

Abhoynagar and Mirsarai Health and Demographic Surveillance Report 2004-2005



Health Systems and Infectious Diseases Division
December 2006

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Summary

This report presents a description and analysis of some of the data collected during 2004-2005 in Abhoynagar and Mirsarai, the rural health and demographic surveillance sites of ICDDR,B's Health Systems and Infectious Diseases Division (HSID). Contrary to the 2002-2003 report, no data from the urban site Kamalapur were included as these were not yet available. Included this time is information on the causes of death, by major category for the whole population and more in detail for children below 10 years of age.

A wide variety of data is collected from the surveyed population. In addition to providing the most important indicators, this report should give researchers an overview of the surveillance data available. It is not intended to be an exhaustive source of data. Like the previous edition, this report is published simultaneously in printed and electronic form. To improve readability, the text contains only summary graphs and tables; the detailed tables from which these are derived are included in the annexes.

The average household size fell from 5.0 persons in 2003 to 4.9 persons in 2004 and 2005, continuing the downward trend. The decline was similar in both areas: from 5.4 in 2003 to 5.3 in 2005 in Mirsarai and from 4.6 to 4.5 for the same years in Abhoynagar, where the average size of household was always much smaller.

The average life expectancy for both men and women was higher in the combined years 2004 and 2005 than in 2002 and 2003. This is the case for both areas. The most important cause of death for the whole population is circulatory system diseases. These account for about a quarter of all deaths, slightly less in Abhoynagar and a bit more in Mirsarai. For children younger than 10 years neonatal conditions are the major cause of death. Of the infectious diseases, only respiratory infections are important, causing 10% to 15% of deaths at these ages, depending on the area and sex.

The total fertility rates keep falling and are now close to replacement level in Abhoynagar while sinking under 2.5 for the first time in Mirsarai. Mean ages at first marriage are much lower in Abhoynagar than in Mirsarai: 24.0 years for men and 17.9 for women in Abhoynagar while first time grooms are in average 27.3 years and brides 20.2 in Mirsarai. This may be linked to the fact that many men from Mirsarai work abroad. Contraceptive prevalence hovers around 60% in Abhoynagar and is approaching 50% in Mirsarai.

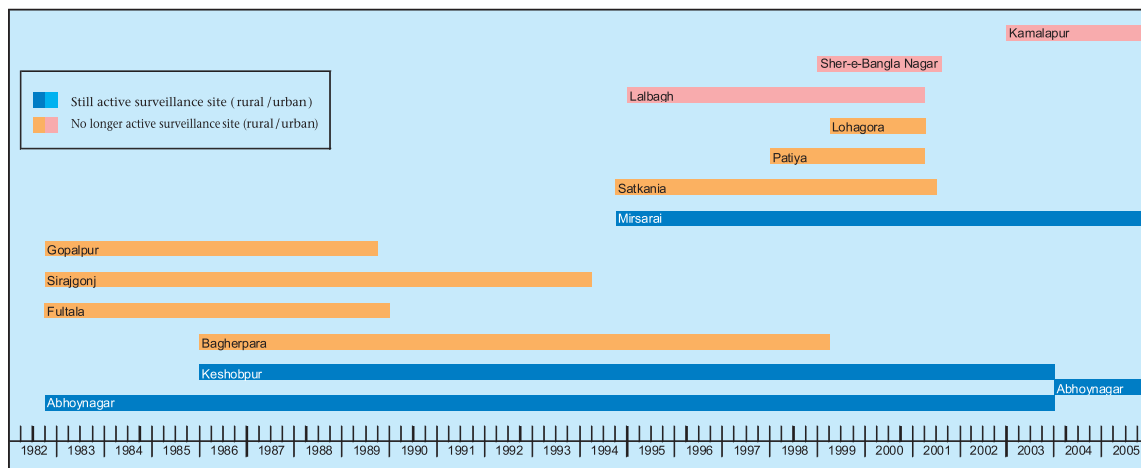
Vaccination coverage was high or very high in all areas. Tetanus toxoid vaccinations for women of reproductive age remain lowest but continue to improve. Health expenditure per household in Mirsarai remains about twice as high as in Abhoynagar. The proportion of girls in Abhoynagar, who finish primary education, continues to improve gradually, while that for girls in Mirsarai and boys in both areas does not vary much. The latter is also true for the proportions completing secondary school in both areas and for both sexes.

A special chapter in this edition describes the link between education of girls and early marriage.

Introduction

The surveillance systems of the former rural and urban extension projects were merged in 1997 to form a single longitudinal demographic and programmatic surveillance system, known then as the Operations Research Project (ORP)'s Surveillance System. The Family Health Research Project (FHRP) replaced the Operations Research Project in 2001. The surveillance was considerably scaled down, as shown in Figure 1. Since then, the support of FHRP has been reduced and terminated completely in the middle of 2006. During the period covered by this report, 2004 and 2005, the surveillance was mostly supported by ICDDR,B core funds and by the different protocols taking place in the areas. For this reason, the name was changed to Health Systems and Infectious Diseases (HSID) Surveillance Sites. This report deals with the rural health and demographic surveillance sites of the Health Systems and Infectious Diseases (HSID) Division: Abhoynagar (in which the former Abhoynagar and Keshobpur sites were merged) and Mirsarai. The surveillance results of the urban site Kamalapur will be covered in a separate report.

Fig. 1: Surveillance areas of SRS, ORP, FHRP and HSID between 1982 and 2005



The frequency of data collection is the same in both areas: four times a year, once in each quarter, Field Research Assistants visit all households, which are included in the sample, and collect the demographic, health and programmatic data. Each quarterly cycle of data collection is called a round. In the predominantly rural areas, a stratified two-stage sampling design is used. From each stratum, generally a sub-district, unions were randomly selected, and households served as the second-stage sampling units. The sampling fraction was designed in such a way that each household had an equal probability of selection. A systematic random-sampling technique was applied to select the sample households. The sampling fractions include every sixth household in the Abhoynagar field site of Jessore district and every fourth household in the Mirsarai field site of Chittagong district.

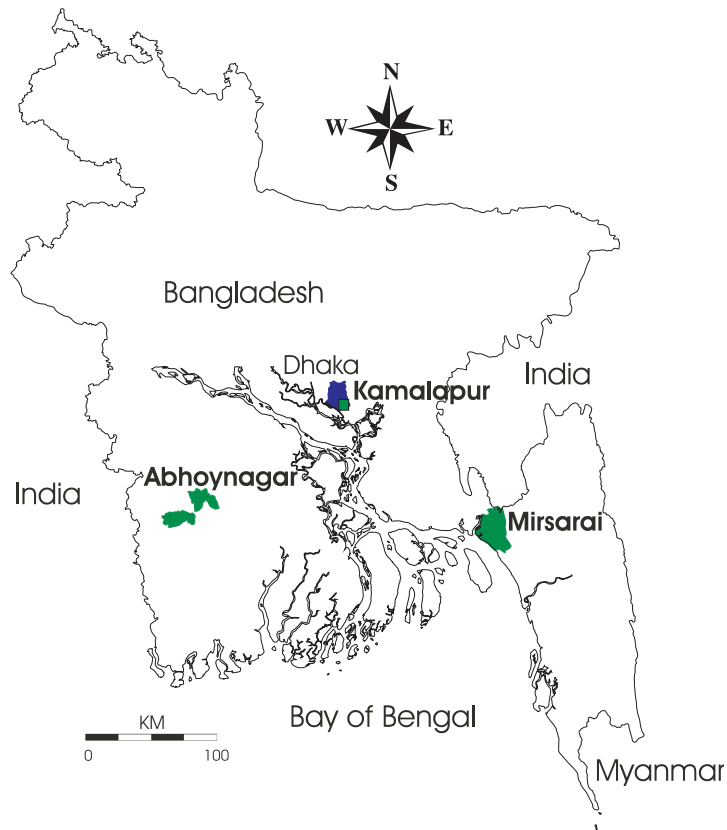
Although the intervention and comparison sites have shifted over the years, the primary objectives of the surveillance system remain the same over the period. The overall objectives include the following:

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1. monitor the services provided through the field workers of the Ministry of Health and Family Welfare, Government of Bangladesh, and particularly non-governmental Organisations in urban areas;
2. provide feedback to the project management;
3. review findings and recommend changes affecting the health and population policy; and
4. assist in evaluating the demographic and programmatic impacts of those services and Policies.

Figure 2 shows a map with the surveillance areas that were active in 2004 and 2005.

Fig. 2. Surveillance sites of HSID, which were active in 2004 and 2005



Active areas

Table 1 shows selected key figures for the rural surveillance sites for the fourth quarters of 2004 and 2005.

Table 1: Sample households, male and female population, currently-married women of reproductive age, children aged less than five years, and average household size at the last surveillance round (October to December) by field site and year

Field site	Households		Population				Currently-married women of reproductive age		Children aged less than 5 years		Average household size	
			Male		Female							
Year	2004	2005	2004	2005	2004	2005	2004	2005	2004	2005	2004	2005
Abhoynagar	7,377	7,461	16,755	16,869	16,251	16,422	7,049	7,109	3,498	3,484	4.5	4.5
Mirsarai	7,318	7,554	19,074	19,082	20,492	20,643	6,947	7,117	4,459	4,427	5.4	5.3
<i>Total</i>	<i>14,695</i>	<i>15,015</i>	<i>35,829</i>	<i>35,951</i>	<i>36,743</i>	<i>37,065</i>	<i>13,996</i>	<i>14,226</i>	<i>7,957</i>	<i>7,911</i>	<i>4.9</i>	<i>4.9</i>

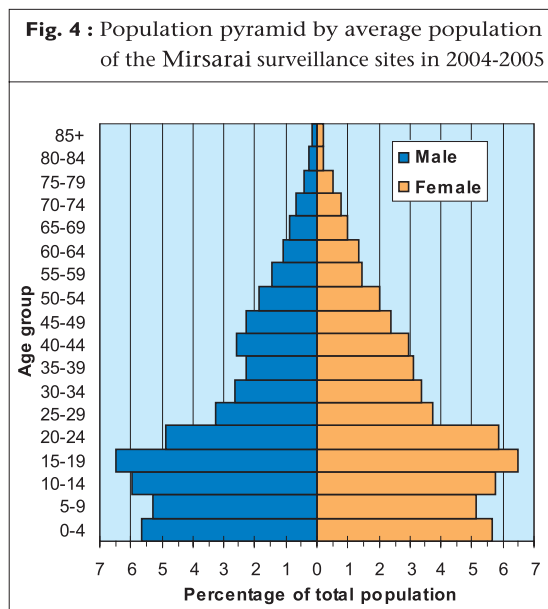
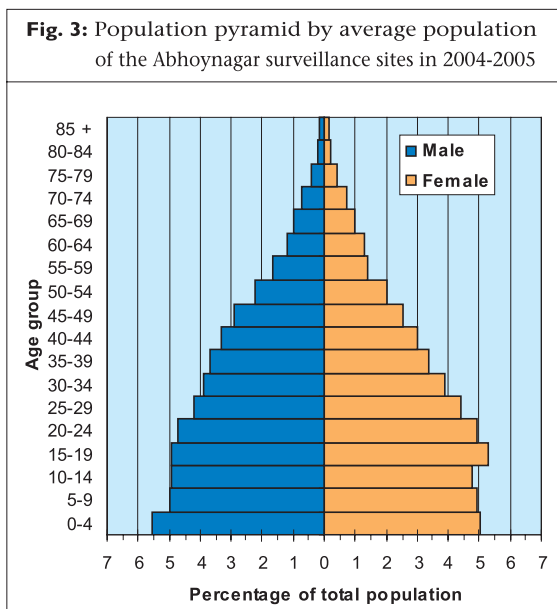
In 1997, the semi-urban part of Abhoynagar became a municipality. This affects three unions: Noapara, after which the municipality is named, Prembagh and Rajghat. Respectively two-thirds, one quarter and half of the households of these unions are under the municipality. Of the municipal unions, surveillance only takes place in Rajghat. Almost half of its surveyed population is under the municipality. As this is less than a tenth of the surveyed population in Abhoynagar and the number too small to be treated separately, we have considered in this report that the population of Abhoynagar is rural.☒

The average household size in Mirsarai was the same in 2004 as in 2003, but decreased slightly between 2004 and 2005. In Abhoynagar it fell from 4.6 to 4.5 between 2003 and 2004 and remained the same in 2005. The average household sizes in both areas have been decreasing gradually since 2000. Although the population is smaller in Abhoynagar, the number of households has surpassed that of Mirsarai for the first time in 2004, but was slightly less again in 2005. Both populations continue to grow, however.

Demographic results☒

Age distribution☒

☒Figure 3 and 4 below show the average age and sex distribution for the rural surveillance sites in 2004-2005. The underlying data of these figures are shown in Annex 1.



The population pyramids show that the fertility in Abhoynagar is much lower than that of Mirsarai since many years. The figure illustrates an accelerated fertility reduction in the latter area during the last 15 years. In Mirsarai, there are relatively a few men aged 20-39 years compared to women, a result of the labour migration, mostly to the Gulf region, for which this area is known.

Mortality

Table 2 shows the crude death rates (deaths per 1000 person-years lived) of the rural sites by sex and year.

Table 2: Crude Death Rates per 1,000 person-years by sex and rural surveillance area

Surveillance area	Crude death rate								
	Male			Female			Total		
Year	2003	2004	2005	2003	2004	2005	2003	2004	2005
Abhoynagar	6.0	7.7	4.7	5.6	5.4	5.2	5.8	6.6	5.0
Mirsarai	9.5	7.4	7.1	6.9	6.4	5.9	8.2	6.9	6.5
<i>Total</i>	<i>7.9</i>	<i>7.5</i>	<i>6.0</i>	<i>6.3</i>	<i>6.0</i>	<i>5.6</i>	<i>7.1</i>	<i>6.7</i>	<i>5.8</i>

The crude death rates continued to decrease since the last year of the previous report in both areas for either sex. Only the men in Abhoynagar had a higher death rate in 2004 than in 2003, causing also the rate for both sexes to be higher. These figures fell in 2005 again to below those of 2003, in line with the trend.

