even more limited at only 9 percent of live births in the last five years, and has hardly changed since 1999-2000 (BDHS 2004, pp 141). The contraceptive prevalence rate (CPR), which indicates the uptake of family planning services, increased slowly but steadily since the mid 1970s (at a faster pace since mid 1980s), from 5 percent of eligible couples in 1975 to 58 percent in 2004. The rise in CPR was evident for all women regardless of socio economic status.

Within SA Bangladesh stands second only to Sri Lanka in CPR, but still far below the level needed for achieving replacement fertility, but has one of the lowest proportions of births attended by skilled personnel (only higher than Nepal which is hardly reassuring given that lower access in Nepal is due to the hilly terrain). Thus, use of FP services is relatively more widespread while use of pregnancy related health care is more limited in Bangladesh in comparison to her SA neighbours.

Differential use of pregnancy related health care

In 2004 on average 56 percent of women who had a live birth in the last five years received some form of antenatal care, with 49 percent from medically trained providers. The use of trained assistance during delivery was generally very low at 13 percent of live births in the last five years since 2004. On average one fourth of pregnant women received treatment for complications while only 13 percent received PNC. The number of births by caesarean section is considered a proxy indicator of women's access to health care for complicated deliveries⁵. Anything below 5 percent indicates that a substantial proportion of women do not have access to potentially life-saving surgical obstetric care and may die as a result, so that the national average 3.5 percent indicates very poor maternal situation.

⁵ According to the WHO and UNICEF the population based rate for caesarian sections should range between 5 and 15 percent of all births.

Large disparities in use of pregnancy related health care are evident in contemporary Bangladesh (Table 4). The ratios of use rates are calculated to show relative degree of disparity in consumption, where a ratio of one indicates equal consumption by the two comparison groups. In urban areas ANC use by pregnant women was 50 percent higher compared to rural areas, while use was lower than average in Barisal and Sylhet and higher than average in Khulna and Rajshahi. The ratios of ANC use rates show that disparities were much starker with respect to woman's education and household wealth. Women with secondary or higher education were three times more likely to use ANC from a medically trained provider compared to women with no education (90% versus 30%), while the richest women were two and a half times more likely to use ANC compared to the poorest women. Differential use of ANC was also related to differences in the provision of information on pregnancy complications (not shown). Wealth and education disparities were even more pronounced for use of ANC from a qualified doctor, and the disparities were seen for use of all the different ANC components (measurement of height and weight, blood pressure, blood and urine samples, ultrasonic test). The education and wealth disparities were particularly striking for ultrasonic test and blood sample (not shown); on the other hand disparities for tetanus toxoid use were relatively small.

Disparities in the use of skilled assistance during delivery were larger compared to disparities in ANC use, particularly the education and wealth disparities, but also for residence and region: women with secondary or higher education were 14 times more likely to have skilled delivery assistance compared to women with no education, while the women in the richest wealth quintile were 13 times more likely compared to women in the lowest wealth quintile; women in urban areas were more than three times as likely to use SBA than rural women. Women in Khulna particularly were twice as likely to use SBA compared to the other regions. There were large variations for caesarean sections by rural and urban areas and socio economic status. The poor-rich disparity for caesarian section was extremely glaring, and much greater than the poor-rich disparities for use of all other maternal health care components. Rural-urban, region, education and wealth disparities in use of PNC and use of medical care for pregnancy complications were of similar magnitude and again much greater compared to disparities in ANC use.

