

CHAPTER 4

FERTILITY AND FERTILITY PREFERENCES

A major objective of NFHS-2 is to provide detailed information on fertility levels, differentials, and trends. This chapter presents a description of current and past fertility, cumulative fertility and family size, birth intervals, age at first cohabitation with husband, age at first and last birth, age at menopause, and durations of postpartum amenorrhoea, abstinence, and insusceptibility to pregnancy. Also discussed are fertility preferences, ideal and actual number of children, preference for sons or daughters, planning status of pregnancies, and wanted and actual total fertility rates.

Most of the fertility measures presented in this chapter are based on the complete birth histories collected from ever-married women age 15–49 years. Several measures and procedures were used to obtain complete and accurate reporting of births, deaths, and the timing of these events. First, women were asked a series of questions aimed at recording all the live births that had occurred in their lifetime. Second, for each live birth, the survey collected information on the age, sex, and survival status of the child. For dead children, age at death was recorded. Interviewers were given extensive training in probing techniques designed to help respondents report this information accurately. For example, interviewers were instructed to check any documents (such as horoscopes, school certificates, or vaccination cards) that might provide additional information on dates of birth and to probe for the reason for any birth interval of four or more years in order to prevent omission of births, especially of children who died soon after birth. Stillbirths, miscarriages, and induced abortions that occurred between live births were also recorded.

Despite these measures to improve data quality, NFHS-2 is subject to the same types of errors that are inherent in all retrospective sample surveys—namely the omission of some births (especially births of children who died at a very young age) and the difficulty of determining the date of birth of each child accurately. These problems can bias estimates of fertility levels and trends.

4.1 Age at First Cohabitation

The number of children that a woman will have in her lifetime is strongly influenced by the age at which she marries. In many parts of India, traditionally formal marriage is not always followed immediately by cohabitation. In some cases, the husband and the wife may begin to cohabit only after the *gauna* ceremony. Even if *gauna* is not practised, a marriage may not be consummated immediately if it occurs at a very young age. In Assam, however, cohabitation typically begins immediately after marriage. Accordingly, the median age at marriage in Assam (see Table 3.3) is about the same as the median age at first cohabitation. Age at consummation of marriage is, of course, what is relevant for fertility. NFHS-2 measured age at first cohabitation as a proxy for age at consummation of marriage. In Table 4.1, the median age at first cohabitation for a group of women is defined as the age by which half of the entire group began to cohabit, rather than the age by which half of all ever-cohabiting women in the group began to cohabit.

Table 4.1 Age at first cohabitation with husband							
Median age at first cohabitation with husband among women age 20–49 years by current age and selected background characteristics, Assam, 1999							
Background characteristic	Current age						
	20–24	25–29	30–34	35–39	40–49	20–49	25–49
Residence							
Urban	NC	22.2	20.2	19.4	19.0	NC	20.0
Rural	18.9	18.6	18.0	18.0	17.7	18.3	18.1
Education							
Illiterate	17.6	17.1	17.1	17.2	17.3	17.3	17.2
Literate, < middle school complete	18.3	18.2	17.7	17.3	17.6	17.8	17.7
Middle school complete	NC	20.1	19.9	19.3	18.8	19.8	19.6
High school complete and above	NC	24.7	23.8	24.1	21.6	NC	24.0
Religion							
Hindu	NC	20.0	18.7	18.6	18.4	19.0	18.8
Muslim	17.4	16.7	16.7	16.5	16.4	16.8	16.6
Christian	NC	*	*	*	*	NC	19.2
Caste/tribe							
Scheduled caste	18.2	19.3	17.6	(17.1)	16.8	17.9	17.8
Scheduled tribe	NC	19.3	18.3	19.1	19.2	19.1	18.9
Other backward class	NC	20.8	18.9	18.7	18.5	19.9	19.3
Other	19.2	18.3	18.0	17.6	17.6	18.2	17.9
Standard of living index							
Low	17.8	17.5	17.2	17.7	17.2	17.5	17.4
Medium	20.0	19.3	18.6	17.9	17.8	18.6	18.4
High	NC	23.2	21.1	21.1	18.9	NC	20.5
Total	19.0	18.8	18.1	18.1	17.9	18.4	18.2
Note: Total includes 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.							
NC: Not calculated because less than 50 percent of the women started living with their husband by age 20							
() Based on 25–49 unweighted cases							
*Median not shown; based on fewer than 25 unweighted cases							

Table 4.1 shows that, in Assam, the median age at first cohabitation with husband is 18.4 years for women age 20–49. The median age at first cohabitation increases from 17.9 for women age 40–49 to 19.0 for women age 20–24, suggesting an increase in the median age at first cohabitation, especially in recent years.

For rural women age 20–49, the median age at first cohabitation is 18.3 years. Because the median age at first cohabitation has risen faster in urban areas than in rural areas, the urban-rural gap in median age at first cohabitation has been widening over time. The median age at first cohabitation rises sharply with women's level of education. The median is substantially higher for Hindu women (19.0 years) than for Muslim women (16.8 years). The median age at first cohabitation is lower for scheduled-caste women (17.9 years) than for scheduled-tribe women (19.1 years), women from other backward classes (19.9 years), and women who do not belong to any of these groups (18.2 years). The median age at first cohabitation is more than one year higher for women living in households with a medium standard of living than for women living in households with a low standard of living.

4.2 Current Fertility Levels

NFHS-2 provides estimates of age-specific fertility rates (ASFR), total fertility rates (TFR), and crude birth rates (CBR) for the three-year period preceding the survey, which in Assam corresponds roughly to the period 1996–98. This three-year period was chosen as a compromise between the need to obtain recent information (suggesting the use of a short period close to the survey date) and the need to reduce sampling variation and minimize problems related to displacement of births from recent years to earlier years (suggesting the use of a longer period). The ASFR for any specific age group is calculated by dividing the number of births to women in the age group during the period 1–36 months preceding the survey by the number of woman-years lived by women in the age group during the same three-year time period. The TFR is a summary measure, based on the ASFRs, that gives the number of children a woman would bear during her reproductive years if she were to experience the ASFRs prevailing at the time of the survey. Mathematically, the TFR is calculated as five times the sum of all the ASFRs for five-year age groups. The CBR is defined as the annual number of births per 1,000 population.

Based on the three-year period before NFHS-2, the CBR for Assam is estimated at 21.8 live births per 1,000 population and the TFR at 2.31 births per woman, as shown in Table 4.2. These estimates are downwardly biased, however, partly because of omission of births but mainly because of substantial displacement of births from the three years before the survey to earlier years (Retherford and Mishra, 2001). Because the extent of bias may vary between groups and across surveys, the estimates of not only fertility levels but also fertility trends and differentials must be viewed cautiously and not accepted at face value.

Table 4.2 shows that the CBR is 29 percent lower in urban areas than in rural areas, and the urban TFR is 37 percent lower than the rural TFR. ASFRs are lower in urban areas than in rural areas at all ages, as shown in Figure 4.1. Sixty-five percent of total fertility in urban areas and 57 percent of total fertility in rural areas is concentrated in the prime childbearing ages 20–29. Fertility at age 15–19 accounts for 13 percent of total fertility in urban areas, 20 percent in rural areas, and 19 percent overall, indicating a modest amount of early childbearing. For the state as a whole, fertility at ages 35 and older accounts for 8 percent of total fertility.

Based on the three-year periods preceding NFHS-1 and NFHS-2, it is estimated that the CBR fell from 30.4 to 21.8 between the two surveys, a decline of 28 percent in approximately six years. Over the same period, the TFR fell from 3.53 to 2.31, a decline of 35 percent. Table 4.2 and Figure 4.2 show that age-specific fertility rates fell in all age groups. As already mentioned, these estimates of trend must be viewed cautiously because of bias introduced by age misreporting, which tends to exaggerate the extent of fertility decline. Another reason for not accepting the estimated fertility trend at face value is that the contraceptive use rate for Assam remained steady at 43 percent in both surveys. The absence of an upward trend in contraceptive use is inconsistent with the estimated sharply downward trend in fertility.

The NFHS-2 fertility estimates can be compared with estimates from the Sample Registration System (SRS), which is maintained by the Office of the Registrar General, India. Since the NFHS-2 rates refer to 1996–98, it is appropriate to compare them with the SRS estimates for 1997, which are also shown in Table 4.2. The NFHS-2 estimate of the CBR, at 21.8, is substantially lower than the SRS estimate of 28.2, and the NFHS-2 estimate of the TFR, at 2.31, is substantially lower than the SRS estimate of 3.22. The differences between the

Table 4.2 Current fertility

Age-specific and total fertility rates and crude birth rates from NFHS-1, NFHS-2, and the SRS by residence, Assam

Age	NFHS-1 (1990-92)	NFHS-2 (1996-98)		SRS (1997)			
	Total	Urban	Rural	Total	Urban	Rural	Total
15-19	0.116	0.040	0.094	0.089	0.023	0.058	0.055
20-24	0.200	0.110	0.152	0.149	0.144	0.188	0.183
25-29	0.195	0.084	0.119	0.116	0.137	0.184	0.179
30-34	0.117	0.052	0.072	0.070	0.074	0.140	0.132
35-39	0.055	0.014	0.033	0.031	0.029	0.073	0.067
40-44	0.021	0.000	0.008	0.007	0.003	0.026	0.023
45-49	0.000	(0.000)	0.000	0.000	0.000	0.006	0.005
TFR 15-44	3.53	1.50	2.39	2.31	2.10	3.35	3.20
TFR 15-49	3.53	1.50	2.39	2.31	2.10	3.38	3.22
CBR	30.4	15.8	22.3	21.8	20.7	29.0	28.2

Note: Rates from NFHS-1 and NFHS-2 are for the period 1-36 months preceding the survey. Rates for the age group 45-49 might be slightly biased due to truncation. Rates from the SRS are for one calendar year. Age-specific and total fertility rates are expressed per woman.