Crude death rates are sensitive to the age composition of the population. Another mortality measure, life expectancy at birth, overcomes this disadvantage. (Life expectancy is used here as a measure of annual mortality and, therefore, based on the mortality experienced during the year; yearly fluctuations in mortality, caused by, for example, bad harvests or epidemics, may result in important changes of the life expectancy measured in this way). However, as this measure is based on the mortality at different ages, it is impractical to use for small populations. Therefore, pairs of years have been combined. Still, the fluctuations seem quite large. One has to take into account however, that deaths are far more rare than births. Also, life expectancies may be slightly higher than actual as there is a tendency to overstate the age of death of the elderly. Table 3 gives the life expectancies for the present rural surveillance areas for this reporting period (2004-2005) and the previous two (2000-2001 and 2002-2003) reporting periods. The life expectancies for both sexes in Abhoynagar, and for females in Mirsarai fluctuate around 70 years. For men in Mirsarai, the life expectancy is less, but gradually catching up. In both areas and for both sexes, the life expectancy has risen compared to the previous period.

Table 3: Life expectancy at birth in years by sex and rural surveillance area

Surveillance area	Life expectancy at birth						
	Years	2000-2001		2002-2003		2004-2005	
Sex		Male	Female	Male	Female	Male	Female
Abhoynagar		72.3	68.9	68.8	70.7	69.3	73.4
Mirsarai		63.6	70.1	64.7	69.2	67.8	70.2

Fig. 5. Life table survivors from 100,000 births by rural surveillance area and sex according to the combined 2004 and 2005 mortality

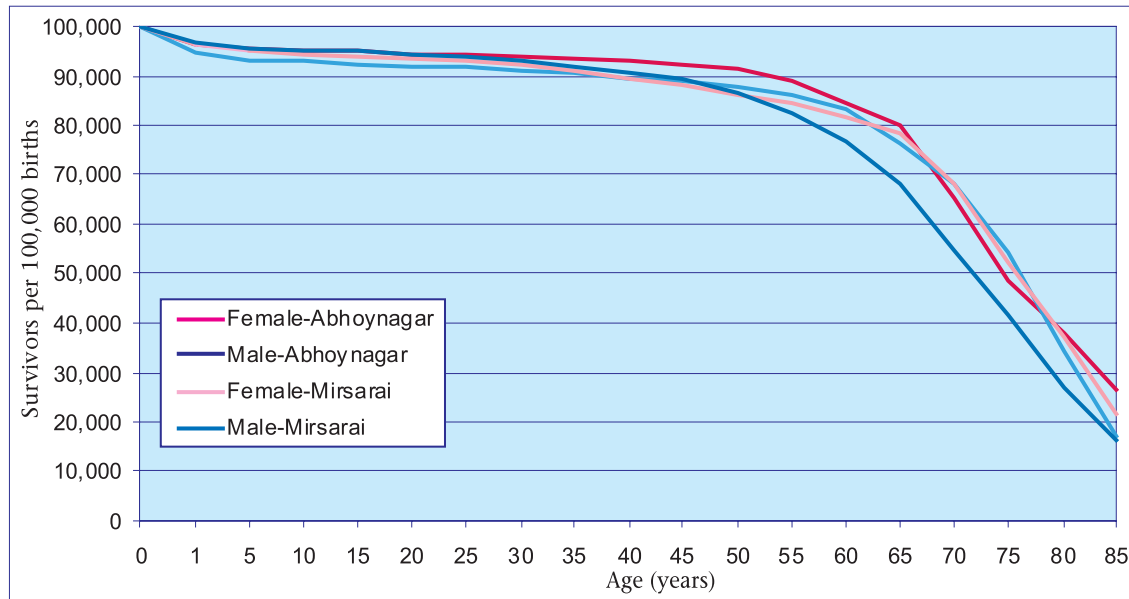


Figure 5 shows the theoretical survivors from 100,000 births up to 85 years of age, if they experienced during their life the same mortality pattern as observed in 2004-2005. Separate graphs by sex are shown for the rural field sites: Abhoynagar and Mirsarai.

The graph shows Abhoynagar males have a smaller chance to survive to age 35 years than the other three groups. Mirsarai men have a higher mortality between 25 and 60, which may be related to the work migration, causing them to have the lowest chance of survival from birth until age 55 and over. The curves of the women from Abhoynagar and Mirsarai are close together, except that the first have a slightly better chance of survival between birth and ages from 25 to 65. Also here, the high proportions surviving until an advanced age seem to suggest an overstatement of higher ages. The abridged live tables on which this figure is based are shown in annexes 2 and 3.

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Table 4 shows infant death rates (deaths of children aged less than one year per 1,000 live births during the year) and child death rates (deaths of children aged one to four year(s) per thousand person-years lived by the population aged one to four during the year) by sex and rural surveillance area. Contrary to 2002 and 2003, the infant death rates in Abhoynagar are higher than those in Mirsarai, except for girls in 2005. The number of child deaths is so small that no clear patterns are obvious in the child death rates. The only conclusion that may be drawn is that the child mortality is very low in comparison with the infant mortality, despite children spending up to four years in the age group. The actual risk of dying between these ages is about four times the annual death rate for this group as the children spend four years in that age group.

Table 4: Infant (before first birthday) death rates per 1000 live births and child (from first to before fifth birthday) death rates per 1000 person-years by sex and rural surveillance area

Surveillance area	Infant death rate						Child death rate					
	Male		Female		Total		Male		Female		Total	
Year	2004	2005	2004	2005	2004	2005	2004	2005	2004	2005	2004	2005
Abhoynagar	60.8	51.1	35.4	38.2	48.5	44.1	4.8	2.7	2.3	0.8	3.6	1.8
Mirsarai	32.0	29.4	32.6	41.4	32.3	35.1	4.0	2.2	5.7	2.8	4.8	2.5
<i>Total</i>	<i>44.5</i>	<i>38.0</i>	<i>33.8</i>	<i>39.9</i>	<i>39.3</i>	<i>39.0</i>	<i>4.4</i>	<i>2.4</i>	<i>4.3</i>	<i>1.9</i>	<i>4.3</i>	<i>2.2</i>

Table 5 illustrates the breakdown of infant death rates into neonatal (deaths of children aged 0 to 28 days per 1,000 live births) and post-neonatal death rates (deaths of children aged 29 days to their first birthday per 1,000 live births). It is clear that most infant deaths take place during the first four weeks. As numbers of postneonatal deaths are smaller, the rates show more fluctuations. It is remarkable that the postneonatal death rate for girls in Abhoynagar is much higher in 2004 than the neonatal rate.

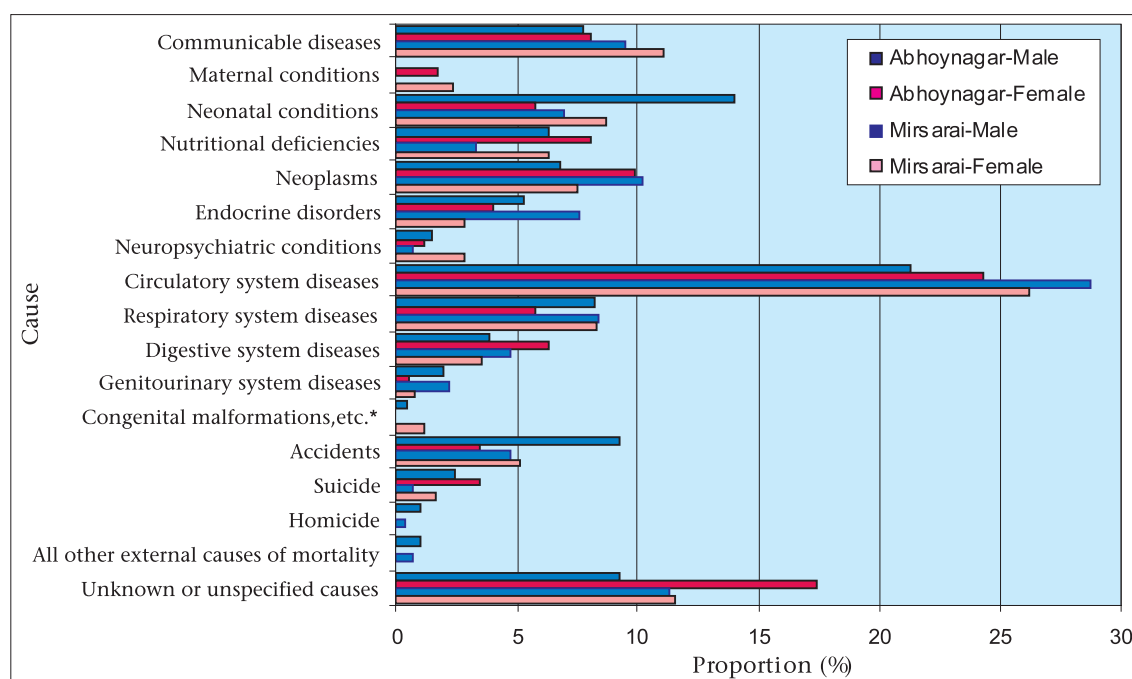
Table 5: Neonatal (infants aged 0 to 28 days) and post-neonatal (infants aged 29 days to before first birthday) death rates per 1000 livebirths by sex and rural surveillance area

Surveillance area	Neonatal death rate						Post-neonatal death rate					
	Male		Female		Total		Male		Female		Total	
Year	2004	2005	2004	2005	2004	2005	2004	2005	2004	2005	2004	2005
Abhoynagar	47.0	41.5	11.8	27.3	30.0	33.8	13.8	9.6	23.6	10.9	18.5	10.3
Mirsarai	23.5	25.2	26.1	27.6	24.8	26.3	8.5	4.2	6.5	13.8	7.5	8.8
<i>Total</i>	<i>33.7</i>	<i>31.7</i>	<i>20.0</i>	<i>27.4</i>	<i>27.0</i>	<i>29.5</i>	<i>10.8</i>	<i>6.3</i>	<i>13.8</i>	<i>12.5</i>	<i>12.3</i>	<i>9.4</i>

Causes of mortality

Figure 6 shows the proportions of deaths by major cause and sex for each of the rural surveillance areas. Annex 4 shows the actual number of deaths on which this figure is based. Deaths in the years 2004 and 2005 have been combined to reduce the effect of random annual fluctuations. The single most important cause for both areas and both sexes are circulatory system diseases, which include cardiac, hypertensive, cerebrovascular and all other circulatory system diseases. These cause about a quarter of all deaths. Communicable diseases, which include diarrhoea, dysentery, tuberculosis, EPI-related diseases, meningitis, hepatitis, malaria, chicken pox, rabies, respiratory infections, septicaemia and all other communicable diseases, cause less than 10% of all deaths, except for Mirsarai women, where it is 11%. Neoplasms cause between 7% and 10% of all deaths, while (non-infectious) respiratory system diseases are responsible for 6% to 8% of all deaths. This shows the importance of non-communicable diseases as causes of death in the surveillance areas. The other important category, neonatal conditions, with less than 10% of all deaths, except for Abhoynagar boys, where they account for 14% of all male deaths, will be discussed in more detail below.

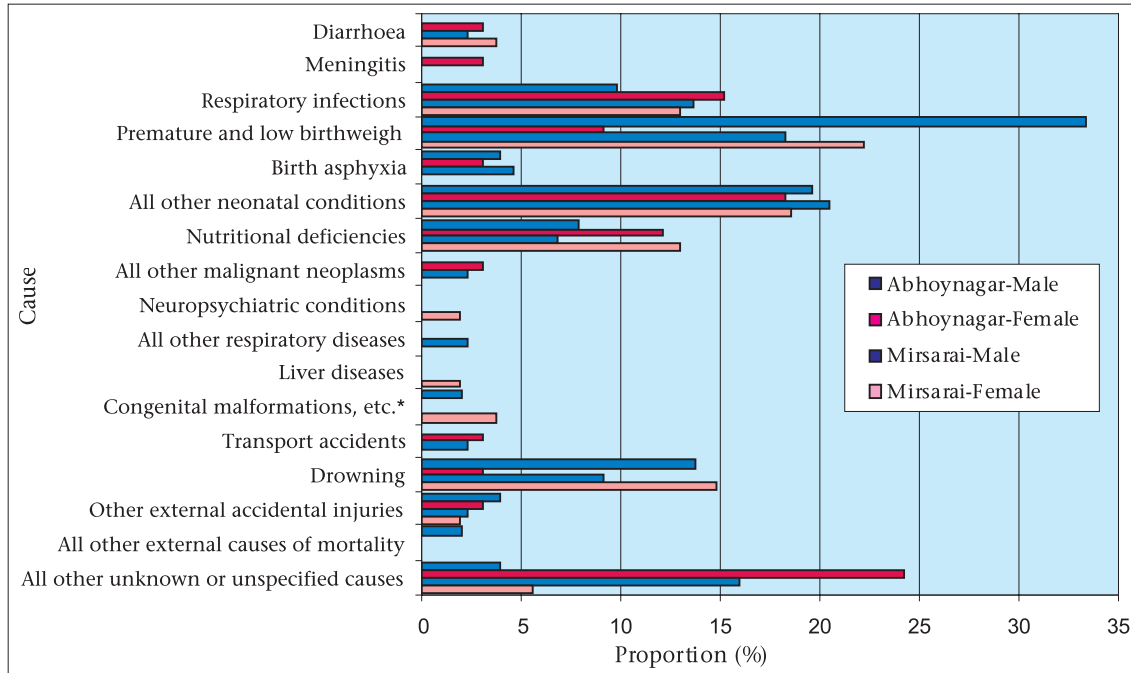
Fig. 6. Proportions of deaths by major cause, sex and surveillance area, 2004-2005



* Congenital malformations, deformations and chromosomal abnormalities

Figure 7 shows the proportions of deaths by cause and sex for each of the rural surveillance areas in more detail for children aged less than 10 years. Annex 5 shows the actual number of deaths on which this figure is based; again deaths of the year 2004 and 2005 have been combined. The major causes are the different neonatal ones, followed by respiratory infections, nutritional deficiencies and drowning. It is remarkable that diarrhoea, a major cause in the past, is presently responsible for very few deaths.

