

CHAPTER 8

MATERNAL AND REPRODUCTIVE HEALTH

Promotion of maternal and child health has been one of the most important objectives of the Family Welfare Programme in India. The Government of India took steps to strengthen maternal and child health services as early as the First and Second Five-Year Plans (1951–56 and 1956–61). As part of the Minimum Needs Programme initiated during the Fifth Five-Year Plan (1974–79), maternal health, child health, and nutrition services were integrated with family planning services. The primary aim at that time was to provide at least a minimum level of public health services to pregnant women, lactating mothers, and preschool children (Kanitkar, 1979).

In 1992–93, the Child Survival and Safe Motherhood Programme continued the process of integration by bringing together several key child survival interventions with safe motherhood and family planning activities (Ministry of Health and Family Welfare, 1992). In 1996, safe motherhood and child health services were incorporated into the Reproductive and Child Health Programme. This new programme seeks to integrate maternal health, child health, and fertility regulation interventions with reproductive health programmes for both women and men. With regard to maternal and reproductive health (Ministry of Health and Family Welfare, 1997; 1998b), the important elements of the programme include:

- Provision of antenatal care, including at least three antenatal care visits, iron prophylaxis for pregnant and lactating women, two doses of tetanus toxoid vaccine, detection and treatment of anaemia in mothers, and management and referral of high-risk pregnancies
- Encouragement of institutional deliveries or home deliveries assisted by trained health personnel
- Provision of postnatal care, including at least three postnatal visits
- Identification and management of reproductive tract and sexually transmitted infections

In rural areas, the government delivers reproductive and other health services through its network of Primary Health Centres (PHCs), sub-centres, and other health facilities. In addition, pregnant women and children can obtain services from private maternity homes, hospitals, private practitioners, and in some cases, nongovernmental organizations (NGOs). In urban areas, reproductive health services are available mainly through government or municipal hospitals, urban health posts, hospitals and nursing homes operated by NGOs, and private nursing and maternity homes.

In rural areas, a female paramedical worker, called an auxiliary nurse midwife (ANM), is posted at a sub-centre to provide basic maternal health, child health, and family welfare services to women and children either in their homes or in the health clinic. Her work is overseen by a lady health visitor (LHV) posted at the PHC. With regard to safe motherhood, the ANM is responsible for registering pregnant women, motivating them to obtain antenatal and postnatal care, assessing their health throughout pregnancy and in the postpartum period, and referring women with high-risk pregnancies. The ANM is assisted by a male health worker whose duties

include motivating men to participate in the family welfare programme and educating men about reproductive tract and sexually transmitted infections. The ANM and LHV also assist the medical officer at the PHC where health services, including antenatal and postnatal care, are provided (Ministry of Health and Family Welfare, 1997; 1998b).

The National Population Policy adopted by the Government of India in 2000 (Ministry of Health and Family Welfare, 2000) reiterates the government's commitment to the safe motherhood programmes within the wider context of reproductive health. Among the national socio-demographic goals for 2010 specified by the policy, several goals pertain to safe motherhood, namely that 80 percent of all deliveries should take place in institutions by 2010, 100 percent of deliveries should be attended by trained personnel, and the maternal mortality ratio should be reduced to a level below 100 per 100,000 live births. Empowering women for improved health and nutrition is 1 of the 12 strategic themes identified in the policy to be pursued in stand-alone or intersectoral programmes.

An important objective of NFHS-2 is to provide information on the use of safe motherhood services provided by the public and private sectors. In addition, the survey included questions on the prevalence and treatment of reproductive health problems. The Woman's Questionnaire included relevant maternal and safe motherhood information for women age 15–49 who have given birth since 1 January 1996. The topics covered include pregnancy complications, utilization and specific components of antenatal and postnatal care, place of and assistance during delivery, delivery characteristics, and postpartum complications. Although NFHS-2 obtained information for the two most recent live births since 1 January 1996, the information presented in this chapter pertains only to the subset of those births that took place during the three years preceding the woman's interview. With regard to reproductive health, all women were asked about their experience of specific symptoms of reproductive health problems, and if problems were reported, whether and where they received treatment.

8.1 Antenatal Problems and Care

Antenatal care (ANC) refers to pregnancy-related health care provided by a doctor or a health worker in a medical facility or at home. The Safe Motherhood Initiative proclaims that all pregnant women must receive basic, professional antenatal care (Harrison, 1990). Ideally, antenatal care should monitor a pregnancy for signs of complications, detect and treat pre-existing and concurrent problems of pregnancy, and provide advice and counselling on preventive care, diet during pregnancy, delivery care, postnatal care, and related issues. The Reproductive and Child Health Programme recommends that as part of antenatal care, women receive two doses of tetanus toxoid vaccine, adequate amounts of iron and folic acid tablets or syrup to prevent and treat anaemia, and at least three antenatal check-ups that include blood pressure checks and other procedures to detect pregnancy complications (Ministry of Health and Family Welfare, 1997; 1998b).

NFHS-2 collected information from women on specific problems they may have had during their pregnancies and whether they received any antenatal check-ups. Women who did not receive antenatal check-ups were asked why they did not. Women who received antenatal check-ups were asked about the care provider, the timing of the first antenatal check-up, the total number of check-ups, the procedures conducted during the check-ups, and the advice given. In

Table 8.1 Health problems during pregnancy			
Among births during the three years preceding the survey, percentage of mothers experiencing specific health problems during pregnancy by residence, Maharashtra, 1999			
Problem during pregnancy	Urban	Rural	Total
Night blindness	6.3	11.9	9.7
Blurred vision	12.1	9.5	10.5
Convulsions not from fever	10.5	2.7	5.8
Swelling of the legs, body, or face	35.9	22.6	27.8
Excessive fatigue	49.1	35.4	40.7
Anaemia	16.1	11.3	13.2
Vaginal bleeding	3.5	2.5	2.9
Number of births	707	1,103	1,810

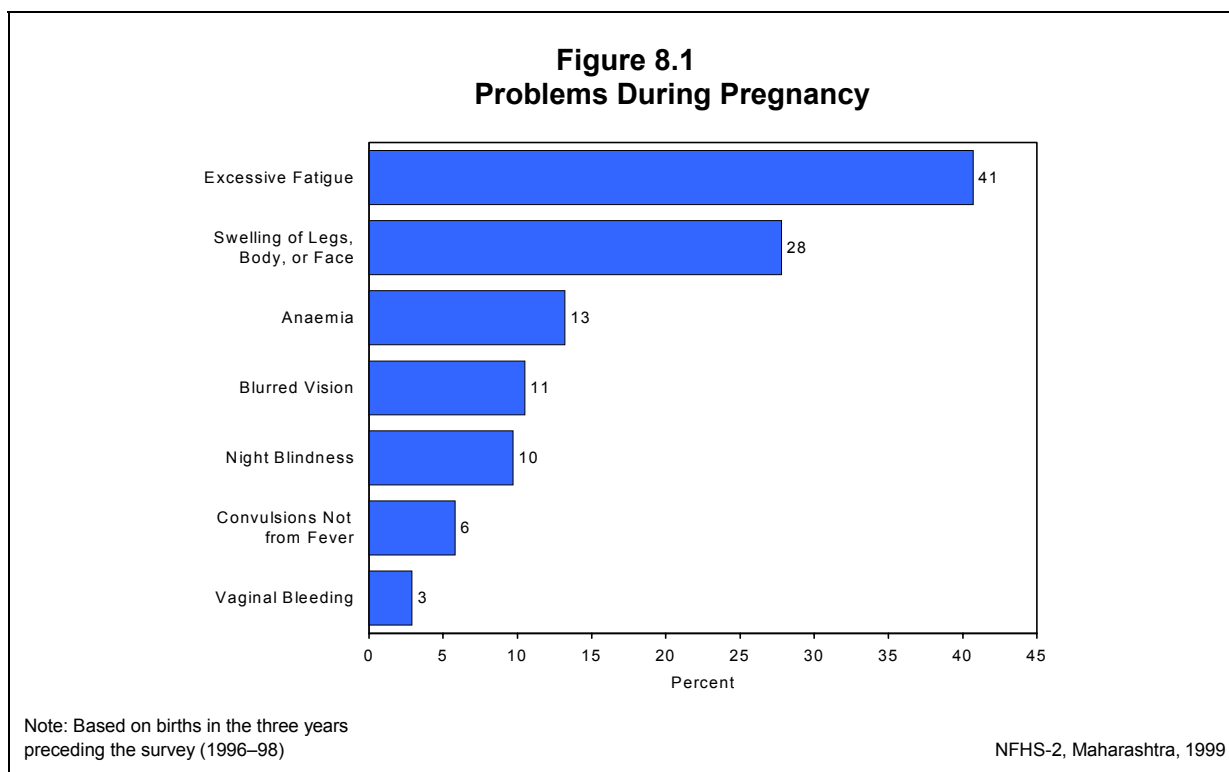
Note: Table includes only the two most recent births during the three years preceding the survey.

addition, the survey asked women whether they received tetanus toxoid injections and iron and folic acid tablets or syrup during the pregnancy. Results from each of these questions are discussed in this chapter.

Problems During Pregnancy

For each of the two most recent births in the three years preceding the survey, the mother was asked if at any time during the pregnancy she experienced any of the following pregnancy-related problems: night blindness, blurred vision, convulsions (not from fever), swelling (of the legs, body, or face), excessive fatigue, anaemia, or vaginal bleeding. Night blindness, or difficulty seeing at dusk, is the result of chronic vitamin A deficiency and is often seen in pregnant women in areas where vitamin A deficiency is endemic. Convulsions accompanied by signs of hypertension can be symptomatic of eclampsia, a potentially fatal condition. The potential health risk posed by vaginal bleeding during pregnancy varies by when in the pregnancy the bleeding takes place. Although documenting the prevalence of the symptoms of pregnancy complications is vital for planning services to reduce maternal morbidity and mortality, the information presented here is based on women's self reports, rather than medical diagnoses, and should be interpreted with care.

As shown in Table 8.1 and Figure 8.1, the problems most commonly reported are excessive fatigue (41 percent) and swelling of the legs, body, or face (28 percent). Thirteen percent of women reported anaemia, 11 percent reported blurred vision, and 10 percent reported night blindness. A smaller proportion of women reported convulsions not from fever (6 percent) and vaginal bleeding (3 percent). With the exception of night blindness, the prevalence of each type of pregnancy complication was higher among urban women than among rural women. A much higher proportion of urban than rural women reported having convulsions not from fever, swelling of the legs, body, or face, excessive fatigue, and anaemia. In contrast, a higher proportion of rural than urban women reported having night blindness.



