

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. However, if there is a difference between age at marriage and age at consummation of marriage, the latter measure is more 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 shows that, in Karnataka, the median age at first cohabitation with the husband is 17.4 years for women age 20–49. The median age at first cohabitation increases from 16.7 for women age 40–49 to 18.5 for women age 20–24, suggesting a modest increase in the median age at first cohabitation, particularly in recent years.

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, Karnataka, 1999							
Background characteristic	Current age						
	20–24	25–29	30–34	35–39	40–49	20–49	25–49
Residence							
Urban	NC	19.2	18.2	18.4	17.9	18.8	18.4
Rural	17.3	16.7	16.4	16.3	16.1	16.5	16.4
Education							
Illiterate	15.7	15.8	15.9	15.8	15.7	15.8	15.8
Literate, < middle school complete	18.3	17.7	16.6	17.7	17.4	17.4	17.2
Middle school complete	19.5	19.0	(18.9)	(19.3)	(18.4)	19.1	18.8
High school complete and above	NC	21.7	21.4	22.6	21.2	NC	21.7
Religion							
Hindu	18.5	17.6	16.9	17.0	16.7	17.3	17.0
Muslim	18.1	16.8	16.1	16.3	16.1	16.7	16.4
Christian	NC	(24.0)	*	*	(20.7)	NC	22.3
Other	*	*	*	*	*	(16.9)	(16.9)
Caste/tribe							
Scheduled caste	17.1	16.0	16.0	15.6	15.7	16.0	15.8
Scheduled tribe	(16.1)	15.8	(15.6)	(16.3)	15.1	15.8	15.7
Other backward class	18.9	17.9	17.4	17.2	16.8	17.7	17.3
Other	19.0	18.6	17.5	18.2	17.1	18.2	17.9
Standard of living index							
Low	15.8	15.6	15.7	15.8	15.5	15.7	15.7
Medium	18.6	17.8	16.9	16.6	16.5	17.3	16.9
High	NC	21.3	19.5	20.2	18.7	NC	19.8
Total	18.5	17.7	16.9	17.0	16.7	17.4	17.0
Note: Total includes women with missing information on caste/tribe and the standard of living index, who are not shown separately.							
NC: Not calculated because less than 50 percent of women have started living with their husband by age 20							
() Based on 25–49 unweighted cases							
*Median not shown; based on fewer than 25 unweighted cases							

For women age 25–49, the median age at first cohabitation is two years higher for women in urban areas than in rural areas. The median age at first cohabitation has risen faster in urban areas than in rural areas, so the urban-rural gap has been widening over time. The median age at first cohabitation rises sharply with women's level of education, from 15.8 years for illiterate women age 25–49 to 21.7 years for women who have completed at least high school education. The median age at first cohabitation is much higher for Christians (22.3 years) than for Hindus (17.0 years) or Muslims (16.4 years). The median age at first cohabitation is lower for women from scheduled castes and scheduled tribes (15.7–15.8 years) than for women who do not belong to either of these groups (17.3–17.9 years). The median age at first cohabitation is four years higher for women in households with a high standard of living index (19.8 years) than for women in households with a low standard of living index (15.7 years).

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 Karnataka, 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 the five-year age groups. The CBR is defined as the annual number of births per 1,000 population. Based on estimates for the three-year period before NFHS-2 shown in Table 4.2, the CBR for Karnataka is estimated at 20.4 live births per 1,000 population, and the TFR is estimated at 2.13 births per woman (close to the replacement level of fertility).

Table 4.2 shows that NFHS-2 fertility estimates are much lower in urban areas than in rural areas. The CBR is 14 percent lower in urban areas than in rural areas, and the urban TFR is 16 percent lower than the rural TFR. ASFRs are lower in urban areas than in rural areas for younger women (age less than 25) but there is not much difference at the older ages, as shown in Figure 4.1. Sixty-six percent of total fertility in urban areas and 60 percent in rural areas is concentrated in the prime childbearing ages of 20–29. Fertility at age 15–19 accounts for 18 percent of total fertility in urban areas, 30 percent in rural areas, and 26 percent overall, indicating that there is a substantial amount of early childbearing. For the state as a whole, fertility at ages 35 and older accounts for only 3 percent of total fertility.

Based on estimates for the three-year periods preceding NFHS-1 and NFHS-2, the CBR fell from 25.9 to 20.4 between the two surveys, a decline of 21 percent in approximately six years. Over the same period, the TFR fell from 2.85 to 2.13, a decline of 25 percent. Table 4.2 and Figure 4.2 show that fertility fell for all age groups.

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 20.4, is lower than the SRS estimate of 22.7. The NFHS-2 estimate of the TFR (2.13) is 0.36 children lower than the SRS estimate of 2.49. The differences between the NFHS-2 and SRS estimates may be caused partly by age misreporting in NFHS-2, which tends to result in the 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. However, the SRS estimates are likely to be closer to the true level of fertility than either the NFHS-1 or NFHS-2 estimates (Retherford et al., 2001).

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, Karnataka

Age	NFHS-1 (1990-92)		NFHS-2 (1996-98)		SRS (1997)		
	Total	Urban	Rural	Total	Urban	Rural	Total
15-19	0.129	0.069	0.135	0.112	0.030	0.066	0.055
20-24	0.206	0.160	0.180	0.172	0.164	0.225	0.204
25-29	0.134	0.091	0.089	0.090	0.133	0.144	0.140
30-34	0.064	0.042	0.033	0.037	0.048	0.054	0.052
35-39	0.024	0.010	0.009	0.009	0.033	0.043	0.040
40-44	0.006	0.005	0.002	0.003	0.002	0.008	0.006
45-49	0.005	0.000	0.002	0.001	0.002	0.001	0.001
TFR 15-44	2.82	1.89	2.24	2.12	2.05	2.70	2.49
TFR 15-49	2.85	1.89	2.25	2.13	2.06	2.71	2.49
CBR	25.9	18.5	21.4	20.4	20.1	23.9	22.7

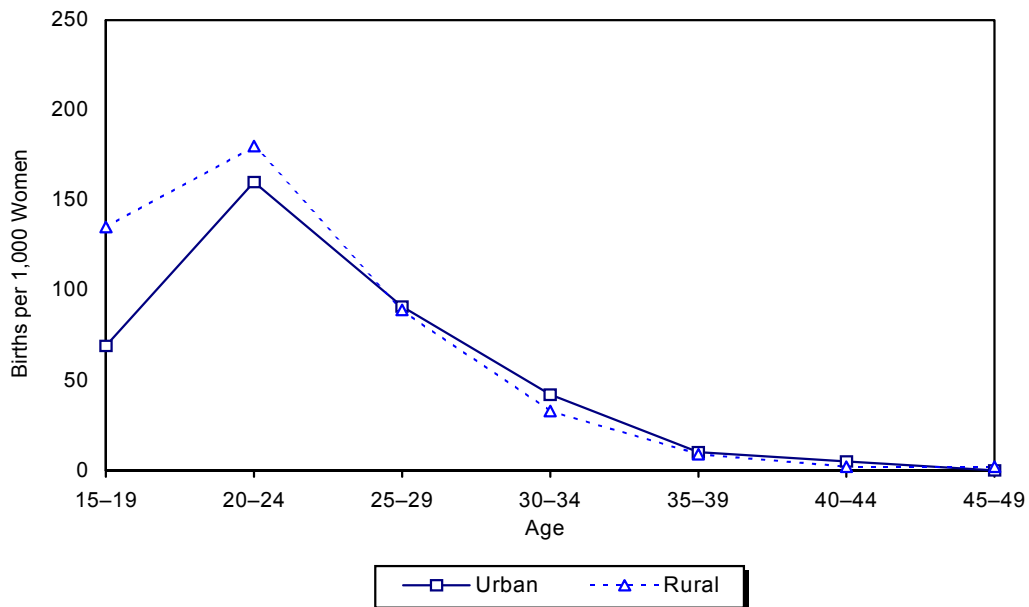
Note: Rates from NFHS-1 and NFHS-2 are for the period 1-36 months preceding the survey. Rates for the age group 45-49 might be slightly biased due to truncation. Rates from the SRS are for one calendar year. Age-specific and total fertility rates are expressed per woman.