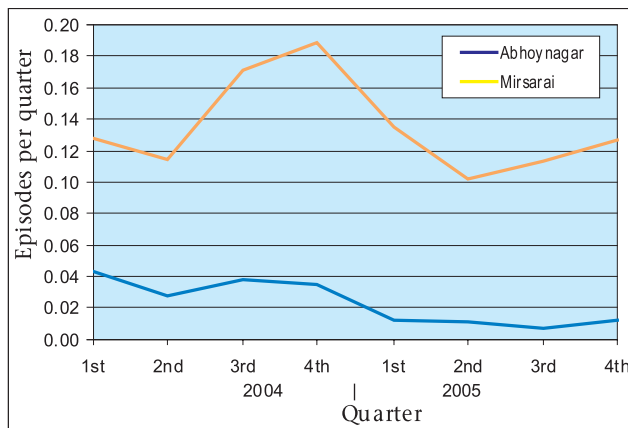
Fig. 7. Proportions of deaths of children aged less than 10 years by cause, sex and surveillance area, 2004-2005



Morbidity

Morbidity information for children aged less than five years has been collected for acute respiratory infections, dysentery and diarrhoea since April 2000. Figure 8, 9 and 10 show the estimated number of episodes of these diseases per quarter per child, based on the children affected during the last seven days before the visit of the field worker. As the observation time (one week) is only one-thirteenth of the period covered by each round (one-quarter), the prevalence of the last week has been multiplied by thirteen to get the quarterly estimates. Annex 6, 7 and 8 show the underlying data. If a child is reported as experiencing diarrhoea

Fig. 8. Estimated quarterly episodes of acute respiratory infections among children aged less than five years by surveillance area and round



without blood initially, followed by stool with blood, it is classified as dysentery and not as diarrhoea. The prevalence of acute respiratory infections was generally low in the rural surveillance areas, although it was relatively much higher in Mirsarai than in Abhoynagar. In both areas, fewer cases were reported in 2005 than in 2004, except for the first quarter in Mirsarai, where the number of cases was slightly higher in 2005. Also, the prevalence of dysentery was generally lower in Abhoynagar than in

Fig. 9. Estimated quarterly episodes of dysentery (stool with blood) among children aged less than five years by surveillance area and round

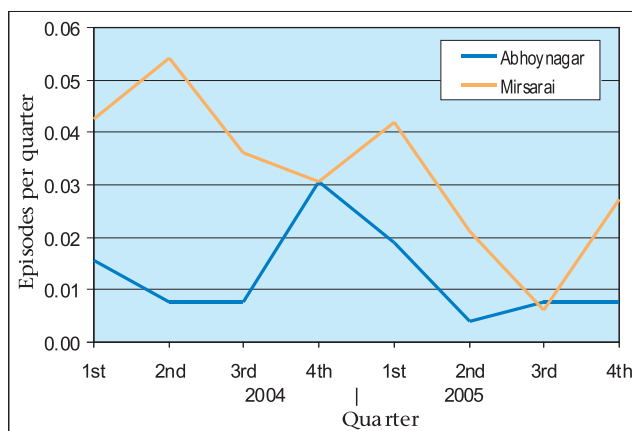
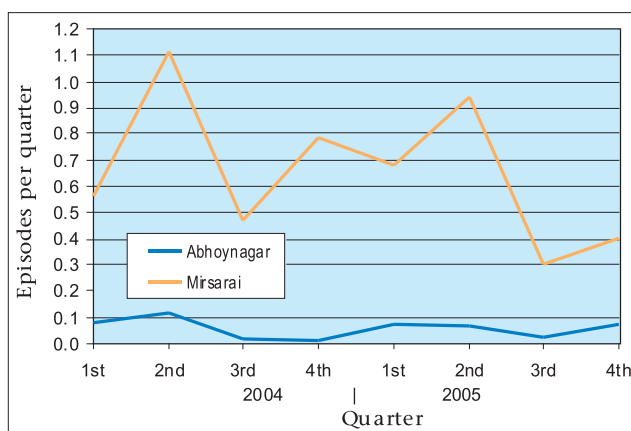


Fig. 10. Estimated quarterly episodes of diarrhoea (without blood) among children aged less than five years by surveillance area and round



Mirsarai, although it was about equal in the fourth quarter of 2004 and the third quarter of 2005. There are no clear seasonal patterns, while also there is little correspondence between the two areas. Again, the prevalence of diarrhoea is much higher in Mirsarai than in Abhoynagar. Both areas had most cases in the second quarter of 2004, although Mirsarai had almost a ten times higher prevalence with, on average, more than one case per person during that quarter. Mirsarai shows a clear seasonal pattern with the highest number of cases in the second quarter and the lowest in the third. This pattern is less clear in Abhoynagar, but this may be caused by the small absolute number of cases. Although generally ordinary diarrhoea is much more common than dysentery, there were more cases of the latter in the fourth quarter of 2004 in Abhoynagar.

Fertility

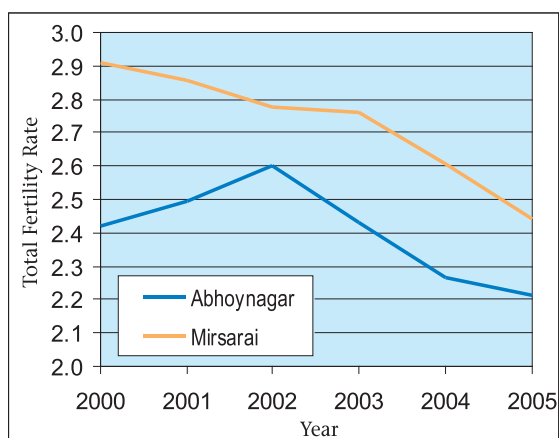
Table 6 shows the most common indicators of fertility for the different rural surveillance areas by year. These are the crude birth rate (the number of

births per 1,000 person-years lived during the year by the total population), the general fertility rate (similar, but per 1,000 person-years lived by women aged 15-49) and the total fertility rate (the average number of children born per woman if she lived through the reproductive period of her life experiencing the age-specific fertility observed during the year). The crude birth rate and, to a lesser degree, the general fertility rate are influenced by the age composition of the population.

Table 6: Crude birth rates per 1,000 person-years of total population, general fertility rates per 1,000 person-years of female population aged 15-49 years and total fertility rates per women by year and surveillance area

Surveillance area	Year	Crude birth rate			General fertility rate			Total fertility rate		
		2003	2004	2005	2003	2004	2005	2003	2004	2005
Abhoynagar		22.9	21.3	20.6	83.7	77.8	74.9	2.43	2.26	2.21
Mirsarai		24.8	23.7	23.0	90.4	85.4	82.1	2.76	2.61	2.44
<i>Total</i>		23.9	22.6	21.9	87.4	82.0	78.9	2.59	2.42	2.31

Fig. 11. Trends of total fertility rates in Abhoynagar and Mirsarai since 2000



All fertility indicators show a clear downward trend during the last three years. The overall total fertility rate has declined from 2.5 in 2003 to 2.3 in 2005 for all rural HSID surveillance sites combined. This rate is well below the national total fertility rate of 3.0 for the 2001-2004 period. (NIPORT / Mitra & Associates, Measure / DHS+ : Bangladesh Demographic and Health Survey 2004. Dhaka/Calverton, 2004)

As Figure 11 shows, the total fertility rate in Abhoynagar, which rose slightly immediately after the year

2000, started dropping again after 2002. It is now only just above replacement level. This area has traditionally a low fertility. Although the fertility rate in Mirsarai is higher, it fell from over 2.9 in 2000 to almost 2.4 in 2005. This is well below the national level, which is remarkable, as this is a conservative area. These have generally a fertility level above the national average. The fact that many of the husbands in this area work abroad for extended periods may be a factor in reducing the fertility. See Annex 9 and 10 for details on the births in 2004-2005 by surveillance area and for the age-specific fertility rates.)

Nuptiality

Table 7 shows the median and mean ages at marriage during 2004-2005 for brides and grooms of the rural surveillance sites by previous marital status. The median ages are given in completed years and an age with a ½ indicates that the median fell between two discrete ages. The mean ages are based on ungrouped age data, assuming that marriages at a certain age were evenly distributed between the birthdays. The standard deviation is in years and relates to the mean age at marriage. Both men and women

Table 7. Measures of age at marriage by surveillance site and previous marital status for both grooms and brides, 2004-2005.

Sex	Abhoynagar			Mirsarai		
	Age		Standard deviation	Age		Standard deviation
	Median	Mean		Median	Mean	
rooms						
ngle	23	24.0	5.1	27	27.3	5.5
arried	35%	36.4	12.2	37%	39.9	12.9
vorced	25	27.1	7.4	31	31.0	6.2
idowed	34%	39.6	14.2	45	46.7	14.8
<i>Total</i>	<i>24</i>	<i>25.7</i>	<i>7.6</i>	<i>28</i>	<i>28.5</i>	<i>7.7</i>
ides						
ngle	17	17.9	3.4	20	20.2	3.3
vorced	21	22.2	6.5	28	28.6	8.1
idowed	24	27.8	8.7	29%	31.5	10.2
<i>otal</i>	<i>18</i>	<i>18.6</i>	<i>4.5</i>	<i>20</i>	<i>20.7</i>	<i>4.2</i>

marry much earlier in Abhoynagar than in Mirsarai, independent of their previous marital status. A probable explanation is the large proportion of men in the latter area, who work abroad. The small differences between age at first marriage of women and those of divorcees in Abhoynagar are remarkable. The same is true for men in both areas, but not for women in Mirsarai. This seems to indicate that many marriages break down after a short duration.

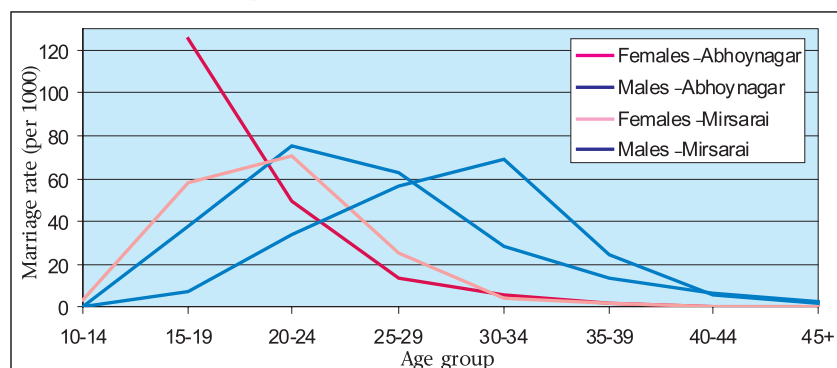
Table 8: Proportions of grooms and brides by surveillance site and previous marital status, 2004-2005

Sex	Surveillance Area	Previous marital status (%)				
		Single	Married	Divorced	Widowed	Total
Grooms	Abhoynagar	77.7	7.5	12.5	2.3	100
	Mirsarai	90.0	3.0	3.2	3.8	100
Brides	Abhoynagar	83.1	-	16.2	0.7	100
	Mirsarai	94.8	-	3.8	1.4	100

Table 8 shows the proportions of brides and grooms by previous marital status for the years 2004 and 2005 combined. Far greater proportions of grooms and brides from Mirsarai marry for the first time than those from Abhoynagar. Polygamous marriages are more common in Abhoynagar, the proportion of grooms, who are already married is here more than two and a half times as great as in Mirsarai. Also, the proportions grooms and brides, who are divorced, are much greater in Abhoynagar. More widowers than widows remarry and there is little difference between the sites. Annex 11 and 12 provide the absolute numbers of the brides and grooms by age group and previous marital status, for the rural surveillance sites of HSID.

Figure 12 and Annex 13 show the marriage rates by surveillance site, sex and age group per 1,000 person-years irrespective of the previous marital status. This graph shows clearly that both men and women marry while much younger in Abhoynagar than in

Fig.12. Rural marriage rates during 2004 and 2005, irrespective of the previous marital status, by age group, surveillance site and sex



Mirsarai. In both areas, women marry earlier than men. The marriage rate for women in Abhoynagar peaks at the 15-19 age group, while that of men is more spread out over the different ages. The graphs for men and women in Mirsarai are very similar, except for the age difference, that for the males is shifted 10 years to the right.

Figure 13 shows how weddings are spread over the year. In 2005, Ramadan fell in October and this is clearly the month with the fewest weddings in that year. Muslims, who constitute more than 80% of our surveillance populations, refrain from marrying just before or during this month of fasting. In 2004, Ramadan fell partly in October and partly in November. November of that year had few weddings in both areas. However, in September, there were even fewer weddings in Mirsarai, while October showed a relative peak. In Abhoynagar the number of marriages was as low in February as in November. The second quarter of the year and the months just before and after, show generally the highest number of weddings.

Fig. 13. Proportions of yearly marriages by month and surveillance site, 2004-2005

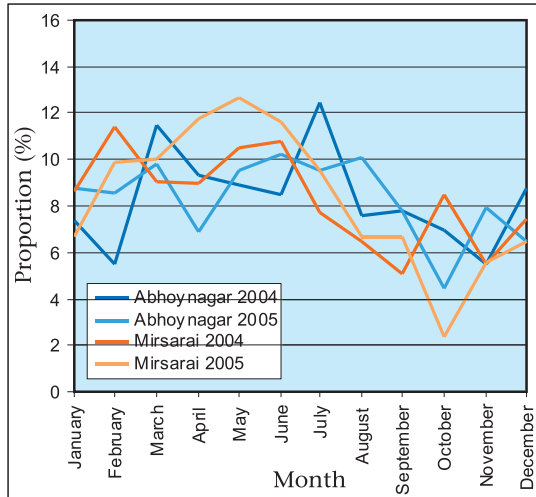


Fig. 14. Proportions of yearly divorces by month and surveillance site, 2004-2005

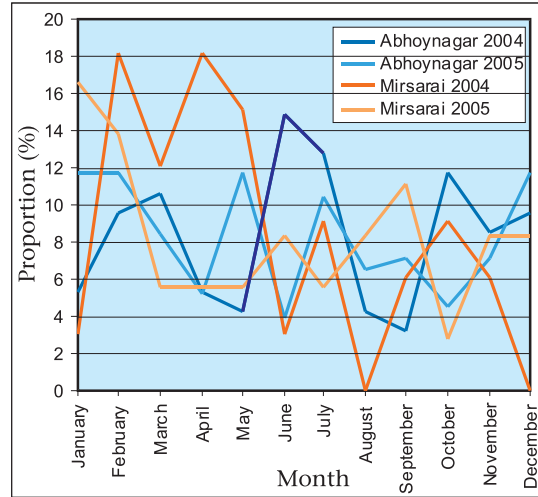


Figure 14 is similar to figure 11, but depicts the monthly distribution of divorces in 2004 and 2005. As the number of divorces is much smaller than the number of marriages, random factors play a greater role. No clear patterns are visible. Annex 14 shows the data used for Figure 11 and 12. Note that in case both partners belonged to the surveillance population, the marriages and divorces are counted twice. ☒

Figure 15 to 18 show the proportions of the rural surveillance population by marital status and age group in 2005 of Abhoynagar and Mirsarai, each separately for men and women. They show clearly that women marry while much younger than men. From age 60 years, more than half of the women are widowed, while less than one-third of the men over 85 years are widowers. Both men and women in Mirsarai marry later than in Abhoynagar. Abhoynagar has more polygamous men than Mirsarai, except at the very high ages. The absolute numbers are shown in Annex 15 to 18 ☒