Antenatal Check-Ups

A pregnant woman can have an antenatal check-up by visiting a doctor or another health professional in a medical facility, receiving a home visit from a health worker, or both. NFHS-2 asked women who had a birth during the three years preceding the survey whether any health worker had visited them at home to provide antenatal check-ups. The survey also asked whether women had gone for antenatal check-ups outside the home, and if they had, what type of service provider gave them the check-ups.

Table 8.2 and Figure 8.2 show the percent distribution of births in the three years preceding the survey by the source of antenatal check-ups received during pregnancy. Women who received antenatal check-ups both at home and outside the home are categorized as having received care outside the home. If a woman received check-ups from more than one type of health provider, only the provider with the highest qualification is considered. NFHS-2 shows that in Maharashtra mothers received antenatal check-ups for 90 percent of births during the three years preceding the survey (compared with 85 percent in NFHS-1). The NFHS-2 estimates are very close to estimates from the Rapid Household Survey conducted under the Reproductive and Child Health Programme in all districts of Maharashtra during 1998–99. The RHS found that 88 percent of women who had their last live birth or stillbirth after 1 January 1995/1996 received antenatal check-ups (International Institute for Population Sciences, 2001).

Sixty-nine percent of mothers received check-ups from doctors and 17 percent from other health professionals outside the home. Only 5 percent received check-ups only at home from a health worker. The proportion receiving antenatal check-ups is lower among older and higher parity women. The proportion of births for which the mother received antenatal check-ups is slightly higher in urban areas (95 percent) than in rural areas (88 percent). However, the

Table 8.2 Antenatal check-ups

Percent distribution of births during the three years preceding the survey by source of antenatal check-up, according to selected background characteristics, Maharashtra, 1999

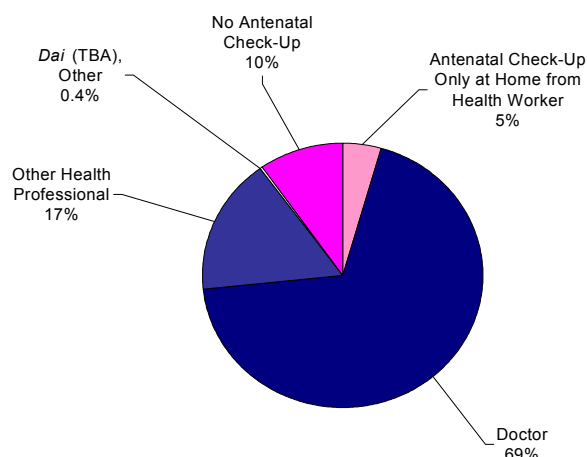
Background characteristic	Antenatal check-up only at home from health worker	Antenatal check-up outside home ¹ from:			No antenatal check-up	Total percent	Number of births
		Doctor	Other health professional	Traditional birth attendant, other			
Mother's age at birth							
< 20	5.2	64.5	20.1	0.8	9.3	100.0	523
20-34	4.3	70.7	15.5	0.2	9.4	100.0	1,258
35-49	(0.0)	(57.4)	(14.6)	(0.0)	(28.1)	100.0	28
Birth order							
1	1.7	78.5	13.4	0.5	6.0	100.0	594
2-3	5.2	67.3	18.5	0.5	8.6	100.0	890
4-5	6.4	56.6	20.1	0.0	16.8	100.0	251
6+	12.3	49.0	12.2	0.0	26.5	100.0	75
Residence							
Urban	0.8	89.6	4.4	0.0	5.2	100.0	707
Rural	6.9	55.3	24.7	0.6	12.5	100.0	1,103
Mumbai							
Slum	0.9	89.4	4.8	0.0	4.9	100.0	152
Non-slum	0.6	97.0	0.0	0.0	2.4	100.0	56
Mother's education							
Illiterate	8.6	48.2	23.4	0.6	19.2	100.0	735
Literate, < middle school complete	3.4	73.8	16.6	0.6	5.5	100.0	465
Middle school complete	0.6	83.8	12.4	0.0	3.2	100.0	260
High school complete and above	0.1	93.7	6.2	0.0	0.0	100.0	351
Religion							
Hindu	5.1	65.2	19.2	0.5	10.0	100.0	1,385
Muslim	3.0	80.1	8.2	0.0	8.6	100.0	263
Christian	(0.0)	(93.6)	(6.4)	(0.0)	(0.0)	100.0	27
Buddhist/Neo-Buddhist	1.6	78.4	8.1	0.0	11.9	100.0	107
Caste/tribe							
Scheduled caste	1.8	74.3	12.0	0.6	11.4	100.0	239
Scheduled tribe	7.2	46.1	21.5	0.0	25.2	100.0	215
Other backward class	6.7	69.3	15.9	0.8	7.3	100.0	356
Other	3.3	72.4	17.4	0.3	6.6	100.0	988
Standard of living index							
Low	7.6	47.3	25.7	0.5	19.0	100.0	618
Medium	3.2	75.4	14.8	0.4	6.2	100.0	832
High	1.6	91.2	6.6	0.5	0.2	100.0	300
Total	4.5	68.7	16.8	0.4	9.6	100.0	1,810

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes 15 and 13 births to women belonging to Jain and 'other' religions, respectively, and 11 and 60 births with missing information on caste/tribe and the standard of living index, respectively, which are not shown separately.

() Based on 25-49 unweighted cases

¹Includes all births for which the mothers received an antenatal check-up outside the home, even if they also received an antenatal check-up at home from a health worker. If more than one type of antenatal check-up provider was mentioned, only the provider with the highest qualification is shown.

Figure 8.2
Source of Antenatal Check-Ups
During Pregnancy



Note: Percents add to more than 100.0 due to rounding

NFHS-2, Maharashtra, 1999

proportion receiving antenatal check-ups from doctors is much higher in urban areas and the proportion receiving antenatal check-ups from other health professionals is much higher in rural areas. The extent of antenatal check-ups in Mumbai and in slum areas of Mumbai is about the same as that in urban areas of Maharashtra as a whole. As expected, the situation is better in non-slum areas of Mumbai, where 97 percent of mothers received antenatal check-ups from a doctor. The proportion of births for which the mothers received antenatal check-ups increases with mothers' education—from 81 percent for illiterate mothers to 100 percent for mothers with at least a high school education. More-educated mothers are more likely to receive antenatal check-ups from doctors and less likely to receive antenatal check-ups from other health professionals. The proportion receiving antenatal check-ups from doctors ranges from 65 percent for Hindu mothers to 94 percent for Christian mothers. By caste/tribe, schedule-tribe mothers are least likely to receive antenatal check-ups. The proportion of births for which the mother received antenatal check-ups, as well as the proportion of births for which the mother received antenatal check-ups from a doctor, increases monotonically by the household standard of living index.

In summary, 90 percent of women in Maharashtra received an antenatal check-up for births in the three years preceding the survey. Women not receiving antenatal check-ups tend to be disproportionately older women, women of high parity, women from scheduled tribes, illiterate women, and women from households with a low standard of living. This suggests that the achievement of 100 percent coverage of antenatal programmes will require special efforts to reach older and higher-parity women and women who are socioeconomically disadvantaged.

Reasons for Not Receiving Antenatal Check-ups

Table 8.3 shows the percent distribution of births in the three years preceding the survey whose mothers did not receive any antenatal check-ups by the main reason for not receiving any check-ups. For 44 percent of these births, the mothers said a check-up was not necessary and for 5

Table 8.3 Reason for not receiving an antenatal check-up			
Percent distribution of births during the three years preceding the survey to mothers who did not receive an antenatal check-up by the main reason for not receiving an antenatal check-up, according to residence, Maharashtra, 1999			
Reason for not receiving an antenatal check-up	Urban	Rural	Total
Not necessary	(35.4)	46.3	44.0
Not customary	(4.5)	5.1	5.0
Costs too much	(13.6)	17.0	16.3
Too far/no transport	(8.4)	4.3	5.1
Poor quality/service	(0.0)	1.0	0.8
No time to go	(7.3)	7.4	7.4
Family did not allow	(24.5)	9.5	12.6
Lack of knowledge	(0.0)	5.3	4.2
No health worker visited	(0.9)	0.0	0.2
Other	(5.4)	4.1	4.4
Total percent	100.0	100.0	100.0
Number of births	36	138	175

Note: Table includes only the two most recent births during the three years preceding the survey.
() Based on 25–49 unweighted cases

percent they said it was not customary. Another 16 percent said a check-up costs too much, 7 percent said that they did not have time to go, and 5 percent said that the place for receiving ANC was too far or that they did not have any means of transport. Thirteen percent said that their family did not allow them to get a check-up. No other reason accounted for more than 5 percent of births. These results suggest the need to inform women and families about the availability of free antenatal services in government health facilities and about the benefits of antenatal check-ups to help overcome traditional attitudes and other hurdles that prevent them from seeking antenatal care for their pregnancies. In addition, since nearly one-fourth of the reasons reported deal with problems of accessibility, quality, and cost of services, utilization of antenatal check-ups could also be increased by lowering direct and indirect costs, improving quality, and making services more accessible.

Number and Timing of Antenatal Check-Ups

The number of antenatal check-ups and the timing of the first check-up are important for the health of the mother and the outcome of the pregnancy. The conventional recommendation for normal pregnancies is that once pregnancy is confirmed, antenatal check-ups should be scheduled at four-week intervals during the first seven months, then every two weeks until the last month, and weekly thereafter (MacDonald and Pritchard, 1980). Four antenatal check-ups—one each during the third, sixth, eighth, and ninth months of pregnancy—have been recommended as the minimum necessary (Park and Park, 1989). The conventional recommendation is to schedule the first check-up within six weeks of a woman's last menstrual period. Studies on the timing of the initial antenatal check-up, however, show that even when antenatal care is initiated as late as the third trimester, there is a substantial reduction in perinatal mortality (Ramachandran, 1992).