TFR: Total fertility rate

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

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

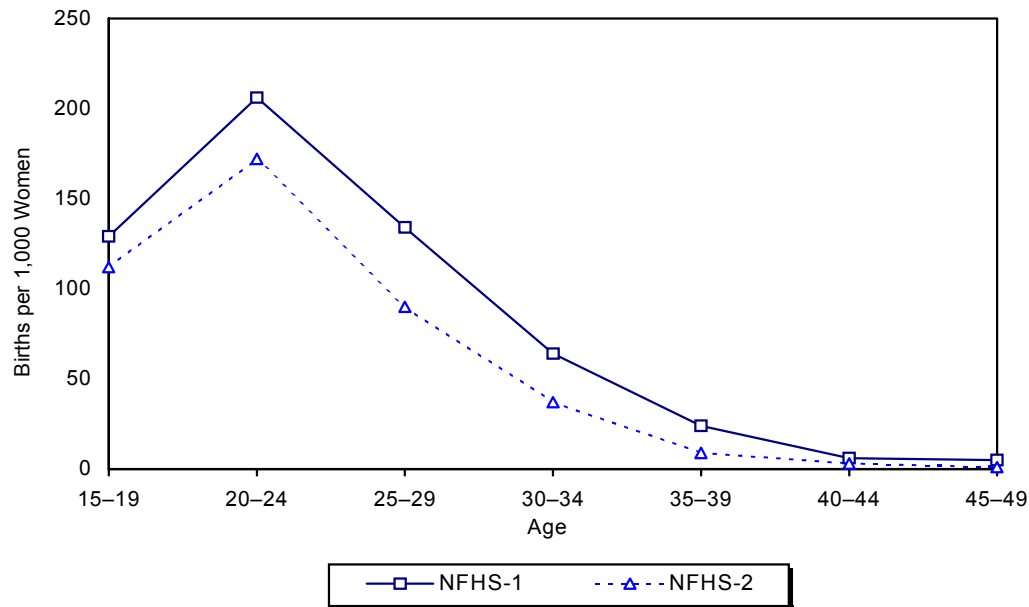
**Figure 4.1
Age-Specific Fertility Rates
by Residence**



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

NFHS-2, Karnataka, 1999

Figure 4.2
Age-Specific Fertility Rates
NFHS-1 and NFHS-2



Note: Rates are for the three years preceding the NFHS-1 (1990-92) and NFHS-2 (1996-98) surveys

Karnataka

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. In Karnataka, the TFR is two-thirds of a child higher among illiterate women than among women who have completed at least a high school education, nearly one child higher among Muslims than among Hindus, and more than two-thirds of a child higher among women in households with a low standard of living than among women in households with a high standard of living. The TFR is 2.49 among women from scheduled castes, 2.38 among women from scheduled tribes, 1.85 among women from other backward classes, and 2.24 among women who do not belong to any of these groups.

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 there are still fertility differentials in Karnataka, with the TFR and other fertility indicators varying considerably among population groups.

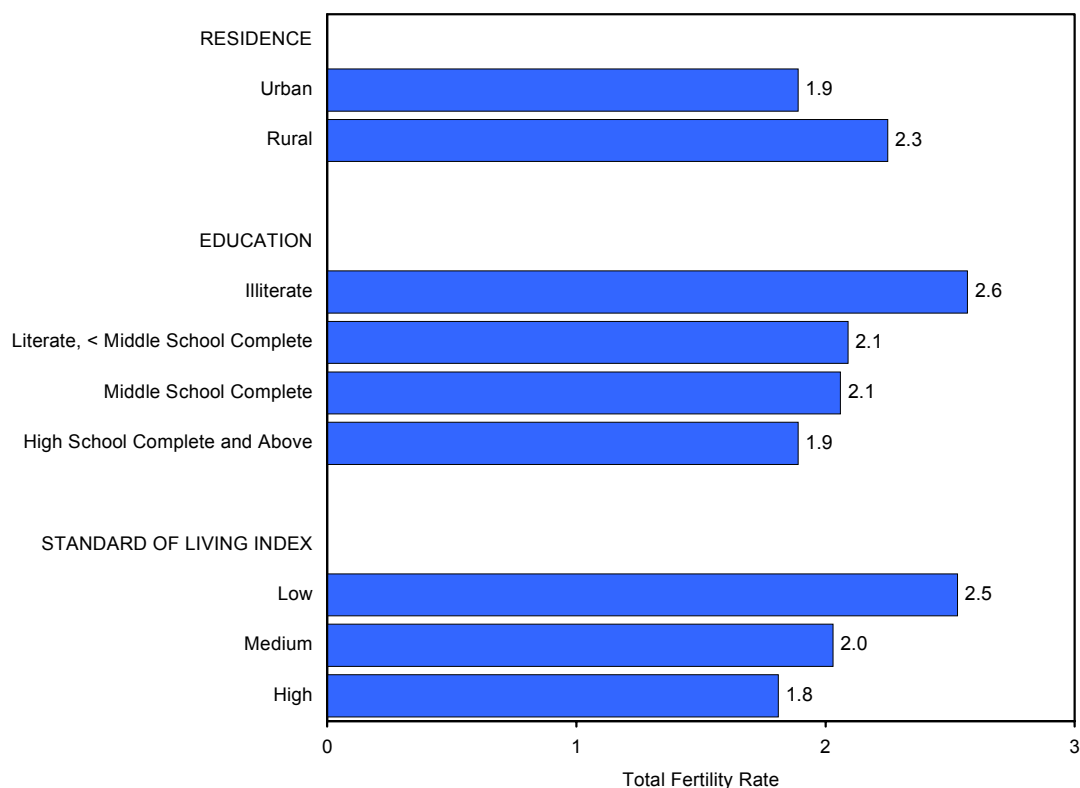
Overall, 5 percent of women in Karnataka report that they are currently pregnant (slightly lower than the national average of 6 percent). For the most part, differentials in the percentage currently pregnant follow a pattern similar to that for differentials in the TFR, but there are several exceptions. These exceptions may be due partly to the fact that the TFR is not affected by the age structure, whereas the percentage currently pregnant is affected by the age structure.

