

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 a village health nurse (VHN), is posted at a sub-centre to provide basic maternal and child health services to women and children either in their homes or in the health clinic. Her work is overseen by a sector health nurse (SHN) posted at the PHC. With regard to safe motherhood, the VHN 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 VHN is assisted by a male health worker (health inspector) whose duties

include motivating men to participate in the health and contraceptive programmes and educating men about reproductive tract and sexually transmitted infections. The VHN and SHN 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 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.

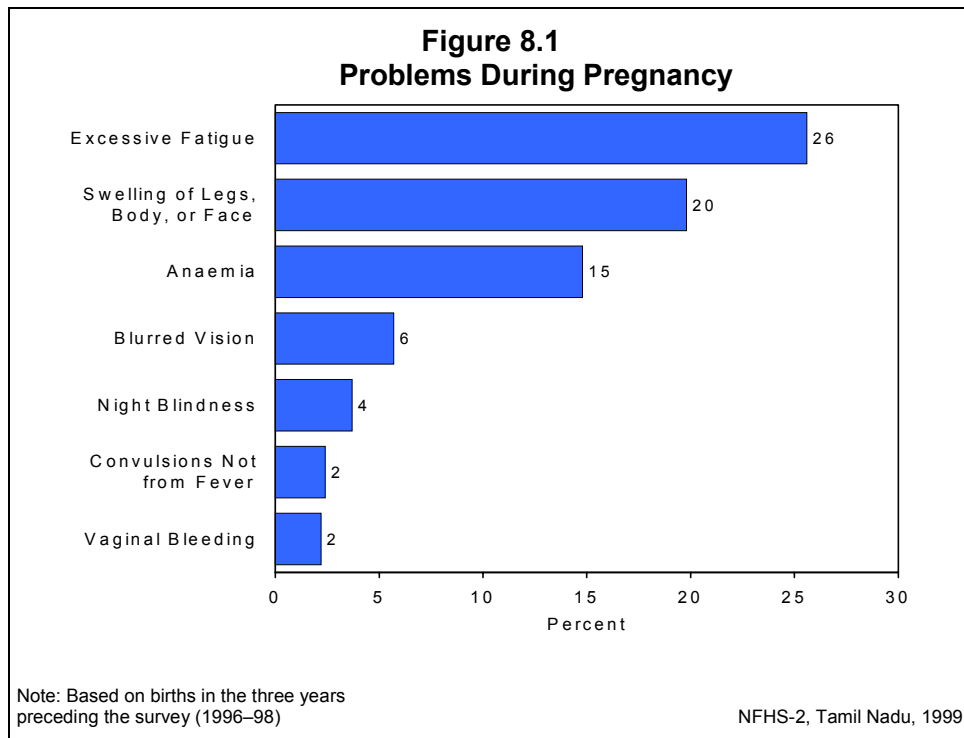
Problems During Pregnancy

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 (26 percent), swelling of the legs, body, or face (20 percent), and anaemia (15 percent). Six percent of women reported blurred vision, 4 percent reported night blindness, and 2 percent each reported convulsions not from fever and vaginal bleeding. Although urban-rural differentials in the prevalence of pregnancy complications are generally small, a higher proportion of urban than rural women reported having swelling of the legs, body, or face. In contrast, a higher proportion of rural women than urban women reported having night blindness, blurred vision, convulsions not from fever, excessive fatigue, and anaemia. The proportion of women reported having vaginal bleeding is about 2 percent in both rural and urban areas.

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, Tamil Nadu, 1999			
Problem during pregnancy	Urban	Rural	Total
Night blindness	2.0	4.6	3.7
Blurred vision	4.1	6.6	5.7
Convulsions not from fever	1.0	3.1	2.4
Swelling of the legs, body, or face	22.3	18.4	19.8
Excessive fatigue	24.3	26.3	25.6
Anaemia	13.7	15.4	14.8
Vaginal bleeding	2.4	2.1	2.2
Number of births	467	892	1,359

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



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 results for Tamil Nadu show that mothers received antenatal check-ups for almost all births (99 percent) during the three years preceding the survey (compared with 95 percent in NFHS-1). Eighty-four percent received check-ups from doctors and 10 percent from other health professionals outside the home. Only 4 percent received check-ups only at home from a health worker. Tamil Nadu ranked first, along with Kerala, in the proportion of women who received at least one antenatal check-up (99 percent), well above the average of 65 percent for all India.

Analysis of data shows that younger mothers age less than 20 are slightly less likely than mothers age 20–34 to obtain antenatal check-ups from doctors and more likely to obtain them from other health professionals. There are too few births to women age 35 and older to make meaningful comparisons. Antenatal check-ups are more common for first, second and third births than for fourth or fifth births. The level of antenatal care does not vary substantially between urban and rural areas; however, doctors are seen more for antenatal care in urban areas than in

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, Tamil Nadu, 1999

Background characteristic	Antenatal check-up only at home from health worker	Antenatal check-up outside home ¹ from:			No antenatal check-up	Missing	Total percent	Number of births
		Doctor	Other health professional	Traditional birth attendant, other				
Mother's age at birth								
< 20	4.9	78.3	14.7	0.5	0.9	0.7	100.0	263
20–34	4.1	86.1	8.5	0.0	1.0	0.3	100.0	1,070
35–49	(9.2)	(70.4)	(10.3)	(0.0)	(10.0)	(0.0)	100.0	26
Birth order								
1	1.4	89.9	7.7	0.2	0.2	0.5	100.0	582
2–3	4.6	83.6	10.7	0.0	0.9	0.2	100.0	654
4–5	18.0	61.9	16.8	0.0	3.3	0.0	100.0	106
Residence								
Urban	2.5	90.3	6.2	0.0	0.8	0.2	100.0	467
Rural	5.4	81.1	11.6	0.1	1.3	0.4	100.0	892
Chennai	0.4	91.2	6.8	0.0	0.4	1.2	100.0	78
Mother's education								
Illiterate	8.7	74.7	13.9	0.0	2.3	0.3	100.0	518
Literate, < middle school complete	2.5	86.1	10.2	0.0	0.3	0.8	100.0	329
Middle school complete	1.4	89.8	7.8	0.5	0.5	0.0	100.0	246
High school complete and above	0.9	95.6	2.9	0.0	0.4	0.1	100.0	266
Religion								
Hindu	4.9	83.8	9.9	0.1	1.0	0.4	100.0	1,179
Muslim	1.1	84.8	10.4	0.0	3.7	0.0	100.0	99
Christian	0.0	95.1	4.5	0.0	0.0	0.4	100.0	76
Caste/tribe								
Scheduled caste	7.5	74.8	16.7	0.0	1.1	0.0	100.0	337
Other backward class	3.2	87.5	7.5	0.1	1.2	0.5	100.0	994
Other ²	(0.0)	(92.0)	(8.0)	(0.0)	(0.0)	(0.0)	100.0	19
Standard of living index								
Low	6.6	74.5	16.1	0.2	2.1	0.5	100.0	527
Medium	3.2	88.9	7.1	0.0	0.6	0.3	100.0	631
High	1.3	96.7	1.4	0.0	0.6	0.0	100.0	183
Total	4.4	84.3	9.8	0.1	1.2	0.3	100.0	1,359