Table 8.4 Number and timing of antenatal check-ups and stage of pregnancy

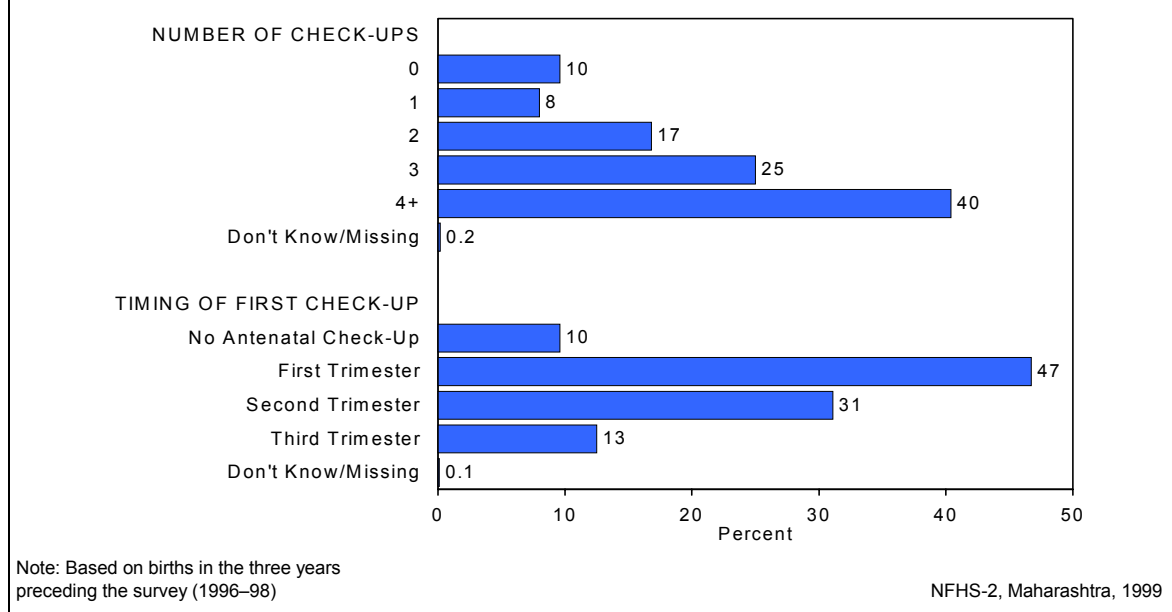
Percent distribution of births during the three years preceding the survey by number of antenatal check-ups and by the stage of pregnancy at the time of the first check-up, according to residence, Maharashtra, 1999

Number and timing of check-ups	Urban	Rural	Total
Number of antenatal check-ups			
0	5.2	12.5	9.6
1	3.2	11.1	8.0
2	10.3	21.0	16.8
3	22.3	26.7	25.0
4+	59.0	28.5	40.4
Don't know/missing	0.0	0.3	0.2
Total percent	100.0	100.0	100.0
Median number of check-ups (for those who received at least one antenatal check-up)	3.9	2.4	2.8
Stage of pregnancy at the time of the first antenatal check-up			
No antenatal check-up	5.2	12.5	9.6
First trimester	56.1	40.7	46.7
Second trimester	26.8	33.8	31.1
Third trimester	11.9	12.8	12.5
Don't know/missing	0.0	0.1	0.1
Total percent	100.0	100.0	100.0
Median months pregnant at first antenatal check-up (for those who received at least one antenatal check-up)	3.1	3.7	3.4
Number of births	707	1,103	1,810
Note: Table includes only the two most recent births during the three years preceding the survey.			

In India, the Reproductive and Child Health Programme includes the provision of at least three antenatal care visits for pregnant women. Guidelines for the programme require that each pregnancy be registered in the first 12–16 weeks (Ministry of Health and Family Welfare, 1997). Accordingly, the first antenatal check-up should take place at the latest during the second trimester of pregnancy. NFHS-2 asked women who received antenatal check-ups for births in the three years preceding the survey about the total number of check-ups they received and when in their pregnancies they received their first check-up.

Table 8.4 and Figure 8.3 show the percent distribution of births in the three years preceding the survey by the number and timing of antenatal check-ups. In Maharashtra, mothers of 65 percent of births received at least three antenatal check-ups (substantially higher than the estimate of 44 percent in India as a whole and up slightly from 63 percent in NFHS-1) and 40 percent had at least four check-ups. The median number of check-ups for those who received at least one check-up was 2.8. There are substantial differences by residence in the number of antenatal check-ups. At least three antenatal check-ups were received for 81 percent of births to mothers living in urban areas, but only 55 percent of births to mothers living in rural areas.

Figure 8.3
Number and Timing of Antenatal Check-Ups



Among births to mothers who received at least one antenatal check-up, the median number of check-ups was 3.9 in urban areas and 2.4 in rural areas. The shorter distances to antenatal-care services and the comparative ease of travelling in urban areas, as well as more awareness due to the higher educational attainment of mothers, could be important factors for the higher proportion of check-ups received by mothers in urban areas than in rural areas.

Forty-seven percent of births that took place in the three years preceding the survey were to mothers who received their first antenatal check-up in the first trimester of pregnancy (up from 29 percent in NFHS-1), and another 31 percent were to mothers who received their first check-up in the second trimester. Check-ups during the first trimester were much more common in urban areas (56 percent) than in rural areas (41 percent). In the state as a whole, the first check-up was received in the third trimester for only 13 percent of births. The median timing of the first antenatal check-up was 3.7 months in rural areas, 3.1 months in urban areas, and 3.4 months in the state as a whole.

Components of Antenatal Check-Ups

The effectiveness of antenatal check-ups in ensuring safe motherhood depends in part on the tests and measurements done and the advice given during the check-ups. NFHS-2 collected information on this important aspect of antenatal care for the first time by asking mothers who received antenatal check-ups whether they received each of several components of antenatal check-ups at least once during any of their check-ups during pregnancy. For births during the three years preceding the survey for which antenatal check-ups were received, Table 8.5 presents the percentage whose mothers received specific components of check-ups by residence. Except for X-rays (which are not recommended as a standard component of antenatal care), all of the measurements and tests are part of essential obstetric care or are required for monitoring high-risk pregnancies.

Table 8.5 Components of antenatal check-ups			
Among births during the three years preceding the survey for which an antenatal check-up was received, percentage receiving specific components of antenatal check-ups by residence, Maharashtra, 1999			
Components of antenatal check-ups	Urban	Rural	Total
Antenatal measurements/tests			
Weight measured	89.5	52.8	67.8
Height measured	53.5	34.4	42.3
Blood pressure checked	90.3	54.5	69.2
Blood tested	88.6	54.5	68.5
Urine tested	86.6	47.4	63.5
Abdomen examined	93.4	72.3	81.0
Internal examination	75.6	44.2	57.1
X-ray	5.3	4.1	4.6
Sonography or ultrasound	46.0	17.2	29.0
Amniocentesis	5.7	6.7	6.3
Antenatal advice			
Diet	80.3	59.9	68.3
Danger signs of pregnancy	57.6	29.9	41.2
Delivery care	65.0	42.7	51.8
Newborn care	64.5	44.1	52.5
Family planning	45.9	37.6	41.0
Number of births for which the mother received at least one antenatal check-up	670	965	1,635
Note: Table includes only the two most recent births during the three years preceding the survey.			

Among all births for which mothers received antenatal check-ups, mothers had an abdominal examination in 81 percent of cases and had their blood tested, weight measured, blood pressure checked, and urine tested in 64–69 percent of cases each. Other common components of antenatal check-ups were internal examination (57 percent), height measurement (42 percent), and sonography or ultrasound (29 percent). Mothers of only 5 percent of the births had X-rays and 6 percent had amniocentesis. All of these measurements or tests with the exception of amniocentesis were performed more often for women living in urban areas than for women living in rural areas. The urban-rural differences are quite substantial for all the measurements and tests except X-ray and amniocentesis.

Table 8.5 also shows the type of advice received by mothers who had antenatal check-ups for births in the three years preceding the survey. Dietary advice was given to mothers most often (in 68 percent of cases), followed by advice on newborn care (in 53 percent of cases) and delivery care (in 52 percent of cases). Mothers were less likely to receive advice on danger signs of pregnancy and on family planning (41 percent each). The proportions receiving advice on each of these topics is substantially higher in urban areas than in rural areas.

Tetanus Toxoid Vaccination

In India, an important cause of death in infancy is neonatal tetanus, which is caused by newborn infants becoming infected by tetanus organisms, usually at the umbilical stump. Neonatal tetanus is most common among children who are delivered in unhygienic environments and when unsterilized instruments are used to cut the umbilical cord. Tetanus typically develops during the

first or second week of life and is fatal in 70–90 percent of cases (Foster, 1984). If neonatal tetanus infection occurs where expert medical help is not available, as is common in many rural areas in India, death is almost certain. Neonatal tetanus, however, is a preventable disease. Two doses of tetanus toxoid vaccine given one month apart during early pregnancy are nearly 100 percent effective in preventing tetanus among both newborn infants and their mothers. Immunity against tetanus is transferred to the foetus through the placenta when the mother is vaccinated.

In India, the tetanus toxoid immunization programme for expectant mothers was initiated in 1975–76 and was integrated with the Expanded Programme on Immunization (EPI) in 1978 (Ministry of Health and Family Welfare, 1991). To step up the pace of the immunization programme, the Government of India initiated the Universal Immunization Programme (UIP) in 1985–86. An important objective of the UIP was to vaccinate all pregnant women against tetanus by 1990. In 1992–93, the UIP was integrated into the Child Survival and Safe Motherhood Programme, which in turn has been integrated into the Reproductive and Child Health Programme. According to the National Immunization Schedule, a pregnant woman should receive two doses of tetanus toxoid vaccine, the first when she is 16 weeks pregnant and the second when she is 20 weeks pregnant (Central Bureau of Health Intelligence, 1991). Re-inoculation is recommended every three years. If two doses were received less than three years earlier, a single booster injection is recommended.

For each of the two most recent births during the three years preceding the survey, NFHS-2 asked women whether they were given an injection in the arm to prevent them and their baby from getting tetanus. Women who said they had received a tetanus injection were asked how many times they had received the injection during the pregnancy.

Table 8.6 shows the distribution of births by the number of tetanus toxoid injections given to mothers, according to selected background characteristics. Tetanus toxoid coverage in Maharashtra is quite high but not complete. For births in the three years preceding the survey, 75 percent of mothers received at least two tetanus toxoid injections during pregnancy (compared with 67 percent in all India), and another 13 percent received one injection. The proportion of mothers who received two or more tetanus toxoid injections during their pregnancies rose only marginally from 73 to 75 percent between NFHS-1 and NFHS-2.