Table4: Socio economic differences in use of maternal health care (ANC, delivery care, treatment for complications and PNC) by ever married women age 15-49 with a live birth in the last five years, Bangladesh 2004 (percent)

Background Characteristics/ Ratios	At least one visit	TT	Skilled delivery assistance	Vit A	Treat-Ment For Comp.	Caesa-rean Section ³	Recd PNC
Residence							
Rural	50.9	62.8	9.4	12.9	24.6	1.7	13.5
Urban	74.8	66.6	29.6	20.9	45.2	10.5	34.1
<i>Rural-urban ratio</i>	<i>0.68</i>	<i>0.94</i>	<i>0.32</i>	<i>0.62</i>	<i>0.54</i>	<i>0.16</i>	<i>0.10</i>
Division							
Barisal	46.8	72.2	11.4	17.2	28.4	2.5	15.0
Chittagong	54.3	62.5	11.7	20.5	27.7	2.5	17.4
Dhaka	56.1	63.3	14.9	12.0	25.2	5.2	17.6

Khulna	61.4	60.1	21.2	10.9	35.5	4.5	25.6
Rajshahi	59.1	66.9	10.6	11.5	30.5	2.1	14.5
Sylhet	48.2	55.4	11.1	21.6	32.0	2.6	20.4
<i>Syl-Raj ratio</i>	<i>0.82</i>	<i>0.83</i>	<i>1.12</i>	<i>1.88</i>	<i>1.05</i>	<i>1.24</i>	<i>1.41</i>
Education							
No education	37.6	56.5	4.4	10.2	14.9	0.7	6.7
Pri incomplete	52.9	62.5	8.7	11.5	25.0	1.6	13.4
Pri complete	59.2	65.4	12.4	15.1	34.8	1.7	15.4
Sec incomplete	75.2	71.7	20.7	18.2	41.0	5.3	26.8
Sec or higher	93.8	71.9	55.2	31.4	62.6	21.4	56.9
<i>No edu-sec+ ratio</i>	<i>0.67</i>	<i>0.79</i>	<i>0.08</i>	<i>0.32</i>	<i>0.24</i>	<i>0.04</i>	<i>0.12</i>
Wealth index							
Lowest	33.7	56.0	3.4	8.5	14.0	0.1	5.1
Second	46.0	61.2	4.5	8.9	17.6	0.9	8.6
Middle	58.3	63.5	10.5	14.7	25.8	1.7	12.7
Fourth	66.5	69.6	17.4	17.9	42.8	3.1	22.3
Highest	84.1	70.7	39.6	25.9	55.8	14.4	46.9
<i>Poor-rich ratio</i>	<i>0.40</i>	<i>0.79</i>	<i>0.09</i>	<i>0.33</i>	<i>0.57</i>	<i>0.007</i>	<i>0.11</i>
Total	50.9	62.8	9.4	12.9	24.6	3.5	13.5

Source: BDHS 2004

Note: 1=% of live births in the last five years

These inequalities indicate that income constraints on consumption of maternal health care components that require medically trained personnel or facility based treatment, such as SBA, treatment for complications and PNC, are far greater than for consumption of community based services, such as ANC and TT that are either subsidized or free. The other noteworthy feature is that while pregnant women in Sylhet were less likely than average to receive ANC or trained delivery assistance, they were more likely than average to receive Vitamin A, trained medical care for complications and PNC. This suggests that even when services are low cost or subsidized, as in the case of ANC, there can be non income constraints on consumption. The propensity to receive PNC and trained delivery care was generally greater for women who received ANC⁶, indicating that awareness and information are important in increasing use of maternal health care.

The regional disparities show that the relation between use of maternal health care and RH health outcomes is quite complex. In general Khulna and Rajshahi divisions have performed relatively better in terms of RH outcomes, displaying lower than average TFR, greater than average median months since the last live birth, lower MMR and average BMI. This has been accompanied by higher use level of ANC, TT and medical treatment for pregnancy complications. But Khulna stood out by having twice the average level of trained delivery assistance and higher use levels for caesarean sections and PNC compared to Rajshahi but not necessarily leading to better RH outcomes than Rajshahi. In fact Khulna appears to have higher MMR than Rajshahi even with a later start of childbearing and the lowest proportion of underweight women. On the other hand, Sylhet has much worse RH outcomes than Khulna and Rajshahi, except for uncharacteristically late onset of childbearing, and also much lower use rates of ANC and TT, and caesarean