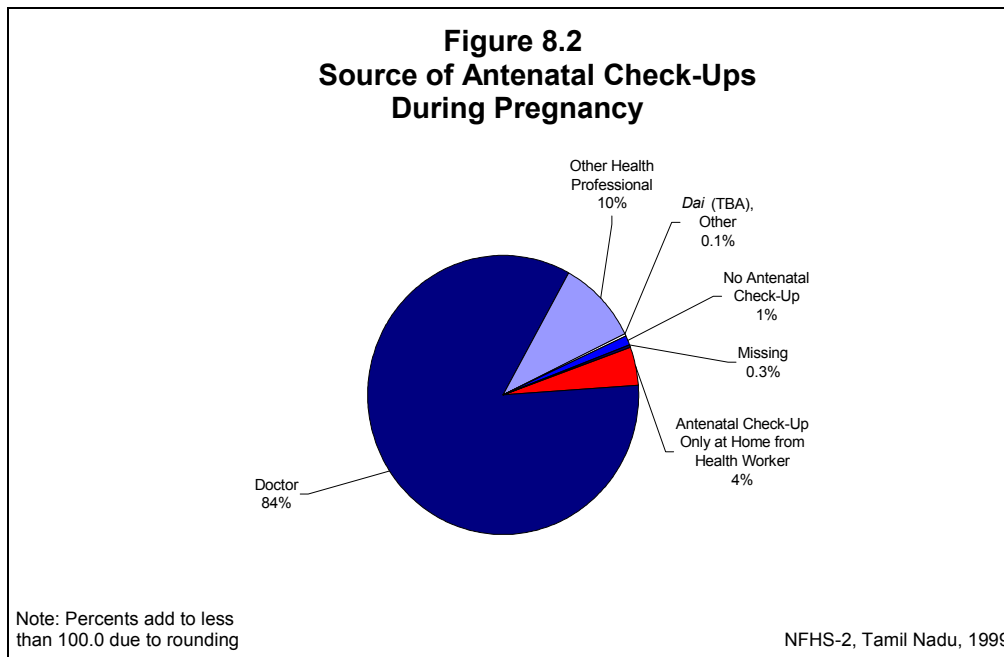
Note: Table includes only the two most recent births during the three years preceding the survey. Total includes 18 births of order 6 and above, 3 births to mothers belonging to other religions, 9 births to scheduled-tribe mothers, and 2 and 18 births with missing information on religion and the standard 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.

²Not belonging to a scheduled caste, a scheduled tribe, or an other backward class

rural areas. Education is positively associated with the use of antenatal care services, especially with antenatal check-ups from doctors. For example, the proportion of births for which the mother received antenatal check-ups from doctors is 75 percent for illiterate women and 96 percent for women who have completed high school. Antenatal check-ups from doctors are more common for births to Christian women (95 percent) than for births to Hindus (84 percent) or Muslims (85 percent). Compared with women of other religions, Hindu women are slightly more



likely to receive antenatal check-ups only at home, while Muslim women are slightly more likely not to receive any antenatal care for their births. Mothers from scheduled castes are less likely to obtain antenatal care from doctors and more likely to obtain it from other health professionals compared with mothers from other backward classes. Standard of living is positively associated with the use of antenatal check-ups, especially from doctors.

The high level of antenatal care in Tamil Nadu is commendable. Further coverage for older women, women of high parity, illiterate women, Muslim women, and women with a low standard of living will help to achieve universal coverage.

Reasons for Not Receiving Antenatal Check-ups

Due to the high level of antenatal care coverage in Tamil Nadu, there were only 16 births to mothers who did not have any antenatal check-ups. This number is too small to allow analysis of the reasons for not receiving antenatal check-ups.

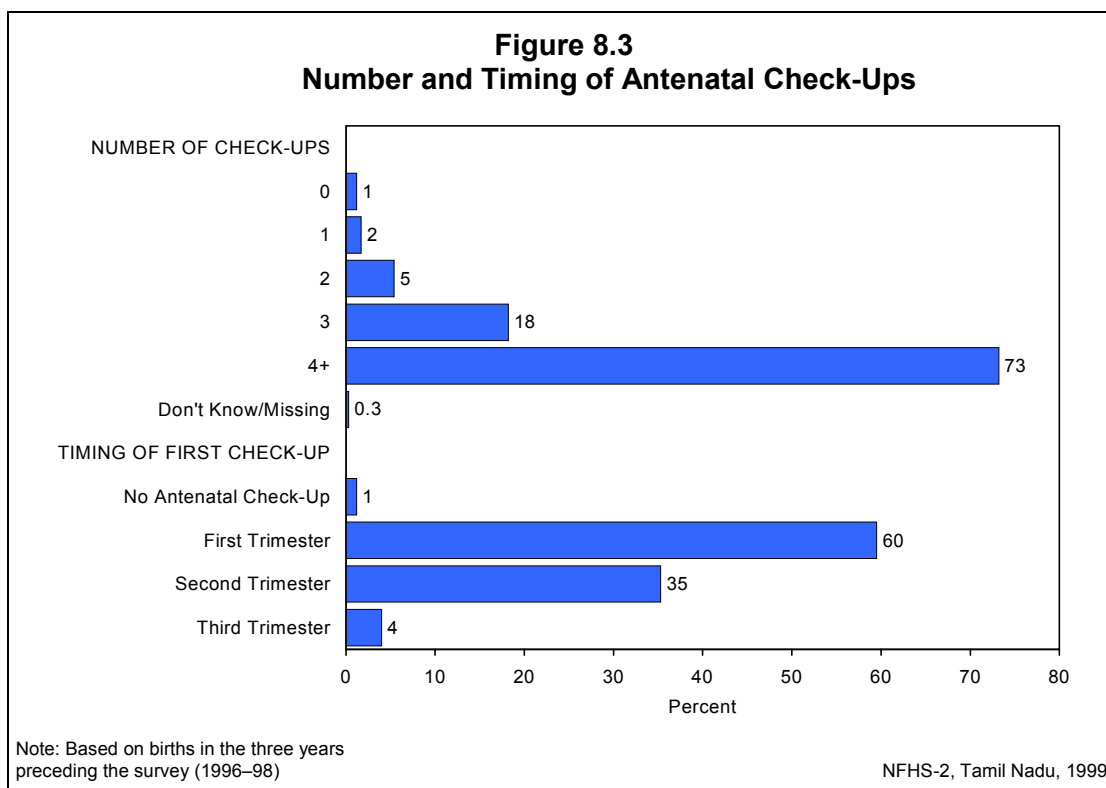
Number and Timing of Antenatal Check-Ups

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).