Tetanus toxoid injections are more common in urban areas than in rural areas. The proportion receiving at least two tetanus toxoid injections is much higher in Mumbai than in other urban areas of Maharashtra. Within Mumbai, however, tetanus toxoid coverage (two or more injections) is only slightly better in non-slum areas than in slum areas. Coverage varies by age of mother and birth order. Tetanus toxoid coverage is higher for births to women under age 35 (75–76 percent) than for the small number of births to older women (67 percent). At least two tetanus toxoid injections were received by mothers for 83 percent of first order births, compared with 59 percent of births of order six or higher. Coverage is strongly related to literacy, ranging from 61 percent for births to illiterate women to 82–88 percent for births to literate women. Tetanus toxoid coverage is similar for Hindus (75 percent) and Muslims (77 percent), but comparatively low for Buddhists/Neo-Buddhists (67 percent). Coverage rises from 51 percent for births to scheduled-tribe women to 70 percent for births to scheduled-caste women and 79–80 percent for births to women not belonging to a scheduled caste or scheduled tribe. Tetanus toxoid coverage increases with an increasing standard of living of the household, from 61 percent for births to women from low standard of living households to 89 percent for births to

Table 8.6 Tetanus toxoid vaccination and iron and folic acid tablets or syrup

Percent distribution of births during the three years preceding the survey by the number of tetanus toxoid injections received by the mother, percentage of births for which the mothers were given iron and folic acid (IFA) tablets or syrup during pregnancy, and among those who received iron and folic acid tablets or syrup, percentage who received enough for three months or longer and percentage who consumed all the supply given, according to selected background characteristics, Maharashtra, 1999

Background characteristic	Number of tetanus toxoid injections					Percentage given iron and folic acid tablets or syrup	Number of births	Percentage who received supply for 3+ months ¹	Percentage who consumed all the supply ¹	Number of births whose mothers received IFA
	None	One	Two or more	Don't know/missing	Total percent					
Mother's age at birth										
< 20	10.9	12.1	76.2	0.9	100.0	85.6	523	77.3	77.4	448
20-34	10.7	13.4	74.5	1.4	100.0	84.8	1,258	87.3	82.5	1,068
35-49	(26.9)	(6.0)	(67.1)	(0.0)	100.0	(67.1)	28	(90.4)	(98.1)	19
Birth order										
1	6.4	9.4	82.7	1.5	100.0	90.7	594	86.7	83.0	538
2-3	9.8	14.6	74.3	1.2	100.0	84.2	890	83.5	79.8	750
4-5	20.3	15.4	63.2	1.1	100.0	78.0	251	83.6	84.2	196
6+	30.3	11.2	58.5	0.0	100.0	67.4	75	76.7	71.0	50
Residence										
Urban	6.6	12.7	79.4	1.4	100.0	88.6	707	90.2	82.0	627
Rural	13.8	13.0	72.0	1.2	100.0	82.3	1,103	80.4	80.7	908
Mumbai										
Slum	6.4	3.8	89.8	0.0	100.0	89.0	152	96.8	87.3	135
Non-slum	2.4	4.3	92.7	0.6	100.0	94.5	56	96.7	90.3	53
Mother's education										
Illiterate	22.2	15.7	61.0	1.1	100.0	74.7	735	78.4	75.0	549
Literate, < middle school complete	6.2	11.1	81.5	1.2	100.0	87.8	465	84.1	82.3	408
Middle school complete	2.7	12.2	84.1	1.1	100.0	91.2	260	89.2	80.3	237
High school complete and above	0.0	9.9	88.4	1.7	100.0	97.3	351	91.3	90.4	341
Religion										
Hindu	11.5	12.5	74.9	1.1	100.0	84.7	1,385	83.8	80.9	1,173
Muslim	9.3	12.4	76.8	1.5	100.0	83.0	263	83.6	83.0	218
Christian	(0.0)	(15.4)	(84.6)	(0.0)	100.0	(89.0)	27	(94.3)	(83.6)	24
Buddhist/Neo-Buddhist	14.4	17.6	66.7	1.3	100.0	85.3	107	91.1	78.5	92
Caste/tribe										
Scheduled caste	13.3	16.3	70.4	0.0	100.0	84.9	239	86.0	78.7	203
Scheduled tribe	27.1	18.2	51.3	3.4	100.0	67.6	215	87.8	77.2	145
Other backward class	9.0	11.0	79.2	0.8	100.0	88.3	356	86.5	84.4	315
Other	7.6	11.5	79.6	1.3	100.0	87.2	988	82.6	81.1	862
Standard of living index										
Low	21.7	15.7	61.4	1.2	100.0	74.2	618	78.2	81.8	458
Medium	6.8	12.2	79.2	1.7	100.0	88.5	832	85.6	79.9	737
High	0.8	9.6	89.2	0.4	100.0	95.1	300	90.0	84.7	285
Total	11.0	12.9	74.9	1.3	100.0	84.8	1,810	84.4	81.2	1,535

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes a small number of births to mothers belonging to Jain and 'other' religions and births with missing information on caste/tribe and the standard of living index, which are not shown separately.

() Based on 25-49 unweighted cases

¹ Among births whose mothers received iron and folic acid tablets or syrup

women from high standard of living households. These results suggest high coverage of tetanus toxoid vaccinations in the state, although coverage for socioeconomically disadvantaged women lags behind the level for the state as a whole.

Iron and Folic Acid Supplementation

Nutritional deficiencies in women are often exacerbated during pregnancy because of the additional nutrient requirements of foetal growth. Iron deficiency anaemia is the most common micronutrient deficiency in the world. It is a major threat to safe motherhood and to the health and survival of infants because it contributes to low birth weight, lowered resistance to infection, impaired cognitive development, and decreased work capacity. Studies in different parts of India have estimated that the proportion of births with a low birth weight (less than 2,500 grams) ranges from 15 percent in Trivandrum to 46 percent in Baroda (Nutrition Foundation of India, 1993). Overall, about one-third of newborn children in India are of low birth weight, indicating that many pregnant women in India suffer from nutritional deficiencies. Improvement in a woman's nutritional status, coupled with proper health care during pregnancy, can substantially increase her child's birth weight (Ramachandran, 1992). To this end, the provision of iron and folic acid (IFA) tablets to pregnant women to prevent nutritional anaemia forms an integral part of the safe-motherhood services offered as part of the Reproductive and Child Health Programme. The programme recommendation is that pregnant women consume 100 tablets of iron and folic acid during pregnancy.

For each birth during the three years preceding the survey, NFHS-2 collected information on whether the mother received IFA tablets or syrup during pregnancy. IFA syrup was included in the question along with IFA tablets since IFA syrup is sometimes prescribed in the private sector and may even be prescribed in the public sector when and where tablets are not available. Table 8.6 shows that mothers in Maharashtra received IFA supplements for 85 percent of births. This level is much higher than the national average (58 percent) and it is higher than in all other states except Goa, Kerala, Tamil Nadu, and Himachal Pradesh. As with tetanus toxoid coverage, IFA coverage in Maharashtra is below average for births to disadvantaged women (i.e., illiterate women, scheduled-tribe women, and women with a low standard of living) and for older mothers and mothers of higher-order births. IFA coverage is also lower in rural areas (82 percent) than in urban areas (89 percent), and it is lower in slum areas (89 percent) than in non-slum areas of Mumbai (95 percent).

Not all mothers who received IFA received the recommended three-month supply of tablets or syrup. Among births to women who received IFA during pregnancy, 84 percent received at least a three-month supply and 81 percent consumed all the supplements that were given to them. Differentials by background characteristics in the proportion that received at least a three-month supply and the proportion that consumed all the supply received are similar for most background characteristics. Both indicators are negatively related to birth order and positively related to mother's education level and the household standard of living, and both are lower in rural areas than in urban areas. In Mumbai, among births for which the mother received IFA, 97 percent received at least a three-month supply and 88 percent consumed all the supply.

Thus, the distribution of IFA supplements in Maharashtra is far from complete and some women who receive IFA are not consuming an adequate amount of IFA during their pregnancies. This suggests that the Reproductive and Child Health Programme needs to do a better job of

informing pregnant women about the advantages of IFA, trying to understand why some women do not consume all the IFA they receive, and overcoming resistance to the consumption of IFA.

8.2 Delivery Care

Place of Delivery

Another important thrust of the Reproductive and Child Health Programme is to encourage deliveries under proper hygienic conditions and under the supervision of trained health professionals. For each birth during the three years preceding the survey, NFHS-2 asked the mother where she gave birth and who assisted during the delivery. Table 8.7 and Figure 8.4 show that 53 percent of births in Maharashtra took place in health facilities (8 percentage points higher than the NFHS-1 estimate of 45 percent), 25 percent took place in the women's own homes, and 21 percent took place in their parents' homes. Twenty-seven percent of births took place in private health facilities, compared with 24 percent in public institutions (such as government-operated district, *tehsil*, town, or municipal hospitals and Primary Health Centres). The NFHS-2 overall estimate of 53 percent of births in health facilities is slightly lower than the estimate of 57 percent from the Rapid Household Survey under the RCH Programme (International Institute for Population Sciences, 2001). Both the NFHS-2 and RCH estimates are higher than the 1997 SRS estimate of 48 percent.

In NFHS-2, the proportion of births that took place in health facilities is more than twice as high in urban areas (81 percent) as in rural areas (35 percent). Eighty-six percent of births in Mumbai (84 percent in slum areas and 92 percent in non-slum areas) took place in health facilities. Within Mumbai, slum women are more likely to deliver in public health facilities and non-slum women are more likely to deliver in private health facilities. Institutional deliveries are higher for mothers age 20–34 (56 percent) than for younger or older mothers (44–47 percent). Institutional births are highest for first births (64 percent) and lowest for births of order four or higher (37–39 percent). Institutional births, particularly in private health facilities, increase sharply with education and the standard of living. Scheduled-tribe women are much less likely to deliver in medical institutions (32 percent) than other women (55–59 percent). By religion, Hindus are less likely to deliver in medical institutions (48 percent) than other women (61–79 percent).