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, Karnataka, 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	1.89	4.3	3.62
Rural	2.25	5.6	4.48
Education			
Illiterate	2.57	4.9	4.67
Literate, < middle school complete	2.09	6.0	3.95
Middle school complete	2.06	5.8	(3.50)
High school complete and above	1.89	4.6	2.61
Religion			
Hindu	2.04	5.0	4.04
Muslim	2.84	6.2	5.77
Christian	1.57	3.4	(2.95)
Other	(1.56)	(4.5)	*
Caste/tribe			
Scheduled caste	2.49	5.4	5.12
Scheduled tribe	2.38	5.1	4.98
Other backward class	1.85	5.2	3.94
Other	2.24	4.9	3.92
Standard of living index			
Low	2.53	5.9	4.65
Medium	2.03	5.3	4.30
High	1.81	3.8	3.43
Total	2.13	5.1	4.15
Note: Total includes women with missing information on caste/tribe and the standard of living index, who are not shown separately. () Based on 125–249 woman-years of exposure for the total fertility rate and 25–49 unweighted cases for the other indicators *Mean not shown; based on fewer than 25 unweighted cases ¹ Rate for women age 15–49 years ² For this calculation, it is assumed that women who are never married, widowed, divorced, separated, or deserted are not currently pregnant.			

The last column of Table 4.3 shows the mean number of children ever born to all 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 4.15. The substantial decline in fertility in Karnataka over time is evident from the difference of two children between the average number of children for 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 (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 already 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

Figure 4.3
Total Fertility Rate by Selected Background Characteristics



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

NFHS-2, Karnataka, 1999

five-year time periods preceding NFHS-2, estimated solely from NFHS-2 birth histories. It is not 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 the age range 40–49, and for the period 15–19 years preceding the survey, it is not possible to compute ASFRs for the age range 35–49. Thus Table 4.4 shows only the 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 may be 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 Karnataka as a whole, CFR(15–39) declined from 3.06 to 2.25 between these two five-year periods, a decline of 0.8

Table 4.4 Fertility trends				
Age-specific fertility rates for five-year periods preceding the survey by residence, Karnataka, 1999				
Age	Years preceding survey			
	0-4	5-9	10-14	15-19
URBAN				
15-19	0.073	0.113	0.140	0.161
20-24	0.170	0.203	0.231	0.250
25-29	0.095	0.121	0.141	0.187
30-34	0.041	0.054	0.082	[0.090]
35-39	0.011	0.032	[0.038]	U
40-44	0.003	[0.006]	U	U
45-49	[0.000]	U	U	U
RURAL				
15-19	0.144	0.210	0.237	0.221
20-24	0.191	0.239	0.278	0.289
25-29	0.099	0.132	0.183	0.226
30-34	0.037	0.056	0.098	[0.153]
35-39	0.012	0.023	[0.042]	U
40-44	0.003	[0.017]	U	U
45-49	[0.002]	U	U	U
TOTAL				
15-19	0.120	0.175	0.199	0.198
20-24	0.183	0.225	0.260	0.275
25-29	0.097	0.128	0.167	0.211
30-34	0.038	0.056	0.091	[0.128]
35-39	0.012	0.027	[0.041]	U
40-44	0.003	[0.013]	U	U
45-49	[0.001]	U	U	U
Note: Age-specific fertility rates are expressed per woman. U: Not available [] Truncated, censored				

children. The decline was 0.7 children for urban areas and 0.9 children for rural areas, indicating that the absolute level of fertility fell somewhat more rapidly 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 the 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 somewhat 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 all durations and time periods.

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

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.

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, Karnataka, 1999				
Duration since first cohabitation (in years)	Years preceding survey			
	0–4	5–9	10–14	15–19
URBAN				
< 5	0.302	0.333	0.337	0.338
5–9	0.129	0.177	0.205	0.259
10–14	0.040	0.063	0.102	0.152
15–19	0.017	0.041	0.070	(0.075)
20–24	0.004	0.021	(0.034)	*
25–29	0.002	(0.000)	*	U
RURAL				
< 5	0.323	0.361	0.378	0.344
5–9	0.174	0.211	0.254	0.303
10–14	0.065	0.104	0.168	0.208
15–19	0.029	0.054	0.092	0.156
20–24	0.010	0.024	0.046	*
25–29	0.004	0.014	*	U
TOTAL				
< 5	0.316	0.351	0.363	0.342
5–9	0.159	0.199	0.237	0.286
10–14	0.056	0.090	0.142	0.190
15–19	0.025	0.049	0.085	0.134
20–24	0.008	0.023	0.043	*
25–29	0.003	0.010	*	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 () Based on 125–249 woman-years of exposure *Rate not shown; based on fewer than 125 woman-years of exposure				

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 and also shows the mean number of children ever born and living children.

Among women age 15–49, the mean number of children ever born is 2.2 for all women and 2.8 for currently married women. The mean number of children ever born increases steadily with women's age, reaching a high of 4.3 children among all women age 45–49 and 4.5 among currently married women in this age group. The table also shows that early childbearing is fairly common in Karnataka. Eighteen percent of all women age 15–19 and 55 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 three. Twenty-three percent of all women age 45–49 have reached the end of childbearing with three children ever

Table 4.6 Children ever born and living

Percent distribution of all women and of currently married women by number of children ever born (CEB) and mean number of children ever born and living, according to age, Karnataka, 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	81.9	12.6	4.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	1,290	0.24	0.23
20-24	37.2	19.5	25.3	11.0	5.2	1.3	0.7	0.0	0.0	0.0	0.0	100.0	1,048	1.34	1.23
25-29	14.4	14.4	27.9	24.0	13.6	3.7	1.3	0.4	0.3	0.0	0.0	100.0	941	2.28	2.09
30-34	6.8	8.0	26.7	27.0	16.3	7.5	4.7	1.5	1.2	0.3	0.1	100.0	743	2.97	2.64
35-39	5.4	7.6	24.3	24.4	15.7	10.4	4.8	3.2	1.8	1.4	0.9	100.0	645	3.33	2.92
40-44	3.8	4.2	17.1	22.1	16.1	13.9	8.8	5.7	3.8	2.2	2.2	100.0	539	4.05	3.45
45-49	3.4	5.5	11.6	22.9	18.6	11.8	9.8	7.3	3.3	1.9	4.0	100.0	422	4.28	3.61
Total	30.2	11.7	19.3	16.4	10.1	5.3	3.1	1.7	1.0	0.6	0.6	100.0	5,627	2.17	1.92
CURRENTLY MARRIED WOMEN															
15-19	44.7	38.3	15.1	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	414	0.74	0.69
20-24	14.4	26.6	33.9	15.3	7.0	1.7	0.9	0.0	0.0	0.0	0.0	100.0	744	1.83	1.68
25-29	6.1	15.8	29.8	26.7	15.2	4.1	1.5	0.5	0.4	0.0	0.0	100.0	811	2.52	2.32
30-34	3.1	7.3	27.3	28.5	17.2	8.0	5.2	1.6	1.3	0.3	0.1	100.0	669	3.14	2.80
35-39	2.0	6.9	24.9	24.6	17.6	11.2	5.0	3.5	1.8	1.6	0.9	100.0	564	3.49	3.09
40-44	2.2	2.9	16.9	23.0	17.6	13.6	8.4	6.3	4.1	2.4	2.7	100.0	455	4.21	3.59
45-49	2.2	3.4	10.6	23.6	19.0	12.2	10.7	8.1	3.6	2.2	4.5	100.0	357	4.50	3.76
Total	9.8	14.9	24.8	21.4	13.4	6.7	3.9	2.3	1.3	0.7	0.8	100.0	4,015	2.81	2.49

born. More than half of currently married women in this age group (60 percent) have had four or more live births. Only 2 percent of currently married women age 35–49 have never given birth, suggesting that primary infertility (which is the proportion of couples who are unable to have any children) is very low in Karnataka.