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 8.3 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 Tamil Nadu, mothers of 91 percent of births received at least three antenatal check-ups, up from 88 percent in NFHS-1, and 73 percent had at least four check-ups. Tamil Nadu ranks third in the proportion of mothers who received three or more antenatal check-ups (91 percent), next to Kerala (98 percent) and Goa (96 percent), and is far above the all-India average of 44 percent. The median number of check-ups for those who received at least one check-up was 4.8. There are some differences by residence in the number of antenatal check-ups. At least three antenatal check-ups were received for 96 percent of births to mothers living in urban areas, compared with 89 percent of births to mothers living in rural areas. Among births to mothers who received at least one antenatal check-up, the median number of check-ups was 5.7 in urban areas and 4.4 in rural

Table 8.3 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, Tamil Nadu, 1999			
Number and timing of check-ups	Urban	Rural	Total
Number of antenatal check-ups			
0	0.8	1.3	1.2
1	1.1	2.0	1.7
2	2.0	7.2	5.4
3	12.2	21.4	18.2
4+	83.7	67.7	73.2
Don't know/missing	0.2	0.4	0.3
Total percent	100.0	100.0	100.0
Median number of check-ups (for those who received at least one antenatal check-up)	5.7	4.4	4.8
Stage of pregnancy at the time of first antenatal check-up			
No antenatal check-up	0.8	1.3	1.2
First trimester	71.5	53.2	59.5
Second trimester	26.4	40.0	35.3
Third trimester	1.3	5.5	4.0
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)	2.9	3.4	3.2
Number of births	467	892	1,359
Note: Table includes only the two most recent births during the three years preceding the survey.			



areas. The shorter distances to antenatal-care services and the comparative ease of travelling in urban areas, as well as 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.

Sixty 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 sharply from 43 percent in NFHS-1), and another 35 percent were to mothers who received their first check-up in the second trimester. Tamil Nadu ranks third in the proportion of mothers who received an antenatal check-up in the first trimester of pregnancy (60 percent), next to Kerala (81 percent) and Goa (73 percent), and above the average of 33 percent of all India. Antenatal check-ups during the first trimester were much more common in urban areas (72 percent) than in rural areas (53 percent). The median timing of the first antenatal check-up was 2.9 months in urban areas, 3.4 months in rural areas, and 3.2 months in the state as a whole (compared with 4.1 months in NFHS-1). Even though there has been considerable improvement in the timeliness of the first antenatal check-up, delays in receiving the first check-up have to be further reduced, especially in rural areas.

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 8.4 presents

Table 8.4 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, Tamil Nadu, 1999			
Components of antenatal check-ups	Urban	Rural	Total
Antenatal measurements/tests			
Weight measured	93.5	85.0	87.9
Height measured	72.3	57.5	62.6
Blood pressure checked	91.3	80.4	84.2
Blood tested	85.6	70.6	75.8
Urine tested	87.6	71.5	77.1
Abdomen examined	94.6	87.9	90.2
Internal examination	80.2	63.8	69.4
X-ray	8.7	5.4	6.6
Sonography or ultrasound	41.4	25.7	31.1
Amniocentesis	5.4	7.5	6.8
Antenatal advice			
Diet	93.1	92.6	92.8
Danger signs of pregnancy	50.6	38.9	42.9
Delivery care	80.4	77.5	78.5
Newborn care	82.7	79.8	80.8
Family planning	54.1	53.6	53.8
Number of births for which the mother received at least one antenatal check-up	462	877	1,339
Note: Table includes only the two most recent births during the three years preceding the survey.			

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.

Among all births for which mothers received antenatal check-ups, mothers had an abdominal examination in 90 percent of cases and had their weight measured in 88 percent of cases. Other common components of antenatal check-ups were blood pressure checks (84 percent), urine tests (77 percent), blood tests (76 percent), internal examinations (69 percent), and height measurements (63 percent). Mothers of 31 percent of births had a sonogram or ultrasound check-up, while mothers had X-rays and amniocentesis for 7 percent of their births. All of these measurements or tests except for amniocentesis were performed more often for women living in urban areas than for women living in rural areas. The differences by residence are most pronounced for internal examinations (80 percent in urban areas and 64 percent in rural areas).

Table 8.4 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 93 percent of cases). Advice on newborn care (81 percent), delivery care (79 percent), and family planning (54 percent) was given less frequently to mothers. Mothers were least likely to receive advice on danger signs of pregnancy (43 percent). The proportions receiving advice on each of these topics is 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 8.5 shows the distribution of births by the number of tetanus toxoid injections given to mothers, according to selected background characteristics. Tetanus toxoid coverage in Tamil Nadu is nearly universal. For births in the three years preceding the survey, 95 percent of mothers received at least two tetanus toxoid injections during pregnancy and another 2 percent received one injection; only 2 percent of mothers did not receive any tetanus toxoid injections. The proportion of mothers who received two or more tetanus toxoid injections during their pregnancies rose from 91 to 95 percent between NFHS-1 and NFHS-2. Among all the states, Tamil Nadu ranks first in the level of coverage with two or more tetanus toxoid injections (95 percent), well above the average of 67 percent for all of India.

Tetanus toxoid coverage (two or more injections) does not vary much by residence, religion, and caste or tribe. It varies slightly by birth order, mother's education, and the standard of living of the household. For example, at least two tetanus toxoid injections were received by mothers for 98 percent of first births, compared with 87 percent of births of order four or five. Tetanus toxoid coverage increases with education, from 93 percent for births to illiterate women to 99 percent for births to women who have completed at least a high school education. It also increases with an increasing standard of living of the household, from 94 percent for births to

Table 8.5 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, Tamil Nadu, 1999

Background characteristic	Number of tetanus toxoid injections				Total percent	Percent-age given iron and folic acid tablets or syrup	Number of births	Percent-age who received supply for 3+ months ¹	Percent-age who consumed all the supply ¹	Number of births whose mothers received IFA
	None	One	Two or more	Don't know/ missing						
Mother's age at birth										
< 20	1.9	1.8	96.3	0.0	100.0	90.6	263	85.7	78.2	238
20–34	2.0	2.4	95.4	0.1	100.0	94.2	1,070	91.5	81.2	1,008
35–49	(14.4)	(0.0)	(85.6)	(0.0)	100.0	(76.4)	26	*	*	20
Birth order										
1	0.7	0.7	98.4	0.2	100.0	95.0	582	90.7	82.7	552
2–3	1.9	3.2	95.0	0.0	100.0	93.3	654	90.1	78.7	610
4–5	8.8	4.4	86.7	0.0	100.0	86.3	106	89.2	80.6	91
Residence										
Urban	2.1	3.0	94.6	0.3	100.0	92.9	467	89.0	82.8	434
Rural	2.3	1.9	95.9	0.0	100.0	93.3	892	91.0	79.4	832
Chennai	1.2	2.0	96.4	0.4	100.0	98.0	78	68.6	89.0	77
Mother's education										
Illiterate	4.0	2.6	93.1	0.2	100.0	91.2	518	86.7	75.7	473
Literate, < middle school complete	1.4	2.7	95.9	0.0	100.0	92.8	329	90.8	80.8	306
Middle school complete	1.9	2.3	95.7	0.1	100.0	93.2	246	91.8	82.9	229
High school complete and above	0.0	1.0	99.0	0.0	100.0	97.3	266	95.0	86.9	259
Religion										
Hindu	2.2	2.2	95.5	0.1	100.0	93.3	1,179	90.2	80.7	1,101
Muslim	3.7	3.5	92.8	0.0	100.0	93.7	99	91.6	78.8	93
Christian	1.5	1.9	96.6	0.0	100.0	89.5	76	93.0	80.2	68
Caste/tribe										
Scheduled caste	2.6	1.5	95.6	0.3	100.0	92.6	337	89.5	71.1	312
Other backward class	2.0	2.6	95.4	0.0	100.0	93.3	994	90.6	83.4	928
Other ²	(0.0)	(0.0)	(100.0)	(0.0)	100.0	(100.0)	19	(90.8)	(92.5)	19
Standard of living index										
Low	3.2	2.3	94.3	0.2	100.0	90.6	527	88.3	77.1	478
Medium	1.8	2.6	95.6	0.0	100.0	94.9	631	90.1	81.6	599
High	0.6	0.8	98.6	0.0	100.0	95.8	183	95.6	89.1	175
Total	2.2	2.3	95.4	0.1	100.0	93.2	1,359	90.3	80.5	1,266