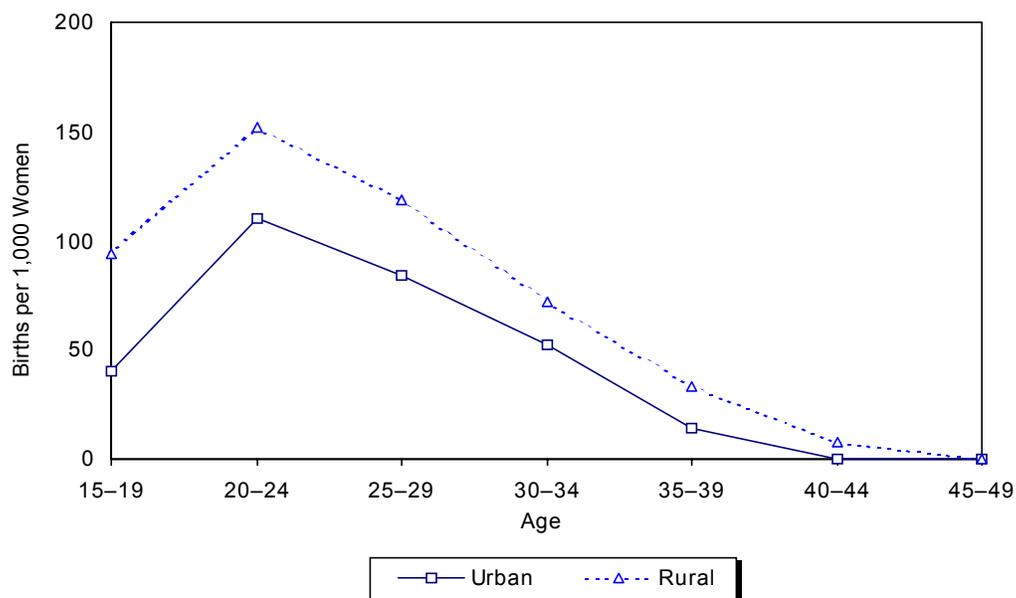
TFR: Total fertility rate

CBR: Crude birth rate, expressed per 1,000 population

() Based on 125-249 woman-years of exposure

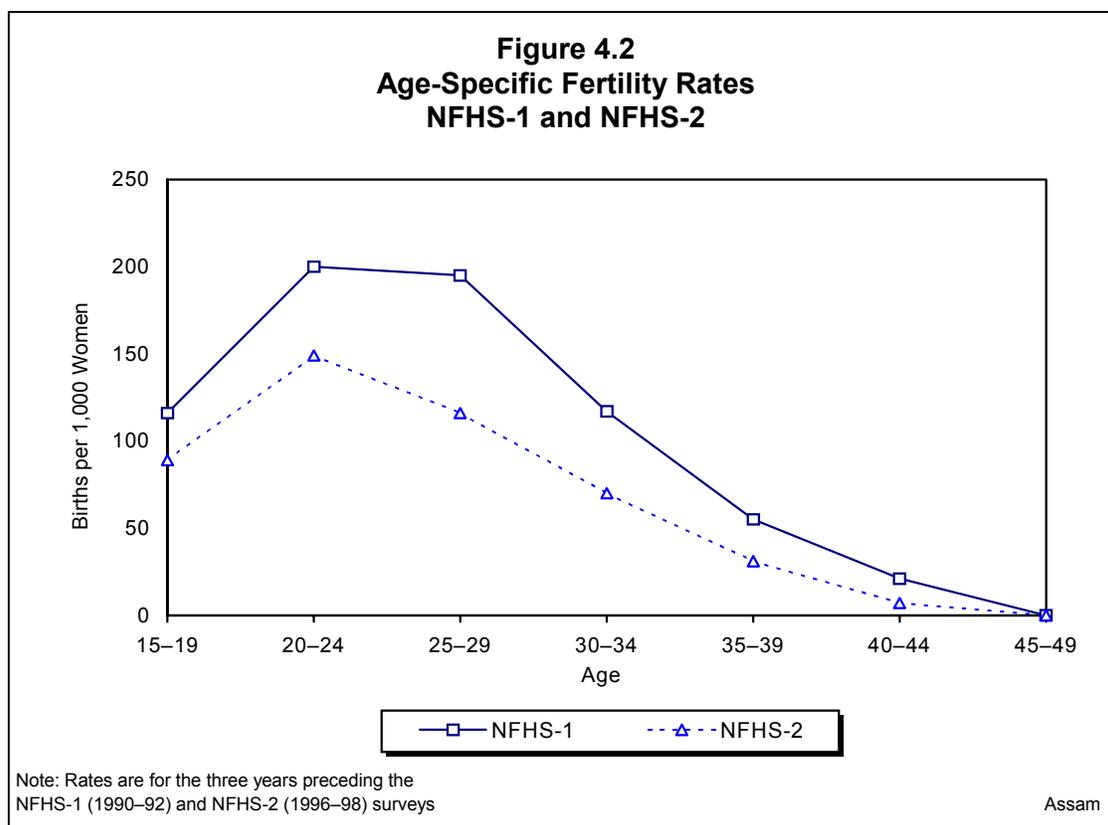
Source for SRS: Office of the Registrar General, 1999a

**Figure 4.1
Age-Specific Fertility Rates
by Residence**



Note: Rates are for the three years preceding the survey (1996-98)

NFHS-2, Assam, 1999



NFHS-2 and SRS estimates occur mainly because of age misreporting in NFHS-2, which, as already mentioned, tends to result in displacement of births further into the past. Retrospective surveys, such as NFHS-1 and NFHS-2, are subject to such displacement, whereas the SRS, in which births are recorded during the year in which they occur, is not. Narasimhan et al. (1997) compared NFHS-1 and SRS estimates of fertility and concluded that both are probably underestimates. Retherford and Mishra's (2001) analysis indicates that even the SRS estimates of fertility for Assam are substantially too low. However, the SRS estimates are closer to the true level of fertility than either the NFHS-1 or NFHS-2 estimates.

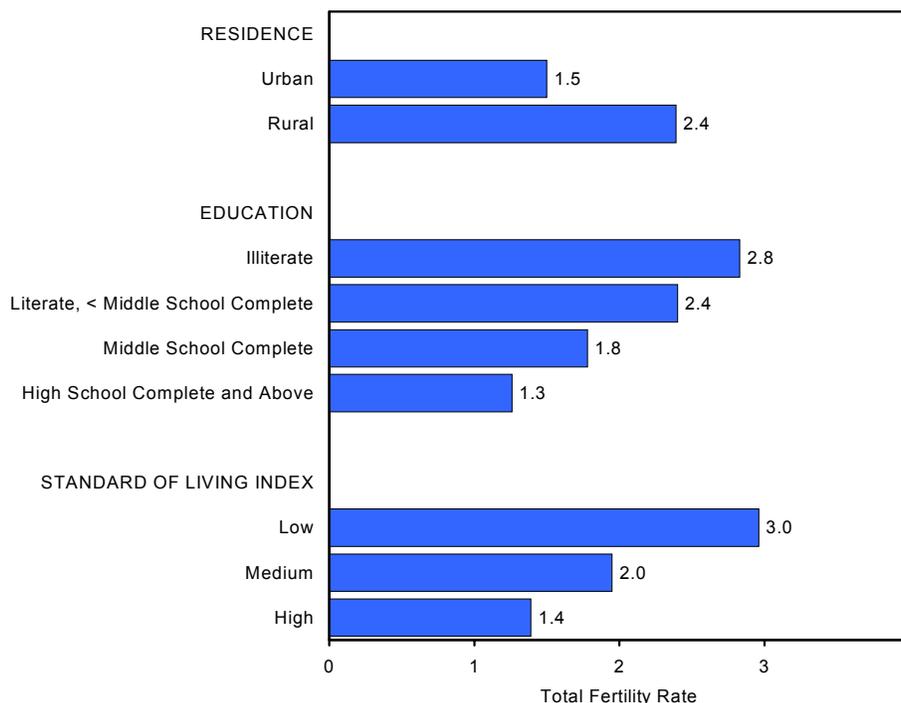
4.3 Fertility Differentials and Trends

Table 4.3 and Figure 4.3 show how the TFR, the percentage currently pregnant, and the mean number of children ever born to women age 40-49 vary by selected background characteristics. By education, the TFR in Assam, as estimated from NFHS-2, ranges from 1.26 among women who have completed at least high school to 2.83 among illiterate women. Rather similarly, it ranges from 1.39 for women with a low standard of living to 2.96 for women with a high standard of living. Muslims have a much higher TFR (3.05) than Hindus (2.00) or Christians (1.69). The TFR is 1.54 for women from other backward classes, 2.10 for women from scheduled tribes, 2.57 for women from scheduled castes, and 2.35 for women who do not belong to any of these groups. It is noteworthy that in Assam, women from "other backward classes" are not at all backward in terms of their demographic behaviour. Again it should be noted that all of these estimates are downwardly biased by age misreporting, for reasons explained in the previous section.

Table 4.3 Fertility by background characteristics			
Total fertility rate for the three years preceding the survey, percentage of all women age 15–49 currently pregnant, and mean number of children ever born to all women age 40–49 by selected background characteristics, Assam, 1999			
Background characteristic	Total fertility rate ¹	Percentage currently pregnant ²	Mean number of children ever born to all women age 40–49 years
Residence			
Urban	1.50	4.2	3.49
Rural	2.39	5.9	4.45
Education			
Illiterate	2.83	6.4	4.56
Literate, < middle school complete	2.40	7.2	4.60
Middle school complete	1.78	4.1	3.80
High school complete and above	1.26	3.6	2.74
Religion			
Hindu	2.00	4.8	4.02
Muslim	3.05	8.2	5.33
Christian	1.69	3.1	*
Other	(1.42)	(0.0)	*
Caste/tribe			
Scheduled caste	2.57	5.6	4.56
Scheduled tribe	2.10	4.8	4.32
Other backward class	1.54	3.4	4.11
Other	2.35	5.9	4.37
Standard of living index			
Low	2.96	7.1	4.19
Medium	1.95	5.4	4.75
High	1.39	2.4	3.48
Total	2.31	5.8	4.35
<p>Note: Total includes women with missing information on religion, caste/tribe, and the standard of living index, who are not shown separately.</p> <p>() Based on 125–249 woman-years of exposure for the total fertility rate and 25–49 unweighted cases for the percentage currently pregnant</p> <p>*Mean not shown; based on fewer than 25 unweighted cases</p> <p>¹Rate for women age 15–49 years</p> <p>²For this calculation, it is assumed that women who are never married, widowed, divorced, separated, or deserted are not currently pregnant.</p>			

Fertility transitions in other countries have shown that fertility differentials typically diverge early in the transition and reconverge (though rarely completely) towards the end of the transition as fertility approaches the replacement level. Table 4.3 and Figure 4.3 indicate that in Assam there are still large fertility differentials, with the TFR and other fertility indicators varying widely among population groups. However, differentials are less pronounced for the mean number of children ever born to ever-married women age 40–49 than for the other two fertility variables in Table 4.3, undoubtedly because women in their forties had many of their births at an earlier stage of the fertility transition when fertility was fairly uniformly high and fertility differentials were relatively small.