For all women age 15–49, the average number of children who died is 0.25 per woman. For currently married women, the average number of dead children is 0.32, indicating that 11 percent of children ever born to currently married women have died. For currently married women, the proportion of children ever born who have died increases from 7 percent for women age 15–19 to 16 percent for women age 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-six percent of all births are first-order births, another 30 percent are second-order births, and 15 percent are third-order births. The low proportion of births of order four or higher (19 percent), compared with the national average of 28 percent, is another indication of the relatively low level of fertility in Karnataka.

Over 69 percent of births to women age 15–19 are first-order births. By contrast, 56 percent of births to women age 30–39 are 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-caste women and women in ‘other’ castes, self-employed women, women employed by someone else, and women living in households with a low standard of living. The range is particularly wide for education groups: 28 percent of births to illiterate women are of order four or higher, compared with only 5 percent of births to women who have completed at least a high school education. The range is also wide according to the household standard of living: 28 percent of births to women in households with a low standard of living are of order four or higher, compared with only 9 percent of births to women in households with a high standard of living. Only 14 percent of births to women who did not work during the 12 months preceding the survey are of order four or higher. This finding can be partly explained by the fact that nonworking 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 Karnataka, 11 percent of births occur within 18 months of a previous birth and

Table 4.7 Birth order						
Percent distribution of births during the three years preceding the survey by birth order, according to selected background characteristics, Karnataka, 1999						
Background characteristic	Birth order				Total percent	Number of births
	1	2	3	4+		
Mother's current age						
15–19	69.3	27.2	3.5	0.0	100.0	255
20–29	31.1	32.1	18.9	17.9	100.0	882
30–39	8.0	25.5	10.7	55.8	100.0	139
Residence						
Urban	40.9	32.6	12.1	14.4	100.0	398
Rural	33.9	29.3	16.1	20.7	100.0	885
Mother's education						
Illiterate	27.4	26.6	18.5	27.5	100.0	675
Literate, < middle school complete	30.5	36.7	16.2	16.6	100.0	211
Middle school complete	48.1	35.5	10.0	6.4	100.0	110
High school complete and above	55.9	32.2	7.3	4.6	100.0	287
Religion						
Hindu	37.0	31.1	15.3	16.6	100.0	1,040
Muslim	30.6	25.6	14.3	29.5	100.0	213
Caste/tribe						
Scheduled caste	30.1	26.5	18.3	25.1	100.0	250
Scheduled tribe	30.8	33.2	18.5	17.6	100.0	81
Other backward class	40.2	32.2	13.6	14.0	100.0	452
Other	36.2	29.6	13.8	20.3	100.0	485
Mother's work status						
Working in family farm/business	25.0	35.2	18.6	21.2	100.0	158
Employed by someone else	27.4	25.7	19.1	27.8	100.0	308
Self-employed	31.9	29.8	9.7	28.5	100.0	60
Not worked in past 12 months	42.1	31.2	12.8	13.9	100.0	756
Standard of living index						
Low	28.0	25.7	18.2	28.1	100.0	435
Medium	37.1	32.8	14.3	15.8	100.0	623
High	49.1	32.3	9.9	8.7	100.0	221
Total	36.1	30.3	14.9	18.8	100.0	1,283
Note: Total includes 7 births to women currently age 40–49, 23 and 7 births to Christian women and women belonging to 'other' religions, respectively, and 15, 1, and 4 births with missing information on caste/tribe, mother's work status, and the standard of living index, respectively, which are not shown separately.						

30 percent occur within 24 months. Thirty-four percent of births occur after an interval of three years or more.

The median birth interval in Karnataka is 30 months. The median birth interval ranges from 25 months for women age 15–19 to 37 months for women age 30–39. 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

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, Karnataka, 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	2.5	15.5	23.2	45.7	11.7	1.3	100.0	25.2	76
20-29	1.2	10.5	21.1	36.2	18.5	12.5	100.0	28.6	1,088
30-39	0.7	6.6	11.8	30.1	20.4	30.5	100.0	37.1	287
Residence									
Urban	0.5	10.5	18.4	30.8	17.1	22.7	100.0	31.7	413
Rural	1.4	9.7	19.6	37.3	18.9	13.1	100.0	29.1	1,056
Mother's education									
Illiterate	1.6	10.4	18.7	35.0	19.9	14.3	100.0	29.2	900
Literate, < middle school complete	0.8	7.3	23.6	34.9	15.0	18.5	100.0	30.0	255
Middle school complete	0.0	13.4	21.1	44.4	13.4	7.8	100.0	28.1	90
High school complete and above	0.0	9.5	15.7	34.5	18.3	22.0	100.0	32.4	225
Religion									
Hindu	1.1	9.3	20.0	34.6	19.2	15.9	100.0	30.1	1,184
Muslim	1.5	13.4	17.0	40.1	13.7	14.2	100.0	28.2	254
Caste/tribe									
Scheduled caste	1.6	8.8	22.1	34.2	20.9	12.5	100.0	29.4	313
Scheduled tribe	0.0	12.5	17.1	30.1	25.3	15.0	100.0	31.5	87
Other backward class	1.4	8.6	19.6	34.8	18.6	17.1	100.0	30.3	492
Other	0.9	11.4	18.3	38.1	15.4	16.0	100.0	29.1	557
Standard of living index									
Low	1.9	7.6	18.7	37.0	20.0	14.8	100.0	30.2	572
Medium	0.9	12.3	20.1	34.7	17.5	14.5	100.0	28.5	700
High	0.0	8.6	17.3	34.1	16.3	23.7	100.0	32.7	191
Order of previous birth									
1	0.6	10.2	18.5	34.7	17.3	18.7	100.0	30.4	659
2	1.1	7.9	22.7	33.2	20.7	14.4	100.0	29.8	378
3	1.9	9.3	18.0	39.5	21.0	10.3	100.0	29.3	208
4+	2.2	12.9	16.8	37.9	15.4	14.7	100.0	28.6	225
Sex of previous birth									
Male	1.0	9.4	19.5	34.9	18.8	16.4	100.0	30.6	700
Female	1.3	10.4	19.0	36.0	18.0	15.2	100.0	29.0	769
Survival of previous birth									
Living	1.0	9.3	18.9	36.1	18.8	16.0	100.0	30.0	1,343
Dead	3.1	16.6	23.5	29.3	14.2	13.3	100.0	25.5	127
Total	1.1	9.9	19.3	35.5	18.4	15.8	100.0	29.7	1,470

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 18 births to women currently age 40-49, 20 and 11 births to Christian women and women belonging to 'other' religions, respectively, and 21 and 7 births with missing information on caste/tribe and the standard of living index, respectively, which are not shown separately.

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 one and a half months longer if the previous birth was a boy than if it was a girl. The median birth interval is four and a half 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 two and a half months longer for births to women in urban areas than to women in rural areas. Birth intervals vary irregularly by mother's education, with the highest median for women who have completed high school and above (32 months) and the lowest median for women who have completed middle school (28 months). The median birth interval is two months longer for births to Hindu women than for births to Muslim women. The median birth interval is high for women in households having a high standard of living (33 months). There is not much difference in birth intervals by caste/tribe, but scheduled-tribe women have slightly longer birth intervals than other women.

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.