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes a small number of births of order 6 and above, births to mothers belonging to other religions, births to scheduled-tribe mothers, and births with missing information on religion, caste/tribe, and the standard of living index, which are not shown separately.

() Based on 25–49 unweighted cases

*Percentage not shown; based on fewer than 25 unweighted cases

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

²Not belonging to a scheduled caste, a scheduled tribe, or an other backward class

women living in households with a low standard of living to 99 percent for births to mothers living in households with a high standard of living.

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 8.5 shows that mothers in Tamil Nadu received IFA supplements for 93 percent of births. This level is much higher than the national average of 58 percent, and is second only to Kerala and Goa (both 95 percent). IFA coverage in Tamil Nadu is lower for births to women under age 20, mothers of higher-order births, illiterate women, Christian women, and women with a low standard of living. IFA coverage is at the same level (93 percent) in rural and urban areas, but is somewhat higher in Chennai (98 percent).

Not all mothers who received IFA received the recommended three-month supply of tablets or syrup. Among births to women who received IFA tablets or syrup during pregnancy, 90 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 positively related with age of mother, mother's education, and standard of living. The proportion of women who received at least a three-month supply of IFA tablets or syrup is much lower in Chennai (69 percent) than in urban (89 percent) or rural areas (91 percent); however, the proportion that consumed all the supply received is lowest in rural areas. Differentials by religion are small. Although there is no real difference by caste in the proportion of mothers who received at least a three-month supply of IFA tablets or syrup during pregnancy, the proportion that consumed all the supply received is substantially lower for scheduled caste women than for women from other backward classes.

Although the distribution of IFA supplements is very high (93 percent) in Tamil Nadu, there is room for improvement. Increasing the proportion of pregnant women who are given the recommended three-month supply, especially those in Chennai, would help. Changing the behaviour of pregnant women in the consumption of IFA tablets through intensified information,

education and counselling is also needed for the prevention of nutritional anaemia among pregnant women.

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 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 8.6 and Figure 8.4 show that 79 percent of births in Tamil Nadu took place in health facilities (up from 64 percent in NFHS-1), 13 percent took place in women's own homes, and 7 percent took place in parents' homes. Births occurring in health facilities were about equally divided between those that took place in private health facilities and those that took place in public institutions (such as government-operated district, *taluk*, town, or municipal hospitals, Primary Health Centres, and sub-centres). In NFHS-1, the proportion of births taking place in public health facilities (34 percent) was slightly higher than the proportion in private health facilities (30 percent). This shows evidence of a slight shift towards greater use of private health facilities. The NFHS-2 overall estimate of 79 percent of births in health facilities is higher than the 1997 SRS estimate of 68 percent.

In NFHS-2, institutional deliveries are slightly more common among mothers age 20–34 (81 percent) than mothers under age 20 (76 percent). The proportion of births that took place in health facilities is considerably higher in urban areas (93 percent) than in rural areas (73 percent), but is highest in Chennai (98 percent). The proportion of births that took place in private facilities is marginally higher than the proportion that took place in public facilities in both rural and urban areas; however, in Chennai, the proportion of births that took place in public health facilities (67 percent) is more than double that in private health facilities (31 percent). Institutional deliveries are negatively related with order of birth; the proportion of institutional deliveries decreases from 89 percent for first births to 57 percent for births of order four or five. Institutional deliveries—particularly in private health facilities—increase sharply with education of women and the standard of living. The proportion of institutional deliveries is higher for Christians (97 percent) than Muslims (84 percent) or Hindus (78 percent). Women from other backward classes have a substantially higher proportion of institutional births (83 percent), particularly in private institutions, than women belonging to a scheduled caste (69 percent), who are more likely to deliver in public institutions.

The proportion of institutional births is positively related to the number of antenatal check-ups, rising from 63 percent of births to mothers with two antenatal check-ups to 85 percent of births to mothers with four or more antenatal check-ups. Interestingly, the proportion of births that took place in public health facilities does not vary much as the number of antenatal check-ups increases; all the difference lies in the increased use of private facilities. Several factors are likely to contribute to the positive relationship between antenatal check-ups and delivery in a health facility. Women who receive more antenatal check-ups are more likely than other women to deliver in a health facility because their antenatal care providers advised them to do so. Conversely, women who register with a health facility, particularly with a private health facility for delivery may be called for regular antenatal check-ups by the facility. Another important

Table 8.6 Place of delivery

Percent distribution of births during the three years preceding the survey by place of delivery, according to selected background characteristics, Tamil Nadu, 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	41.4	1.3	32.9	11.2	12.6	0.5	100.0	263
20-34	37.4	1.1	42.0	13.2	5.8	0.5	100.0	1,070
35-49	(40.6)	(0.0)	(27.6)	(22.7)	(0.0)	(9.1)	100.0	26
Birth order								
1	37.4	1.4	50.1	3.4	7.3	0.4	100.0	582
2-3	41.1	0.8	33.6	16.6	7.4	0.6	100.0	654
4-5	27.0	2.2	28.2	37.0	4.5	1.1	100.0	106
Residence								
Urban	44.4	1.3	46.8	4.4	3.0	0.1	100.0	467
Rural	35.0	1.1	36.4	17.5	9.1	0.9	100.0	892
Chennai	66.6	0.4	31.4	0.4	0.8	0.4	100.0	78
Mother's education								
Illiterate	40.2	0.5	22.7	24.6	11.0	1.2	100.0	518
Literate, < middle school complete	40.2	2.1	41.1	10.4	5.7	0.5	100.0	329
Middle school complete	47.9	0.6	41.1	4.4	5.9	0.0	100.0	246
High school complete and above	22.9	1.7	71.2	1.8	1.9	0.5	100.0	266
Religion								
Hindu	39.4	0.8	37.6	14.1	7.3	0.7	100.0	1,179
Muslim	29.4	3.4	50.9	9.2	7.0	0.0	100.0	99
Christian	30.2	3.1	63.6	0.0	3.2	0.0	100.0	76
Caste/tribe								
Scheduled caste	42.9	0.8	25.0	18.5	11.7	1.1	100.0	337
Other backward class	36.7	1.3	44.8	11.1	5.6	0.5	100.0	994
Other ²	(47.7)	(0.0)	(50.6)	(0.0)	(0.0)	(1.6)	100.0	19
Standard of living index								
Low	45.1	0.9	22.8	20.3	10.3	0.7	100.0	527
Medium	38.8	1.7	43.0	9.9	5.7	0.8	100.0	631
High	15.8	0.0	80.8	1.3	2.1	0.0	100.0	183
Number of antenatal check-ups								
2	40.3	4.9	17.5	25.9	9.8	1.6	100.0	74
3	40.9	0.0	26.7	21.6	9.5	1.4	100.0	248
4+	38.2	1.1	45.6	8.7	6.0	0.4	100.0	995
Total	38.2	1.1	40.0	13.0	7.0	0.6	100.0	1,359