⁶ Among mothers who delivered at home the proportion receiving PNC was only 8% compared to 18% on average (2004 BDHS).

sections. However, use of SBA, medical treatment for complications and PNC are higher than for Khulna and Rajshahi, but without any impact on reducing the risk of maternal deaths. Thus, even with greater use of SBA in Khulna maternal mortality is not lower than in Rajshahi, while with greater use of SBA and treatment for complications maternal mortality is actually much higher in Sylhet than in Rajshahi.

Differential use of family planning services

Family planning services are considered part of RH care. Disparities in the consumption of FP services by currently married women are shown in Table 5. Differences by socio economic background were not that evident for total CPR and modern CPR, confirming that FP services are used by all groups of women almost equally. The largest disparities in the use of any FP method and use of modern methods were according to region, while some differential use by household wealth was also seen, but disparities by location of residence and woman's education were almost negligible. Sylhet and Chittagong are the laggards in the use of FP methods, also reflected in the higher fertility levels in these regions as well.

Table 5: Socio economic differences in use of FP services by currently married women 15-49 years, Bangladesh 2004 (percent)

Background Characteristics	Any method	Modern Method	Injec-Tible	Con-dom	Any male method	Unmet need
Residence						
Rural	56.7	46.0	9.8	3.0	13.7	11.9
Urban	62.9	51.6	9.1	8.3	18.4	9.4
<i>Rural-urban ratio</i>	<i>0.90</i>	<i>0.89</i>	<i>1.08</i>	<i>0.36</i>	<i>0.75</i>	<i>1.27</i>
Division						
Barisal	54.2	42.7	12.8	1.9	13.2	12.7
Chittagong	47.1	37.4	8.3	4.8	13.8	17.0
Dhaka	59.3	48.5	8.0	4.9	15.4	10.7
Khulna	63.8	50.7	11.5	4.9	18.4	8.3
Rajshahi	68.3	57.8	12.2	3.4	14.6	7.2
Sylhet	31.8	22.0	4.1	2.5	12.0	20.6
<i>Syl-Raj ratio</i>	<i>0.46</i>	<i>0.38</i>	<i>0.34</i>	<i>0.73</i>	<i>0.82</i>	<i>2.86</i>
Education						
No education	58.8	48.3	12.2	1.5	12.0	11.6
Pri incomplete	56.8	45.4	11.0	2.5	14.1	12.2
Pri complete	58.9	47.4	7.1	4.1	15.9	12.0
Sec incomplete	56.3	46.7	7.0	5.9	15.5	11.7
Sec or higher	62.0	49.1	3.9	17.8	30.7	7.9
<i>No edu-sec+ ratio</i>	<i>0.95</i>	<i>0.98</i>	<i>3.12</i>	<i>0.08</i>	<i>0.39</i>	<i>1.45</i>
Wealth index						
Lowest	53.6	44.7	11.9	1.2	10.4	13.0
Second	57.6	47.7	11.8	1.7	11.8	11.7
Middle	57.8	46.6	9.0	2.5	13.6	11.7
Fourth	58.5	47.4	9.0	3.8	14.8	11.3
Highest	62.5	50.0	6.7	11.4	23.8	8.6
<i>Poorest-richest ratio</i>	<i>0.86</i>	<i>0.89</i>	<i>1.78</i>	<i>0.11</i>	<i>0.44</i>	<i>1.51</i>
Total	58.1	47.3	9.7	4.2	14.9	11.3

Source: BDHS 2004

However, larger differences in use were evident for specific FP methods and for male methods. While the use pattern for oral pills was not differentiated by either education or household wealth (not shown), women with no education were three times more likely to use injectibles than women with secondary or higher education, and the poorest women were nearly twice as likely to use injectibles as the richest women. The reverse was true for condom use. The preference for injectibles by women with little or no education and by poor women (lowest two wealth quintiles) compared to educated and non poor women could be related to women's greater control over fertility regulation and to avoid the hassle of daily use and securing husband's cooperation. In fact, methods requiring male participation were much more likely to be used by well off and educated women compared to poor and little or not educated women: women who have secondary or higher education are more than three times as likely to use male methods as women with no education, while the richest women are more than twice as likely to use male methods as the poorest women. Poor women were also more likely to rely upon less effective traditional methods.