As shown in the last row of the table, the median age at first birth in Karnataka is 19 years for women age 25–49. The median for women age 25–29, at 19.3 years, is slightly higher than the median for women at older ages, at 18.6–18.9 years. The median age at first birth is particularly low among women who live in rural areas, women who are illiterate, Muslim women, women belonging to scheduled castes or scheduled tribes, and women who live in households with a low standard of living. The median age at first birth is two years lower in rural areas (18.3) than in urban areas (20.2) and six years lower for illiterate women (17.6) than for women who have completed at least a high school education (23.6). The median is nearly five years lower for Hindu women (19.0) and nearly six years lower for Muslim women (17.9) than for Christian women (23.7). The median is one year lower for women belonging to scheduled castes or scheduled tribes (about 18) than for other women (about 19). The median is four years lower for women in households with a low standard of living (17.7) than for women in households with a high standard of living (21.7).

Table 4.9 Median age at first birth

Median age at first birth among women age 20–49 years by current age and selected background characteristics, Karnataka, 1999

Background characteristic	Current age							20–49	25–49
	20–24	25–29	30–34	35–39	40–44	45–49			
Residence									
Urban	NC	21.1	20.0	20.2	19.3	20.0	NC	20.2	
Rural	19.0	18.4	18.1	18.5	18.3	18.2	18.4	18.3	
Education									
Illiterate	17.2	17.2	17.6	17.9	17.7	17.9	17.6	17.6	
Literate, < middle school complete	19.8	18.9	18.2	19.1	19.4	18.9	19.0	18.9	
Middle school complete	NC	21.2	(20.8)	(20.8)	(19.5)	*	NC	20.7	
High school complete and above	NC	23.5	23.5	23.9	22.9	23.5	NC	23.6	
Religion									
Hindu	NC	19.3	18.8	19.0	18.7	18.9	19.2	19.0	
Muslim	19.7	18.1	17.8	17.8	17.7	(17.9)	18.2	17.9	
Christian	NC	NC	*	*	*	*	NC	23.7	
Other	*	*	*	*	*	*	(18.5)	(18.8)	
Caste/tribe									
Scheduled caste	18.7	17.8	17.7	17.7	17.1	(17.7)	17.8	17.6	
Scheduled tribe	(18.4)	(17.5)	(17.6)	(18.3)	(17.5)	*	17.8	17.7	
Other backward class	NC	19.8	19.0	19.0	19.0	19.2	19.5	19.2	
Other	NC	19.8	19.1	19.9	19.1	18.9	19.7	19.4	
Standard of living index									
Low	17.4	17.2	17.7	17.9	17.8	17.8	17.6	17.7	
Medium	NC	19.3	18.5	18.6	18.3	18.4	19.0	18.7	
High	NC	23.0	21.0	22.2	20.8	20.6	NC	21.7	
Total	NC	19.3	18.7	18.9	18.6	18.9	19.2	18.9	

Note: Total includes women with missing information on 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

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. Twenty-seven percent of women in this age group had their last birth by age 25, 88 percent by age 35, and more than 95 percent by age 40. The median age at last birth is 27 years for women age 40–44 and 28 years for women age 45–49. The typical reproductive age span (which is the difference between the median age at last birth and the median age of first birth for women who have ever had a birth) is shorter in Karnataka (9.1 years) than in India as a whole (9.9 years), consistent with the lower level of fertility in Karnataka (see International Institute for Population Sciences and ORC Macro, 2000: Table 4.15).

Table 4.10 Age at last birth

Percent distribution of ever-married women age 40–49 years by age at last birth and median age at last birth, according to current age, Karnataka, 1999

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	3.0	4.7	23.6	39.7	21.7	6.6	0.8	NA	100.0	27.4	534
45–49	2.9	3.8	21.0	36.5	24.3	8.4	2.8	0.2	100.0	28.4	419
40–49	2.9	4.3	22.4	38.3	22.9	7.4	1.7	0.1	100.0	27.8	953

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 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.

All 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 decreases rapidly as the number of months since the birth increases. About half of all women who had a birth 8–9 months before the survey are still amenorrhoeic. All women with a birth less than two months before the survey are still abstaining from sexual intercourse, but only 54 percent of women who had a birth 4–5 months before the survey are still abstaining. This percentage declines rapidly thereafter. Overall, when amenorrhoea and abstinence are considered together, about half of women are susceptible to pregnancy 10–11 months after giving birth, and 80 percent are susceptible 14–15 months after giving birth.

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, Karnataka, 1999				
Months since birth	Percentage of births whose mothers are:			Number of births
	Amenorrhoeic	Abstaining	Insusceptible	
< 2	(100.0)	(100.0)	(100.0)	38
2-3	85.7	83.3	92.2	77
4-5	76.7	54.2	86.5	83
6-7	55.0	36.7	66.9	85
8-9	48.0	28.1	58.8	91
10-11	33.3	24.9	44.9	60
12-13	38.9	9.0	41.4	77
14-15	14.5	9.3	19.9	76
16-17	12.4	6.9	16.4	73
18-19	5.8	5.7	10.1	69
20-21	4.1	2.7	5.5	74
22-23	5.1	3.8	7.6	78
24-25	1.3	7.8	7.8	76
26-27	4.3	1.4	4.3	69
28-29	3.3	3.2	4.9	62
30-31	0.0	3.7	3.7	54
32-33	(0.0)	(4.5)	(4.5)	45
34-35	1.1	3.4	4.5	87
Median ¹	8.0	5.3	10.3	NA
Mean	10.0	8.0	11.8	NA
Prevalence/incidence mean	9.6	7.3	11.5	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

The median and mean durations of insusceptibility are 10 and 12 months, respectively. The median duration of amenorrhoea (8 months) is higher than the median duration of abstinence (5 months). These results indicate that women in Karnataka remain insusceptible to pregnancy for about one year 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 Karnataka, menopause is not common among women in their thirties, but its incidence increases rapidly after age 40. By age 42-43, 27 percent of women are menopausal. The proportion menopausal rises to 58 percent by age 46-47 and to 76 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, Karnataka, 1999						
Age	Urban		Rural		Total	
	Percentage	Number	Percentage	Number	Percentage	Number
30–34	1.5	264	1.7	405	1.6	669
35–39	9.7	217	11.1	347	10.6	564
40–41	18.9	69	24.8	125	22.7	195
42–43	19.9	76	31.7	100	26.6	176
44–45	32.1	69	53.6	122	45.8	191
46–47	49.9	65	64.3	89	58.3	154
48–49	(70.7)	35	79.2	62	76.1	97
30–49	16.6	795	22.4	1,251	20.2	2,046

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

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.

Table 4.13 and Figure 4.4 show future fertility preferences of currently married women. Fifteen percent of currently married women say that they do not want any more children, an additional 52 percent cannot have another child because the wife or the husband has been sterilized, and 5 percent of women say that they cannot get pregnant (that is, they are ‘declared infecund’). More than one-fourth of women (26 percent) say that they would like to have another child (13 percent want another child within two years, 12 percent want another child after waiting at least two years, and 1 percent are undecided when they want the next child). Overall, 73 percent of women do not want any more children, including women who are sterilized or whose husbands are sterilized and those who are declared infecund. This proportion is 75 percent in urban areas and 72 percent in rural areas. Less than 1 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 77 percent of women with no living children to less than 2 percent of women with three or more living children. For women with one living child, 43 percent (38 percent in urban areas and 46 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 Karnataka use any temporary method