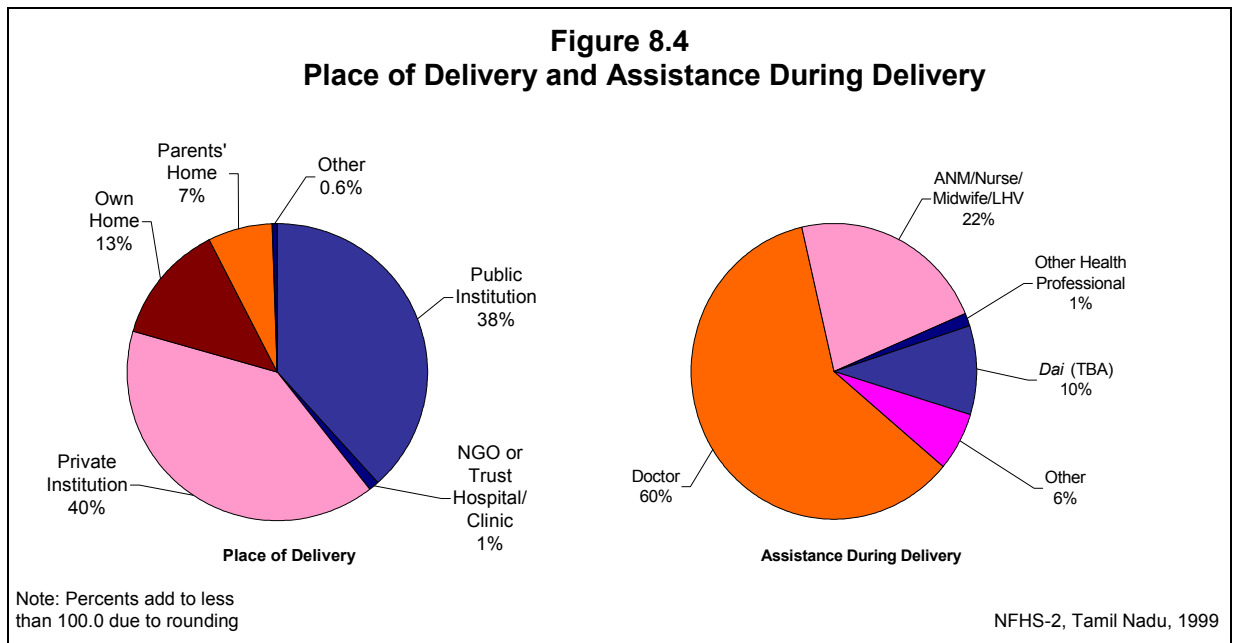
Note: Table includes only the two most recent births during the three years preceding the survey. Total includes 18 births of birth order 6 and above, 3 births to mothers belonging to other religions, 9 births to scheduled-tribe mothers, 16 and 23 births to mothers with no antenatal check-ups and one antenatal check-up, respectively, and 2, 18, and 4 births with missing information on religion, 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

²Not belonging to a scheduled caste, a scheduled tribe, or an other backward class



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.

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 and the standard of living are both strongly negatively associated with delivery in women's own homes as well as parents' homes. Delivery either in the woman's home or her parents' home is more common in rural areas than in urban areas. Home deliveries are also more common among Hindus and Muslims than among Christians.

Assistance During Delivery

Table 8.7 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. Eighty-four percent of births in the three years preceding the survey were attended by a health professional, including 60 percent by a doctor and 22 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 Tamil Nadu, 10 percent of births were attended by a traditional birth attendant (TBA), and 6 percent 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 69 percent in NFHS-1 to 84 percent in NFHS-2.

The proportion of births attended by a doctor is lower for very young mothers (under 20) than for those age 20–34. The differentials are much larger by birth order, ranging from 44 percent for births of order four or five to 71 percent for first-order births. Births are much more likely to be assisted by a doctor in urban areas (75 percent) than in rural areas (52 percent), with 76 percent of births in Chennai assisted by doctors. The proportion of births delivered by a

Table 8.7 Assistance during delivery

Percent distribution of births during the three years preceding the survey by attendant assisting during delivery, according to selected background characteristics, Tamil Nadu, 1999

Background characteristic	Attendant assisting during delivery ¹					Total percent	Number of births
	Doctor	ANM/nurse/ midwife/ LHV	Other health professional	Dai (TBA)	Other		
Mother's age at birth							
< 20	49.3	29.5	1.8	11.7	7.7	100.0	263
20-34	62.9	20.7	1.2	9.4	5.8	100.0	1,070
35-49	(58.3)	(9.9)	(4.3)	(13.8)	(13.7)	100.0	26
Birth order							
1	71.0	19.5	0.8	5.2	3.5	100.0	582
2-3	53.8	26.0	2.0	12.0	6.2	100.0	654
4-5	44.4	16.4	1.1	19.0	19.1	100.0	106
Residence							
Urban	75.0	19.7	0.2	3.3	1.8	100.0	467
Rural	52.4	23.6	2.0	13.4	8.7	100.0	892
Chennai	76.0	22.4	0.0	1.2	0.4	100.0	78
Mother's education							
Illiterate	42.8	24.1	3.0	16.3	13.7	100.0	518
Literate, < middle school complete	61.5	26.6	1.1	8.2	2.6	100.0	329
Middle school complete	67.4	24.7	0.0	6.9	1.0	100.0	246
High school complete and above	85.5	10.8	0.0	2.4	1.4	100.0	266
Religion							
Hindu	58.2	22.4	1.6	11.0	6.8	100.0	1,179
Muslim	65.6	27.5	0.0	2.3	4.7	100.0	99
Christian	85.7	11.1	0.0	3.2	0.0	100.0	76
Caste/tribe							
Scheduled caste	45.9	27.0	1.8	16.1	9.2	100.0	337
Other backward class	64.9	20.7	1.3	8.1	5.0	100.0	994
Other ²	(71.7)	(26.6)	(0.0)	(0.0)	(1.6)	100.0	19
Standard of living index							
Low	44.5	27.3	2.3	16.2	9.7	100.0	527
Medium	64.5	22.2	1.1	7.2	4.9	100.0	631
High	91.6	7.2	0.0	1.3	0.0	100.0	183
Number of antenatal check-ups							
2	35.2	27.6	6.5	19.4	11.4	100.0	74
3	50.6	21.7	1.4	15.3	11.0	100.0	248
4+	65.2	22.3	0.8	7.6	4.0	100.0	995
Place of delivery							
Public health facility	61.6	38.4	0.0	0.0	0.0	100.0	520
Private health facility	88.4	11.5	0.0	0.1	0.0	100.0	543
Own home	2.0	12.7	7.4	45.0	32.9	100.0	177
Parents' home	2.5	12.6	6.3	53.7	24.9	100.0	95
Total	60.1	22.2	1.4	9.9	6.3	100.0	1,359