The lack of access to contraception related health care is evident from the fact that of those contraceptive users who stop using their method within 12 months of starting (nearly half of all users) 18 percent discontinue as a result of health side effects. The proportion is even higher (34%) when the reference period is the last five years. The neglect of health care and bias for family planning in domiciliary services is seen in field level service provision: 18 percent of currently married women had been visited by a field worker for family planning services (whether government or NGO) in the last six months compared to 10 percent of women visited by field worker for health service (BDHS 2004, pp85).

The proportion of women who do not use contraceptives but want to stop childbearing is a measure of unmet need for FP. There are difference in reported unmet need for family planning for all the background characteristics: women in rural areas are more likely to report unmet need compared to women in urban areas, women in Sylhet and Chittagong report higher than average proportion of unmet need, and the poorest women and women with no education have 1.5 times higher level of unmet need for FP compared to the richest women and women with secondary or higher education. Cultural constraints on demand could be responsible for these differences, since it is the regions lagging in RH outcomes and use of RH care and FP services that also have higher proportions of unmet need.

5 Determinants of maternal health care seeking behaviour

The reasons women give for not using RH care services provide insights regarding determinants of maternal health care seeking behaviour. Among mothers who did not seek ANC the most frequently cited reason was the belief that there was no benefit from it (63%), while 13 percent said they were not aware of the need, 12 percent gave religious or family restrictions as a reason for not seeking care, while 18 percent cited monetary constraints and 4 percent mentioned quality of service or distance as a reason (BDHS 2004, pp137). The main reasons for not seeking postnatal care were similar: 67 percent of women who did not receive PNC said they did not think PNC was necessary or that it

was not 'customary' (MMS 2001, pp61). About 5 percent of mothers who received PNC said they were not allowed by their families, 19 percent said they were unaware of the need for PNC, one fifth (22%) could not afford the expense involved and 7 percent cited low quality and availability issues. Thus, cost and quality were slightly more important in determining use/non use of PNC compared to ANC. As expected the cost explanation for non use was much more commonly reported by poor women (lowest two wealth quintile) compared to the richest women. By contrast the perception of no benefit or no necessity was invoked as a reason by the richest women much more commonly than the poorest (76% and 44% respectively).

Thus maternal health care seeking behaviour depends upon both income as well as non income factors. It is important to identify which factors are significant determinants of health care use and also to examine the independent effects of various factors. In order to reduce maternal mortality government has been upgrading existing health facilities to expand access to and utilization of RH care by providing emergency obstetric care (EOC) in all 59 district hospitals, in 64 of the 90 MCWCs and in 120 of the 403 rural upazila health complexes. The use of skilled birth attendants at delivery is seen as an important maternal health component that can reduce maternal mortality. Socio economic status, measured by household wealth index, is strongly associated with use of maternal health care service and use of SBA (Anwar et al 2005).

Multivariate analysis of data on use of SBA in Matlab, a rural area of Bangladesh where ICDDR,B operates a community based health service, revealed that even after adjusting for the effects of covariates (mother's education, age and gravida, distance, year of delivery, number of antenatal visits and religion) household wealth maintained a significant relationship with the use of SBA at delivery whether at home or at a health facility. Mothers from the least poor quintile were 3.4 times more likely to use a SBA than poorest quintile mothers (Anwar et al 2005, pp127) Other independent variables also showed a clear relationship with attended delivery. A mother with one ANC visit was 2.04 times more likely to be delivered by a skilled birth attendant than a mother with no ANC checkup. The odds ratios for SBA increased tremendously as the number of antenatal visits rose. The probability of using SBA declined with the distance to the nearest subcentre. Mother's education was independently a significant predictor for use of SBA: a mother with 10 or more years of schooling was 1.8 times more likely to be delivered by a SBA than a mother with no formal education.