The proportion of institutional births is about twice as high among women who received four or more antenatal check-ups (80 percent) as among women who received three antenatal check-ups (46 percent) and about six times as high as among women who did not receive any antenatal check-ups (14 percent). Several different factors are likely to contribute to the positive relationship between antenatal check-ups and delivery in a health facility. Women who receive antenatal check-ups are more likely than other women to deliver in a health facility because their antenatal care providers might have advised them to do so. Conversely, women who register with a health facility for delivery may be called for regular antenatal check-ups by the facility. Another important factor may be pregnancy complications, because women with complications are more likely than other women to have antenatal check-ups and also to deliver in a health facility. Another contributing factor may be the growing awareness of the benefits of professional medical care during both pregnancy and delivery, especially among urban, young, educated women.

Table 8.7 Place of delivery

Percent distribution of births during the three years preceding the survey by place of delivery, according to selected background characteristics, Maharashtra, 1999

Background characteristic	Place of delivery						Total percent	Number of births
	Health facility/institution			Home				
	Public	NGO/ trust	Private	Own home	Parents' home	Other ¹		
Mother's age at birth								
< 20	22.8	0.4	20.9	20.7	35.0	0.3	100.0	523
20–34	25.1	1.2	30.0	26.7	16.1	0.9	100.0	1,258
35–49	(19.6)	(0.0)	(26.9)	(47.0)	(6.4)	(0.0)	100.0	28
Birth order								
1	28.7	0.3	34.5	11.8	24.3	0.3	100.0	594
2–3	23.5	1.3	26.0	26.8	21.9	0.5	100.0	890
4–5	19.0	1.7	16.4	43.1	18.1	1.7	100.0	251
6+	17.4	0.0	21.8	54.4	4.4	2.1	100.0	75
Residence								
Urban	36.1	1.4	43.3	10.6	8.0	0.5	100.0	707
Rural	16.8	0.7	17.0	34.7	30.0	0.8	100.0	1,103
Mumbai								
Slum	42.8	0.5	42.5	8.7	5.1	0.5	100.0	208
Non-slum	47.5	0.6	35.4	9.8	6.0	0.7	100.0	152
	30.1	0.0	61.8	5.6	2.5	0.0	100.0	56
Mother's education								
Illiterate	16.8	0.6	9.2	44.0	28.3	1.0	100.0	735
Literate, < middle school complete	32.7	1.6	27.3	16.5	21.3	0.6	100.0	465
Middle school complete	28.4	0.7	37.9	12.9	20.0	0.1	100.0	260
High school complete and above	26.0	1.1	57.2	6.9	8.4	0.4	100.0	351
Religion								
Hindu	22.6	0.9	24.2	27.8	23.9	0.7	100.0	1,385
Muslim	28.2	0.6	42.7	15.0	12.5	1.0	100.0	263
Christian	(20.3)	(10.2)	(48.9)	(0.0)	(20.7)	(0.0)	100.0	27
Buddhist/Neo-Buddhist	42.3	0.0	18.7	23.6	15.1	0.3	100.0	107
Caste/tribe								
Scheduled caste	35.5	0.6	22.7	20.9	19.6	0.8	100.0	239
Scheduled tribe	20.6	2.0	9.6	44.0	23.8	0.0	100.0	215
Other backward class	28.5	1.3	25.8	22.2	21.0	1.2	100.0	356
Other	20.9	0.7	33.1	22.9	21.8	0.6	100.0	988
Standard of living index								
Low	17.0	0.7	9.2	43.4	28.1	1.6	100.0	618
Medium	28.8	1.1	29.0	18.3	22.6	0.3	100.0	832
High	26.2	1.3	57.6	8.9	5.9	0.1	100.0	300
Number of antenatal check-ups								
0	10.0	0.8	3.1	54.3	30.1	1.7	100.0	175
1	12.4	0.9	10.9	43.5	28.9	3.2	100.0	145
2	15.4	0.0	16.8	36.3	31.4	0.1	100.0	304
3	24.1	0.4	21.7	26.8	26.1	0.9	100.0	452
4+	33.9	1.8	44.2	9.3	10.8	0.0	100.0	731
Total	24.3	1.0	27.3	25.3	21.4	0.7	100.0	1,810

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes 15 and 13 births to women belonging to Jain and 'other' religions, respectively, and 11, 60, and 3 births with missing information on caste/tribe, the standard of living index, and number of antenatal check-ups, respectively, which are not shown separately.

NGO: Nongovernmental organization

() Based on 25–49 unweighted cases

¹Includes missing

With regard to deliveries at home, the proportion of deliveries in a woman's own home increases and the proportion in her parents' home decreases with age and birth order. Mother's education, urban residence, standard of living, and number of antenatal check-ups are strongly negatively associated with delivery at home.

Assistance During Delivery

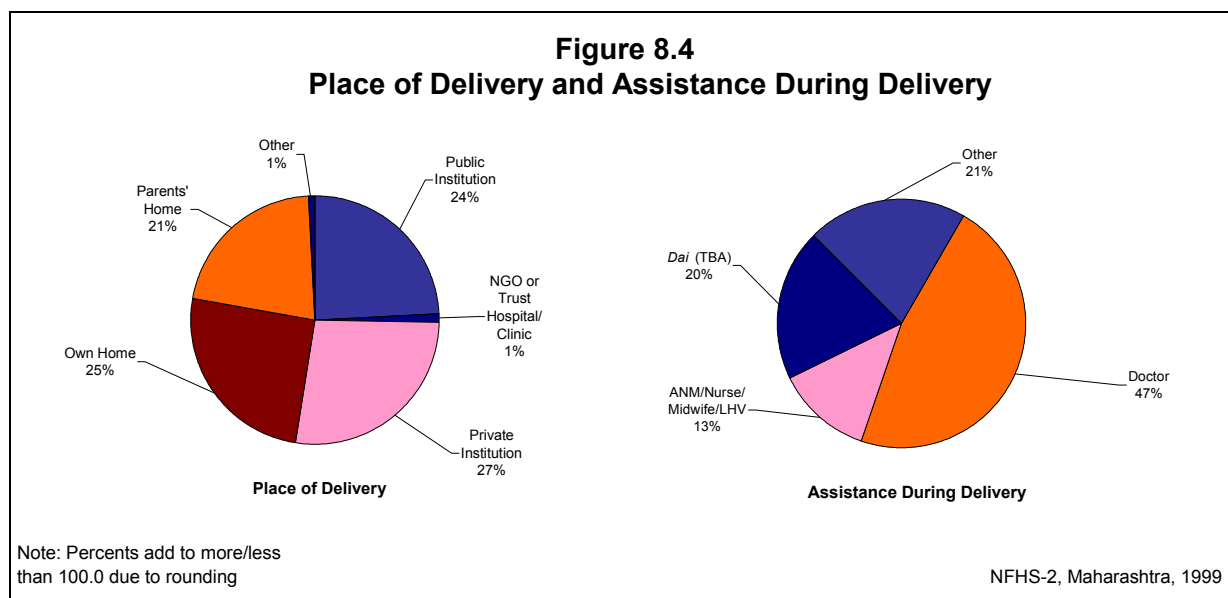
Table 8.8 and Figure 8.4 provide information on assistance during delivery by selected background characteristics. If more than one type of attendant assisted at delivery, only the most qualified attendant is shown. Sixty percent of births in the three years preceding the survey were attended by a health professional, including 47 percent by a doctor and 13 percent by an ANM, nurse, midwife, or LHV. Comparable estimates at the national level are 42 percent by a health professional, 30 percent by a doctor, and 11 percent by an ANM, nurse, midwife, or LHV. In Maharashtra, 20 percent of births were attended by a traditional birth attendant, and 21 percent

Table 8.8 Assistance during delivery						
Percent distribution of births during the three years preceding the survey by attendant assisting during delivery, according to selected background characteristics, Maharashtra, 1999						
Background characteristic	Attendant assisting during delivery ¹				Total percent	Number of births
	Doctor	ANM/nurse/ midwife/ LHV	<i>Dai</i> (TBA)	Other		
Mother's age at birth						
< 20	40.1	12.3	23.1	24.5	100.0	523
20–34	49.7	12.7	18.3	19.3	100.0	1,258
35–49	(45.1)	(12.1)	(23.2)	(19.6)	100.0	28
Birth order						
1	59.1	12.2	16.1	12.5	100.0	594
2–3	44.5	13.2	21.2	21.1	100.0	890
4–5	29.3	11.7	24.3	34.7	100.0	251
6+	37.0	10.2	16.6	36.2	100.0	75
Residence						
Urban	67.5	16.6	8.8	7.1	100.0	707
Rural	33.6	10.0	26.8	29.5	100.0	1,103
Mumbai	77.1	10.9	9.5	2.5	100.0	208
Slum	73.5	12.5	10.9	3.1	100.0	152
Non-slum	87.1	6.7	5.6	0.7	100.0	56
Mother's education						
Illiterate	22.5	9.9	30.6	37.0	100.0	735
Literate, < middle school complete	51.1	16.6	15.5	16.8	100.0	465
Middle school complete	61.1	16.7	15.3	6.9	100.0	260
High school complete and above	81.9	9.7	6.1	2.2	100.0	351
Religion						
Hindu	43.0	11.6	20.8	24.6	100.0	1,385
Muslim	61.5	16.2	15.9	6.4	100.0	263
Christian	(74.4)	(10.4)	(15.2)	(0.0)	100.0	27
Buddhist/Neo-Buddhist	48.3	19.7	17.8	14.2	100.0	107
						Contd...