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes 18, births of birth order 6 and above, 3 births to mothers belonging to other religions, 9 births to scheduled-tribe mothers, 16 and 23 births to mothers with no antenatal check-ups and one antenatal check-up, respectively, 16 and 9 births delivered in nongovernmental organization or trust/hospitals and 'other' places, respectively, and 2, 18, and 4 births with missing information on religion, the standard of living index, and number of antenatal check-ups, respectively, which are not shown separately.

ANM: Auxiliary nurse midwife; LHV: Lady health visitor; TBA: Traditional birth attendant

() Based on 25-49 unweighted cases

¹If the respondent mentioned more than one attendant, only the most qualified attendant is shown.

²Not belonging to a scheduled caste, a scheduled tribe, or an other backward class

doctor increases sharply with the mother's level of education and the household standard of living. By religion, the proportion is higher for Christians (86 percent) than Muslims (66 percent) and Hindus (58 percent). The proportion of births delivered by a doctor is significantly higher for women belonging to an other backward class (65 percent) than scheduled-caste women (46 percent). It is positively associated with the number of antenatal check-ups, increasing from 35 percent for mothers who had two antenatal check-ups to 65 percent for mothers who had four or more antenatal check-ups. By place of delivery, the proportion of births attended by a doctor was 62 percent for births in public health facilities, 88 percent for births in private facilities, 2 percent for births occurring in the woman's own home, and 3 percent for births occurring in her parents' home. Among births delivered at home (the respondents' or their parents' homes), about half were attended by a TBA, between one-quarter and one-third by an 'other' attendant, and only 21–22 percent by a health professional.

Delivery Characteristics

Table 8.8 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, 16 percent of children born in Tamil Nadu in the past three years were delivered by caesarian section. The proportion of deliveries by caesarian section was higher in urban areas (23 percent) than in rural areas (12 percent). It has doubled from 8 percent of births in NFHS-1 to 16 percent in NFHS-2 and it is much higher than the NFHS-2 national estimate of 7 percent.

<u>Table 8.8 Characteristics of births</u>			
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, Tamil Nadu, 1999			
Characteristic of births	Urban	Rural	Total
Percentage delivered by caesarian section	22.8	12.2	15.8
Birth weight			
< 2.5 kg	13.1	12.2	12.5
2.5 kg or more	74.7	52.1	59.9
Don't know/missing	2.4	5.2	4.2
Not weighed	9.8	30.5	23.4
Total percent	100.0	100.0	100.0
Size at birth			
Large	20.5	17.9	18.8
Average	48.9	49.7	49.4
Small	28.6	28.3	28.4
Very small	2.0	4.0	3.3
Don't know/missing	0.1	0.0	0.0
Number of births	467	892	1,359
Note: Table includes only the two most recent births during the three years preceding the survey.			

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).

In Tamil Nadu, 23 percent of babies born in the three years preceding the survey were not weighed at birth. The proportion not weighed is 10 percent in urban areas and 31 percent in rural areas. Even for babies that were weighed, 4 percent of the mothers did not remember the weight. Therefore, the resulting sample of 72 percent of births for which weights are reported is subject to a selection bias, so the results should be interpreted with caution. Among children for whom birth weights are reported, 17 percent (compared with 23 percent in NFHS-1) weighed less than 2.5 kilograms. The proportion weighing less than 2.5 kilograms is lower in urban areas (15 percent) than in rural areas (19 percent).

According to mothers' estimates, 19 percent of births in the three years preceding the survey were large, 49 percent were of average size, 28 percent were small, and 3 percent were very small. The proportion of babies reported as small or very small was 31–32 percent in urban and rural areas.

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 8.9 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 delivery, and the percentage whose mothers received specific recommended components of care during the check-up. Because only 21 percent of births in Tamil Nadu do not take place in institutions, information for some background variables is not shown, due to small sample sizes.

Fifty-three 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 19 percent of check-ups took place within two days of birth and 53 percent took place within one week of birth. Noninstitutional births to very young mothers were less likely to be followed by a postpartum check-up than births to mothers age 20–34. The likelihood of a birth being followed by a postpartum check-up was higher for mothers in households with a medium standard of living than for mothers in households with a low standard of living. Births delivered with the assistance of a health professional were more likely to be followed by a postpartum check-up than were births delivered with the assistance of a TBA or some other non-health professional. These results indicate that women are more likely to have a postpartum check-up if they have interaction with health providers during delivery, even if they do not give birth in a health facility.

Table 8.9 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, Tamil Nadu, 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
			Percent-age seen within two days of birth	Percent-age 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	46.3	64	(27.9)	(60.0)	(56.3)	(60.1)	(72.1)	(71.9)	30
20–34	55.4	209	17.4	51.8	49.9	64.3	75.5	77.5	116
Birth order									
1	52.5	65	(24.0)	(58.5)	(37.9)	(37.9)	(76.0)	(72.2)	34
2–3	55.4	160	20.1	54.4	58.6	73.2	78.6	85.2	89
4–5	(50.0)	45	*	*	*	*	*	*	23
Residence									
Urban	(63.8)	35	*	*	*	*	*	*	22
Rural	51.4	246	18.0	50.0	51.0	62.3	73.6	73.6	127
Mother's education									
Illiterate	50.5	190	13.4	46.8	48.3	61.8	72.9	74.0	96
Literate, < middle school complete	(50.2)	55	*	*	*	*	*	*	27
Caste/tribe									
Scheduled caste	53.1	105	(21.3)	(53.1)	(42.5)	(57.6)	(70.2)	(70.2)	56
Other backward class	54.3	171	17.8	52.7	55.7	65.6	77.1	78.3	93
Standard of living index									
Low	50.3	165	14.3	48.5	47.1	58.6	71.3	72.8	83
Medium	56.6	104	28.2	59.5	55.9	69.8	80.0	79.8	59
Assistance during delivery									
Doctor/ANM/nurse/midwife/LHV ¹	60.8	61	(51.4)	(80.9)	(65.1)	(71.0)	(90.3)	(87.0)	37
Dai (TBA)	49.6	135	10.6	46.6	41.5	55.7	71.6	75.2	67
Other	52.8	86	(5.1)	(39.6)	(53.0)	(66.2)	(66.1)	(65.9)	45
Total	53.0	281	19.1	53.0	50.8	62.7	74.6	75.3	149

Note: Table includes only the two most recent births during the three years preceding the survey. Total includes a small number of births to women age 35–49, births of birth order 6 and above, births to women whose education is middle school and high school complete, births to scheduled-tribe women, births from households with a high standard of living index, and births with missing information on religion and the standard of living index, 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

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, 51 percent reported having an abdominal examination. Seventy-five percent each received advice on baby care and breastfeeding and 63 percent received family planning advice. Mothers belonging to an other backward class and those belonging to households with a medium standard of living were more likely to receive each of the components of a postpartum check-up than mothers belonging to scheduled castes or those belonging to households with a low standard of living.