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, Karnataka, 1999

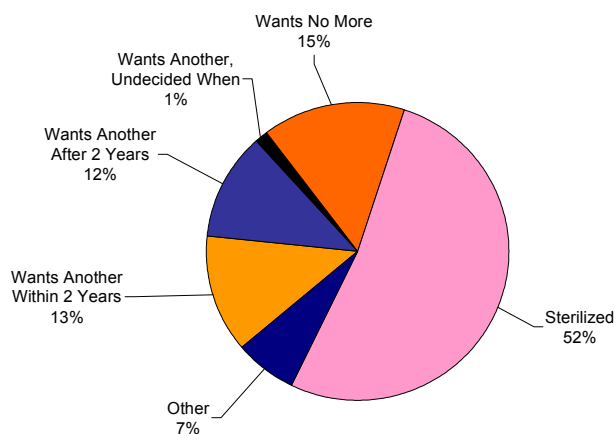
Desire for children	Number of living children ¹					Total
	0	1	2	3	4+	
URBAN						
Desire for additional child						
Wants another soon ²	70.5	20.2	3.5	1.4	0.4	11.2
Wants another later ³	16.9	38.4	6.3	3.5	0.4	11.9
Wants another, undecided when	4.5	1.0	0.4	0.4	0.4	0.9
Undecided	0.9	4.2	0.4	0.0	0.7	1.2
Up to God	0.0	0.3	0.0	0.4	0.4	0.2
Wants no more	0.9	22.8	30.7	12.8	20.6	21.2
Sterilized	0.0	8.1	54.3	77.7	68.4	48.0
Declared infecund	6.3	5.0	4.0	3.9	8.8	5.3
Missing	0.0	0.0	0.2	0.0	0.0	0.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	114	286	461	287	271	1,418
Preferred sex of additional child⁴						
Boy	13.6	37.4	(47.5)	*	*	31.2
Girl	6.9	23.5	(21.3)	*	*	17.2
Doesn't matter	59.1	34.0	(24.2)	*	*	40.9
Up to God	20.4	5.2	(7.0)	*	*	10.8
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women wanting more ⁴	104	138	43	13	3	301
RURAL						
Desire for additional child						
Wants another soon ²	80.2	28.2	7.8	2.2	2.3	13.7
Wants another later ³	8.2	46.0	9.5	3.3	1.5	11.6
Wants another, undecided when	2.5	2.7	1.5	1.1	0.6	1.4
Undecided	0.5	1.7	1.4	0.6	0.0	0.8
Up to God	0.5	0.5	0.0	0.3	0.9	0.4
Wants no more	0.0	8.6	15.6	11.9	14.4	12.1
Sterilized	1.0	8.3	61.2	76.3	70.5	54.4
Declared infecund	7.1	4.1	3.0	4.3	9.8	5.5
Missing	0.0	0.0	0.0	0.0	0.0	0.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	195	407	714	631	650	2,597
Preferred sex of additional child⁴						
Boy	23.3	37.7	48.2	(71.9)	(80.6)	39.2
Girl	3.4	22.0	21.2	(9.6)	(3.9)	14.9
Doesn't matter	60.1	33.9	25.8	(6.4)	(11.6)	37.6
Up to God	13.2	6.4	4.8	(12.2)	(3.9)	8.3
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women wanting more ⁴	179	247	123	32	26	607

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, Karnataka, 1999						
Desire for children	Number of living children ¹					Total
	0	1	2	3	4+	
TOTAL						
Desire for additional child						
Wants another soon ²	76.6	24.9	6.1	1.9	1.7	12.8
Wants another later ³	11.4	42.8	8.3	3.4	1.2	11.7
Wants another, undecided when	3.2	2.0	1.1	0.9	0.5	1.2
Undecided	0.7	2.8	1.0	0.4	0.2	1.0
Up to God	0.3	0.4	0.0	0.3	0.7	0.3
Wants no more	0.3	14.4	21.5	12.2	16.2	15.3
Sterilized	0.6	8.2	58.5	76.8	69.9	52.2
Declared infecund	6.8	4.5	3.4	4.1	9.5	5.4
Missing	0.0	0.0	0.1	0.0	0.0	0.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	309	693	1,174	918	921	4,015
Preferred sex of additional child⁴						
Boy	19.7	37.6	48.0	(66.4)	(75.5)	36.5
Girl	4.7	22.5	21.2	(13.7)	(3.5)	15.7
Doesn't matter	59.7	33.9	25.4	(9.1)	(17.5)	38.7
Up to God	15.9	6.0	5.4	(10.8)	(3.5)	9.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women wanting more ⁴	284	385	166	45	29	909
() 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						

of contraception. These findings suggest that encouraging the use of temporary methods would lower overall fertility and population growth, as well as provide health benefits to mothers and their children through increased birth spacing.

Thirty-seven percent of women who want another child say that they want the next child to be a boy, only 16 percent say that they want a girl, and the rest say that the sex of the child is either up to God (9 percent) or does not matter (39 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 generally increase substantially with the number of living children. Among women with no living children, 20 percent want their first child to be a son, 5 percent want a daughter, and 76 percent say that the sex of the child is up to God or does not matter. Among women with two living children, 48 percent want their next child to be a son, 21 percent want a daughter, and only 31 percent say that the sex of the child is up to God or does not matter.

Figure 4.4
Fertility Preferences Among Currently Married Women



NFHS-2, Karnataka, 1999

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 almost four out of five women with two living children (80 percent) 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, 78 percent of women want no more children. At age 35 and above, 82 percent of women want no more children. The proportion who want no more children is slightly higher among urban women (69 percent) than among rural women (67 percent) and this differential is particularly large for women with one child. The proportion wanting no more children does not vary systematically with women’s educational level, ranging from 73 percent among those who have not completed middle school to 61 percent among those who have completed at least a middle school education. The same proportion of Christian and Muslim women (61 percent) want no more children; in contrast, 69 percent of Hindu women want no more children. The differentials are much larger for women with two children. Eighty-two percent of Hindu women with two children do not want any more children, but only 55 percent of Muslim women want to stop at two. The proportion wanting no more children ranges from 58 percent among scheduled-tribe women to 70 percent among women who belong to other backward classes. The proportion who want no more children increases with the standard of living index, from 63 percent for women living in households with a low standard of living to 72 percent for women living in households with a high standard of living. It is notable that in households with a high standard of living, more than one-third of women with one child do not want any more children.

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, Karnataka, 1999

Background characteristic	Number of living children ¹					Total
	0	1	2	3	4+	
Age						
15–24	0.0	7.6	63.5	79.1	88.0	35.8
25–34	1.6	35.8	88.1	91.0	88.8	78.4
35–49	(5.3)	57.8	85.5	90.3	84.4	82.3
Residence						
Urban	0.9	30.9	85.0	90.5	89.0	69.2
Rural	1.0	16.8	76.8	88.2	84.9	66.5
Education						
Illiterate	1.5	21.0	72.0	86.8	83.2	68.9
Literate, < middle school complete	1.7	21.4	84.1	92.0	93.3	72.8
Middle school complete	(0.0)	6.9	83.5	90.9	(96.8)	60.8
High school complete and above	0.0	28.1	88.8	93.2	(95.6)	61.2
Religion						
Hindu	1.1	22.8	82.0	90.1	86.8	68.5
Muslim	(0.0)	17.3	55.1	76.0	82.3	60.9
Christian	*	(28.7)	(80.0)	*	*	61.4
Other	*	*	*	*	*	(71.6)
Caste/tribe						
Scheduled caste	(2.7)	13.3	72.4	90.0	85.2	67.5
Scheduled tribe	*	(25.8)	64.6	(82.2)	73.2	58.5
Other backward class	1.4	22.0	87.4	90.5	88.9	69.9
Other	0.0	26.7	76.2	87.6	86.5	66.2
Standard of living index						
Low	1.2	18.5	70.7	85.4	81.8	63.4
Medium	0.6	17.6	79.8	89.8	86.8	68.0
High	1.5	34.8	88.7	92.1	93.7	71.5
Number of living sons²						
0	1.0	23.6	67.2	73.2	(82.3)	30.7
1	NA	26.5	81.7	87.7	85.9	72.2
2	NA	NA	85.1	93.4	89.4	89.5
3+	NA	NA	NA	94.0	83.7	86.2
Number of living daughters²						
0	1.0	26.5	85.1	94.0	(88.5)	45.9
1	NA	23.6	81.7	93.4	91.4	74.2
2	NA	NA	67.2	87.7	88.2	83.1
3+	NA	NA	NA	73.2	82.6	81.3
Total	1.0	22.6	80.0	88.9	86.1	67.5

Note: Women who have been sterilized or whose husbands have been sterilized are considered to want no more children. Total includes women with missing information on caste/tribe and the standard of living index, who are not shown separately.