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Fig. 15. Proportions of Abhoynagar men by marital status and age-group in 2005

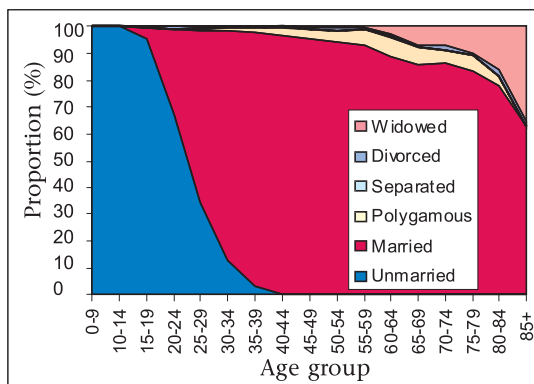


Fig. 16. Proportions of Mirsarai men by marital status and age-group in 2005

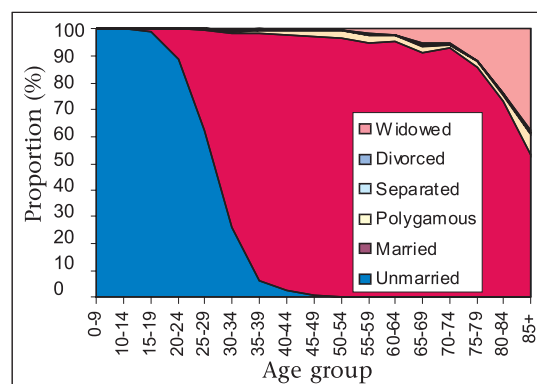


Fig. 17. Proportions of Abhoynagar women by marital status and age-group in 2005

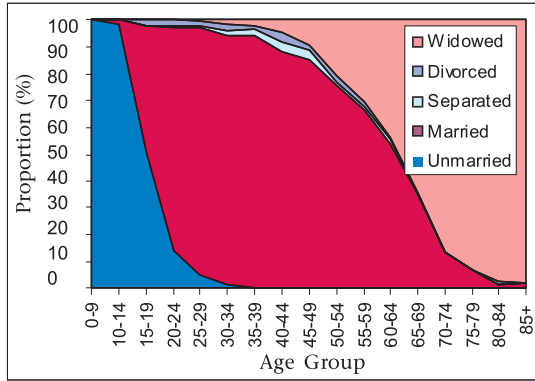
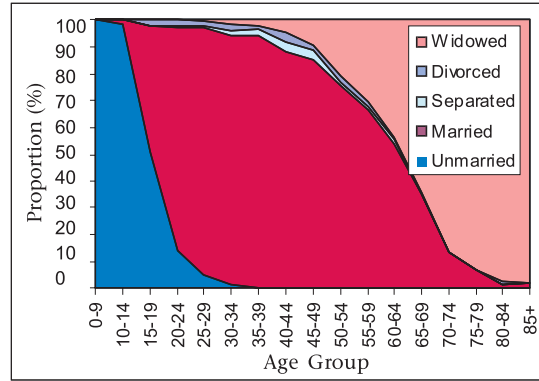


Fig. 18. Proportions of Mirsarai women by marital status and age-group in 2005



Contraception

Figure 19 and Annex 19 show the contraceptive prevalence rates among currently-married women of reproductive age of the rural surveillance sites by method mix and year. The overall contraceptive prevalence rate was highest in Abhoynagar, where it rose from 57.6 % in 2003 to 62.2 % in 2004. During the period covered by this report, it fell slightly, however, to 60.5% in 2005. The rise between 2003 and 2004 was mostly caused by higher use of the pill and injectables. A reduction in the proportion using injectables was the major reason for the fall in the next year; the use of the oral pill remained almost the same. All other methods, including traditional, were much less important and varied little during this period.

Fig. 19. Contraceptive prevalence rates and method mix by currently-married women of reproductive age in surveillance area, 2003-2005

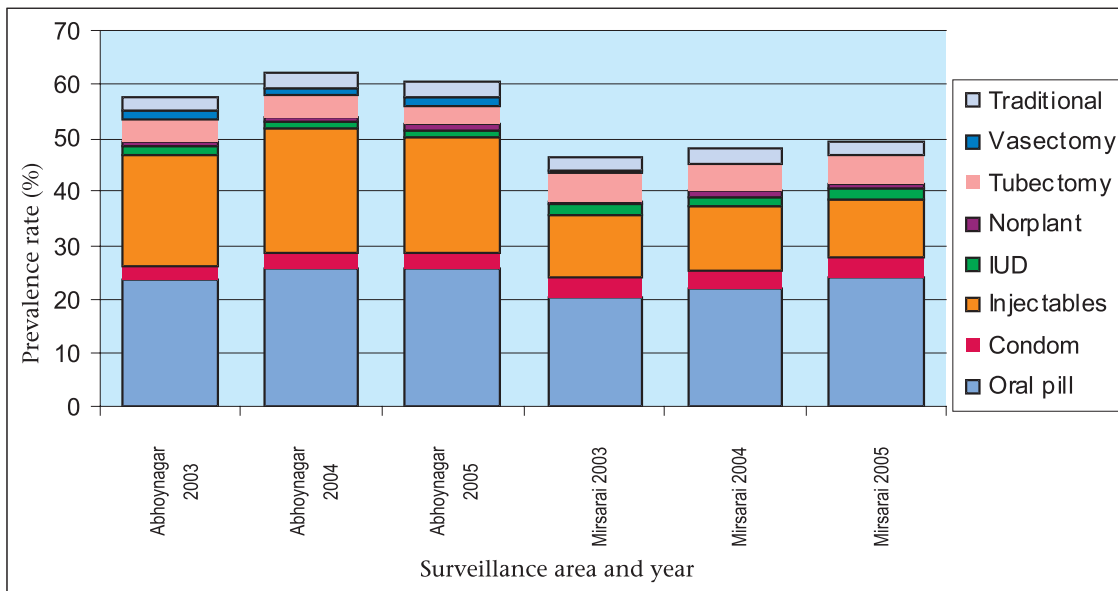
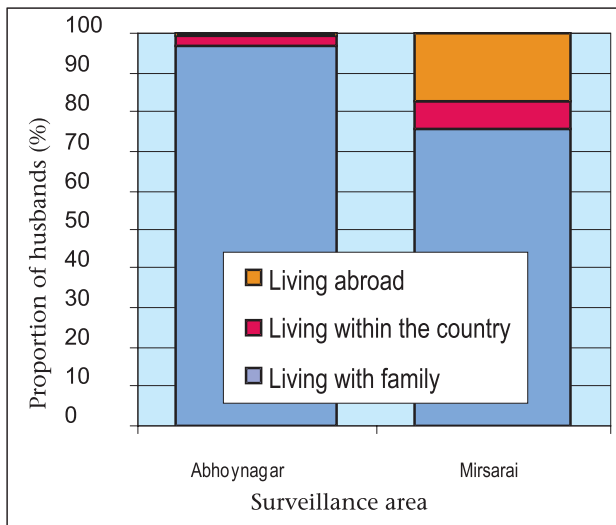


Fig.20. Proportions of husbands living with family, elsewhere in the country, or abroad during the fourth surveillance round of 2004 by surveillance area



The prevalence in Mirsarai is more than 10% below compared to Abhoynagar, but shows a steady rise from 43.6% in 2003 to 46.6% in 2005. The lower prevalence can be explained by the large proportion of husbands who are away as Figure 18 shows. This may also account for the relatively higher use of condoms. Most of the growth can be attributed to the rise in use of pill, although this is slightly offset by a fall in the use of injectables, especially between 2004-2005. The use of more permanent methods is stable and relatively less important, although there is a shift from Norplant to IUD's. Contrary to Abhoynagar, vasectomy is not used in Mirsarai,

while the use of tubectomy is slightly higher. However, in both areas these are mostly older women, who had their tubectomy long ago. In both areas, the use of traditional methods remains stable between 1.5 % and 2 %.

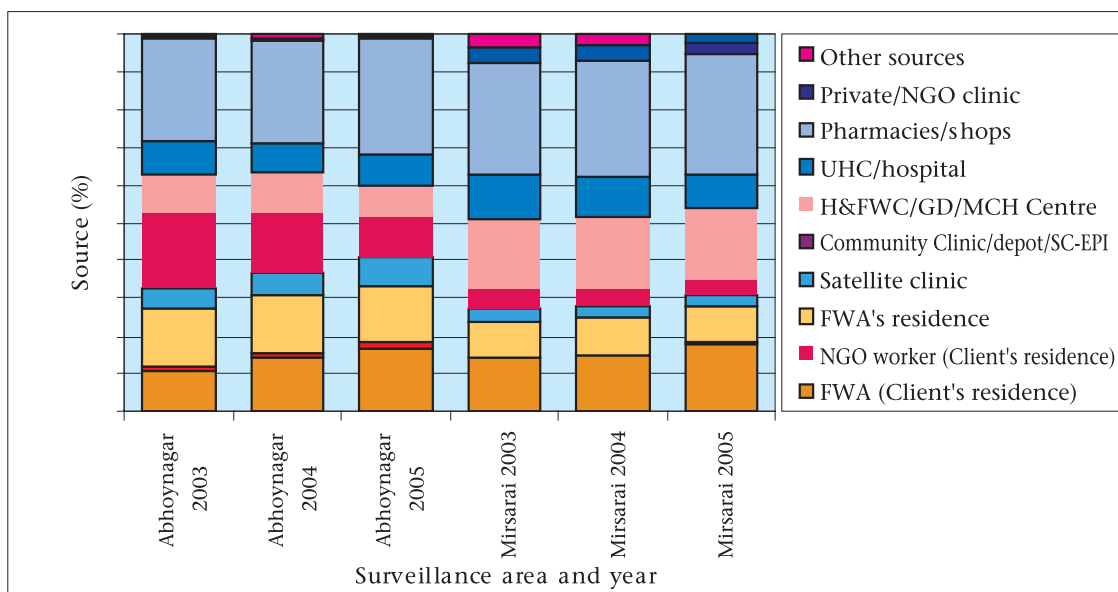
Figure 20 and Annex 20 show the proportion of husbands of women under contraceptive surveillance (ever-married women below fifty years of age) reported to be living with their family, without their family elsewhere in Bangladesh and abroad in the last surveillance round in 2004. In Mirsarai, 17.8% of husbands live abroad, while 6.5 % live away from their wife elsewhere in Bangladesh.

Figure 21 and Annex 21 show the reported sources of modern methods in 2003, 2004 and 2005. Pharmacies and other shops continue to be the most important source, rising to providing almost a third of the contraceptives in both areas in 2005. Doorstep delivery by Female Welfare Assistants showed also a considerable rise in both sites. Doorstep delivery by NGO workers also increased, although this represents only a very small proportion of all contraceptives. Local fixed site delivery remained at the same level for most categories, except for a slight rise of the satellite clinics in Abhoynagar and a decrease of the community clinics, grouped together with depot-holders and temporary satellite clinics, which are held at vaccination days, usually in former community clinics. The latter trend was much stronger in Abhoynagar, where the share of community clinics has always been higher than in Mirsarai.

The position of the upazila health complexes and other hospitals as source declined slightly in both areas. This is caused by the gradual disappearance out of the reproductive age of women, who had tubectomy, or whose husbands had vasectomy, in the eighties and early nineties of the last century, when these methods were more widely used.

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Fig. 21. Proportional distribution of sources of modern contraceptives by surveillance area and year

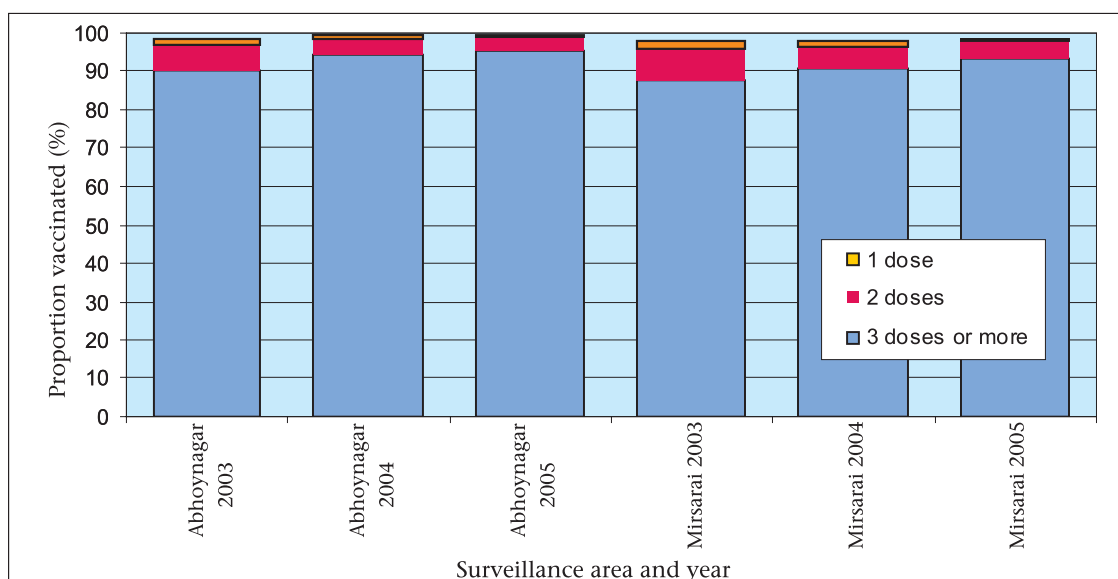


FNGO=Non-governmental organisation; UHC=Upazila Health Complex; H&FWC=Health and Family Welfare Centre; GD=Government outdoor dispensary; MCH Centre=Mother and Child Health Centre; Depot=Depot-holder; SC-EPI=Temporary satellite clinic during Vaccination Days at EPI spot; FWA=Family Welfare Assistant

Vaccination

Figure 22 and Annex 22 show the success of the vaccination programmes. The proportions of children aged 12-23 months who were fully vaccinated against diphtheria, pertussis and tetanus (DPT) rose in Abhoynagar from 90.6 % in 2003 to 95.7 % in 2005. Mirsarai is almost doing as well: 87.8 % in 2003 and 93.1 % in 2005.