Figure 4.3
Total Fertility Rate by Selected Background Characteristics



Note: Rates are for the three years preceding the survey (1996–98)

NFHS-2, Assam, 1999

Overall, 6 percent of women in Assam report that they are currently pregnant (the same percentage as in all India). For the most part, differentials in the percentage currently pregnant follow a pattern similar to that for differentials in the TFR, but there are some exceptions. These exceptions may be due partly to the fact that the TFR is not affected by the age structure of the population, whereas the percentage currently pregnant is affected by the age structure.

The last column of Table 4.3 shows the mean number of children ever born to ever-married women age 40–49 at the time of the survey. The average number of children ever born for these women, who are at the end of their childbearing years, is 4.35. The substantial decline in fertility in Assam over time is evident from the difference of 2.04 children between the average number of children ever borne by women who are currently in their forties and the number of children women would have in their lifetime if they were subject to current age-specific fertility rates (i.e., the difference between the last column and first column of Table 4.3). In most cases, the pattern of differentials in the mean number of children ever born parallels the pattern of differentials in the TFR. Exceptions can occur because the mean number of children ever born at age 40–49 reflects fertility in the past, whereas the TFR reflects fertility only in the three years preceding the survey.

The preceding section discussed fertility trends based on estimates from NFHS-1 and NFHS-2 for the three-year period preceding each survey. Table 4.4 shows fertility trends for five-year time periods preceding NFHS-2, estimated solely from NFHS-2 birth histories. It is not

Table 4.4 Fertility trends				
Age-specific fertility rates for five-year periods preceding the survey by residence, Assam, 1999				
Age	Years preceding survey			
	0–4	5–9	10–14	15–19
URBAN				
15–19	0.051	0.080	0.085	0.123
20–24	0.122	0.132	0.201	0.266
25–29	0.101	0.122	0.171	0.176
30–34	0.052	0.072	0.101	[0.128]
35–39	0.013	0.028	[0.050]	U
40–44	0.000	[0.004]	U	U
45–49	[0.000]	U	U	U
RURAL				
15–19	0.108	0.137	0.162	0.157
20–24	0.181	0.256	0.272	0.302
25–29	0.145	0.207	0.225	0.227
30–34	0.084	0.114	0.120	[0.163]
35–39	0.038	0.053	[0.065]	U
40–44	0.007	[0.024]	U	U
45–49	[0.002]	U	U	U
TOTAL				
15–19	0.104	0.132	0.155	0.153
20–24	0.176	0.245	0.264	0.298
25–29	0.141	0.198	0.219	0.222
30–34	0.080	0.109	0.118	[0.159]
35–39	0.035	0.050	[0.063]	U
40–44	0.006	[0.022]	U	U
45–49	[0.002]	U	U	U
Note: Age-specific fertility rates are expressed per woman. U: Not available [] Truncated, censored				

possible to show TFRs in this table because of progressively greater age truncation as one goes back in time. For example, for the period 5–9 years preceding the survey, it is not possible to compute an ASFR for age 45–49 because the women in question would be 50–54 at the time of the survey, whereas NFHS-2 only collected birth histories for women up to age 49. Similarly, for the period 10–14 years preceding the survey, it is not possible to compute ASFRs for women age 40–49, and for the period 15–19 years preceding the survey, it is not possible to compute ASFRs for women age 35–49. Thus Table 4.4 shows only truncated trends in ASFRs. Results are shown separately for urban and rural areas as well as for the entire state. These results show substantial fertility declines in all age groups. As mentioned earlier, however, these trends are distorted by displacement of births to earlier years, and this displacement tends to exaggerate the extent of fertility decline.

For the periods 0–4 years and 5–9 years before the survey, it is possible to calculate truncated TFRs (more appropriately called cumulative fertility rates, or CFRs) for the age range 15–39, based on the ASFRs shown in Table 4.4. This is done by summing ASFRs for the age groups 15–19 through 35–39 and multiplying the sum by five. For the state as a whole, CFR(15–39) declined from 3.67 to 2.68 between these two five-year periods, a decline of one child. The decline was 0.47 child for urban areas and 1.07 children for rural areas, indicating that the

Table 4.5 Fertility by marital duration				
Fertility rates for ever-married women by duration since first cohabitation with husband (in years) and residence for five-year periods preceding the survey, Assam, 1999				
Duration since first cohabitation (in years)	Years preceding survey			
	0–4	5–9	10–14	15–19
URBAN				
< 5	0.256	0.306	0.357	0.362
5–9	0.115	0.139	0.205	0.276
10–14	0.062	0.078	0.118	0.110
15–19	0.016	0.026	0.023	*
20–24	0.004	0.020	*	*
25–29	0.000	*	*	U
RURAL				
< 5	0.319	0.353	0.369	0.360
5–9	0.189	0.286	0.281	0.300
10–14	0.120	0.158	0.175	0.187
15–19	0.052	0.075	0.092	0.160
20–24	0.021	0.033	0.043	*
25–29	0.003	0.023	*	U
TOTAL				
< 5	0.314	0.349	0.368	0.360
5–9	0.183	0.274	0.273	0.298
10–14	0.115	0.150	0.169	0.181
15–19	0.048	0.070	0.087	0.157
20–24	0.019	0.032	0.042	*
25–29	0.003	0.022	*	U
Note: Duration-specific fertility rates are expressed per woman. The duration since first cohabitation with husband is defined as the difference between the woman's age at the specific time period and her age when she began living with her husband. U: Not available *Rate not shown; based on fewer than 125 woman-years of exposure				

absolute level of fertility fell somewhat more rapidly in rural areas than in urban areas. However, this pattern could occur because of more age misreporting and displacement of births to earlier years in rural areas than in urban areas.

Another way of looking at fertility is to calculate fertility rates by the number of years since first cohabitation with husband. These rates are measures of marital fertility, i.e., fertility within marriage. Table 4.5 shows fertility rates by duration since first cohabitation for ever-married women over the entire 20-year period preceding the survey.¹ Fertility has declined at all durations, but more at longer durations than at shorter durations. It is also evident from Table 4.5 that marital fertility is lower in urban areas than in rural areas for almost all durations and time periods.

¹Since NFHS-2 collected information only on a woman's age at the time of first cohabitation and not on the year and month when she first began cohabiting with her husband, the exact number of months since first cohabitation cannot be calculated. For this reason, the first year since cohabitation contains only six months, on average, and the first five years since cohabitation contain only 4.5 years, on average.

4.4 Children Ever Born and Living

The number of children a woman has ever borne is a cohort measure of fertility. Because it reflects fertility in the past, it provides a somewhat different picture of fertility levels, trends, and differentials than do period measures of fertility such as the CBR and the TFR. Table 4.6 shows the percent distribution of all women and currently married women by the number of children ever born (CEB). The table shows these distributions by the age of the woman at the time of the survey, as well as estimates of the mean number of children ever born and the mean number of living children.

Among women age 15–49, the mean number of children ever born is 2.2 for all women and 3.0 for currently married women. The mean number of children ever born increases steadily with women's age, reaching a high of 4.5 children among all women age 45–49 and 4.9 children among currently married women in this age group. The table also shows that early childbearing is fairly common in Assam. Fifteen percent of all women age 15–19 and 50 percent of currently married women age 15–19 have already had a child.

For women age 45–49, the number of children ever born is of particular interest because these women have virtually completed their childbearing. For all women in this age group, irrespective of marital status, the modal number of children ever born is four. Twenty-three percent of all women age 45–49 and of currently married women in this age group have reached the end of childbearing with four children ever born. Forty-nine percent of currently married women in this age group have had five or more live births. Only 3 percent of currently married women age 45–49 have never given birth, suggesting that primary infertility (which is the proportion of couples who are unable to have any children) is low in Assam.

For all women age 15–49, the average number of children who died is 0.19 per woman. For currently married women, the average number of dead children is 0.26, indicating that 9 percent of children ever born to currently married women have died. For currently married women, the proportion of children ever born who have died does not vary much by age. For example, it is 10 percent at both ages 15–19 and 45–49.

4.5 Birth Order

The distribution of births by birth order is yet another way to view fertility. Table 4.7 shows the distribution of births during the three-year period preceding the survey by birth order for selected background characteristics. Overall, as expected, the proportion of births at each order is larger than the proportion of births at the next higher order. Thirty-one percent of all births are first-order births, 25 percent are second-order births, and 16 percent are third-order births. The high proportion of births of order four or higher is the same as the national average of 28 percent.