NA: Not applicable

() Based on 25–49 unweighted cases

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

¹Includes current pregnancy, if any

²Excludes pregnant women

The background characteristic with the strongest effect on women's desire to limit family size is number of living sons. Only 31 percent of women with no living sons want no more children, compared with 90 percent of women with two living sons. Differences associated with the number of living daughters are also large, but not nearly as large as differences associated with the number of living sons, indicating a moderate preference for sons. Forty-six percent of women with no living daughters want no more children, compared with 83 percent of women with two living daughters. It is interesting to note that 67 percent of women with two daughters and no sons do not want a third child, compared with 47 percent of women in India as a whole.

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 96 percent of women in Karnataka were able to give a numerical response.

Table 4.15 shows that 66 percent of ever-married women in Karnataka consider two to be the ideal number of children. Only 30 percent have an ideal that differs from two. Among all women who gave a numeric response, the average number of children considered ideal is 2.2, ranging from 1.9–2.0 for women who have no children or one child to 2.6 for women who have four or more children.

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, Karnataka, 1999						
Ideal number of children	Number of living children ¹					Total
	0	1	2	3	4+	
0	0.3	0.0	0.0	0.2	0.1	0.1
1	17.6	19.7	10.5	7.9	1.8	10.2
2	65.1	69.7	75.3	59.0	56.9	65.6
3	7.5	5.3	9.1	22.7	15.5	12.8
4	2.7	2.7	2.3	5.5	14.2	5.8
5	0.0	0.4	0.4	0.5	2.1	0.8
6+	0.3	0.3	0.1	0.0	0.8	0.3
Non-numeric response	6.6	2.0	2.4	4.2	8.5	4.5
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	375	770	1,264	973	991	4,374
Mean ideal number ²	2.0	1.9	2.1	2.3	2.6	2.2
Number of women giving numeric response	350	755	1,234	932	907	4,178

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

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 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 Karnataka. Among women with four or more living children, for example, 74 percent state that fewer than four children would be ideal. Similarly, among women with three living children, 67 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 Karnataka already have more children than they now consider ideal. This proportion may be taken as an indicator of surplus or unwanted fertility.

Table 4.16 shows the mean ideal number of children for ever-married women by age according to selected background characteristics. Differentials in the ideal number of children are generally quite small, suggesting that there is a widespread norm for having about two children. The mean ideal number of children (2.1–2.3) is similar for women of all ages. The average ideal number of children is slightly lower in urban areas (2.0 children) than in rural areas (2.3 children). The mean ideal number of children decreases with increasing education, from 2.3 children for illiterate women to 1.9 children for women who have completed at least a high school education. The pattern is similar according to the education level of the husband. The mean ideal number of children ranges from 2.5 for Muslims to 2.1 for Hindus and 2.0 for Christians. The ideal family size is slightly higher for scheduled-tribe women (2.4) than for other women. The mean ideal number of children is higher for women living in households with a low standard of living than for women living in households with a high standard of living. The mean ideal number of children does not vary widely by women's work status. Despite the differentials in the ideal number of children outlined above, it is notable that the average ideal number of children exceeds 2.5 for only 4 groups out of the nearly 200 groups with average values 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; Rajaretnam and Deshpande, 1994). In NFHS-2, women who gave a numerical response to the question on the 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, but weak, preference for sons over daughters in Karnataka. Overall, the average ideal family size of 2.2 children consists of 0.9 sons, 0.8 daughters, and 0.5 children of either sex. Thirteen percent of women want more sons than daughters, but only 2 percent want more daughters than sons. The indicator that shows the percentage of women who want at least one son and at least one daughter exhibits only weak son preference. The percentage of women who want at least one daughter (68) is almost the same as the percentage who want at least one son (70).

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, Karnataka, 1999

Background characteristic	Current age							Total
	15–19	20–24	25–29	30–34	35–39	40–44	45–49	
Residence								
Urban	2.0	2.0	1.9	2.0	2.1	2.2	2.2	2.0
Rural	2.2	2.2	2.2	2.3	2.3	2.4	2.3	2.3
Education								
Illiterate	2.4	2.4	2.3	2.3	2.3	2.5	2.4	2.3
Literate, < middle school complete	2.0	2.1	2.1	2.1	2.2	2.2	2.2	2.1
Middle school complete	(1.9)	1.9	1.9	(2.0)	(2.0)	*	*	2.0
High school complete and above	2.0	1.9	1.8	1.7	1.9	2.0	2.0	1.9
Religion								
Hindu	2.1	2.1	2.1	2.1	2.2	2.3	2.2	2.1
Muslim	2.3	2.5	2.5	2.5	2.6	2.5	(3.2)	2.5
Christian	*	*	*	*	*	*	*	2.0
Other	*	*	*	*	*	*	*	(2.1)
Caste/tribe								
Scheduled caste	2.3	2.2	2.1	2.1	2.3	2.5	(2.5)	2.2
Scheduled tribe	(2.4)	(2.4)	(2.3)	(2.7)	(2.4)	(2.8)	*	2.4
Other backward class	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.1
Other	2.2	2.2	2.1	2.2	2.2	2.3	2.3	2.2
Work status								
Working in family farm/business	2.3	2.3	2.1	2.3	2.3	2.2	2.4	2.2
Employed by someone else	2.4	2.4	2.3	2.2	2.3	2.5	2.3	2.3
Self-employed	*	(2.2)	2.0	(2.3)	(2.0)	(2.0)	*	2.1
Not worked in past 12 months	2.1	2.1	2.0	2.0	2.1	2.3	2.3	2.1
Standard of living index								
Low	2.4	2.4	2.3	2.4	2.3	2.5	2.4	2.4
Medium	2.1	2.1	2.1	2.2	2.2	2.3	2.4	2.2
High	(2.0)	1.9	1.9	1.9	2.1	2.1	2.1	2.0
Husband's education								
Illiterate	2.3	2.4	2.3	2.3	2.3	2.5	2.3	2.3
Literate, < primary school complete	(2.2)	2.2	2.3	(2.1)	(2.5)	(2.3)	(2.4)	2.3
Primary school complete	2.1	2.2	2.1	2.2	2.2	2.3	2.4	2.2
Middle school complete	(2.1)	2.2	1.8	2.1	(2.2)	(2.3)	*	2.1
High school complete	2.0	2.1	2.0	2.1	2.0	2.2	2.2	2.1
Higher secondary complete and above	2.0	1.8	1.8	1.8	2.0	2.0	(1.9)	1.9
Total	2.2	2.2	2.1	2.2	2.2	2.3	2.3	2.2

Note: Means are calculated excluding women who gave non-numeric responses. Total includes women with missing information on 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

Son preference is relatively weak among women who live in urban areas, women who have at least completed a high school education, women whose husbands have at least completed high school education, Christian women, and women living in households with a high standard of living. Overall, son preference is much weaker in Karnataka than in India as a whole.