Fig. 22. Percentages of children aged 12-23 months having received diphtheria, pertussis and tetanus vaccinations, by number of doses, surveillance area and year



As oral polio vaccine is normally given at the same time as the DPT vaccinations, one would expect the coverage to be the same. However, it is even more complete, although there was a small decline in recent years. Although in most tables the vertical axis begins at 0%, in this case all proportions were so close to 100% that Figure 23 only shows the part over 95%, else it would be difficult to see the details. The underlying data can be found in Annex 23. The proportion of children fully vaccinated against polio fell in Abhoynagar from 99.5 % to 98.1 % in 2005 and in Mirsarai from 99.7 % to 95.8 %, still well above the DTP coverage in those areas.

Figure 24 and Annex 24 show the percentage of children aged 12 to 23 months, who received BCG (tuberculosis) and measles vaccines. It also shows the proportion of children aged less than five years, who have received vitamin A supplementation during the previous six months. BCG vaccination is almost universal in Abhoynagar; it rose from 98.6% in 2003 to 99.6% in 2004 and 2005. It was slightly lower in Mirsarai, where it hovered around 96.5% during these years. Coverage against measles was less, but still very high, especially in Abhoynagar, where it rose from 91.6% in 2003 to 95.5% in 2005. In Mirsarai, it went up from 88.1% in 2003 and 2004 to 89.9% in 2005. Vitamin A supplementation during the last six months to under-five children was much lower than any vaccination coverage and falling slightly. In Abhoynagar, it dropped down from 75.5% in 2003 to 68.0% in 2005. In Mirsarai, it rose initially from 65.0% in 2003 to 67.0% in 2004, to fall back to 62.4% in 2005.

Fig. 23. Percentages of children aged 12-23 months having received oral polio vaccinations, by number of doses, surveillance area and year

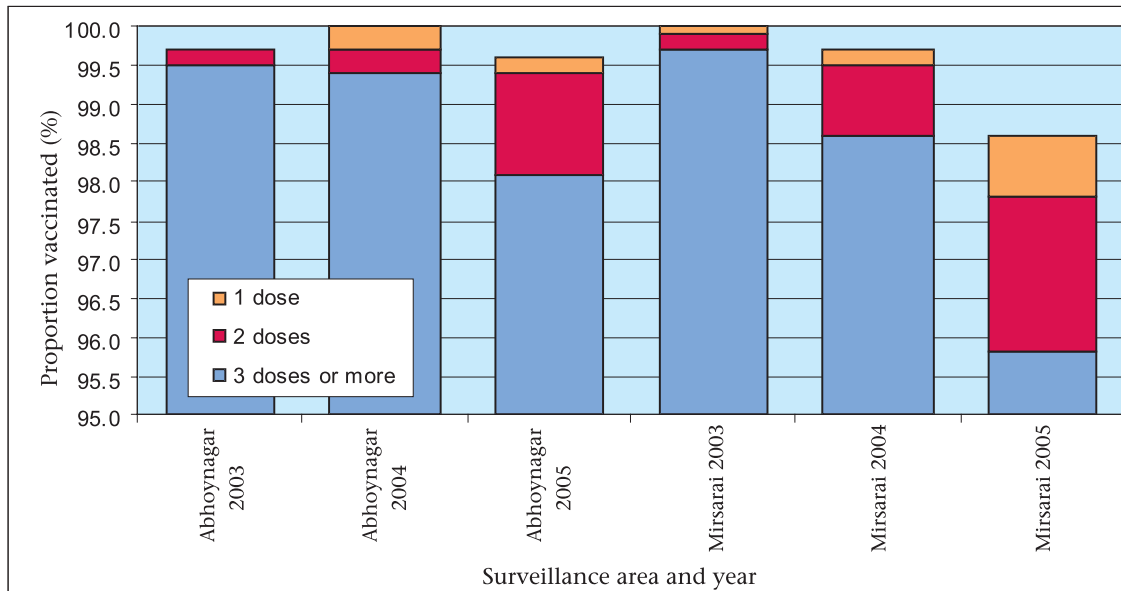
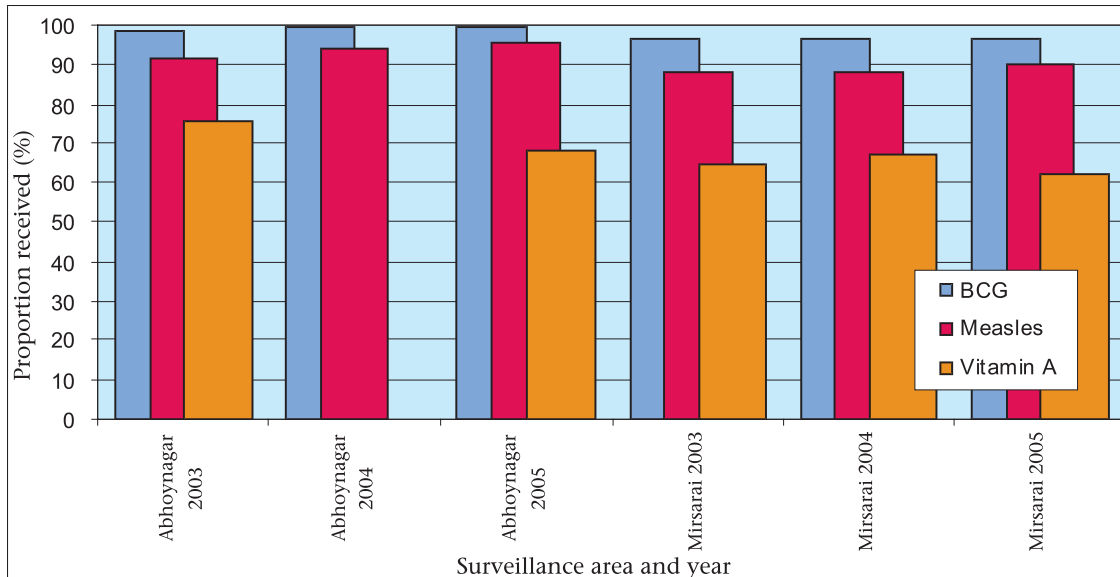


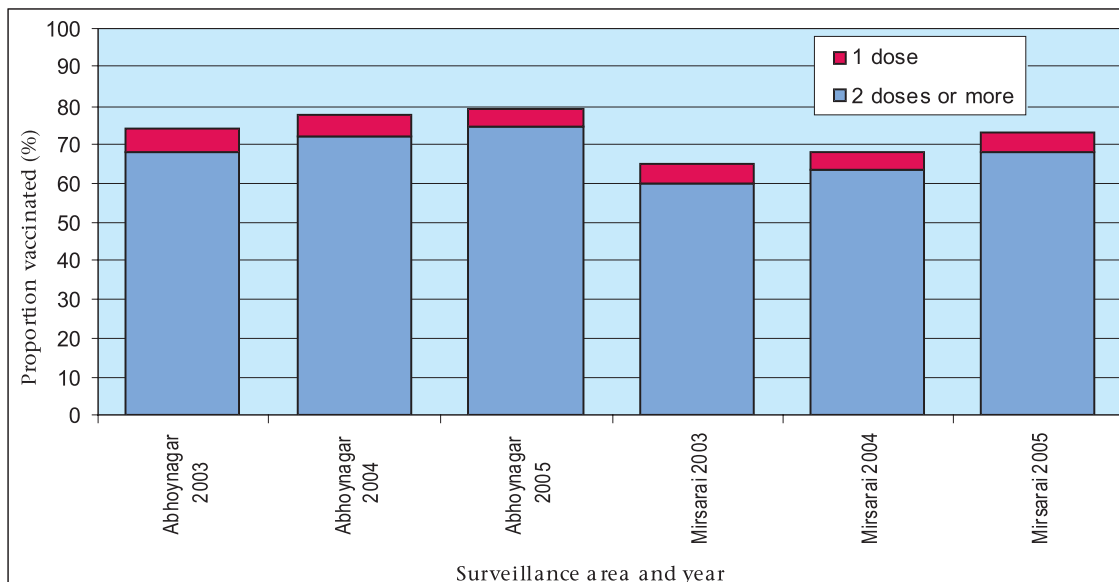
Fig. 24. Percentages of children aged 12-23 months having received BCG and measles vaccinations and children aged less than five years having received vitamin A during the last 6 months, by surveillance area and year



Although both areas have an impressive vaccination coverage, Abhoynagar is doing slightly better in all cases. The same is true for vitamin A supplementation. However, this is much lower.☒

Figure 25 and Annex 25 show the proportions of women between 10-49 years who received tetanus vaccinations. Although the coverage is still far from complete, it continued to improve over this period: from 68.1% in 2003 to 74.6% of women in☒ 2005 in Abhoynagar who received at least two vaccinations. Also here, Mirsarai is lagging behind, with 60.0% in 2003 and 67.9% in 2005. In both areas, additionally about 5% of women are covered by one vaccination only.

Fig. 25. Percentages of women aged 10 - 49 years having received tetanus toxoid vaccinations, by number of doses, surveillance area and year



Health expenditure

Figure 26 shows the median health expenditure (Taka) per household during the preceding three months by quarterly surveillance round and area. Medians used as

Fig. 26. Median expenditure on health in Taka by family during the preceding three months by surveillance area and round

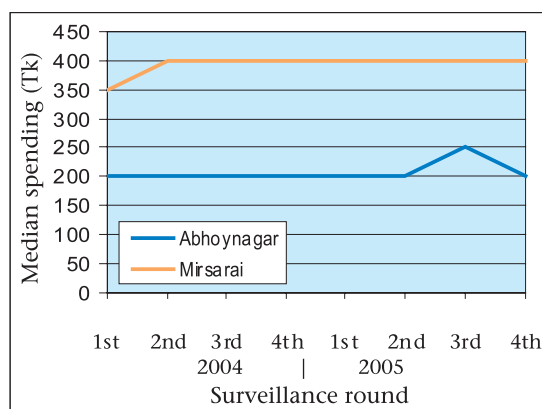
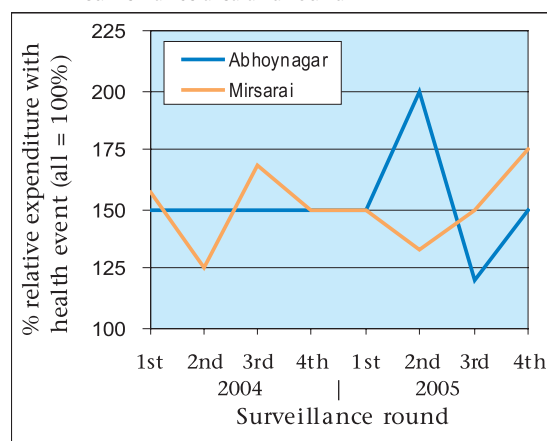


Fig. 27. Relative median health expenditure by families with a health event (death or pregnancy during the last 3 months, or acute respiratory infection, diarrhoea or dysentery during the last week before the surveillance) in percentage of the median health spending of all families by surveillance area and round



NB: Some values have been changed slightly to make otherwise overlapping lines visible

episodes are not available, while no data on other diseases are collected, unless the person died of the disease. However, households with one or more of the reported health events mentioned, should, on average, have a higher expenditure on health than other households. Figure 27 shows that this is indeed the case. Although the figures fluctuate, this graph shows that the median health spending of households with a reported health event is about 50 % higher than the median for the whole population surveyed. The mean and median amounts spent by families with a known health event are shown in Annex 27.

the means were influenced by a small number of very high amounts spent; the actual means were in all cases about double the median values.

During the surveillance rounds in 2004 and 2005, the median health expenditure by Mirsarai households was about twice as high as the median in Abhoynagar. The same was found in 2000 to 2003. Health spending may be higher in Mirsarai because households have more money, which can result from the relatively high proportion of men from this area who earn a living abroad, mostly in the Gulf region. The average spending, both mean and median, on health by family and surveillance area, is shown in Annex 26.

It is interesting that, despite higher expenditure on health in Mirsarai, life expectancy of both men and women is lower than in Abhoynagar. It is a research question if this is linked to the greater proportion of husbands living away.

Health expenditure is linked to (prevention of) pregnancies, preventing and curing diseases, and deaths. The surveillance system covers all pregnancies and deaths in the surveyed population. However, no complete information on disease episodes is collected. Only dysentery, diarrhoea and acute respiratory infections during the week before the surveillance visit are reported. As a quarter is about 13 weeks, data on most (12/13)

Education

Figure 28 and Annex 28 show the proportions of 15 years old adolescents, who have completed primary education (5 years) by sex, year and surveillance area for 1995 to 2005. The proportion of boys with completed primary education in Mirsarai has remained the same, with small annual fluctuations up and down, since 1995. That of boys in Abhoynagar initially grew to above 60% in 2001, but has fluctuated between 60% and 65% since then. The proportion girls who completed primary school grew strongest in Abhoynagar; from 49% in 1995 to 80% in 2005, although the growth rate has decreased in recent years. In Mirsarai, this percentage went up from 59% in 1995 to its present level of 74%, and it has been fluctuating around this figure for the last four years.

Fig. 28. Population aged 15 years by proportion who completed primary education (5 years) by sex, year and surveillance area

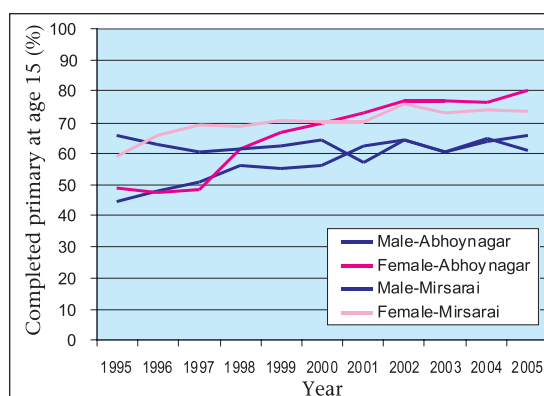


Fig. 29. Population aged 20 years by proportion who completed secondary education (10 years) by sex, year and surveillance area

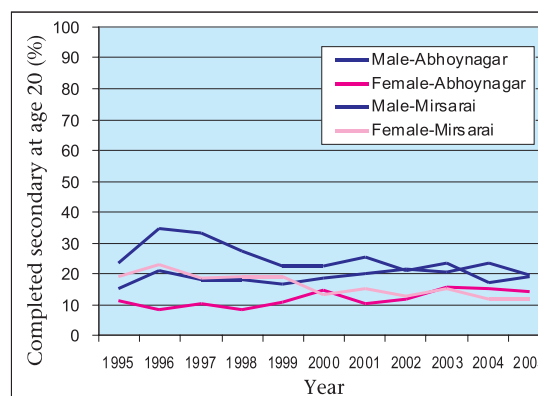


Figure 29 and Annex 29 show the proportions of 20 years old boys and girls, who had completed primary education (10 years) by sex, year and surveillance area for the period 1995-2005. Completion of secondary education still lags far behind that of primary education: only a fifth of the men aged 20 years in both sites had completed 10 years of schooling in 2005, while around three quarters of the boys aged 15 years had completed primary education. Even a fewer women completed secondary education; of the women aged 20 years in 2005 only 14% in Abhoynagar and 11% in Mirsarai had completed 10 years of education. The fact that the proportions of both men and women in Mirsarai who completed secondary have dropped considerably over the last 10 years is worrying. In Abhoynagar, the percentage of men who completed secondary education has remained stationary around 20%. Although the proportion of women of that area completing secondary schooling showed a slight rise in the previous decade, it has remained more or less the same since 2000.