Seventy-eight percent of births to women age 15–19 are first-order births, and 73 percent of births to women age 30–39 are births of order four or higher. The proportion of births that are of order four or higher is relatively large for births to rural women, illiterate women, Muslim women, scheduled-tribe and 'other' women, working women who are not self-employed, and women in households with a low standard of living. The range is particularly wide for education groups: 38 percent of births to illiterate women are of order four or higher, compared with 2 percent of births to women who have completed at least high school. The range is also wide in

Table 4.6 Children ever born and living

Percent distribution of all women and currently married women by number of children ever born (CEB) and mean number of children ever born and living, according to age, Assam, 1999

Age	Children ever born											Total percent	Number of women	Mean number of CEB	Mean number of living children
	0	1	2	3	4	5	6	7	8	9	10+				
ALL WOMEN															
15-19	84.8	12.1	2.5	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	1,043	0.19	0.17
20-24	43.5	22.7	21.9	8.7	2.8	0.4	0.0	0.1	0.0	0.0	0.0	100.0	894	1.06	0.98
25-29	21.9	14.3	22.8	21.0	11.3	5.6	2.7	0.2	0.1	0.0	0.1	100.0	805	2.16	1.98
30-34	11.3	8.9	19.2	17.6	18.2	11.1	7.8	4.7	0.9	0.0	0.3	100.0	701	3.19	2.91
35-39	7.3	5.2	11.3	19.7	21.4	14.4	9.7	6.8	2.4	1.4	0.5	100.0	493	3.87	3.49
40-44	4.6	3.4	11.1	18.8	21.2	18.4	10.3	5.3	3.4	2.2	1.3	100.0	371	4.18	3.80
45-49	5.1	4.7	8.9	14.3	22.5	12.5	14.1	4.9	5.5	4.9	2.6	100.0	349	4.53	4.06
Total	34.3	12.0	14.3	12.8	10.9	6.7	4.5	2.3	1.1	0.7	0.4	100.0	4,656	2.18	1.99
CURRENTLY MARRIED WOMEN															
15-19	49.8	39.5	8.3	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	311	0.63	0.57
20-24	16.7	32.9	32.7	12.9	4.3	0.4	0.0	0.2	0.0	0.0	0.0	100.0	580	1.58	1.46
25-29	6.5	16.7	26.5	25.9	13.8	6.8	3.3	0.2	0.1	0.0	0.2	100.0	648	2.61	2.40
30-34	5.1	8.2	20.1	19.2	19.5	12.4	8.6	5.3	1.1	0.0	0.4	100.0	615	3.48	3.19
35-39	3.0	4.2	11.5	20.7	23.6	14.6	10.0	7.5	2.7	1.6	0.5	100.0	443	4.11	3.72
40-44	1.8	3.3	9.6	19.2	22.7	20.3	10.8	4.8	3.7	2.7	1.2	100.0	309	4.36	3.97
45-49	2.7	3.4	6.9	15.5	22.7	13.2	14.8	5.7	5.7	6.2	3.2	100.0	272	4.86	4.37
Total	11.0	16.1	19.2	17.7	14.8	9.0	6.1	3.1	1.4	1.0	0.6	100.0	3,179	2.97	2.71

Table 4.7 Birth order						
Percent distribution of births during the three years preceding the survey by birth order, according to selected background characteristics, Assam, 1999						
Background characteristic	Birth order				Total percent	Number of births
	1	2	3	4+		
Mother's current age						
15–19	77.8	18.5	3.7	0.0	100.0	167
20–29	29.3	32.5	20.6	17.6	100.0	705
30–39	5.0	9.6	13.0	72.5	100.0	241
Residence						
Urban	39.0	34.8	13.0	13.1	100.0	66
Rural	30.5	24.6	16.5	28.4	100.0	1,063
Mother's education						
Illiterate	24.6	19.7	17.3	38.4	100.0	604
Literate, < middle school complete	31.9	29.6	15.9	22.5	100.0	261
Middle school complete	41.1	31.3	16.7	10.9	100.0	165
High school complete and above	50.8	37.5	9.9	1.9	100.0	99
Religion						
Hindu	32.3	28.2	17.2	22.3	100.0	645
Muslim	29.3	21.1	14.6	35.0	100.0	448
Caste/tribe						
Scheduled caste	31.8	35.1	15.8	17.2	100.0	127
Scheduled tribe	27.2	24.5	16.9	31.4	100.0	215
Other backward class	31.9	31.1	22.7	14.2	100.0	93
Other	32.0	23.2	14.8	29.9	100.0	671
Mother's work status						
Working in family farm/business	(13.6)	(19.8)	(25.1)	(41.5)	100.0	45
Employed by someone else	22.4	20.8	17.7	39.2	100.0	115
Self-employed	(29.0)	(34.6)	(14.0)	(22.4)	100.0	46
Not worked in past 12 months	33.0	25.6	15.8	25.7	100.0	923
Standard of living index						
Low	26.1	19.9	16.1	37.9	100.0	580
Medium	34.3	30.2	17.8	17.8	100.0	428
High	49.4	30.2	12.9	7.6	100.0	84
Total	31.0	25.2	16.3	27.5	100.0	1,129
Note: Total includes 16 births to mothers currently age 40–49, 21 births to Christian women, 5 births to women belonging to 'other' religions, and 10, 22, and 36 births with missing information on religion, caste/tribe, and the standard of living index respectively, which are not shown separately.						
() Based on 25–49 unweighted cases						

the case of standard of living: 38 percent of births to women in households with a low standard of living are of order four or higher, compared with 8 percent of births to women in households with a high standard of living. Only 22 percent of births to women who are self-employed are of order four or higher. This finding can be explained partly by the fact that self-employed women come disproportionately from urban areas, where fertility is relatively low.

4.6 Birth Intervals

A birth interval, defined as the length of time between two successive live births, indicates the pace of childbearing. Short birth intervals may adversely affect a mother's health and her children's chances of survival. Past research has shown that children born too close to a previous birth are at increased risk of dying, especially if the interval between the births is less than 24 months (Pandey et al., 1998; Govindasamy et al., 1993).

Table 4.8 shows the percent distribution of births during the five years preceding the survey by birth interval according to selected demographic and socioeconomic background characteristics. In Assam, 12 percent of births occur within 18 months of a previous birth, and 28 percent occur within 24 months. Thirty-seven percent of births occur after an interval of three years or more.

Table 4.8 Birth interval									
Percent distribution of births during the five years preceding the survey by interval since previous birth and median number of months since previous birth, according to selected background characteristics, Assam, 1999									
Background characteristic	Months since previous birth						Total percent	Median months since previous birth	Number of births
	< 12	12–17	18–23	24–35	36–47	48+			
Mother's current age									
15–19	(3.1)	(18.1)	(24.7)	(42.3)	(8.8)	(3.0)	100.0	24.3	40
20–29	2.3	11.0	16.7	34.7	20.2	15.1	100.0	30.0	895
30–39	1.7	9.3	13.3	34.6	18.9	22.2	100.0	32.2	512
40–49	(0.0)	(0.8)	(16.2)	(36.7)	(12.0)	(34.2)	100.0	33.6	38
Residence									
Urban	1.1	8.9	14.8	25.9	21.2	28.2	100.0	35.7	72
Rural	2.1	10.4	15.8	35.4	19.1	17.2	100.0	30.4	1,414
Mother's education									
Illiterate	1.9	11.3	15.7	36.5	19.1	15.5	100.0	29.6	891
Literate, < middle school complete	2.2	8.6	17.5	32.5	22.4	16.7	100.0	30.9	323
Middle school complete	2.6	9.6	14.0	36.8	11.1	25.9	100.0	31.6	180
High school complete and above	1.7	8.7	13.2	24.5	25.0	26.9	100.0	36.9	92
Religion									
Hindu	2.0	10.2	15.7	35.3	18.5	18.4	100.0	30.4	837
Muslim	1.9	10.9	15.8	34.3	20.1	17.0	100.0	30.8	601
Christian	(3.9)	(0.0)	(16.6)	(52.5)	(15.5)	(11.6)	100.0	31.2	31
Caste/tribe									
Scheduled caste	4.2	7.9	12.7	30.7	23.4	21.1	100.0	34.0	142
Scheduled tribe	2.0	12.2	18.5	36.6	15.6	15.0	100.0	28.6	312
Other backward class	3.0	8.7	16.5	34.8	15.7	21.3	100.0	30.7	117
Other	1.6	10.5	14.8	35.1	20.2	17.8	100.0	31.2	880
Standard of living index									
Low	2.3	11.3	18.1	34.2	19.9	14.2	100.0	28.8	816
Medium	1.8	10.2	12.1	37.7	18.8	19.4	100.0	32.2	543
High	3.0	4.4	11.8	29.1	18.6	33.1	100.0	37.8	78

Contd...

Table 4.8 Birth interval (contd.)

Percent distribution of births during the five years preceding the survey by interval since previous birth and median number of months since previous birth, according to selected background characteristics, Assam, 1999

Background characteristic	Months since previous birth						Total percent	Median months since previous birth	Number of births
	< 12	12–17	18–23	24–35	36–47	48+			
Order of previous birth									
1	2.2	8.6	14.1	34.9	21.2	19.1	100.0	32.1	530
2	2.4	10.9	16.9	37.2	14.9	17.7	100.0	28.7	346
3	2.8	12.5	13.5	31.0	20.8	19.5	100.0	32.9	218
4+	1.3	11.0	18.1	35.2	19.4	14.9	100.0	29.1	392
Sex of previous birth									
Male	2.9	9.9	12.8	35.6	20.6	18.3	100.0	31.8	736
Female	1.3	10.8	18.6	34.3	17.8	17.1	100.0	29.6	750
Survival of previous birth									
Living	1.9	9.4	15.0	35.7	19.7	18.3	100.0	31.4	1,344
Dead	3.6	19.3	22.2	28.1	14.5	12.2	100.0	24.8	142
Total	2.1	10.3	15.7	34.9	19.2	17.7	100.0	30.6	1,486

Note: Table includes only second- and higher-order births. The interval for multiple births is the number of months since the preceding pregnancy that ended in a live birth. Total includes 4 births to mothers belonging to other religions and 13, 36, and 48 births with missing information on religion, caste/tribe, and the standard of living index, respectively, which are not shown separately.

() Based on 25–49 unweighted cases

The median birth interval in Assam is 31 months. The median birth interval ranges from 24 months for women age 15–19 to 34 months for women age 40–49. The relatively short birth interval for women age 15–19 may result partly from a selection effect: Only women who have had two or more births are included in the table, and women age 15–19 with more than one birth are likely to have shorter birth intervals due to high fecundity. Given the finding that the median birth interval increases with mother’s age, it is surprising that it does not also increase with the order of the previous birth. Perhaps this is due to the absence of the selection effect just noted. There may also be another type of selection effect operating: Mothers of higher-order births may be more fecund, on average, than mothers of lower-order births.

The median birth interval is about two months longer if the previous birth was a boy than if it was a girl. This pattern may result partly from the shorter duration of breastfeeding for girls, which is indicative of son preference. The median birth interval is seven months shorter if the previous child died than if it survived. In part, this reflects the shortening of postpartum amenorrhoea that occurs when the preceding child dies in infancy and breastfeeding stops prematurely.