Table 8.8 Assistance during delivery (contd.)						
Percent distribution of births during the three years preceding the survey by attendant assisting during delivery, according to selected background characteristics, Maharashtra, 1999						
Background characteristic	Attendant assisting during delivery ¹				Total percent	Number of births
	Doctor	ANM/nurse/ midwife/ LHV	Dai (TBA)	Other		
Caste/tribe						
Scheduled caste	50.7	14.5	18.3	16.5	100.0	239
Scheduled tribe	23.3	13.6	34.1	29.0	100.0	215
Other backward class	46.4	16.9	17.6	19.1	100.0	356
Other	51.6	10.3	17.9	20.2	100.0	988
Standard of living index						
Low	21.3	10.3	32.5	35.9	100.0	618
Medium	50.7	16.8	16.5	15.9	100.0	832
High	84.7	6.5	3.5	5.4	100.0	300
Number of antenatal check-ups						
0	11.2	9.5	35.0	44.3	100.0	175
1	22.4	10.4	25.2	42.0	100.0	145
2	30.2	8.8	25.9	35.0	100.0	304
3	39.7	14.9	25.1	20.3	100.0	452
4+	71.4	13.9	9.3	5.4	100.0	731
Place of delivery						
Public health facility	69.0	30.7	0.0	0.3	100.0	441
Private health facility	90.0	10.0	0.0	0.0	100.0	494
Own home	7.4	3.8	45.2	43.6	100.0	458
Parents' home	12.7	6.2	37.9	43.3	100.0	388
Total	46.9	12.6	19.8	20.8	100.0	1,810
<p>Note: Table includes only the two most recent births during the three years preceding the survey. Total includes 15 and 13 births to mothers belonging to Jain and 'other' religions, respectively, 18 and 12 births delivered in nongovernmental organization or trust hospitals/clinics and 'other' places, respectively, and 11, 60, and 3 births with missing information on caste/tribe, the standard of living index, and number of antenatal check-ups, respectively, which are not shown separately.</p> <p>ANM: Auxilliary nurse midwife; LHV: Lady health visitor; TBA: Traditional birth attendant () Based on 25–49 unweighted cases ¹ If the respondent mentioned more than one attendant, only the most qualified attendant is shown.</p>						

were attended only by friends, relatives, or other persons. According to the two NFHS surveys, the proportion of deliveries attended by a health professional increased from 53 percent in NFHS-1 to 60 percent in NFHS-2.

The proportion of births attended by a doctor varies by the mother's age, from 40 percent for teenage mothers to 50 percent for mothers age 20–34. The differentials are much larger by birth order, ranging from 59 percent for first-order births to 29 percent for births of order 4–5 and 37 percent for births of order 6 or higher. Births are twice as likely to be assisted by a doctor in urban areas (68 percent) as in rural areas (34 percent). Seventy-seven percent of births in Mumbai (74 percent in slum areas and 87 percent in non-slum areas) are assisted by a doctor. The proportion of births delivered by a doctor increases sharply with the mother's level of education and the household standard of living. The proportion of births delivered by a doctor is much higher among Muslim women (62 percent) than among Hindu or Buddhist/Neo-Buddhist



women (43–48 percent). Deliveries by doctors vary from only 23 percent for births to scheduled-tribe mothers to 46–52 percent for births to mothers who do not belong to a scheduled tribe. Only 11 percent of births to women who did not have any antenatal check-up were attended by a doctor; this proportion increases steadily to 40 percent for births to women who had three antenatal check-ups and 71 percent for births to women who had four or more antenatal check-ups. Thirty-five percent of births to women who did not have any antenatal check-ups were attended by a TBA, and 44 percent of these births were attended only by friends, relatives, and other persons who are not health professionals. Ninety percent of births in private institutions were attended by a doctor, compared with 69 percent of births in public institutions. The proportion of births attended by a doctor was only 7 percent for births occurring in the woman's own home and 13 percent for births occurring in her parents' home. Among births delivered at home (the respondents' or their parents' homes), about 4 out of 10 were attended by a TBA and fewer than 2 out of 10 were attended by a health professional.

Delivery Characteristics

Table 8.9 shows the percentage of births during the three years preceding the survey that were delivered by caesarian section and the percent distribution of births by birth weight and the mother's estimate of the baby's size at birth. Based on mothers' reports, 8 percent of children born in Maharashtra in the past three years were delivered by caesarian section. The proportion of deliveries by caesarian section was much higher in urban areas (12 percent) than in rural areas (5 percent). The proportion of deliveries by caesarian section in Maharashtra has increased from 4 percent of births in NFHS-1 to 8 percent in NFHS-2.

Babies with low birth weights face substantially higher risks of dying than do babies with normal birth weights. For each birth that took place in the three years preceding the survey, respondents were asked the baby's birth weight. Because babies delivered at home are unlikely to be weighed and because the mother might not remember the birth weight even if the baby was weighed, the survey also asked mothers to estimate the size of each baby at birth (large, average, small, or very small).

Table 8.9 Characteristics of births			
Percentage of births during the three years preceding the survey that were delivered by caesarian section and percent distribution of births by birth weight and by the mother's estimate of the baby's size at birth, according to residence, Maharashtra, 1999			
Characteristic of births	Urban	Rural	Total
Percentage delivered by caesarian section	12.4	4.7	7.7
Birth weight			
< 2.5 kg	17.2	8.9	12.1
2.5 kg or more	53.6	22.4	34.6
Don't know/missing	8.2	5.7	6.7
Not weighed	21.1	63.0	46.6
Total percent	100.0	100.0	100.0
Size at birth			
Large	15.8	12.7	13.9
Average	61.3	62.3	61.9
Small	16.2	17.2	16.8
Very small	6.7	7.8	7.3
Total percent	100.0	100.0	100.0
Number of births	707	1,103	1,810
Note: Table includes only the two most recent births during the three years preceding the survey.			

In Maharashtra, 47 percent of babies born in the three years preceding the survey were not weighed at birth. The proportion not weighed is 21 percent in urban areas and 63 percent in rural areas. Seven percent of mothers said that the baby was weighed but they did not remember the weight. Therefore, the resulting sample of births for which weights are reported is subject to a potentially large selection bias, so the results should be interpreted with caution. Among children for whom birth weights are reported, 26 percent weighed less than 2.5 kilograms. The proportion of babies weighing less than 2.5 kilograms is slightly lower in urban areas (24 percent) than in rural areas (28 percent).

According to mothers' estimates, 14 percent of births in the three years preceding the survey were large, 62 percent were of average size, 17 percent were small, and 7 percent were very small. The proportion of babies reported as small or very small was slightly lower in urban areas (23 percent) than in rural areas (25 percent).

8.3 Postnatal Care

The health of a mother and her newborn child depends not only on the health care she receives during her pregnancy and delivery, but also on the care she and the infant receive during the first few weeks after delivery. Postpartum check-ups within two months after delivery are particularly important for births that take place in noninstitutional settings. Recognizing the importance of postpartum check-ups, the Reproductive and Child Health Programme recommends three postpartum visits (Ministry of Health and Family Welfare, 1998b).

Table 8.10 Postpartum check-ups

Percentage of noninstitutional births during the three years preceding the survey for which a postpartum check-up was received within two months of birth and, among those receiving a postpartum check-up, percentage seen within two days and one week of birth and percentage receiving specific components of check-ups by selected background characteristics, Maharashtra, 1999

Background characteristic	Percentage with a postpartum check-up within two months of birth	Number of births	Among those with postpartum check-up						Number of births followed by a postpartum check-up
			Percentage seen within two days of birth	Percentage seen within one week of birth	Components of postpartum check-up (%)				
					Abdominal examination	Family planning advice	Breast-feeding advice	Baby care advice	
Mother's age at birth									
< 20	27.8	293	30.0	46.9	43.6	22.0	47.7	50.7	81
20-34	31.0	550	19.7	39.0	50.8	41.0	62.1	60.3	171
Birth order									
1	32.3	216	26.4	45.4	42.9	19.4	58.8	58.2	70
2-3	32.1	438	22.6	42.4	52.5	35.6	56.8	58.6	141
4-5	24.4	158	(23.5)	(38.0)	(47.2)	(59.0)	(57.2)	(50.5)	39
6+	(13.7)	45	*	*	*	*	*	*	6
Residence									
Urban	39.3	135	27.6	42.5	46.9	36.8	59.8	61.3	53
Rural	28.0	723	22.2	42.1	49.6	33.8	56.6	56.2	202
Mumbai	41.3	30	(21.9)	(43.9)	(52.9)	(41.7)	(55.7)	(72.3)	12
Mother's education									
Illiterate	23.2	539	26.4	44.8	42.4	32.5	51.6	49.5	125
Literate, < middle school complete	35.2	178	21.1	36.5	46.9	29.3	50.7	60.6	63
Middle school complete	44.8	86	(23.5)	(43.7)	(65.4)	(32.7)	(76.8)	(74.6)	38
High school complete and above	(53.4)	55	*	*	*	*	*	*	29
Religion									
Hindu	29.6	725	23.2	40.1	46.7	36.2	57.5	56.4	214
Muslim	36.0	75	(30.9)	(48.4)	(60.8)	(27.6)	(53.5)	(61.1)	27
Buddhist/Neo-Buddhist	(17.7)	42	*	*	*	*	*	*	7
Caste/tribe									
Scheduled caste	28.4	99	(21.7)	(54.4)	(32.6)	(30.6)	(76.3)	(71.9)	28
Scheduled tribe	18.4	146	*	*	*	*	*	*	27
Other backward caste	30.1	158	(21.1)	(48.1)	(61.7)	(52.9)	(70.7)	(70.8)	48
Other	34.2	447	27.5	41.6	48.2	28.9	49.7	49.5	153
Standard of living index									
Low	20.2	451	20.5	34.9	43.9	33.3	47.0	45.5	91
Medium	39.4	343	22.7	41.7	51.4	34.5	64.2	64.3	135
High	(50.3)	45	*	*	*	*	*	*	22

Contd...

Table 8.10 gives the percentage of noninstitutional births in the three years preceding the survey that were followed by a postpartum check-up within two months of delivery. Among births that were followed by a postpartum check-up, the table also shows the percentage with a check-up within two days of delivery (which is the most crucial period) and within one week of

Table 8.10 Postpartum check-ups (contd.)

Percentage of noninstitutional births during the three years preceding the survey for which a postpartum check-up was received within two months of birth and, among those receiving a postpartum check-up, percentage seen within two days and one week of birth and percentage receiving specific components of check-ups by selected background characteristics, Maharashtra, 1999

Background characteristic	Percentage with a postpartum check-up within two months of birth		Among those with postpartum check-up						
	Number of births	Percentage seen within two days of birth	Percentage seen within one week of birth	Components of postpartum check-up (%)				Number of births followed by a postpartum check-up	
				Abdo- minal exami- nation	Family planning advice	Breast- feeding advice	Baby care advice		
Number of antenatal check-ups									
0	150	15.1	*	*	*	*	*	*	23
1	110	24.4	*	*	*	*	*	*	27
2	206	22.7	(13.3)	(25.3)	(40.3)	(39.7)	(48.3)	(46.3)	47
3+	390	40.8	21.6	44.5	52.9	37.8	63.1	62.4	159
Assistance during delivery									
Doctor/ANM/nurse/ midwife/LHV ¹	125	45.5	(32.4)	(57.2)	(65.1)	(36.0)	(62.9)	(61.0)	57
Dai (TBA)	358	32.1	16.6	34.1	48.6	34.1	58.0	60.7	115
Other	375	22.3	26.5	43.0	38.7	33.6	52.4	49.9	84
Total	858	29.8	23.3	42.2	49.0	34.4	57.3	57.2	255

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes births to women age 35–49, women belonging to Christian, Jain, and 'other' religions, and births with missing information on caste/tribe, the standard of living index, and number of antenatal check-ups, which are not shown separately.
ANM: Auxiliary nurse midwife; LHV: Lady health visitor; TBA: Traditional birth attendant
() Based on 25–49 unweighted cases
*Percentage not shown; based on fewer than 25 unweighted cases
¹Includes other health professionals

delivery, and the percentage whose mothers received specific recommended components of care during the check-up.