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 9 percent of births, the mother reported massive vaginal bleeding and for 6 percent of births, the mother reported a very high fever following the birth (Table 8.10). These proportions do not vary much by age, birth order, or residence, although massive vaginal bleeding is relatively high in Chennai (15 percent). Massive vaginal bleeding is particularly uncommon among births occurring at the parents' home and those attended by TBAs.

Table 8.10 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, Tamil Nadu, 1999			
Background characteristic	Massive vaginal bleeding	Very high fever	Number of births
Residence			
Urban	10.7	6.9	452
Rural	7.8	5.1	847
Chennai	14.8	6.9	76
Mother's age at birth			
< 20	5.9	5.4	250
20–34	9.7	5.7	1,023
35–49	(0.0)	(9.1)	26
Birth order			
1	9.6	4.2	555
2–3	8.0	6.9	622
4–5	9.2	6.8	103
Place of delivery			
Public health facility	10.0	5.2	496
Private health facility	8.7	4.8	521
Own home	9.0	7.6	172
Parents' home	2.7	8.2	87
Assistance during delivery			
Doctor	8.2	4.8	782
ANM/nurse/midwife/LHV	12.7	6.2	287
<i>Dai</i> (TBA)	3.9	6.5	128
Other ¹	7.0	9.8	85
Total	8.8	5.7	1,299
<p>Note: Table includes only the two most recent births during the 2–35 months preceding the survey. Total includes 18 births of birth order 6 and above, 14 and 7 births delivered in nongovernmental organization or trust hospitals/clinics and 'other' places, respectively, and 18 births assisted by 'other' health professionals, which are not shown separately.</p> <p>ANM: Auxiliary nurse midwife; LHV: Lady health visitor; TBA: Traditional birth attendant () Based on 25–49 unweighted cases ¹Includes missing</p>			

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, 1997:2). 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 8.11 shows the prevalence of different reproductive health problems among women in Tamil Nadu by background characteristics. Nineteen percent of ever-married women reported

Table 8.11 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, Tamil Nadu, 1999

Background characteristic	Ever-married women								Number of ever-married women	Currently married women			Number of 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		Painful intercourse (often)	Bleeding after intercourse (ever) ¹	Any reproductive health problem	
		Itching or irritation	Bad odour	Severe lower abdominal pain ¹	Fever	Other problem							
Age													
15-19	15.6	6.8	2.0	10.1	3.4	1.4	11.4	21.5	245	13.9	2.0	28.5	242
20-24	18.6	8.9	3.9	12.8	3.5	3.5	10.2	22.6	774	10.0	3.1	27.4	759
25-29	20.9	10.9	3.5	15.8	5.2	4.5	13.1	26.8	960	12.1	1.9	32.3	910
30-34	21.2	11.5	4.1	14.0	6.3	4.9	12.6	27.0	828	9.8	1.8	29.9	764
35-39	18.5	10.9	3.0	13.6	4.1	2.1	12.5	23.5	729	6.3	3.5	26.2	637
40-44	17.8	10.6	3.4	12.6	6.2	2.4	11.8	21.4	616	3.8	0.5	23.3	516
45-49	12.3	7.0	2.3	8.1	2.5	1.6	13.1	20.5	525	1.4	2.5	23.0	417
Residence													
Urban	18.7	9.5	2.9	12.7	3.7	3.7	10.3	23.1	1,620	8.1	3.1	27.9	1,497
Rural	18.5	10.3	3.6	13.3	5.2	3.0	13.1	24.4	3,056	8.7	1.8	27.8	2,748
Chennai	22.5	11.9	3.4	17.5	2.0	2.2	10.3	26.4	289	10.6	0.3	30.0	271
Education													
Illiterate	19.9	10.9	4.5	14.7	5.9	3.3	14.0	25.5	2,221	9.3	2.1	29.2	1,943
Literate, < middle school complete	18.6	9.9	2.2	13.0	4.5	3.1	11.8	24.2	1,085	8.5	1.5	27.8	993
Middle school complete	19.1	10.5	3.5	11.1	4.0	3.9	10.4	24.2	629	8.5	3.2	29.1	598
High school complete and above	14.1	7.0	1.7	10.0	1.8	2.7	8.6	18.5	741	6.2	2.9	23.1	711
Religion													
Hindu	18.6	10.0	3.5	13.1	4.9	3.3	12.4	24.1	4,145	8.4	2.2	28.0	3,759
Muslim	17.4	10.0	1.8	12.7	2.4	3.3	9.2	20.6	277	10.7	2.7	24.8	252
Christian	18.8	9.1	3.1	12.8	4.0	3.1	10.4	23.7	242	6.9	2.0	27.5	223
Caste/tribe													
Scheduled caste	19.9	10.9	4.7	13.8	5.9	3.5	13.4	25.4	1,089	9.9	2.0	29.2	977
Scheduled tribe	(9.2)	(3.1)	(0.0)	(9.2)	(6.2)	(3.1)	(6.1)	(12.3)	39	(6.6)	(0.0)	(19.8)	36
Other backward class	18.3	9.7	2.9	12.9	4.3	3.2	11.9	23.7	3,469	8.2	2.4	27.7	3,157
Other	17.8	13.0	3.7	14.0	5.4	0.8	9.0	19.6	79	4.8	0.4	19.9	75

Contd...