Birth intervals are five months longer for births to women in urban areas than for births to women in rural areas. Birth intervals increase with mother’s education, ranging from 30 months for births to illiterate women to 37 months for births to women who have completed at least high school. The median birth interval varies little by religion. The median birth interval is five months longer for births to scheduled-caste women than for births to scheduled-tribe women.

The median birth interval is nine months longer for births to women with a high standard of living than for births to women with a low standard of living.

4.7 Age at First and Last Birth

The ages at which women start and stop childbearing are important demographic determinants of fertility. A higher median age at first birth and a lower median age at last birth are indicators of lower fertility. Table 4.9 shows the median age at first birth for various age groups by selected background characteristics. In this table, the median age at first birth for any group of women is defined as the age by which half of all women in the group have had a first birth, rather than the age by which half of all mothers in the group have had a first birth. If the median age at first birth calculated for an age group lies above the lower limit of that age group, it is not valid because some younger women in the age group who have not yet had a first birth will not have reached the median age by the time of the survey. In such cases, the estimate of the median is not shown.

Table 4.9 Median age at first birth						
Median age at first birth among women age 25–49 years by current age and selected background characteristics, Assam, 1999						
Background characteristic	Current age					25–49
	25–29	30–34	35–39	40–44	45–49	
Residence						
Urban	23.4	21.8	21.2	20.3	20.6	21.7
Rural	20.2	19.6	20.0	19.2	19.1	19.7
Education						
Illiterate	18.7	18.9	19.3	19.1	18.8	18.9
Literate, < middle school complete	19.9	19.0	18.9	18.5	19.4	19.2
Middle school complete	21.4	21.3	20.9	(20.0)	(20.0)	21.1
High school complete and above	NC	25.4	25.7	(22.0)	(23.7)	NC
Religion						
Hindu	21.4	20.2	20.3	19.8	19.8	20.4
Muslim	18.7	18.6	19.1	18.4	17.6	18.5
Christian	*	*	*	*	*	20.8
Caste/tribe						
Scheduled caste	20.7	19.4	(18.7)	(19.0)	(17.6)	19.2
Scheduled tribe	20.8	19.5	20.8	20.4	20.4	20.4
Other backward class	22.8	20.2	20.2	19.7	20.2	20.7
Other	20.2	19.8	19.9	19.2	19.1	19.7
Standard of living index						
Low	19.1	18.8	19.7	19.2	20.1	19.2
Medium	21.1	20.1	19.7	19.1	19.0	20.0
High	24.1	22.3	22.9	20.2	19.3	21.9
Total	20.4	19.7	20.1	19.4	19.3	19.9
Note: Total includes 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.						
NC: Not calculated because less than 50 percent of women had their first birth by the beginning of the age interval						
() Based on 25–49 unweighted cases						
*Median not shown; based on fewer than 25 unweighted cases						

As shown in the last row of the table, the median age at first birth in Assam has varied irregularly over time. The median age at first birth varies from 19.3 years for women age 45–49 to 20.4 years for women age 25–29, indicating some increase in the median age at first birth, despite the irregular trend. The median age at first birth is particularly low for rural women, illiterate women, Muslim women, scheduled-caste women, and women living in households with a low standard of living.

For older women, the age at last childbirth is an indicator of cessation of childbearing. Table 4.10 presents the distribution of ever-married women age 40–49 by age at last birth, as well as the median age at last birth. Although a few of these women may have another birth later on, the very low fertility rates for women in this age group suggest that childbearing is virtually complete by these ages. Fifty-seven percent of women in this age group had their last birth by age 30, 79 percent by age 35, and 94 percent by age 40. The median age at last birth is 28.6 years for women age 40–44 and 28.9 years for women age 45–49. The typical reproductive age span (calculated as the difference between the median age at last birth and the median age at first birth for women age 40–49 who have ever had a birth) is slightly shorter in Assam (9.6 years) than in India as a whole (9.9 years) [see International Institute for Population Sciences and ORC Macro, 2000: Table 4.15].

Current age	No birth	Age at last birth							Total percent	Median age at last birth	Number of women
		< 20	20–24	25–29	30–34	35–39	40–44	45–49			
40–44	2.0	2.0	21.7	35.3	22.3	14.7	2.0	NA	100.0	28.6	361
45–49	3.6	5.8	16.9	31.7	22.9	14.9	3.9	0.4	100.0	28.9	343
40–49	2.8	3.9	19.4	33.5	22.6	14.8	2.9	0.2	100.0	28.8	704

NA: Not applicable

4.8 Postpartum Amenorrhoea, Abstinence, Insusceptibility, and Menopause

Among the factors that influence the risk of pregnancy following a birth are breastfeeding and sexual abstinence. Breastfeeding prolongs postpartum protection from conception through its effect on the period of amenorrhoea (the period prior to the return of menses) following a birth. Delaying the resumption of sexual relations following a birth also prolongs the period of postpartum protection. Women are defined as insusceptible to pregnancy following a birth if they are not at risk of conception because they are amenorrhoeic, abstaining from sexual relations, or both.

Table 4.11 shows the percentage of births occurring during the three years preceding the survey whose mothers are postpartum amenorrhoeic, abstaining, or insusceptible, by the number of months since the birth. These distributions are based on current status information, that is, on the proportions of births occurring within the 36 months before the survey whose mothers were amenorrhoeic, abstaining, or insusceptible. In other words, the table is based on cross-sectional

Table 4.11 Postpartum amenorrhoea, abstinence, and insusceptibility				
Percentage of births during the three years preceding the survey whose mothers are postpartum amenorrhoeic, abstaining, or insusceptible by number of months since birth, and median and mean durations, Assam, 1999				
Months since birth	Percentage of births whose mothers are:			Number of births
	Amenorrhoeic	Abstaining	Insusceptible	
< 2	(97.1)	(79.8)	(97.1)	41
2–3	86.1	43.0	91.1	85
4–5	72.4	30.0	76.7	83
6–7	60.1	11.4	62.0	78
8–9	56.5	20.2	66.1	57
10–11	(38.5)	(16.1)	(50.7)	39
12–13	35.8	7.3	37.7	72
14–15	30.7	18.4	43.1	80
16–17	29.2	11.5	37.3	72
18–19	15.3	11.6	25.0	63
20–21	4.3	5.0	9.3	54
22–23	(13.1)	(9.6)	(19.5)	38
24–25	5.6	12.9	14.3	85
26–27	3.0	8.1	11.1	79
28–29	6.3	9.2	11.3	54
30–31	1.9	11.6	13.5	61
32–33	(0.0)	(0.8)	(0.8)	42
34–35	(0.0)	(7.5)	(7.5)	40
Median ¹	9.3	2.3	10.6	NA
Mean	11.4	6.6	13.7	NA
Prevalence/incidence mean	11.6	6.2	14.0	NA

Note: Median and mean durations are based on current status. Insusceptible is defined as amenorrhoeic, abstaining, or both.
NA: Not applicable
() Based on 25–49 unweighted cases
¹Based on a three-period moving average of percentages

data and does not represent the experience of a real cohort of births over time. The data are grouped in two-month intervals to minimize fluctuations in the distributions. The table also shows median and mean durations of amenorrhoea, abstinence, and insusceptibility. The prevalence/incidence mean is obtained by dividing the number of mothers who are amenorrhoeic, abstaining, or insusceptible by the average number of births per month over the 36-month period.

Ninety-seven percent of women who had a birth less than two months before the survey and 86 percent of women who had a birth 2–3 months before the survey are still amenorrhoeic. The proportion amenorrhoeic gradually decreases as the number of months since the birth increases. Fifty-seven percent of all women who had a birth 8–9 months before the survey are still amenorrhoeic, and the proportion amenorrhoeic declines rapidly thereafter. The proportion of women abstaining from sexual intercourse within two months after a birth (80 percent) is fairly high but substantially lower than the proportion amenorrhoeic. Only 43 percent of women are still abstaining 2–3 months after a birth, and this percentage declines fairly rapidly thereafter, albeit rather irregularly. Overall, when amenorrhoea and abstinence are considered together, half of women are still insusceptible to pregnancy 10–11 months after giving birth, and 43 percent are insusceptible 14–15 months after giving birth.

The median and mean durations of insusceptibility are 11 and 14 months, respectively. Because the mean is affected by extreme values and the median is not, and because the distribution is skewed towards the higher durations, the mean is somewhat higher than the median. The median duration of amenorrhoea (9.3 months) is four times the median duration of abstinence (2.3 months). These results based on the median indicate that women in Assam remain insusceptible to pregnancy for 11 months after a birth, primarily due to the effect of postpartum amenorrhoea.

Menopause is a primary limiting factor of fertility. It is the culmination of a gradual decline in fecundity with increasing age. After age 30, the risk of pregnancy declines with age as an increasing proportion of women become infecund. In NFHS-2, menopause is defined as the absence of menstruation for six or more months preceding the survey among currently married women. Women who report that they are menopausal or that they have had a hysterectomy are also included in this category. Women who are pregnant or postpartum amenorrhoeic are assumed not to be menopausal. Table 4.12 presents data on menopause among women age 30–49 years. In Assam, menopause is not common among women in their thirties, but its incidence increases rapidly after age 40. By age 42–43, 30 percent of women are menopausal. The proportion menopausal rises to 56 percent by age 46–47 and to 73 percent by age 48–49.