The above results show that inequality in utilization was still very high for a population that was seemingly quite homogenous (a group of poor rural mothers) and in an area that had overall better coverage of maternal health services than the national average. The study findings suggest that ICDDR,B has succeeded in expanding the use of maternal health care services, but not to all who needed them even when services were provided free of charge.

Women themselves played a major role in the decision to seek delivery assistance (51%), while husbands decided in one fourth of the cases and in-laws in 13 percent of the cases (MMS 2001, pp43). It is interesting that women's role as primary decision maker in

seeking delivery assistance declined with rise in household wealth and women's education level, while the husband's role increased with rise in household wealth and woman's education. In other words, although poor women were more likely to have a say in the type of delivery assistance they wanted, they were not able to access maternal health care to the same extent as non poor women, indicating self deprivation or denial and also the low importance given to women's maternal health by family members.

Husbands were the usual decision makers in seeking care for pregnancy complications (65%) while women themselves made the decision in one third of the cases of pregnancy complications (MMS 2001, pp73). Parents of the woman were more likely to have a say in the decision relative to in-laws, as well as other family members particularly when the complication was life threatening.

6 Differentials in sources of obtaining reproductive health care

Bangladesh has a pluralistic health system with a wide variety of actors delivering health related goods and services. In this respect Bangladesh is not unique (Bloom and Standing 2001). The plurality of health care provision in Bangladesh means that people have a 'choice' of health seeking options ranging from no treatment, self care (home remedies), traditional care, unqualified allopathic care from pharmacies and drug stores, care from health workers and paramedics to qualified allopathic care from doctors at chambers, clinics and hospitals⁷. Thus, if there is a decision to seek health care there is also a decision about where to go for treatment.

RH care and FP services in Bangladesh are delivered primarily through public facilities at upazila level and below and from NGO community based health centres. It is also available in a limited fashion from tertiary and district level public facilities. Private provision is limited to clinics in towns and cities and from government doctors in private practice. Since 1998 RH care has been the most important element in the essential services package (ESP)⁸, introduced as part of health sector reforms under the sector wide health programme (HPSP) to make public services more cost effective and reduce wastage (for details see Mahmud and Mahmud 2000). The goal of the programme was 'to contribute to the improvement of the health and family welfare status among the most vulnerable women, children and poor of Bangladesh'. The strategy was to adopt a RH approach to service delivery and client-centred provision and utilisation of services targeted to the most vulnerable population groups (the poor, women and children) and delivering them through facilities most used by them, namely public facilities at upazila level and below and from NGO community based health centres. Currently, within RH care relatively greater attention is focused on maternal health and strengthening EOC at the upazila level and at maternal and child welfare centers in district towns.

⁷ This decision like the decision to consume health care is also constrained by socio economic factors.

⁸ The ESP components were reproductive health care, child health care, communicable disease control, limited curative care and behaviour change communication. RH care components include safe motherhood, family planning, prevention and control of RTI/STD/AIDS, maternal nutrition, unsafe abortion, adolescent care, infertility and neo-natal care. In 1998 the share of RH care in total estimated cost for ESP delivery at the community level was planned to be 79 per cent, at union level 31 per cent and at upazila (subdistrict) level 34 percent. During 1998-99 of total cost of ESP delivery (\$76.4) 49 percent was earmarked for RH care (Mahmud and Mahmud 2000).