Feature: Early marriage and female schooling

Background

In much of the developing world, adolescent and child marriage continues to be a strong social norm, particularly for girls. In Bangladesh, rural areas in particular, parents encourage marriage of their daughters while they are still adolescents or children, hoping that the marriage will benefit them both financially and socially, while also relieving financial burdens on the family. Actually, child and adolescent marriage is a violation of human rights, comprising the development of girls and often resulting in early pregnancy. Early female marriage is associated with a number of poor and physical outcomes for young women and their offspring. On average, girls who marry as adolescents attain lower schooling levels, have lower social status in their husband's families, report less reproductive control and suffer higher rates of maternal mortality and domestic violence. Proponents of age of consent laws argue that forcing parents to delay marriage will increase female schooling attainment and reproductive control, and decrease incidence of domestic violence. However, schooling level can also affect age at marriage, for example, girls with higher education may have a delayed marriage.

Objective

Although marriage and schooling may have a two-way relationship, this chapter attempts to study the schooling consequences of early marriage for girls in rural Bangladesh, an area with one of the highest rates of childhood marriage worldwide. The present paper explores the commonly cited hypothesis that females attain less schooling as a result of marrying while young.

Methodology

The data employed for this chapter is obtained from the Abhoynagar Surveillance System, conducted in selected areas of Abhoynagar, Jessore district by Health Systems and Infectious Diseases Division of ICDDR,B. The study population consists of females who got married during 2005-2006.

Results

As table 7 shows, the study population is not highly educated. Around two-thirds (69%) of the sample have 6 to 10 years of schooling. Around a quarter (26.6%) of individuals have never attended school or up to five years of education. A very low proportion (4.4%) of individuals are exposed to more than 11 years of schooling.

In the sample 58% of the women marry at 18 years of age or less. The large majority (around 73%) do not participate in the labour force. Education and occupation of parents were used in assessing parental characteristics of the females. More than 60 % of the sample had uneducated mothers. The proportion of fathers with 0 to 5 years of education was the highest (around 40%). More than half of the fathers were employed in agriculture whereas the majority of the mothers were out of the labour force.

Table 9: Characteristics of the women of the Abhoynagar surveillance site, who got married in 2005 and 2006 and of their parents

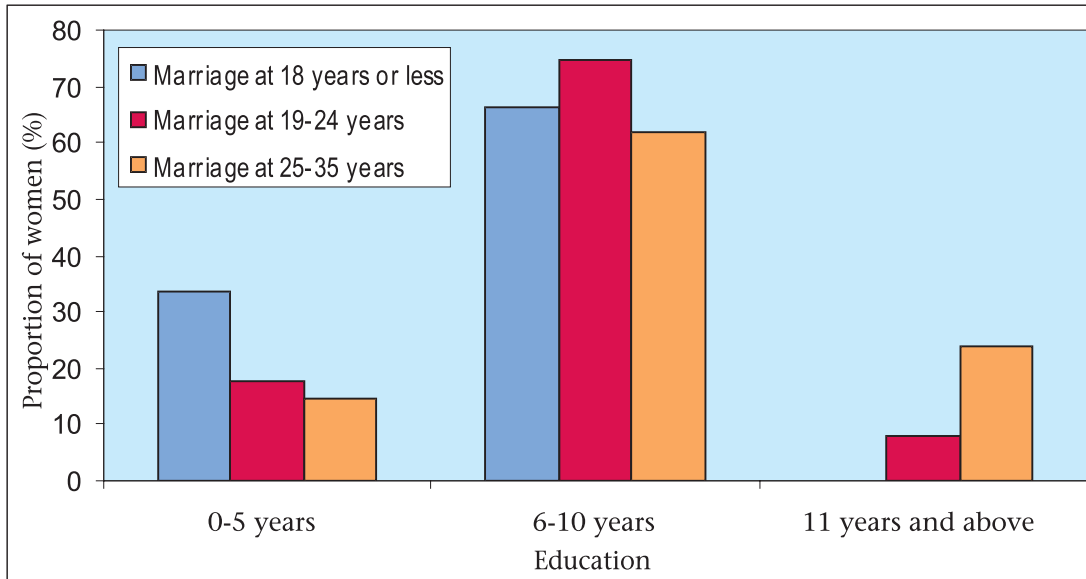
Characteristics	Percentage	
Of the women		
Education		
0-5 year(s)	150	26.6
6-10 years	389	69.0
11 years and above	25	4.4
<i>Total</i>	<i>564</i>	<i>100</i>
Age at marriage		
Less than 18 years	328	58.2
19-24 years	194	34.4
25 and above	42	7.4
<i>Total</i>	<i>564</i>	<i>100</i>
Participation in labour force		
Not in labour force	412	73.0
In labour force	152	27.0
<i>Total</i>	<i>564</i>	<i>100</i>
Of the parents		
Education of mother		
No education	353	62.6
Primary education	211	37.4
<i>Total</i>	<i>564</i>	<i>100</i>
Education of father		
0-5 year(s)	222	39.4
6-10 years	91	16.1
11 years and above	110	19.5
Other	141	25.0
<i>Total</i>	<i>564</i>	<i>100</i>
Occupation of mother		
Not in labour force	482	85.5
In labour force	82	14.5
<i>Total</i>	<i>564</i>	<i>100</i>
Occupation of father		
Agriculture	322	57.1
Not in agriculture	242	42.9
<i>Total</i>	<i>564</i>	<i>100</i>

Early marriage and female schooling: bivariate findings

Figure 30 shows the relation between age at marriage and female schooling. As expected, the association between age at marriage and education is simple: females who marry at age 18 years or less achieve less schooling than those who do not have an early marriage. Around 66% of the females who got married during their childhood or as adolescent attained 6 to 10 years of schooling, whereas around 75% of the females who got married at 19 to 24 years of age attained the same level of schooling. None of the females who had an early marriage attained higher education. If we compare between those who got married at the age of 19 to 24 years and 25 to 35 years, around a quarter of the females marrying between 25 and 35 years attained 11 years or more of education. This proportion comes down to 15% for those who got married at the age of 19 to 24 years.

To get more insights on early marriage, the relationship between early marriage and participation of females labour force, parental education and parental occupation were taken into account. Except for mother's occupation, all the other variables were found to be

Fig. 30. Relation between age at marriage and female schooling



significant. As Figure 31 shows, the proportion of females participating in the labour force is higher for those who got married at the age of 25 years or more, against those who got married at the age of 18 years or less. The gap between these two groups is around 23%.

Fig. 31. Relationship between age at marriage and participation in the labour force

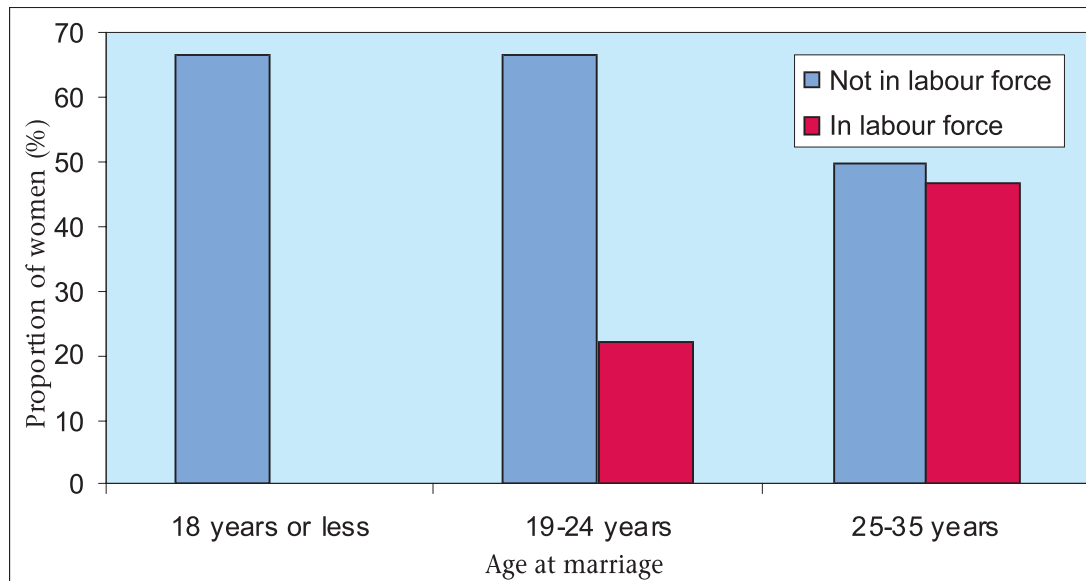
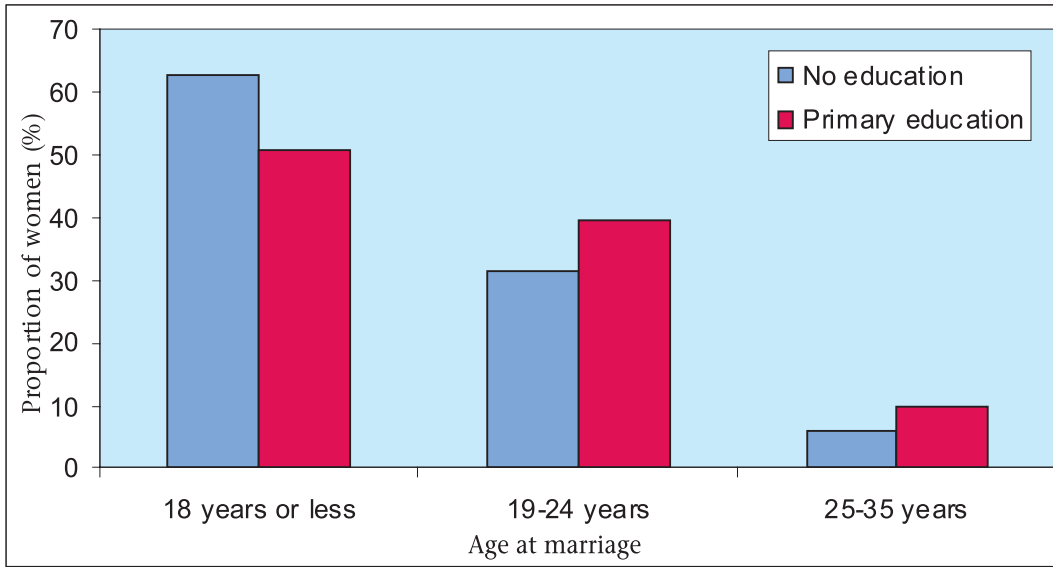
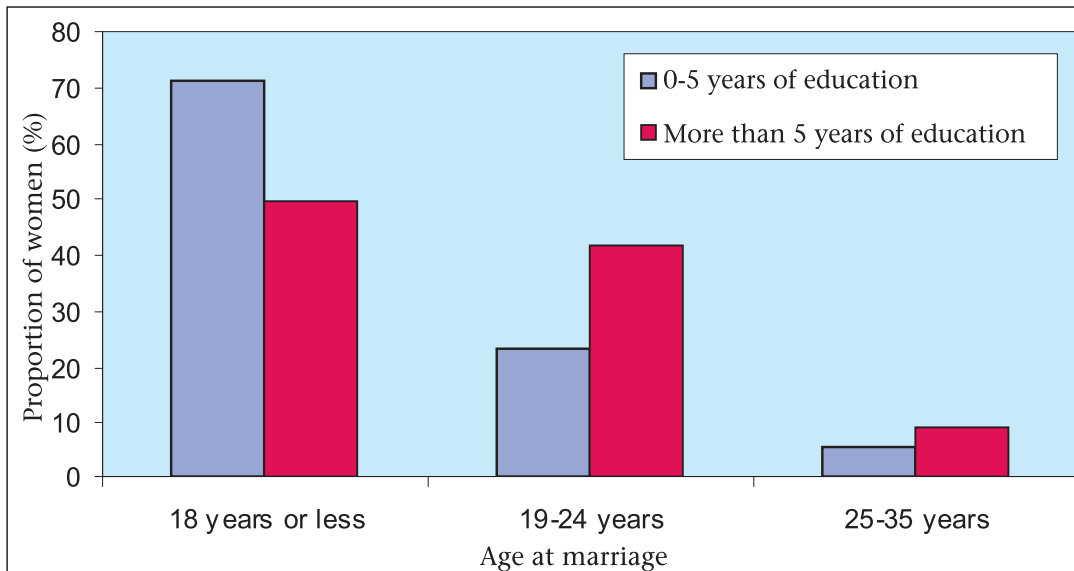


Fig. 32. Relation between age at marriage and mother's education



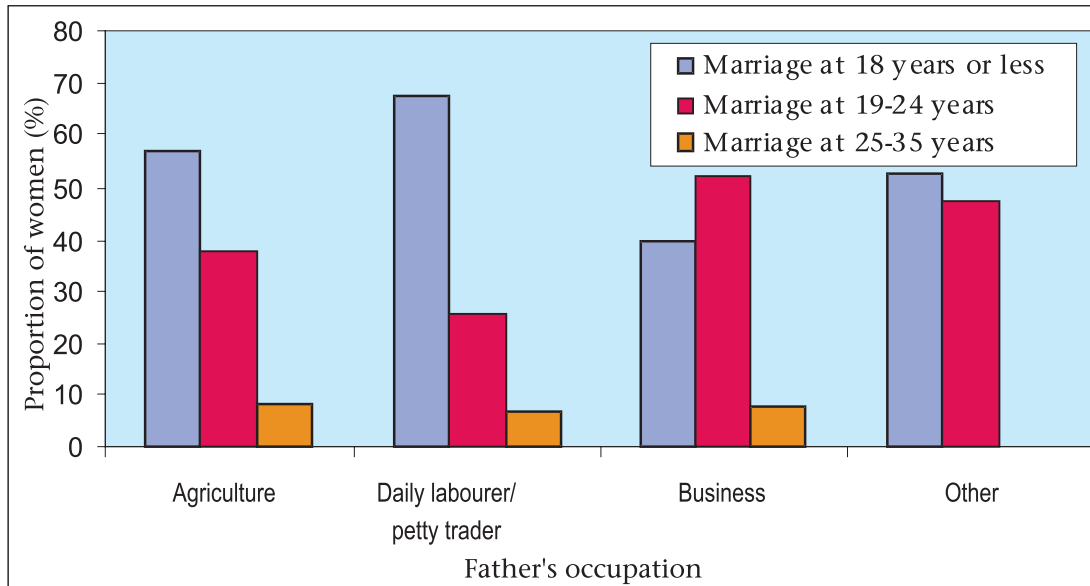
As shown in Figure 3, mothers with no education tend to marry off their daughters early. The proportions of mothers with no or primary level of education, who marry off their daughters in their childhood or as adolescents, are 63% and 51% respectively. Figure 33 shows a similar pattern between the father's education and age at marriage of the daughter: 71% of the fathers with 0 to 5 year(s) of education marry off their daughters at the age 18 years or less. This figure is 50% for the fathers with more than five years of education.