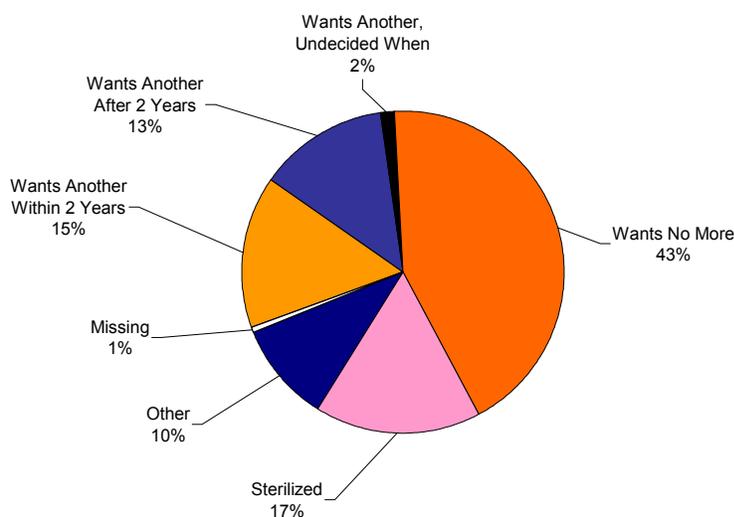
Table 4.12 Menopause						
Percentage of currently married women age 30–49 years who are in menopause by age and residence, Assam, 1999						
Age	Urban		Rural		Total	
	Percentage	Number	Percentage	Number	Percentage	Number
30–34	2.8	58	1.5	557	1.6	615
35–39	10.3	49	5.7	395	6.2	443
40–41	(7.8)	17	24.4	128	22.5	145
42–43	(31.7)	9	30.3	102	30.4	111
44–45	(37.8)	15	44.2	136	43.6	151
46–47	(54.5)	12	55.9	93	55.7	104
48–49	*	7	72.9	63	73.4	70
30–49	17.1	167	17.0	1,473	17.0	1,640

Note: Percentage menopausal is defined as the percentage of currently married women who are not pregnant and not postpartum amenorrhoeic and who reported that their last menstrual period occurred six or more months preceding the survey or that they are menopausal or have had a hysterectomy.
 () Based on 25–49 unweighted cases
 *Percentage not shown; based on fewer than 25 unweighted cases

4.9 Desire for More Children

In order to obtain information on fertility preferences, NFHS-2 asked nonsterilized, currently married, nonpregnant women: ‘Would you like to have (a/another) child or would you prefer not to have any (more) children?’ Pregnant women were asked, ‘After the child you are expecting, would you like to have another child or would you prefer not to have any more children?’ Women who expressed a desire for additional children were asked how long they would like to wait before the birth of their next child. The survey also collected information on the preferred sex of the next child and the ideal number of children by sex.

Figure 4.4
Fertility Preferences Among Currently Married Women



Note: Percents add to more than 100.0 due to rounding

NFHS-2, Assam, 1999

Table 4.13 and Figure 4.4 show future fertility preferences of currently married women. Forty-three percent of currently married women say that they do not want any more children, an additional 17 percent cannot have another child because either the wife or the husband has been sterilized, and 3 percent of women say that they cannot get pregnant (that is, they are ‘declared infecund’). Thirty percent of women say that they would like to have another child (15 percent within two years, 13 percent after waiting at least two years, and 2 percent are undecided when they want the next child). Overall, 73 percent of women either want to space their next birth or do not want any more children, including women who are sterilized or whose husbands are sterilized. This proportion is 81 percent in urban areas and 72 percent in rural areas. Six percent of women say that the decision about having children is up to God.

The desire to have a child within two years drops rapidly with the number of living children, from 71 percent of women with no living children to 6 percent for women with three living children. For women with one living child, 43 percent (37 percent in urban areas and 44 percent in rural areas) want to wait at least two years before having the next child. And yet, as will be seen in Chapter 5, very few women in Assam use any modern temporary method of contraception. These findings suggest that encouraging the use of modern temporary methods would lower overall fertility and population growth, as well as provide health benefits to mothers and their children through increased birth spacing.

Forty-two percent of women who want another child say that they want the next child to be a boy, 23 percent say that they want a girl, and the rest say that the sex of the child either does not matter (18 percent) or is up to God (17 percent). Both the proportion of women expressing a desire for a child of a particular sex and the proportion expressing a desire for a son increase with the number of living children. Among women with no living children, 27 percent want their

Table 4.13 Fertility preferences

Percent distribution of currently married women by desire for children and preferred sex of additional child, according to number of living children and residence, Assam, 1999

Desire for children	Number of living children ¹					Total
	0	1	2	3	4+	
URBAN						
Desire for additional child						
Wants another soon ²	64.4	19.2	3.8	0.7	0.0	10.4
Wants another later ³	8.0	36.5	6.7	0.6	0.7	11.3
Wants another, undecided when	0.0	1.6	0.0	0.0	0.0	0.4
Undecided	1.7	2.7	0.0	0.6	0.0	0.9
Up to God	24.2	5.6	2.7	2.7	0.7	4.5
Wants no more	0.0	27.1	69.7	62.3	60.4	51.5
Sterilized	0.0	1.9	16.3	31.1	33.4	18.1
Declared infecund	1.7	4.9	0.4	1.9	3.9	2.6
Missing	0.0	0.5	0.4	0.0	0.9	0.4
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	19	62	80	51	54	266
Preferred sex of additional child⁴						
Boy	(10.6)	37.2	*	*	*	36.6
Girl	(2.3)	31.4	*	*	*	20.4
Doesn't matter	(65.1)	18.8	*	*	*	29.0
Up to God	(22.0)	12.5	*	*	*	14.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women wanting more ⁴	14	31	7	1	0	52
RURAL						
Desire for additional child						
Wants another soon ²	71.3	29.0	12.6	6.9	0.9	15.8
Wants another later ³	11.8	43.9	12.0	5.2	1.8	12.9
Wants another, undecided when	1.8	3.2	2.9	0.9	0.6	1.7
Undecided	1.3	1.4	1.6	0.4	1.0	1.1
Up to God	6.0	8.6	7.0	4.2	6.2	6.4
Wants no more	0.4	10.1	48.3	54.5	60.0	42.3
Sterilized	0.5	2.4	13.5	26.0	25.0	16.6
Declared infecund	6.9	0.9	1.8	1.0	3.8	2.6
Missing	0.0	0.5	0.4	0.8	0.8	0.6
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	264	513	612	573	950	2,912
Preferred sex of additional child⁴						
Boy	27.9	40.8	56.2	65.7	*	42.8
Girl	2.7	36.1	28.7	20.5	*	23.1
Doesn't matter	36.6	12.1	5.8	4.0	*	17.0
Up to God	32.9	11.1	9.3	9.7	*	17.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women wanting more ⁴	224	309	144	65	24	765

Table 4.13 Fertility preferences (contd.)

Percent distribution of currently married women by desire for children and preferred sex of additional child, according to number of living children and residence, Assam, 1999

Desire for children	Number of living children ¹					Total
	0	1	2	3	4+	
TOTAL						
Desire for additional child						
Wants another soon ²	70.8	27.9	11.5	6.4	0.8	15.4
Wants another later ³	11.5	43.1	11.4	4.8	1.7	12.8
Wants another, undecided when	1.7	3.0	2.6	0.8	0.6	1.6
Undecided	1.4	1.5	1.4	0.4	1.0	1.1
Up to God	7.2	8.3	6.5	4.1	5.9	6.2
Wants no more	0.4	11.9	50.7	55.1	60.0	43.0
Sterilized	0.4	2.3	13.8	26.4	25.4	16.7
Declared infecund	6.6	1.4	1.6	1.1	3.8	2.6
Missing	0.0	0.5	0.4	0.8	0.8	0.6
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	283	575	693	624	1,004	3,179
Preferred sex of additional child⁴						
Boy	26.9	40.4	57.2	66.1	*	42.4
Girl	2.6	35.7	27.9	20.3	*	22.9
Doesn't matter	38.2	12.7	5.8	3.9	*	17.8
Up to God	32.2	11.2	9.2	9.6	*	16.9
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women wanting more ⁴	238	339	150	66	24	817
() Based on 25–49 unweighted cases *Percentage not shown; based on fewer than 25 unweighted cases ¹ Includes current pregnancy, if any ² Wants next birth within 2 years ³ Wants to delay next birth for 2 or more years ⁴ Excludes currently pregnant women						

first child to be a son, 3 percent want a daughter, and 70 percent say that the sex of the child does not matter or is up to God. Among women with three living children, 66 percent want their next child to be a son, 20 percent want a daughter, and only 14 percent say that the sex of the child does not matter or is up to God.

Table 4.14 provides information about differentials in the desire to limit family size by selected background characteristics. In this table, women who are sterilized (or whose husbands are sterilized) are included among those who say that they want no more children. It is striking that 65 percent of women with two living children want no more children. As expected, older women are much more likely than younger women to want no more children. Already by age 25–34, 64 percent of women want no more children. At age 35 and above, 86 percent of women want no more children. The proportion who want no more children is higher among urban women (70 percent) than among rural women (59 percent). The proportion wanting no more children does not vary systematically with women’s educational level (probably because more-educated women tend to be younger than less-educated women and also to have their children later in life). The proportion who want no more children is higher among Hindu women (66 percent) and Christian women (62 percent) than among Muslim women (48 percent). The

Table 4.14 Desire to have no more children by background characteristics

Percentage of currently married women who want no more children by number of living children and selected background characteristics, Assam, 1999

Background characteristic	Number of living children ¹					Total
	0	1	2	3	4+	
Age						
15–24	0.0	5.8	47.4	62.5	*	23.0
25–34	0.0	18.9	68.9	78.5	80.8	64.2
35–49	(9.0)	64.2	83.9	93.1	89.0	86.1
Residence						
Urban	0.0	29.0	86.1	93.4	93.8	69.6
Rural	0.9	12.5	61.7	80.5	85.0	58.8
Education						
Illiterate	0.0	10.5	52.3	75.9	83.1	59.9
Literate, < middle school complete	3.9	12.5	63.6	84.9	90.4	61.0
Middle school complete	(0.0)	15.5	80.3	89.0	89.5	60.0
High school complete and above	0.0	23.6	78.4	96.4	(93.8)	55.7
Religion						
Hindu	1.4	18.2	71.7	88.6	91.3	65.8
Muslim	0.0	8.6	44.5	64.1	77.0	48.0
Christian	*	*	*	*	*	62.2
Caste/tribe						
Scheduled caste	*	9.7	66.9	89.2	90.3	65.6
Scheduled tribe	(0.0)	15.1	67.4	85.0	90.7	66.5
Other backward class	(0.0)	16.7	70.6	91.1	94.3	66.8
Other	1.4	14.5	62.1	76.7	82.6	55.7
Standard of living index						
Low	0.0	10.5	53.2	78.5	81.4	56.0
Medium	2.1	15.3	67.2	83.2	88.1	61.9
High	(0.0)	21.7	81.4	89.4	94.1	64.6
Number of living sons²						
0	0.8	16.5	44.3	(53.5)	(70.4)	18.9
1	NA	17.0	73.1	79.5	84.2	61.0
2	NA	NA	65.6	93.2	86.0	83.2
3+	NA	NA	NA	72.7	88.5	86.5
Number of living daughters²						
0	0.8	17.0	65.6	72.7	82.5	30.8
1	NA	16.5	73.1	93.2	91.4	69.7
2	NA	NA	44.3	79.5	86.2	77.2
3+	NA	NA	NA	(53.5)	84.9	82.1
Total	0.8	14.3	64.5	81.6	85.5	59.7

Note: Women who have been sterilized or whose husbands have been sterilized are considered to want no more children. Total includes 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

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

¹Includes current pregnancy, if any

²Excludes pregnant women

proportion wanting no more children ranges from 56 percent among women who do not belong to a scheduled caste, scheduled tribe, or other backward class (OBC) to 66 percent among scheduled-caste women and 67 percent among scheduled-tribe and OBC women. The proportion who want no more children increases with standard of living, from 56 percent for women living in households with a low standard of living to 65 percent for women living in households with a high standard of living.