A little less than one-third (30 percent) of noninstitutional births were followed by a check-up within two months of the delivery. Among births that were followed by a check-up, only 23 percent of check-ups took place within two days of birth and only 42 percent took place within one week of birth. Postpartum check-ups are more common for births to urban mothers, mothers living in Mumbai, more educated mothers, Muslim mothers, mothers from higher standard of living households, and for births delivered by a health professional and births for which the mother had three or more antenatal check-ups.

Mothers who did not deliver in a health facility but who received a postpartum check-up were asked whether they received specific components of postpartum care, including an abdominal examination and advice on family planning, breastfeeding, and baby care. Among these mothers, 49 percent reported an abdominal examination. Fifty-seven percent each received advice on breastfeeding and baby care, and 34 percent received family planning advice.

Table 8.11 Symptoms of postpartum complications			
Among births during the three years preceding the survey, percentage for which the mother had massive vaginal bleeding or very high fever within two months after the delivery by selected background characteristics, Maharashtra, 1999			
Background characteristic	Massive vaginal bleeding	Very high fever	Number of births
Residence			
Urban	11.0	8.3	675
Rural	9.1	11.4	1,045
Mumbai			
Slum	12.7	7.8	143
Non-slum	7.0	5.4	53
Mother's age at birth			
< 20	9.4	13.8	495
20–34	10.0	8.7	1,200
35–49	(7.8)	(9.6)	25
Birth order			
1	11.1	10.8	563
2–3	9.2	9.8	843
4–5	8.7	9.0	243
6+	11.5	14.9	71
Place of delivery			
Public health facility	10.9	10.1	424
Private health facility	8.3	8.7	469
Own home	10.6	9.7	429
Parents' home	9.6	12.6	368
Assistance during delivery			
Doctor	10.1	9.4	805
ANM/nurse/midwife/LHV	6.7	11.2	216
<i>Dai</i> (TBA)	13.3	14.7	340
Other ¹	7.8	7.2	358
Total	9.8	10.2	1,720
Note: Table includes only the two most recent births during 2–35 months preceding the survey. Total includes 18 and 12 births delivered in nongovernmental organization or trust hospitals/clinics and 'other' places, respectively, which are not shown separately. ANM: Auxiliary nurse midwife; LHV: Lady health visitor; TBA: Traditional birth attendant () Based on 25–49 unweighted cases ¹ Includes missing			

Postpartum Complications

Every woman who had a birth in the three years preceding the survey was asked if she had massive vaginal bleeding or a very high fever—both symptoms of possible postpartum complications—at any time during the two months after delivery. For 10 percent of births each, the mother reported a very high fever and massive vaginal bleeding during the two-month period following the birth (Table 8.11). Massive vaginal bleeding differs little by age or birth order, but very high fever is more common for births to teenage mothers and births of order six or higher. Both massive vaginal bleeding and very high fever are slightly more common in slum areas than in non-slum areas of Mumbai. Both complications are also more common when the birth is attended by a traditional birth attendant.

8.4 Reproductive Health Problems

Absence of reproductive tract infections (RTIs) is essential for the reproductive health of both women and men and is critical for their ability to meet their reproductive goals. There are three different types of reproductive tract infections for women: endogenous infections that are caused by the multiplying of organisms normally present in the vagina; iatrogenic infections caused by the introduction of bacteria or other infection-causing micro-organisms through medical procedures such as an IUD insertion; and sexually transmitted infections (STIs). Endogenous infections and several of the iatrogenic and sexually transmitted infections are often easily cured if detected early and given proper treatment. If left untreated, RTIs can cause pregnancy-related complications, congenital infections, infertility, and chronic pain. They are also a risk factor for pelvic inflammatory disease and HIV (Population Council, 1999).

A number of studies (Bang et al., 1989; Bang and Bang, 1991; Pachauri and Gittelsohn, 1994; Jeejeebhoy and Rama Rao, 1992) have shown that many Indian women suffer from RTIs. Several researchers have also shown that women in India often bear the symptoms of RTIs silently without seeking health care. RTIs and their sequelae are an important component of programmes for family planning, child survival, women's health, safe motherhood, and HIV prevention. RTIs have profound implications for the success of each of these initiatives, and conversely, these initiatives provide a critical opportunity for the prevention and control of RTIs (Germain et al., 1992). Studies have demonstrated that RTIs are an important reason for the poor acceptance and low continuation rates of contraceptive methods such as the IUD. Bhatia and Cleland (1995) found a higher incidence of gynaecological symptoms among women who had undergone a tubectomy than among other women. The Government of India recognized the importance of RTIs and STIs in undermining the health and welfare of individuals and couples in a policy statement on the Reproductive and Child Health Programme, which states that couples should be 'able to have sexual relations free of fear of pregnancy and contracting diseases' (Ministry of Health and Family Welfare, 1997). The Reproductive and Child Health Programme includes the following interventions: establishment of RTI/STI clinics at district hospitals (where not already available), provision of technicians for laboratory diagnosis of RTIs/STIs, and in selected districts, screening and treatment of RTIs/STIs (Ministry of Health and Family Welfare, 1997).

NFHS-2 collected information from women on some common symptoms of RTIs, namely problems with abnormal vaginal discharge or urinary tract infections in the three months preceding the survey, intercourse-related pain (often), and bleeding after intercourse (ever). Specifically, the prevalence of reproductive health problems among ever-married women is estimated from women's self-reported experience with each of the following problems: vaginal discharge accompanied by itching, by irritation around the vaginal area, by bad odour, by severe lower abdominal pain, by fever, or by any other problem; pain or burning while urinating or frequent or difficult urination; and (among currently married women only) painful intercourse or bleeding after intercourse. Women who experience one or more of these reproductive health problems could either have or be at risk of getting an RTI/STI. However, since information on health problems is based on self-reports rather than clinical tests or examinations, the results should be interpreted with caution.

Table 8.12 shows the prevalence of different reproductive health problems among women in Maharashtra by background characteristics. Thirty-one percent of ever-married

Table 8.12 Symptoms of reproductive health problems

Percentage of ever-married women reporting abnormal vaginal discharge or symptoms of a urinary tract infection during the three months preceding the survey and percentage of currently married women reporting painful intercourse or bleeding after intercourse by selected background characteristics, Maharashtra, 1999

Background characteristic	Ever-married women							Currently married women					
	Vaginal discharge accompanied by:						Symptoms of a urinary tract infection ²	Any abnormal vaginal discharge or symptoms of a urinary tract infection ²	Number of ever-married women	Painful intercourse (often)	Bleeding after intercourse (ever) ¹	Any reproductive health problem	Number of currently married women
	Any abnormal vaginal discharge	Itching or irritation	Bad odour	Severe lower abdominal pain ¹	Fever	Other problem							
Age													
15-19	26.6	17.0	9.5	14.8	8.3	11.0	20.1	34.3	499	15.5	2.5	38.3	490
20-24	30.0	17.6	7.5	14.3	7.4	10.9	19.1	36.7	954	11.5	2.2	39.8	922
25-29	34.4	19.2	8.7	17.0	10.4	14.7	19.9	38.9	1,092	12.6	1.9	42.4	1,032
30-34	32.1	16.3	7.9	16.8	10.0	13.7	20.6	39.0	956	10.7	1.4	42.6	891
35-39	33.3	18.6	8.6	17.8	12.6	15.5	21.6	39.2	778	6.7	2.1	41.7	697
40-44	29.9	18.7	7.6	18.1	8.9	11.3	21.1	36.3	688	7.8	1.0	37.5	582
45-49	20.9	12.8	7.6	12.0	7.9	9.7	16.9	27.9	424	5.2	0.9	30.2	350
Residence													
Urban	36.6	19.9	7.2	19.1	8.3	17.7	22.1	43.1	2,229	10.9	1.3	45.7	2,044
Rural	26.6	15.9	8.9	14.0	10.4	9.3	18.6	32.7	3,162	10.1	2.1	36.0	2,919
Mumbai													
Slum	46.4	21.7	6.2	25.4	8.8	29.6	22.3	52.4	682	8.5	1.2	54.3	636
Non-slum	55.4	28.1	7.6	31.8	11.3	35.7	29.3	62.2	397	10.4	1.4	64.6	366
	33.8	12.9	4.4	16.5	5.3	21.1	12.6	38.8	285	6.0	0.9	40.3	270
Education													
Illiterate	32.1	19.1	9.5	18.0	12.4	12.3	20.3	37.4	2,405	10.8	2.1	40.5	2,173
Literate, < middle school complete	31.3	16.8	7.2	15.8	8.7	14.3	20.3	38.4	1,448	10.0	1.6	41.0	1,322
Middle school complete	30.4	18.7	9.6	16.2	8.2	13.1	21.2	37.4	582	12.5	1.3	41.0	553
High school complete and above	26.5	14.0	5.5	12.1	4.3	11.5	18.3	33.4	956	9.0	1.6	36.8	916
Religion													
Hindu	29.2	16.9	8.2	15.1	9.2	12.0	19.4	35.4	4,318	9.8	1.9	38.1	3,989
Muslim	41.2	22.2	7.9	21.4	13.1	20.5	23.6	48.1	531	13.3	0.8	52.3	491
Christian	22.9	8.9	1.4	15.2	7.0	12.5	11.8	29.4	71	13.8	0.0	37.1	59
Buddhist/Neo-Buddhist	33.8	19.5	9.4	21.1	8.9	12.0	25.0	40.9	368	14.8	2.2	46.7	326
Jain	24.0	9.0	5.2	8.4	1.6	8.5	12.2	29.3	68	6.0	0.5	30.5	64
Other	(50.8)	(32.2)	(16.4)	(28.7)	(15.8)	(14.3)	(24.3)	(52.7)	36	(7.6)	(0.0)	(48.9)	33

Contd...