Fig. 33. Relation between age at marriage and father's education



It is difficult to explain the relation between father's occupation and daughter's age at marriage. However, fathers who work as daily labourers or small traders tend to marry off their daughters at early ages as Figure 34 shows. The proportions of fathers working in agriculture, as daily labourers or petty traders, in business or in other sectors who marry off their daughters at age of 18 years or less are 54%, 68%, 40% and 53% respectively.

Fig. 34. Relation between age at marriage and father's occupation



Conclusion

The key message from this analysis is that girls in rural Bangladesh, who marry at a very young age, attain less schooling. The fact that early marriage appears to be related with female schooling needs attention. In the light of these findings, it can be argued that delaying marriage may increase the level of female schooling. Enforcing or instituting age of consent laws as the minimum age at marriage seem to be justified. Even partial enforcement of the current law in Bangladesh, which decrees 18 years as the minimum age at marriage for women, can have a positive effect on schooling. One of the limitations of this chapter is: it does not explain the reverse relationship between early marriage and female schooling. The level of schooling can also influence age at marriage. However, the analysis presented in this section gives some insights on the relation between age at marriage and female schooling.

Annexes

Annex1: Rural surveillance population by person-years lived in the area, age group, year, area and sex.

Area Age year	Abhoynagar				Mirsarai			
	୧୯୯୯		୨୦୦୧		2004		2005	
	Male	Female	Male	Female	Male	Female	Male	Female
0-4	1826.54	1645.47	1821.51	1676.80	2226.52	2217.00	2244.62	2203.29
5-9	1646.75	1662.09	1629.90	1594.78	2103.04	2010.35	2049.04	2014.74
10-14	1630.61	1548.79	1629.07	1587.32	2380.24	2329.88	2302.50	2224.87
15-19	1656.96	1795.76	1614.87	1691.79	2557.13	2575.70	2552.14	2554.37
20-24	1591.21	1611.32	1526.49	1626.12	1891.45	2257.01	1917.64	2373.16
25-29	1378.21	1429.12	1401.29	1467.68	1231.32	1407.99	1312.10	1508.17
30-34	1295.49	1275.26	1277.89	1301.25	1029.59	1349.52	1048.64	1294.64
35-39	1213.36	1083.24	1237.58	1106.11	900.83	1212.66	918.55	1255.97
40-44	1057.85	988.35	1100.92	1011.53	1030.14	1137.64	1016.03	1156.19
45-49	961.56	823.83	967.90	872.57	860.16	937.51	926.67	952.07
50-54	731.55	661.11	755.54	659.59	734.59	781.38	738.09	804.09
55-59	525.61	437.27	570.69	471.83	562.41	553.21	602.34	587.66
60-64	380.02	418.63	407.00	412.71	437.67	520.11	441.44	508.55
65-69	323.23	313.27	326.08	328.50	343.59	388.87	346.29	414.85
70-74	247.99	241.23	233.47	226.96	268.85	310.40	269.24	301.56
75-79	130.85	118.01	142.70	145.44	165.49	193.66	165.75	205.20
80-84	81.58	69.80	83.52	70.29	108.86	95.60	109.39	92.99
85 +	57.05	42.87	53.01	42.44	79.07	73.79	79.70	77.69
All ages	16736.44	16165.41	16779.42	16293.69	18910.94	20352.25	19040.18	20530.05

Annex 2: Abridged life table for residents of Abhoynagar by sex, based on the observed mortality in 2004 and 2005

Age year	Male				FEMALE			
	q_x	l_x	l_x	e_x	q_x	l_x	l_x	e_x
0	0.05304	100,000	95,730	69.29	0.03652	100,000	96,930	73.36
1	0.01470	94,696	375,292	72.16	0.00606	96,348	383,911	75.14
5	0.00305	93,303	465,806	69.22	0.00459	95,764	477,722	71.59
10	0.00459	93,019	464,028	64.42	0.00160	95,325	476,242	66.91
15	0.00762	92,592	461,040	59.71	0.00857	95,172	473,933	62.01
20	0.00160	91,887	459,065	55.15	0.00309	94,357	470,999	57.52
25	0.00718	91,740	457,174	50.23	0.00344	94,065	469,484	52.69
30	0.00389	91,082	454,572	45.58	0.00195	93,741	468,259	47.87
35	0.01420	90,727	450,454	40.74	0.00454	93,558	466,849	42.96
40	0.00464	89,439	446,163	36.30	0.00747	93,134	464,064	38.14
45	0.01544	89,024	441,978	31.45	0.01174	92,438	459,755	33.41
50	0.01337	87,649	435,519	26.90	0.02619	91,353	451,469	28.77
55	0.03594	86,478	425,794	22.23	0.04837	88,960	434,686	24.47
60	0.08544	83,369	400,383	17.95	0.05857	84,656	412,176	20.58
65	0.10260	76,247	362,861	14.38	0.17908	79,698	366,419	16.69
70	0.20677	68,423	309,656	10.72	0.25910	65,426	283,474	14.73
75	0.37287	54,275	221,441	7.81	0.21902	48,474	215,129	14.03
80	0.49705	34,038	126,968	5.95	0.30082	37,857	159,543	12.28
85	1.00000	17,119	75,384	4.40	1.00000	26,469	305,391	11.54

Annex 3. Abridged life table for residents of Mirsarai by sex, based on the observed mortality in 2002 and 2003

Age (year)	Male				Female			
	q_x	l_x	nL_x	e_x	q_x	l_x	nL_x	e_x
0	0.03068	100,000	97,333	67.77	0.03546	100,000	97,009	70.20
1	0.01231	96,932	384,818	68.91	0.01686	96,454	381,697	71.78
5	0.00479	95,739	477,550	65.75	0.00742	94,828	472,382	68.98
10	0.00319	95,281	475,642	61.05	0.00220	94,124	470,105	64.48
15	0.00683	94,976	473,325	56.24	0.00484	93,918	468,514	59.62
20	0.00524	94,328	470,388	51.61	0.00429	93,463	466,375	54.89
25	0.00588	93,834	467,922	46.87	0.01025	93,062	463,145	50.12
30	0.01672	93,282	462,702	42.13	0.01316	92,108	457,583	45.61
35	0.01094	91,722	456,070	37.80	0.01410	90,895	451,303	41.18
40	0.01455	90,719	450,570	33.19	0.01514	89,614	444,814	36.74
45	0.03038	89,399	440,875	28.64	0.02352	88,257	436,167	32.26
50	0.04976	86,683	423,316	24.45	0.01873	86,181	426,987	27.98
55	0.07058	82,370	398,170	20.60	0.03448	84,567	415,941	23.46
60	0.11317	76,556	362,660	16.96	0.03824	81,651	401,286	19.20
65	0.19673	67,892	307,123	13.78	0.12923	78,529	370,789	14.86
70	0.23775	54,536	240,602	11.52	0.23848	68,381	302,379	11.64
75	0.34781	41,569	171,042	9.33	0.28946	52,073	222,681	9.48
80	0.39999	27,111	107,583	8.00	0.41633	37,000	145,256	7.32
85	1.00000	16,267	109,245	6.72	1.00000	21,596	125,669	5.82

Annex 4. Deaths by major cause, sex and surveillance area, 2004-2005

Cause	Abhoynagar			Mirsarai		
	Total	Male	Female	Total	Male	Female
Communicable diseases	30	16	14	54	26	28
Maternal conditions	3	0	3	6	0	6
Neonatal conditions	39	29	10	41	19	22
Nutritional deficiencies	27	13	14	25	9	16
Neoplasms	31	14	17	47	28	19
Endocrine disorders	18	11	7	28	21	7
Neuropsychiatric conditions	5	3	2	9	2	7
Circulatory system diseases	86	44	42	145	79	66
Respiratory system diseases	27	17	10	44	23	21
Digestive system diseases	19	8	11	22	13	9
Genitourinary system diseases	5	4	1	8	6	2
Congenital malformations, deformations and chromosomal abnormalities	1	1	0	3	0	3
Unintentional injuries	27	21	6	28	15	13
Intentional injuries	13	7	6	7	3	4
Unknown or unspecified causes	49	19	30	60	31	29
All causes	380	207	173	527	275	252

Annex 5: Deaths of children aged less than 10 years by cause, sex and surveillance area, 2004-2005

	Abhoynagar			Mirsarai		
	Total	Male	Female	Total	Male	Female
Diarrhoea	1	0	1	3	1	2
Meningitis	1	0	1	0	0	0
Respiratory infections	10	5	5	13	6	7
Premature birth and low birthweight	20	17	3	20	8	12
Birth asphyxia	3	2	1	2	2	0
All other neonatal conditions	16	10	6	19	9	10
Nutritional deficiencies	8	4	4	10	3	7
All other malignant neoplasms	1	0	1	1	1	0
Neuropsychiatric conditions	0	0	0	1	0	1
All other respiratory diseases	0	0	0	1	1	0
Liver diseases	0	0	0	1	0	1
Congenital malformations, deformations and chromosomal abnormalities	1	1	0	2	0	2
Transport accidents	1	0	1	1	1	0
Drowning	8	7	1	12	4	8
All other external causes of accidental injury	3	2	1	2	1	1
All other external causes of mortality	1	1	0	0	0	0
All other unknown or unspecified causes	10	2	8	10	7	3
All Causes	84	51	33	98	44	54

Annex 6: Cases of acute respiratory infections among children aged less than five years by surveillance area and round during the 7 days before visit of the field worker in Abhoynagar among children aged less than five years

		Year and quarter							
		2004-1	2004-2	2004-3	2004-4	2005-1	2005-2	2005-3	2005-4
Abhoynagar	Episode	11	7	10	9	3	3	2	3
	Under-five population	3336	3368	3405	3391	3419	3441	3398	3363
Mirsarai	Episode	42	38	57	62	45	34	38	42
	Under-five population	4265	4308	4333	4272	4345	4353	4344	4294

Annex 7: Cases of dysentery (stool with blood) among children aged less than five years by surveillance area and round during the 7 days before visit of the field worker in Abhoynagar among children aged less than five years by quarter

		Year and quarter							
		2004-1	2004-2	2004-3	2004-4	2005-1	2005-2	2005-3	2005-4
Abhoynagar	Episode	4	2	2	8	5	1	2	2
	Under-five population	3336	3368	3405	3391	3419	3441	3398	3363
Mirsarai	Episode	14	18	12	10	14	7	2	9
	Under-five population	4265	4308	4333	4272	4345	4353	4344	4294

Annex 8. Cases of diarrhoea (without blood) among children aged less than five years by surveillance area and round during the seven days before visit of the field worker in Abhoynagar among children aged less than five years by quarter

		Year and quarter							
		2004-1	2004-2	2004-3	2004-4	2005-1	2005-2	2005-3	2005-4
Abhoynagar	Episode	4	2	2	8	5	1	2	2
	Under-five population	3336	3368	3405	3391	3419	3441	3398	3363
Mirsarai	Episode	14	18	12	10	14	7	2	9
	Under-five population	4265	4308	4333	4272	4345	4353	4344	4294

Annex 9. Number of livebirths by sex, person-years lived by women, and age-specific fertility rates per 1,000 person-years lived for five-year age groups of women, 15-49 years and surveillance area in 2004

Field site	Age group (years)	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Abhoynagar	Livebirths	Male	103	132	80	36	11	0	0
		Female	112	115	65	29	12	5	1
	Total	215	247	145	65	23	5	1	
	Person-years of mothers	1795.8	1611.3	1429.1	1275.3	1083.2	988.4	823.8	
	Age-specific fertility rate	119.7	153.3	101.5	51.0	21.2	5.1	1.2	
Mirsarai	Livebirths	Male	72	194	113	62	25	2	1
		Female	82	181	93	72	29	2	1
	Total	154	375	206	134	54	4	2	
	Person-years of mothers	2575.7	2257.0	1408.0	1349.5	1212.7	1137.6	937.5	
	Age-specific fertility rate	59.8	166.1	146.3	99.3	44.5	3.5	2.1	
Total	Livebirths	Male	175	326	193	98	36	2	1
		Female	194	296	158	101	41	7	2
	Total	369	622	351	199	77	9	3	
	Person-years of mothers	4371.5	3868.3	2837.1	2624.8	2295.9	2126	1761.3	
	Age-specific fertility rate	84.4	160.8	123.7	75.8	33.5	4.2	1.7	

Annex 10. Number of livebirths by sex, person-years lived by women, and age-specific fertility rates per 1,000 person-years lived for five-year age groups of women, 15-49 years and surveillance area in 2005

Field site	Age group (years)	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	
Abhoynagar	Livebirths	Male	98	102	63	36	12	2	0
		Female	113	133	68	34	16	3	0
	Total	211	235	131	70	28	5	0	
	Person-years of mothers	1691.8	1626.1	1467.7	1301.3	1106.1	1011.5	872.6	
	Age-specific fertility rate	124.7	144.5	89.3	53.8	25.3	4.9	0.0	
Mirsarai	Livebirths	Male	104	182	111	60	14	5	0
		Female	69	182	107	49	21	6	1
	Total	173	364	218	109	35	11	1	
	Person-years of mothers	2554.4	2373.2	1508.2	1294.6	1256.0	1156.2	952.1	
	Age-specific fertility rate	67.7	153.4	144.5	84.2	27.9	9.5	1.1	
Total	Livebirths	Male	202	284	174	96	26	7	0
		Female	182	315	175	83	37	9	1
	Total	384	599	349	179	63	16	1	
	Person-years of mothers	4246.2	3999.3	2975.9	2595.9	2362.1	2167.7	1824.6	
	Age-specific fertility rate	90.4	149.8	117.3	69.0	26.7	7.4	0.5	