Table 8.11 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, Tamil Nadu, 1999

Background characteristic	Ever-married women								Number of ever-married women	Currently married women			Number of 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		Painful intercourse (often)	Bleeding after intercourse (ever) ¹	Any reproductive health problem	
		Itching or irritation	Bad odour	Severe lower abdominal pain ¹	Fever	Other problem							
Standard of living index													
Low	20.9	11.2	4.7	15.1	5.9	3.6	14.4	26.9	1,756	10.5	2.0	31.1	1,494
Medium	19.1	10.2	2.7	13.1	4.5	3.6	11.8	24.4	2,168	8.1	2.4	28.5	2,033
High	11.1	6.3	1.6	7.5	1.9	1.3	8.0	15.6	704	4.9	2.3	19.0	676
Work status													
Working in family farm/business	17.4	8.5	2.2	12.5	6.2	2.5	15.8	25.9	488	8.8	2.1	29.2	445
Employed by someone else	22.5	12.5	4.7	15.7	6.4	4.5	13.7	28.0	1,834	8.6	2.0	31.2	1,559
Self-employed	14.8	8.6	3.4	9.7	3.2	3.3	7.0	19.3	195	12.4	1.3	27.9	171
Not worked in past 12 months	15.8	8.3	2.5	11.3	3.0	2.4	10.5	20.5	2,160	8.0	2.5	25.0	2,070
Number of children ever born													
0	19.7	10.2	3.7	15.2	4.5	3.6	14.3	25.8	479	11.1	0.9	29.8	422
1	15.2	6.7	3.4	10.6	3.6	2.7	9.0	20.3	902	8.7	2.1	25.0	810
2-3	20.2	11.2	3.5	13.7	4.8	3.9	12.6	25.5	2,290	9.0	2.7	29.7	2,120
4-5	17.8	10.1	2.7	13.2	5.5	2.2	13.1	22.9	780	7.2	2.0	25.6	705
6+	15.5	9.5	3.6	10.6	5.5	1.5	12.0	22.3	225	1.1	1.3	23.0	188
All ever-married women	18.6	10.0	3.4	13.1	4.7	3.2	12.2	23.9	4,676	NA	NA	NA	NA
All currently married women	18.6	9.6	3.1	13.0	4.5	3.2	12.3	24.2	4,245	8.5	2.2	27.8	4,245

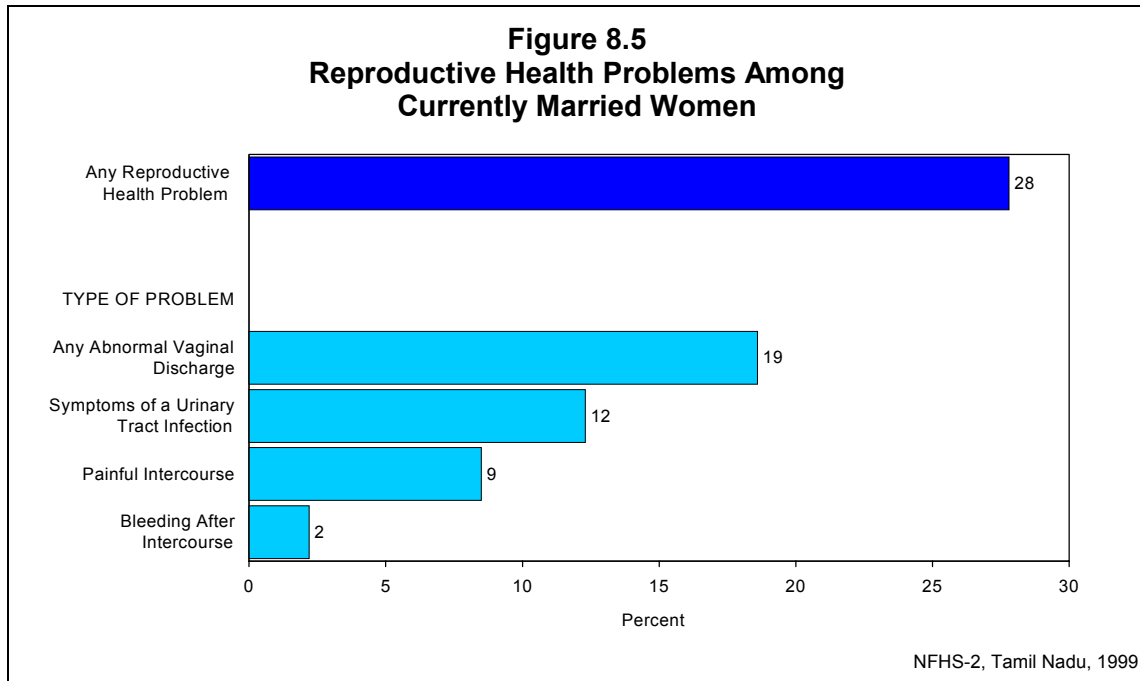
Note: Total includes a small number of women belonging to other religions and women with missing information on religion, caste/tribe, and the standard of living index, who are not shown separately.

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



at least one type of problem related to vaginal discharge, and 12 percent reported symptoms of a urinary tract infection. Overall, 24 percent of women reported either problems with vaginal discharge or symptoms of a urinary tract infection. Among problems related to vaginal discharge, severe lower abdominal pain was mentioned most frequently (13 percent), followed by itching or irritation (10 percent), fever (5 percent), and bad odour (3 percent).

Table 8.11 and Figure 8.5 show that 28 percent of currently married women report one or more reproductive health problems (less than the national average of 39 percent). Nine percent report painful intercourse and 2 percent report bleeding after intercourse.

The prevalence of any reproductive health problem varies remarkably little by background characteristics. The one exception is that reproductive health problems are negatively related to the standard of living index. The prevalence of any health problem decreases from 31 percent for women with a low standard of living to 19 percent for women with a high standard of living. The prevalence of these problems is also lower than average among the small number of currently married women who belong to ‘other’ castes or tribes.

Among women who report any reproductive health problems, 51 percent have not seen anyone for advice or treatment (Table 8.12). The proportion of women who have not obtained advice or treatment is slightly higher in urban areas (53 percent) than in rural areas (50 percent). The use of the private medical sector for treatment of reproductive health problems is considerably higher than use of the public sector. Overall, 33 percent of women obtained advice or treatment from someone in the private medical sector, mostly private doctors, while only 19 percent of women were seen by someone in the public sector, mostly government doctors.

NFHS–2 results in Tamil Nadu show that although more than one in every four currently married women report at least one reproductive health problem that could be symptomatic of a more serious reproductive tract infection, half of them bear the problems silently without seeking advice or treatment. These findings highlight the need to educate women regarding the

Table 8.12 Treatment of reproductive health problems			
Among women with a reproductive health problem, percentage who sought advice or treatment from specific providers by residence, Tamil Nadu, 1999			
Provider	Urban	Rural	Total
Public medical sector	15.5	21.0	19.1
Government doctor	12.2	13.8	13.3
Public health nurse	0.7	1.0	0.9
ANM/LHV	3.6	8.0	6.5
Other public medical sector	0.0	0.1	0.1
NGO worker	0.3	0.1	0.2
Private medical sector	33.6	33.4	33.4
Private doctor	31.5	31.5	31.5
Private nurse	0.8	0.3	0.5
Compounder/pharmacist	0.3	0.4	0.4
Vaidya/hakim/homeopath	0.9	0.9	0.9
Traditional healer	0.0	0.4	0.3
Other private medical sector	0.0	0.1	0.1
Other	0.8	1.0	0.9
None	52.7	49.8	50.8
Number of women	431	835	1,266
<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. ANM: Auxiliary nurse midwife; LHV: Lady health visitor; NGO: Nongovernmental organization</p>			

symptoms and consequences of reproductive health problems and the urgent need to expand counselling and reproductive health services in both rural and urban areas.