Table 8.12 Symptoms of reproductive health problems (contd.)

Percentage of ever-married women reporting abnormal vaginal discharge or symptoms of a urinary tract infection during the three months preceding the survey and percentage of currently married women reporting painful intercourse or bleeding after intercourse by selected background characteristics, Maharashtra, 1999

Background characteristic	Ever-married women								Currently married women				
	Any abnormal vaginal discharge	Vaginal discharge accompanied by:					Symptoms of a urinary tract infection ²	Any abnormal vaginal discharge or symptoms of a urinary tract infection ²	Number of ever-married women	Painful intercourse (often)	Bleeding after intercourse (ever) ¹	Any reproductive health problem	Number of currently married women
		Itching or irritation	Bad odour	Severe lower abdominal pain ¹	Fever	Other problem							
Caste/tribe													
Scheduled caste	32.0	17.8	8.7	17.3	8.5	13.2	21.4	37.8	728	12.5	1.9	42.0	648
Scheduled tribe	38.0	21.9	14.3	21.2	10.2	11.4	24.7	43.2	552	9.5	2.0	44.2	501
Other backward caste	29.8	17.5	7.8	15.6	9.6	12.3	22.2	37.9	1,162	10.9	1.4	41.3	1,077
Other	29.5	16.7	7.1	15.1	9.6	13.2	18.1	35.3	2,923	9.9	1.8	38.4	2,716
Standard of living index													
Low	28.7	17.3	9.2	16.1	11.8	10.0	19.6	34.1	1,639	11.0	2.2	37.5	1,467
Medium	32.8	19.1	8.3	16.7	10.0	14.5	21.3	39.5	2,409	11.0	1.8	42.7	2,224
High	29.6	15.5	7.1	15.0	6.0	12.6	18.3	35.7	1,176	7.7	0.9	37.7	1,114
Work status													
Working in family farm/business	29.9	18.6	11.1	15.2	10.9	9.1	19.5	34.9	1,116	10.1	1.9	37.3	1,051
Employed by someone else	27.6	15.8	8.3	15.5	11.0	10.5	20.0	33.9	1,546	10.3	2.2	36.6	1,326
Self-employed	33.5	19.1	6.0	14.5	8.8	16.9	18.8	40.2	341	10.5	1.6	44.0	309
Not worked in past 12 months	32.7	17.9	7.1	17.3	8.0	15.4	20.5	39.4	2,388	10.6	1.5	42.7	2,278
Number of children ever born													
0	32.3	18.7	9.6	18.4	8.5	12.9	24.6	42.0	555	18.3	4.1	48.7	485
1	29.0	16.8	9.2	13.3	7.0	10.9	18.6	34.1	740	12.7	1.6	36.9	660
2-3	30.8	17.1	7.5	16.4	9.1	13.4	19.2	36.9	2,498	9.3	1.7	39.7	2,326
4-5	31.7	19.0	9.1	16.7	11.8	13.4	21.6	38.3	1,237	9.4	1.4	41.2	1,154
6+	27.5	15.6	6.0	15.3	11.3	10.2	16.7	30.8	361	5.8	0.6	32.0	338
All ever-married women	30.7	17.5	8.2	16.2	9.5	12.8	20.1	37.0	5,391	NA	NA	NA	NA
All currently married women	30.7	17.5	8.1	16.1	9.3	12.9	20.1	37.1	4,963	10.4	1.8	40.0	4,963

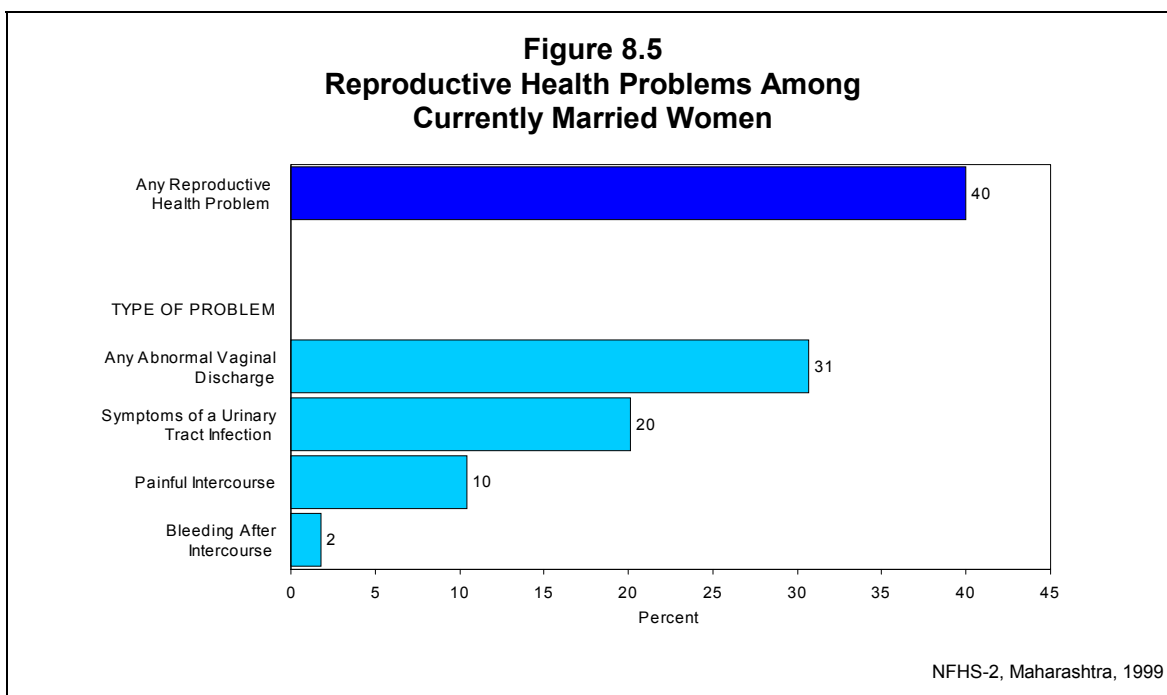
Note: Total includes a small number of women with missing information on caste/tribe and the standard of living index, who are not shown separately.

NA: Not applicable

() Based on 25-49 unweighted cases

¹Not related to menstruation

²Includes pain or burning while urinating or more frequent or difficult urination



women reported at least one type of problem related to vaginal discharge, and 20 percent reported symptoms of a urinary tract infection. Overall, 37 percent of women reported either problems with vaginal discharge or symptoms of a urinary tract infection. Among problems related to vaginal discharge, itching or irritation was mentioned most frequently (18 percent), followed by severe lower abdominal pain (16 percent), fever (9 percent), and bad odour (8 percent).

Table 8.12 and Figure 8.5 show that 40 percent of currently married women report one or more reproductive health problems (almost the same as the national average of 39 percent). Ten percent report painful intercourse and 2 percent report bleeding after intercourse.

Reproductive health problems are slightly more common among women in the middle of the reproductive age span than at the extremes of 15–19 and 45–49. They are more common in Mumbai (54 percent) and among urban women (46 percent) than among rural women (36 percent). The prevalence of reproductive health problems is much higher among currently married women living in slum areas of Mumbai (65 percent) than in non-slum areas (40 percent). In fact, women in Mumbai slums have by far the highest prevalence of reported reproductive health problems of any group of women shown in the table. The prevalence of reproductive health problems does not vary in a consistent way by education, but women who have completed at least high school have a slightly lower prevalence level than other women. Reproductive health problems are much more common among Muslim women than among non-Muslim women. By caste/tribe, the prevalence ranges from 44 percent among scheduled-tribe women to 38 percent among women not belonging to a scheduled caste, a scheduled tribe, or an other backward class. Women from medium standard of living households report slightly higher prevalence of reproductive health problems than women from low or high standard of living households. The prevalence is somewhat higher among women who are self-employed and among those who have not worked in the past 12 months than among other women. The

Table 8.13 Treatment of reproductive health problems			
Among women with a reproductive health problem, percentage who sought advice or treatment from specific providers by residence, Maharashtra, 1999			
Provider	Urban	Rural	Total
Public medical sector	14.4	11.1	12.7
Government doctor	13.5	9.6	11.5
Public health nurse	0.4	0.7	0.6
ANM/LHV	1.2	2.0	1.6
Anganwadi worker	0.0	0.3	0.1
Other public medical sector	0.6	0.4	0.5
NGO worker	0.2	0.1	0.1
Private medical sector	42.2	30.9	36.2
Private doctor	40.7	29.1	34.6
Private nurse	1.2	0.9	1.0
Compounder/pharmacist	0.2	0.6	0.4
Vaidya/hakim/homeopath	1.2	0.4	0.8
Dai (TBA)	0.0	0.1	0.1
Traditional healer	0.0	0.5	0.3
Other private medical sector	0.1	0.1	0.1
Other	1.9	1.8	1.8
None	45.5	60.0	53.1
Number of women	1,009	1,125	2,134
<p>Note: Table includes currently married women who report abnormal vaginal discharge, symptoms of a urinary tract infection, painful intercourse, or bleeding after intercourse and women who are ever married but not currently married who report abnormal vaginal discharge or symptoms of a urinary tract infection. Percentages add to more than 100.0 because women could report treatment from multiple providers.</p> <p>ANM: Auxiliary nurse midwife; LHV: Lady health visitor; NGO: Nongovernmental organization; TBA: Traditional birth attendant</p>			

prevalence of reproductive health problems is higher for women with no children than for women with one or more children.

Among women who report any reproductive health problems, more than one-half (53 percent) have not seen anyone for advice or treatment (Table 8.13). The proportion of women who have not obtained advice or treatment is much higher in rural areas (60 percent) than in urban areas (46 percent). Overall, 77 percent of women in both urban and rural areas who obtained advice or treatment for their reproductive health problems were seen by someone in the private medical sector. Among women who sought advice or treatment, 74 percent saw a private doctor and 25 percent saw a government doctor.

NFHS–2 results in Maharashtra show that although two in every five currently married women report at least one reproductive health problem that could be symptomatic of a more serious reproductive tract infection, more than one-half of them bear the problem silently without seeking advice or treatment. These findings highlight the need to educate women regarding the symptoms and consequences of reproductive health problems and the urgent need to expand counselling and reproductive health services in both rural and urban areas.