Most women prefer public facilities for obtaining RH care in Bangladesh, but rural-urban differences are quite systematic due to difference in the delivery system. Since the majority of women lives in rural areas over three fourths of mothers who received ANC used public facilities at upazila and below. About 14 percent used hospitals, 6 percent using public hospitals and 8 percent using private clinics, and only 3 percent received ANC from NGO clinics (Mahmud 2006b). Another 5 percent of mothers received ANC from traditional providers. Urban women were more likely to use government hospitals and private/NGO clinics for ANC since these are more available in cities and district/upazila towns, while rural women were more likely to use government primary health facilities. Compared to ANC, however, public primary health facilities were less likely to be used for PNC (49% of mothers who received PNC), and public and private hospitals and clinics and private doctors at home were used relatively more because of very low standard of care at primary health facilities. Reliance on public hospitals (21%) and private clinics (14%) for PNC was greater in urban areas, while reliance on private doctors at home (11%) was greater in rural areas.

There are also clear income effects on choice of provider for RH care (Table 6). For ANC public primary health care facilities were used the most, both by poor and non poor women, but non poor women were twice as likely to use public hospitals and private/NGO clinics compared to poor women. The poor rich gap in the use of public upazila and lower facilities for ANC was more pronounced in urban areas because in urban areas the non poor could avail both public and private hospitals/clinics to a greater extent.

For PNC, although public facilities were again the most common source of care for the poor and the non poor alike, non poor women were twice as likely as poor women to use public hospitals (higher non poor-poor ratio in rural areas 2.5) and 1.5 times more likely to use private/NGO clinics than poor women. Thus, poor women whether in rural or urban areas used upazila and lower facilities for pregnancy related health care to a greater extent than non poor women, while non poor women used both public hospitals and private/NGO clinics to a greater extent than poor women. This has implications for women's health outcomes since it is widely recognized that standard of medical care provided is relatively much lower in public upazila and lower facilities compared to either public hospitals or private/NGO clinics (Mahmud 2006a).

Table 6: Choice of provider for ANC, delivery and PNC for the most recent birth in last 5 years to ever married women (%of visits to different providers)

Type of care	Urban		Rural		Bangladesh	
	Poor	Non poor	Poor	Non poor	Poor	Non poor
Antenatal care						
Public: upazila and lower	77	50	87	80	86	71
Public hospital	11	15	3	5	4	8
Private or NGO	12	35	10	15	10	21
Delivery						
Home	95	82	98	96	98	92
Public: upazila and lower	2	3	1.5	2	1.4	2
Public hospital	2	7	0.4	1	0.6	3
Private or NGO	1	8	0.3	1	0.5	3

Postnatal care						
Home	9	5	14	13	13	10
Public: upazila and lower	52	27	61	54	59	44
Public hospital	18	22	4	10	7	14
Private or NGO	21	46	21	23	21	32

Source: WB 2003, tab 3.5, pp52, calculated from HIES 2000.

Although over 90 percent of all births took place at home, non poor women were more likely to avail hospital facilities during delivery than poor women particularly in urban areas⁹. Only about 2 percent of births whether among poor or non poor took place at public facilities at upazila and below.

The public sector is still the primary source of obtaining family planning services. Nearly six out of ten modern contraceptive method users obtained contraceptives from a public source: one third (34%) from a health facility and one fourth (23%) from a government field worker (BDHS 2004). Another third (31%) obtained contraceptives methods from the market, namely pharmacies, private doctors and clinics, 5 percent from shops, friends and relatives, and 6 percent from NGO sources. Reliance on the market for the consumption of family planning services has been increasing as well, indicated by declining importance of government fieldworkers as a source of contraceptives (42% in 1992-94 to 23% in 2004) and rising importance of pharmacies (21% in 1999-2000 to 29% in 2004), particularly for pill users.