Annex 11: Bride and groom's age at marriage by previous marital status for Abhoynagar 2004-2005

Age (Years)	Previous marital status									
	Single		Married		Divorced		Widowed		Total	
	Groom	Bride	Groom	Bride	Groom	Bride	Groom	Bride	Groom	Bride
15-19	112	389	1	-	8	49	1	0	122	438
20-24	193	120	11	-	29	37	1	3	234	160
25-29	149	25	6	-	20	15	1	0	176	40
30-34	53	5	3	-	12	8	5	1	73	14
35-39	19	0	6	-	8	5	1	0	34	5
40-44	1	0	7	-	3	1	2	1	13	2
All ages	527	622	44	-	82	120	16	5	669	747

Annex 12: Bride and groom's age at marriage by previous marital status for Mirsarai 2004-2005

Age (Years)	Previous marital status									
	Single		Married		Divorced		Widowed		Total	
	Grooms	Brides	Grooms	Brides	Grooms	Brides	Grooms	Brides	Grooms	Brides
10-14	0	17	0	-	0	0	0	0	0	17
15-19	39	294	0	-	0	3	0	1	39	298
20-24	123	318	1	-	4	6	0	2	128	326
25-29	137	63	2	-	2	8	3	2	144	73
30-34	133	6	1	-	7	4	1	1	142	11
35-39	38	0	1	-	2	3	3	2	44	5
40-44	5	0	3	-	2	1	2	1	12	2
45+	1	0	5	-	0	2	11	1	17	3
All ages	476	698	13	-	17	27	20	10	526	735

Annex 13 : Rural marriage rates per 1000 during 2004 and 2005, irrespective of the previous marital status, by age group, surveillance site and sex

Age-group (Years)	Abhoynagar		Mirsarai	
	Male	Female	Male	Female
All ages	25.2	28.9	18.0	22.8
10-14	0.0	27.8	0.0	3.7
15-19	37.3	125.8	7.7	58.3
20-24	75.2	49.6	33.7	70.6
25-29	63.5	13.8	56.9	25.1
30-34	28.5	5.5	68.5	4.2
35-39	13.9	2.3	24.3	2.0
40-44	6.0	1.0	5.9	0.9
45 and over	2.4	0.2	2.4	0.4

Annex 14 . Marriages and divorces in the rural surveillance sites by year and month

Year Month	2004				2005			
	Marriage		Divorce		Marriage		Divorce	
	Number	Polygamous	Number	Polygamous	Number	Polygamous	Number	Polygamous
All months	1,327	100	119	100	1,350	100	186	100
January	105	7.9	6	5.0	107	7.9	24	12.9
February	113	8.5	15	12.6	125	9.3	22	11.7
March	136	10.2	14	11.8	136	10.0	15	8.1
April	124	9.3	11	9.2	123	9.1	10	5.4
May	128	9.6	7	5.9	148	11.0	20	10.8
June	126	9.5	15	12.6	149	11.0	9	4.8
July	136	10.3	12	10.1	129	9.6	18	9.7
August	94	7.1	4	3.4	116	8.6	13	7.0
September	86	6.5	5	4.2	95	7.0	15	8.1
October	102	7.7	13	10.9	44	3.3	7	3.8
November	71	5.4	8	6.7	93	6.9	12	6.5
December	106	8.0	9	7.6	85	6.3	21	11.2

In case both partners belonged to the surveillance population, the marriages and divorces are counted twice

Annex 15 . Abhoynagar male surveillance population by age-group and marital status in 2005

Age (Year)	Marital status							Total
	Unmarried	Married		Separated	Divorced	Widowed		
E-E	3,432	0	0	0	0	0	3,432	
10-14	1,627	0	0	0	0	0	1,627	
15-19	1,532	72	2	0	7	0	1,613	
20-24	1,011	474	2	0	15	0	1,502	
25-29	486	911	10	3	9	0	1,419	
30-34	165	1,091	12	2	8	0	1,278	
35-39	40	1,214	24	1	7	0	1,286	
40-44	6	1,040	38	1	2	0	1,087	
45-49	5	937	37	2	5	5	991	
50-54	1	708	33	0	7	5	754	
55-59	0	566	37	0	5	3	611	
60-64	1	352	28	1	3	12	397	
65-69	0	298	21	0	5	23	347	
70-74	0	191	11	0	4	16	222	
75-79	0	135	11	0	1	16	163	
80-84	0	63	3	0	2	13	81	
85 and over	0	37	0	0	1	21	59	
All ages	8,306	8,089	269	10	81	114	16,869	

Annex 16. Mirsarai male surveillance population by age-group and marital status in 2005

Age (Years)	Marital status						Total
	Unmarried	Married	Polygamous	Separated	Divorced	Widowed	
0-9	3,432	0	0	0	0	0	3,432
10-14	1,627	0	0	0	0	0	1,627
15-19	1,532	72	2	0	7	0	1,613
20-24	1,011	474	2	0	15	0	1,502
25-29	486	911	10	3	9	0	1,419
30-34	165	1,091	12	2	8	0	1,278
35-39	40	1,214	24	1	7	0	1,286
40-44	6	1,040	38	1	2	0	1,087
45-49	5	937	37	2	5	5	991
50-54	1	708	33	0	7	5	754
55-59	0	566	37	0	5	3	611
60-64	1	352	28	1	3	12	397
65-69	0	298	21	0	5	23	347
70-74	0	191	11	0	4	16	222
75-79	0	135	11	0	1	16	163
80-84	0	63	3	0	2	13	81
85 and over	0	37	0	0	1	21	59
All ages	8,306	8,089	269	10	81	114	16,869

Annex 17. Abhoynagar female surveillance population by age-group and marital status in 2005

Age (Years)	Marital status					Total
	Unmarried	Married	Separated	Divorced	Widowed	
0-9	3,275	0	0	0	0	3,275
10-14	1,598	25	0	3	0	1,626
15-19	844	775	4	29	2	1,654
20-24	236	1,356	11	36	3	1,642
25-29	76	1,368	17	21	11	1,493
30-34	22	1,199	21	36	20	1,298
35-39	7	1,037	22	13	29	1,108
40-44	8	898	34	39	50	1,029
45-49	2	756	31	17	86	892
50-54	2	502	10	14	141	669
55-59	0	323	8	7	151	489
60-64	0	229	6	4	186	425
65-69	0	119	1	2	217	339
70-74	0	29	0	0	184	213
75-79	0	11	0	0	143	154
80-84	0	1	0	1	71	73
85 and over	0	1	0	0	42	43
Total	6,070	8,629	165	222	1,336	16,422

Annex 18. Mirsarai female surveillance population by age-group and marital status in 2005

Age (Years)	Marital status					Total
	Unmarried	Married	Separated	Divorced	Widowed	
0-9	4,208	0	0	0	0	4,208
10-14	2,170	6	0	0	0	2,176
15-19	2,117	452	0	0	1	2,570
20-24	867	1,486	5	13	7	2,378
25-29	159	1,392	9	20	15	1,595
30-34	16	1,172	14	16	31	1,249
35-39	11	1,205	21	14	52	1,303
40-44	6	1,023	28	24	91	1,172
45-49	3	726	26	24	189	968
50-54	2	547	15	17	232	813
55-59	0	324	4	5	275	608
60-64	1	199	2	5	295	502
65-69	0	115	1	3	306	425
70-74	0	50	1	1	250	302
75-79	0	21	1	0	183	205
80-84	0	2	1	0	87	90
85 and over	0	0	0	0	79	79
Total	9,560	8720	128	142	2,093	20,643

Annex 19. Contraceptive prevalence rates (%) and method mix by currently-married women of reproductive age in surveillance area

Method	Abhovnagar			Mirsarai		
	2003	2004	2005	2003	2004	2005
Oral pill	1,567	1,739	1,738	1,371	1,471	1,586
Condom	180	191	184	228	251	255
Injectables	1,384	1,535	1,437	789	783	728
IUD	87	83	88	106	119	144
Norplant	63	64	58	66	58	38
Tubectomy	290	280	265	343	345	343
Vasectomy	88	88	100	1	1	1
Modern	3,659	3,980	3,870	2,904	3,028	3,095
Traditional	176	187	174	174	195	182
All methods	3,835	4,167	4,044	3,078	3,223	3,277
None	2,821	2,550	2,652	3,585	3,495	3,364
Total	6,656	6,717	6,696	6,663	6,718	6,641

Annex 20. Percentages of husbands living with family, elsewhere in the country, or abroad during the fourth surveillance round of 2004 by surveillance area

Site	Husband's living status		
	With family	Away in country	Abroad
Abhoynagar	96.7	2.9	0.4
Mirsarai	75.8	6.5	17.8

Annex 21. Proportional distribution (percentage) of sources of modern contraceptives by surveillance area and year

Source	Abhoynagar			Mirsarai		
	2003	2004	2005	2003	2004	2005
Hospital	322	323	317	340	313	284
FWV,FWC,SC	592	663	626	704	749	722
FWA client's home	384	558	632	424	462	549
FWA's residence	533	579	581	296	312	297
Community clinic,HA	552	462	233	82	24	17
NGO	157	160	150	41	58	93
Pharmacies/shops	952	1045	1164	882	967	998
Sterilisation camp	17	15	14	103	92	74
Other	150	175	153	32	51	61
Total	3659	3980	3870	2904	3028	3095

FWV=Family Welfare Visitor; FWC=Family Welfare Clinic; SC=Satellite Clinic, Government Family Planning Clinic, Government Outdoor Dispensary; FWA=Family Welfare Assistant; HA=Health Assistant; and NGO=Non-governmental organisation

Annex 22. Percentages of children aged 12-23 months having received diphtheria, pertussis and tetanus vaccinations, by number of doses, surveillance area and year

Dose	Abhoynagar			Mirsarai		
	2003	2004	2005	2003	2004	2005
3 or more	711	674	660	794	843	859
2	50	31	25	73	51	42
1	14	7	3	22	13	8
At least one	775	712	688	889	907	909
None	10	2	2	15	19	14
Total	785	714	690	904	926	923

Annex 23. Percentages of children aged 12-23 months having received oral polio vaccinations, by number of doses, surveillance area and year

Dose	Abhoynagar			Mirsarai		
	2003	2004	2005	2003	2004	2005
3 or more	781	710	677	901	913	884
2	2	2	9	2	8	19
1	0	2	1	1	2	7
At least one	783	714	687	904	923	910
None	2	0	3	0	3	13
Total	785	714	690	904	926	923

Annex 24. Percentages of children aged 12-23 months having received BCG and measles vaccinations and children aged less than five years having received vitamin A during the last 6 months, by surveillance area and year

Vaccination/ supplement	Abhoynagar			Mirsarai		
	2003	2004	2005	2003	2004	2005
BCG	774	711	687	874	892	891
No BCG	11	3	3	30	34	32
Measles	719	673	659	796	816	830
No Measles	66	41	31	108	110	93
Total (aged 1 year)	785	714	690	904	926	923
Vitamin A	2,845	2,935	2,861	3,568	3,702	3,548
No Vitamin A	925	902	975	1,343	1,299	1,443
Total (below 5 years)	3,770	3,837	3,836	4,911	5,001	4,991

Annex 25. Percentages of women aged 10 to 49 years having received tetanus toxoid vaccinations, by number of doses, surveillance area and year

Dose	Abhoynagar			Mirsarai		
	2003	2004	2005	2003	2004	2005
2 or more	7,129	7,703	8,010	7,877	8,436	9,105
1	609	557	467	652	604	722
0	2,726	2,393	2,269	4,595	4,286	3,584
Total	10,464	10,653	10,746	13,124	13,326	13,411

Annex 26. Mean and median expenditure on health in Taka by family during the preceding three months by surveillance area and round

Year - quarter	Abhoynagar		Mirsarai	
	Mean	Median	Mean	Median
2004 - 1	378.38	200	779.44	350
2004 - 2	411.62	200	816.37	400
2004 - 3	436.44	200	948.97	400
2004 - 4	408.07	200	961.19	400
2005 - 1	429.17	200	762.09	400
2005 - 2	437.52	200	861.10	400
2005 - 3	525.30	250	838.44	400
2005 - 4	499.36	200	845.33	400

Annex 27. Mean and median expenditure on health in Taka by families with a health event (death or pregnancy during the last 3 months, or acute respiratory infection, diarrhoea or dysentery during the last week before the surveillance) in percentage of the median health expenditure of all families by surveillance area and round

Year - quarter	Abhoynagar		Mirsarai	
	Mean	Median	Mean	Median
2004 - 1	842.28	300	1535.65	550
2004 - 2	1293.75	300	1428.55	500
2004 - 3	1040.70	300	1757.32	675
2004 - 4	1259.77	300	1374.72	600
2005 - 1	1091.12	300	1265.22	600
2005 - 2	1075.22	400	1264.89	530
2005 - 3	982.90	300	1379.54	600
2005 - 4	1235.81	300	1566.65	700

Annex 28. Population aged 15 years by percentage who completed primary education (5 years) by sex, year and surveillance area

Year	Abhoynagar		Mirsarai	
	Male	Female	Male	Female
1995	44.2	49.1	65.5	59.0
1996	47.8	47.3	63.1	66.0
1997	50.7	48.4	60.5	69.0
1998	56.3	61.4	61.1	68.3
1999	55.1	66.8	62.7	70.8
2000	56.2	69.4	64.4	70.4
2001	62.5	72.8	56.9	70.3
2002	64.4	77.2	64.4	75.9
2003	60.6	77.2	60.4	72.9
2004	64.8	76.0	63.8	74.0
2005	61.0	80.1	65.6	73.6

Annex 29. Population aged 20 years by percentage who completed secondary education (10 years) by sex, year and surveillance area

Year	Abhoynagar		Mirsarai	
	Male	Female	Male	Female
1995	15.6	11.2	23.8	19.1
1996	20.8	8.5	34.6	23.2
1997	17.9	10.5	33.6	18.4
1998	18.0	8.7	27.5	18.9
1999	16.6	10.7	22.3	18.9
2000	18.5	14.6	22.2	13.2
2001	20.0	10.3	25.3	14.9
2002	21.4	12.2	21.0	12.7
2003	20.4	15.7	23.4	14.9
2004	23.4	15.1	17.1	11.6
2005	19.9	14.0	19.4	11.4