The background characteristic with the strongest effect on women's desire to limit family size, however, is number of living sons. Only 19 percent of women with no living sons want no more children, compared with 87 percent of women with three or more living sons. Differences associated with the number of living daughters are also large, but not as large as differences associated with the number of living sons, again indicating a preference for sons. Thirty-one percent of women with no living daughters want no more children, compared with 82 percent of women with three or more living daughters. It is interesting to note that 44 percent of women with two daughters and no sons do not want a third child.

4.10 Ideal Number of Children

To assess women's ideal number of children, NFHS-2 asked each woman the number of children she would like to have if she could start over again. Women with no children were asked, 'If you could choose exactly the number of children to have in your whole life, how many would that be?' Women who already had children were asked, 'If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be?' Some women found it difficult to answer these hypothetical questions, and hence the question sometimes had to be repeated to ensure that the meaning was understood. Yet 98 percent of women in Assam were able to give a numerical response.

Table 4.15 shows that 71 percent of ever-married women in Assam consider two or three to be the ideal number of children. Only 27 percent have an ideal that differs from two or three children. Among all women who gave a numeric response, the average number of children considered ideal is 2.9, ranging from 2.3–2.5 for women who have two or fewer children to 3.7 for women who have four or more children.

Asking a question on ideal family size is sometimes criticized on the grounds that women tend to adjust their ideal family size upward as their number of living children increases, in a process of rationalizing previously unwanted children as wanted. It is argued that the question on ideal family size prompts many women to state the actual number of children they already have as their ideal. It is evident from Table 4.15, however, that this is not so for many women in Assam. Among women with four or more living children, for example, 44 percent state that fewer than four children would be ideal. Similarly, among women with three living children, 32 percent state that their ideal family size is smaller than three children. It is evident from these results that a substantial proportion of women in Assam already have more children than they now consider ideal. This proportion may be taken as another indicator of surplus or unwanted fertility.

Table 4.15 Ideal and actual number of children						
Percent distribution of ever-married women by ideal number of children, and mean ideal number of children, by number of living children, Assam, 1999						
Ideal number of children	Number of living children ¹					Total
	0	1	2	3	4+	
0	0.1	0.0	0.0	0.0	0.0	0.0
1	6.4	7.1	1.4	0.3	0.2	2.4
2	52.1	60.0	61.4	31.2	15.7	40.3
3	28.3	24.9	25.2	47.5	28.3	30.7
4	8.5	5.7	8.5	15.9	36.4	18.1
5	1.9	0.8	1.7	3.5	7.9	3.8
6+	0.0	0.4	0.8	0.5	8.6	3.0
Non-numeric response	2.8	1.0	1.0	1.1	2.7	1.7
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	323	631	753	665	1,069	3,441
Mean ideal number ²	2.5	2.3	2.5	2.9	3.7	2.9
Number of women giving numeric response	314	624	745	658	1,040	3,382

¹Includes current pregnancy, if any
²Means are calculated excluding women who gave non-numeric responses.

Table 4.16 shows the mean ideal number of children for ever-married women by age according to selected background characteristics. The mean ideal number of children increases gradually from 2.6 for women age 15–24 to 3.3 for women age 40–49. The average ideal number of children is lower in urban areas (2.3 children) than in rural areas (3.0 children). The mean ideal number of children is more than one child higher for illiterate women than for women who have completed at least high school. The pattern is similar according to the education level of the husband, although the effect is not as large. The mean ideal number of children is 2.8 for Hindus, 3.0 for Christians, and 3.2 for Muslims. It is about the same for the various caste/tribe groups, except that it is about half a child lower for women belonging to other backward classes than other groups. The mean ideal number of children ranges from 2.4 for women living in households with a high standard of living to 3.1 for women living in households with a low standard of living, and it is somewhat higher for women who are employed by someone else than for women in the other work-status groups shown in the table.

4.11 Sex Preference for Children

A strong preference for sons has been found to be pervasive in Indian society, affecting both attitudes and behaviour with respect to children (Arnold et al., 1998; Arnold, 1996; Basu, 1989; Das Gupta, 1987; Kishor, 1995; Koenig and Foo, 1992; Murthi et al., 1995; Nag, 1991; Parasuraman et al., 1994). In NFHS-2, women who gave a numerical response to the question on ideal number of children were asked how many of these children they would like to be boys, how many they would like to be girls, and for how many the sex would not matter. Table 4.17 shows women's mean ideal number of sons and daughters, the percentages who want more children of a particular sex, the percentage who want at least one son, and the percentage who want at least one daughter, according to selected background characteristics. The table shows a consistent

Table 4.16 Ideal number of children by background characteristics

Mean ideal number of children reported by ever-married women, according to current age and selected background characteristics, Assam, 1999

Background characteristic	Current age							Total
	15–19	20–24	25–29	30–34	35–39	40–44	45–49	
Residence								
Urban	*	2.2	2.0	2.2	2.4	2.7	2.7	2.3
Rural	2.6	2.6	2.8	3.0	3.2	3.3	3.4	3.0
Education								
Illiterate	2.7	2.8	3.1	3.3	3.5	3.5	3.5	3.2
Literate, < middle school complete	2.6	2.5	2.7	2.8	3.0	3.2	3.2	2.8
Middle school complete	2.2	2.3	2.4	2.3	2.4	(2.8)	(2.8)	2.4
High school complete and above	*	2.2	2.1	2.1	2.1	(2.2)	(2.5)	2.1
Religion								
Hindu	2.5	2.4	2.6	2.8	2.9	3.1	3.2	2.8
Muslim	2.7	2.8	3.0	3.3	3.6	3.8	4.0	3.2
Christian	*	*	*	*	*	*	*	3.0
Other	*	*	*	*	*	*	*	(3.0)
Caste/tribe								
Scheduled caste	(2.6)	2.5	2.7	3.0	(3.2)	(3.4)	(3.3)	2.9
Scheduled tribe	(2.6)	2.6	2.9	3.1	3.3	3.3	3.2	3.0
Other backward class	*	2.1	2.3	2.4	2.6	2.9	3.1	2.5
Other	2.6	2.7	2.8	3.0	3.1	3.3	3.5	2.9
Work status								
Working in family farm/business	*	*	*	(3.0)	(2.9)	*	*	2.9
Employed by someone else	(2.8)	(2.9)	2.9	3.2	3.5	(3.4)	(3.6)	3.2
Self-employed	*	*	(2.7)	(2.8)	(2.9)	*	*	2.8
Not worked in past 12 months	2.5	2.6	2.7	2.9	3.1	3.3	3.3	2.9
Standard of living index								
Low	2.8	2.7	3.0	3.3	3.5	3.5	3.3	3.1
Medium	2.4	2.5	2.6	2.7	3.0	3.3	3.5	2.8
High	*	2.2	2.1	2.4	2.3	2.6	2.9	2.4
Husband's education								
Illiterate	2.8	2.8	3.2	3.3	3.5	3.5	3.6	3.2
Literate, < primary school complete	(2.7)	2.7	2.7	3.1	3.2	3.4	3.5	3.0
Primary school complete	(2.4)	2.5	2.9	3.0	3.2	(3.3)	3.2	2.9
Middle school complete	(2.5)	2.5	2.6	2.6	2.8	3.2	(3.3)	2.7
High school complete	*	(2.4)	2.3	2.5	(2.6)	(3.2)	(3.0)	2.6
Higher secondary complete and above	*	2.1	2.2	2.1	2.1	2.4	(2.5)	2.2
Total	2.6	2.6	2.8	2.9	3.1	3.3	3.3	2.9

Note: Means are calculated excluding women who gave non-numeric responses. Total includes women with missing information on religion, caste/tribe, the standard of living index, and husband's education, who are not shown separately.