7 Discussion and policy implications

1 Inequality in certain RH outcomes (like TFR) may decline with sustained improvement in average outcomes as a result of expanded access to services or increased coverage of service provision. However, aggregate improvement in an outcome does not automatically reduce inequality because even free or subsidized services do not ensure that services are used by all groups of women equally and are not necessarily equitable. This highlights the fact that demand for RH care may be quite weak for some components so that reduction of inequalities in RH outcomes may have to be addressed differently for different outcomes.

2 Lack of resources are not necessarily a constraint for improving RH outcomes and expanding access to RH care. Even with limited resources considerable improvement is possible if non income constraints to access (social and cultural norms, distance, quality, awareness, information) can be addressed effectively. For example, since ANC delivery is relatively low cost and since use of antenatal care is a significant predictor of the use of SBA, ANC can be an effective entry point for removing non income barriers to use of SBA. However, lack of household income begins to become more important as non income barriers to use are weakened and removed, resulting in stagnation in the pace of improvement (CPR and ANC use). Although in relatively poorer households women have greater influence on household decision making about use of maternal health care, inadequate income encourages self denial and self deprivation on the part of women especially when the type of health care is not seen to be beneficial by the family.

⁹ While 8% of births to non poor women were delivered at health facilities, either at public hospitals or private/NGO clinics, this figure was only 2% for poor women.

3 The improvement in MMR experienced by Bangladesh owes much to the increased coverage of ANC rather than any significant increase in the use of SBA. There is need to re-examine the role of traditional birth attendants in reducing the risk of maternal death. It is likely that expanded ANC coverage with the use of trained traditional birth attendants is a more socially acceptable and economically viable option than increasing the use of SBA, which is more expensive and less acceptable because SBAs are often young inexperienced women.

4 For maternal health care service components that require medically trained personnel, such as PNC and SBA, resources to expand public services have to be committed since women, particularly poor women, prefer to use public sources for accessing maternal health care. For these relatively costly and often facility based services lack of income is a major barrier to use from the beginning. But there are non income constraints as well that dampen use even among non poor women, such as perception that such care is not needed or cultural restrictions on receiving care from male providers (for example non use of PNC because of these reasons was higher among the richest women), so that awareness raising and information provision is also important to increase demand. However, awareness raising and provision of information cannot be limited to women and mothers, but must be broad based to include decision makers like husbands and other family members.

5 For maternal health care components that require services of high standard and are expensive to deliver (like life saving EOC and caesarean section), and for which access is almost non existent for the poorest women and limited even for the richest women, public resource commitment is crucial, since poor women are unable to access these essential services from the market.

6 The regional differences lend support to a causal link between RH care use and outcomes. The evidence from the Khulna Rajshahi and Sylhet show that higher use of ANC is associated with improved RH outcomes. Rajshahi presents some interesting anomalies regarding the nature of the demand for RH care. In Rajshahi the demand for ANC is relatively greater compared to other regions while demand for PNC, SBA and treatment for complications is relatively smaller, but RH outcomes are the most favourable for women compared to all other regions. Thus, there is need for region specific approach to demand generation and service provision.

7 Disparities in access to and use of FP services, particularly the poor rich gap, is much less compared to the use of pregnancy related health care, indicating lower and more varied demand for RH care compared to FP services. Thus, there is need for generating demand for RH care at the societal level and the need for creating 'norms' or 'customs' that promote health care seeking by women given that household resource allocation is biased against women.

8 The burden of fertility regulation is much greater on poor and less educated women, while the burden is more likely to be shared by husband and wife when the woman is more educated or in wealthy households. Thus FP service provision must recognize the

special needs and constraints of poor women, who have to take a greater responsibility for fertility regulation than better off women.

9 Given the fact that the perception that maternal health care is not beneficial is a major barrier to seeking maternal health care, coupled with the fact that a woman's husband and other family members have important roles in that decision suggest strong and high visible public media campaigns along the lines used for promoting family planning to raise awareness and provide information about the importance of getting timely maternal health care to improve RH outcomes and reduce the risk of maternal deaths could be quite effective.

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