() Based on 25–49 unweighted cases

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

Table 4.17 Indicators of sex preference

Mean ideal number of sons, daughters, and children of either sex for ever-married women, percentage who want more sons than daughters, percentage who want more daughters than sons, percentage who want at least one son, and percentage who want at least one daughter by selected background characteristics, Assam, 1999

Background characteristic	Mean ideal number of:			Percentage who want more sons than daughters	Percentage who want more daughters than sons	Percentage who want at least one son	Percentage who want at least one daughter	Number of women
	Sons	Daughters	Either sex					
Residence								
Urban	1.2	1.0	0.2	25.6	5.4	88.6	84.7	291
Rural	1.6	1.2	0.1	39.4	2.7	95.1	91.6	3,088
Education								
Illiterate	1.8	1.3	0.1	44.4	2.8	95.5	92.6	1,814
Literate, < middle school complete	1.5	1.1	0.1	39.6	1.9	94.5	91.3	756
Middle school complete	1.2	1.0	0.2	24.7	3.4	93.5	88.6	480
High school complete and above	1.1	0.9	0.1	20.6	5.2	90.8	85.1	329
Religion								
Hindu	1.5	1.1	0.2	34.4	3.0	93.1	89.1	2,173
Muslim	1.8	1.3	0.1	46.6	2.5	97.1	94.4	1,081
Christian	1.6	1.3	0.1	29.3	6.6	96.7	93.1	77
Other	(1.6)	(1.3)	(0.1)	(35.4)	(5.1)	(96.6)	(96.6)	24
Caste/tribe								
Scheduled caste	1.6	1.2	0.1	38.0	3.3	95.4	92.6	345
Scheduled tribe	1.6	1.2	0.2	40.7	3.8	94.9	92.2	685
Other backward class	1.3	1.0	0.2	29.0	3.2	92.8	87.1	396
Other	1.6	1.2	0.1	39.2	2.4	94.5	91.2	1,875
Work status								
Working in family farm/business	1.6	1.2	0.1	36.9	3.1	96.4	93.2	166
Employed by someone else	1.7	1.3	0.2	37.4	2.7	94.1	92.7	369
Self-employed	1.6	1.2	0.1	39.1	1.2	95.6	95.1	152
Not worked in past 12 months	1.6	1.2	0.1	38.3	3.1	94.4	90.5	2,692
Standard of living index								
Low	1.7	1.2	0.1	44.0	2.4	95.5	92.2	1,430
Medium	1.5	1.1	0.1	36.9	2.9	94.4	90.9	1,451
High	1.2	1.0	0.2	24.8	4.6	91.6	87.7	393
Husband's education								
Illiterate	1.8	1.3	0.1	44.6	2.7	96.9	94.5	1,232
Literate, < primary school complete	1.7	1.2	0.2	43.6	2.1	94.8	91.0	548
Primary school complete	1.6	1.1	0.2	38.4	1.9	91.8	88.7	406
Middle school complete	1.5	1.1	0.1	34.2	3.7	94.2	90.6	548
High school complete	1.3	1.0	0.2	29.2	2.6	93.5	87.5	285
Higher secondary complete and above	1.1	0.9	0.2	20.7	5.2	90.0	84.8	343
Total	1.6	1.2	0.1	38.2	2.9	94.5	91.0	3,379

Note: Table excludes women who gave non-numeric responses to the questions on ideal number of children or ideal number of sons and daughters. Total includes 24, 79, 104, and 16 women with missing information on religion, caste/tribe, the standard of living index, and husband's education, respectively, who are not shown separately.

() Based on 25–49 unweighted cases

preference for sons over daughters. Overall, the average ideal family size of 2.9 children consists of 1.6 sons, 1.2 daughters, and 0.1 child of either sex. Thirty-eight percent of women want more sons than daughters, but only 3 percent want more daughters than sons.

The indicator that shows the percentage of women who want at least one son and the percentage who want at least one daughter exhibits the weakest son preference. Although most women in Assam want more sons than daughters, a large majority (91 percent) of women also want at least one daughter. One reason that a substantial proportion of women want to have at least one daughter is to fulfil the Hindu religious obligation of *kanyadan* (giving a daughter away at the time of her marriage), which is one of the acts that enable the parents to acquire the highest level of merit (*punya*).

Son preference is relatively weak among women who live in urban areas, women who have at least completed high school, women whose husbands have at least completed high school, and women living in households with a high standard of living. Son preference is higher for Muslim women than for Hindu women and is least for Christian women, according to the indices shown in the table. Women from other backward classes show slightly less son preference than do women in the other caste/tribe groups. Son preference varies little by work status. The overall picture is that son preference is strong in all the population groups shown in the table.

4.12 Fertility Planning

For each child born in the three years before the survey and for each current pregnancy, NFHS-2 asked women whether the pregnancy was wanted at that time (planned), wanted at a later time (mistimed), or not wanted at all. Because a woman may retrospectively describe an unplanned pregnancy as one that was wanted at that time, responses to these questions may lead to an underestimation of unplanned childbearing. Nevertheless, this information provides a potentially powerful indicator of the degree to which couples successfully control childbearing. It should be noted that the proportion of births that are unplanned is influenced not only by whether and how effectively couples use contraception, but also by the couple's ideal family size.

Table 4.18 shows the percent distribution of births during the three years preceding the survey and current pregnancies according to fertility planning status. Almost one-quarter (22 percent) of all pregnancies that resulted in live births in the three years before the survey (including current pregnancies) were unplanned (that is, unwanted at the time the woman became pregnant). Eleven percent were wanted later, and another 11 percent were not wanted at all. By mother's age at childbirth, the proportion of births that were unplanned ranges from 15 percent for women below age 20 to 45 percent for women age 35–39 (which is the oldest age group shown in the table). Within the unplanned category, the proportion of births that were wanted later varies irregularly, and the proportion that were not wanted at all rises as mother's age increases.

The proportion of births that were unplanned does not vary widely by socioeconomic characteristics, except for mother's education where the proportion ranges from 24 percent for illiterate women to 14 percent for women who have completed at least high school. Scheduled-caste women have a much higher level of unwanted pregnancies than any other caste/tribe group. Not surprisingly, higher order births are more likely than lower order births to be unplanned.

Table 4.18 Fertility planning

Percent distribution of births during the three years preceding the survey and current pregnancies by fertility planning status, according to selected background characteristics, Assam, 1999

Background characteristic	Planning status of pregnancy				Total percent	Number of births and current pregnancies
	Wanted then	Wanted later	Not wanted at all	Missing		
Mother's age at birth¹						
< 20	84.2	12.7	2.4	0.7	100.0	339
20–24	79.1	11.0	9.4	0.5	100.0	495
25–29	74.8	9.7	14.7	0.7	100.0	334
30–34	72.5	6.2	20.4	0.9	100.0	165
35–39	54.6	15.8	29.0	0.6	100.0	54
Residence						
Urban	77.8	8.5	12.9	0.8	100.0	85
Rural	77.4	11.0	11.0	0.6	100.0	1,313
Mother's education						
Illiterate	75.2	10.5	13.5	0.7	100.0	743
Literate, < middle school complete	78.2	10.4	10.9	0.4	100.0	333
Middle school complete	79.4	12.7	7.2	0.6	100.0	203
High school complete and above	84.9	10.7	3.4	0.9	100.0	120
Religion						
Hindu	77.1	12.3	10.1	0.5	100.0	793
Muslim	78.7	8.7	11.8	0.8	100.0	560
Caste/tribe						
Scheduled caste	67.2	13.9	18.1	0.8	100.0	152
Scheduled tribe	76.6	11.7	11.1	0.6	100.0	262
Other backward class	78.5	16.0	5.5	0.0	100.0	114
Other	78.9	9.4	11.0	0.7	100.0	832
Standard of living index						
Low	75.0	10.8	13.4	0.9	100.0	709
Medium	81.6	9.1	8.9	0.4	100.0	541
High	76.1	14.8	9.1	0.0	100.0	99
Birth order²						
1	85.8	8.5	5.0	0.8	100.0	510
2	79.1	15.1	5.5	0.4	100.0	329
3	69.9	10.4	18.6	1.1	100.0	207
4+	68.0	10.6	20.9	0.4	100.0	352
Total	77.4	10.8	11.1	0.6	100.0	1,398

Note: Table includes the two most recent births in the three years preceding the survey and current pregnancies. Total includes 11 births to women age 40–44, 25 births to Christian women, 5 births to women belonging to 'other' religions, and 15, 37, and 48 births with missing information on religion, caste/tribe, and the standard of living index, respectively, which are not shown separately.

¹For current pregnancy, estimated maternal age at birth

²Includes current pregnancy, if any

The proportion unplanned ranges from 14 percent for first-order births to 32 percent for births of order four or higher. The fact that 21 percent of births of order four or higher were not wanted at all indicates that the family welfare programme has failed to meet the contraceptive needs of higher-parity women who want no more births. The substantial proportions of women at all parities who would have liked to have had their births later also suggests that the family welfare programme needs to do more to promote spacing methods of contraception.

The impact of unwanted fertility can be measured by comparing the total wanted fertility rate with the total fertility rate (TFR). The total wanted fertility rate represents the level of fertility that theoretically would result if all unwanted births were prevented. A comparison of the TFR with the total wanted fertility rate indicates the potential demographic impact of the elimination of all unwanted births. The total wanted fertility rates presented in Table 4.19 are calculated in the same way as the TFR except that unwanted births are excluded from the numerator. In this case, a birth is considered unwanted if the number of living children at the time of conception was greater than or equal to the ideal number of children reported by the respondent at the time of the survey. Women who did not give a numeric response to the question on ideal number of children are assumed to have wanted all the births they had.

Table 4.19 Wanted fertility rates		
Total wanted fertility rate and total fertility rate for the three years preceding the survey by selected background characteristics, Assam, 1999		
Background characteristic	Total wanted fertility rate	Total fertility rate
Residence		
Urban	1.24	1.50
Rural	1.80	2.39
Education		
Illiterate	2.10	2.83
Literate, < middle school complete	1.72	2.40
Middle school complete	1.46	1.78
High school complete and above	1.21	1.26
Religion		
Hindu	1.65	2.00
Muslim	2.04	3.05
Christian	0.91	1.69
Other	(0.86)	(1.42)
Caste/tribe		
Scheduled caste	2.12	2.57
Scheduled tribe	1.66	2.10
Other backward class	1.27	1.54
Other	1.69	2.35
Standard of living index		
Low	2.11	2.96
Medium	1.55	1.95
High	1.24	1.39
Total	1.75	2.31
Note: Rates are based on births in the period 1–36 months preceding the survey to women age 15–49. The total fertility rates are the same as those presented in Table 4.3. Total includes women with missing information on religion, caste/tribe, and the standard of living index, who are not shown separately. () Based on 125–249 woman-years of exposure		

Overall, the total wanted fertility rate of 1.75 in Assam is lower by 0.56 child (i.e., by 24 percent) than the total fertility rate of 2.31. The table additionally indicates that if all unwanted births were eliminated, women in all population groups shown in the table would have fertility as low as or lower than the replacement level of fertility of 2.1 children per woman. These results must be interpreted cautiously, however, because, as mentioned earlier, total fertility rates in Assam for the three-year period before the survey (and also the wanted total fertility rates because of the way they are calculated) are biased downward by age misreporting and displacement of births backward in time. Were there no age misreporting, the wanted TFRs would probably be much closer to the substantially higher estimates of ideal family size.