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, Karnataka, 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	0.7	0.6	0.7	9.1	2.0	59.7	57.7	1,453
Rural	1.0	0.8	0.5	15.1	1.8	75.4	72.7	2,725
Education								
Illiterate	1.1	0.9	0.4	17.0	1.5	78.6	75.6	2,271
Literate, < middle school complete	0.8	0.7	0.6	11.4	2.2	69.3	66.8	783
Middle school complete	0.7	0.6	0.7	6.3	2.0	59.9	57.7	285
High school complete and above	0.6	0.5	0.8	6.0	2.4	50.5	49.6	839
Religion								
Hindu	0.9	0.7	0.5	12.7	1.9	69.3	66.7	3,590
Muslim	1.1	1.0	0.5	16.5	1.6	79.1	77.3	450
Christian	0.6	0.6	0.8	8.0	3.2	53.6	51.7	102
Other	(0.9)	(0.7)	(0.5)	(14.2)	(0.0)	(68.1)	(65.2)	35
Caste/tribe								
Scheduled caste	0.9	0.8	0.5	14.0	1.9	72.9	71.8	668
Scheduled tribe	1.1	0.9	0.4	17.7	2.0	80.4	78.0	242
Other backward class	0.8	0.7	0.6	10.4	1.8	67.2	64.8	1,741
Other	0.9	0.8	0.5	14.4	1.9	70.0	67.0	1,483
Work status								
Working in family farm/business	1.0	0.8	0.5	14.8	1.3	76.4	73.2	692
Employed by someone else	1.0	0.8	0.5	16.4	2.0	75.1	72.7	1,216
Self-employed	0.8	0.7	0.6	10.4	2.5	65.8	63.8	249
Not worked in past 12 months	0.8	0.7	0.6	10.7	1.9	65.1	62.9	2,021
Standard of living index								
Low	1.1	0.9	0.4	17.3	1.7	78.0	75.0	1,228
Medium	0.9	0.7	0.5	12.7	1.6	70.9	68.3	2,056
High	0.7	0.6	0.7	7.6	2.7	56.4	54.9	878
Husband's education								
Illiterate	1.1	0.9	0.4	16.9	1.5	78.7	75.9	1,491
Literate, < primary school complete	1.0	0.8	0.5	15.2	1.3	73.5	71.4	330
Primary school complete	0.9	0.8	0.5	13.0	2.3	71.0	68.2	727
Middle school complete	0.8	0.7	0.6	13.0	2.5	66.6	64.2	290
High school complete	0.8	0.7	0.6	8.7	1.9	65.8	64.0	647
Higher secondary complete and above	0.6	0.5	0.7	7.4	2.3	53.7	51.6	689
Total	0.9	0.8	0.5	13.0	1.9	70.0	67.5	4,178

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 43, 15, and 4 women with missing information on caste/tribe, the standard of living index, and husband's education, respectively, who are not shown separately.

() Based on 25–49 unweighted cases

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 of all pregnancies (23 percent) that resulted in live births in the three years preceding the survey (including current pregnancies) were unplanned (that is, unwanted at the time the woman became pregnant). Seventeen percent were wanted later and 7 percent were not wanted at all. By age, the proportion of births that were unplanned is highest for women age 30–34 (27 percent) and lowest for women below age 20 (19 percent). Within the unplanned category, the proportion of births that were wanted later falls 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 background characteristics. The proportion of births that were unplanned is almost the same in rural and urban areas. The proportion of births that were unplanned is lower for women who have completed at least a high school education (19 percent) than for illiterate women (25 percent). The proportion of births that were unplanned is higher for Muslim women (29 percent) than for Hindu women (23 percent). The proportion of births that were unplanned is higher for women in households with a low standard of living (26 percent) than for women in households with a high standard of living (20 percent). Not surprisingly, births of higher order are more likely than births of lower order to be unplanned. The proportion of births that were unplanned ranges from 17 percent for first-order births to 36 percent for births of order four or higher. The fact that 22 percent of births of order four or higher were not wanted at all indicates that the family welfare programme has failed to adequately meet the needs of women who already have at least three children to control their fertility. The substantial proportion of women at all parities who would have liked to have their births later suggests that attention also needs to be given to the promotion of 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 4.18 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, Karnataka, 1999					
Background characteristic	Planning status of pregnancy			Total percent	Number of births and current pregnancies
	Wanted then	Wanted later	Not wanted at all		
Mother's age at birth¹					
< 20	80.9	17.6	1.5	100.0	521
20–24	75.8	18.5	5.7	100.0	651
25–29	73.7	14.7	11.7	100.0	286
30–34	72.7	7.1	20.3	100.0	84
Residence					
Urban	77.4	15.8	6.8	100.0	487
Rural	76.1	17.2	6.7	100.0	1,081
Mother's education					
Illiterate	74.8	16.7	8.5	100.0	804
Literate, < middle school complete	77.0	15.8	7.2	100.0	272
Middle school complete	76.0	19.0	4.9	100.0	144
High school complete and above	80.5	16.7	2.9	100.0	349
Religion					
Hindu	77.4	16.8	5.8	100.0	1,277
Muslim	70.9	18.0	11.1	100.0	254
Christian	(92.5)	(0.0)	(7.5)	100.0	28
Caste/tribe					
Scheduled caste	74.0	14.5	11.5	100.0	297
Scheduled tribe	78.5	17.4	4.1	100.0	97
Other backward class	79.4	17.2	3.4	100.0	572
Other	74.8	17.4	7.8	100.0	582
Standard of living index					
Low	74.4	16.3	9.2	100.0	523
Medium	76.8	18.2	5.1	100.0	771
High	79.9	13.4	6.7	100.0	269
Birth order²					
1	83.0	14.8	2.2	100.0	669
2	74.4	22.5	3.1	100.0	423
3	76.1	15.0	8.9	100.0	214
4+	63.9	13.9	22.2	100.0	263
Total	76.5	16.7	6.7	100.0	1,569
Note: Table includes the two most recent births in the three years preceding the survey and current pregnancies. Total includes 21, 5, and 1 births to women whose age at birth was 35–39, 40–44, and 45–49, respectively, 9 births to women belonging to other religions, and 20 and 5 births with missing information on caste/tribe and the standard of living index, respectively, which are not shown separately.					
() Based on 25–49 unweighted cases					
¹ For current pregnancy, estimated maternal age at birth					
² Includes current pregnancy, if any					

Overall, the total wanted fertility rate of 1.56 in Karnataka is lower by 0.57 children (i.e., by 27 percent) than the total fertility rate of 2.13. In fact, if all unwanted births were eliminated, fertility would drop well below the replacement level and variations among socioeconomic groups would be narrowed substantially.

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, Karnataka, 1999		
Background characteristic	Total wanted fertility rate	Total fertility rate
Residence		
Urban	1.44	1.89
Rural	1.61	2.25
Education		
Illiterate	1.82	2.57
Literate, < middle school complete	1.47	2.09
Middle school complete	1.55	2.06
High school complete and above	1.59	1.89
Religion		
Hindu	1.53	2.04
Muslim	1.78	2.84
Christian	1.31	1.57
Other	(0.79)	(1.56)
Caste/tribe		
Scheduled caste	1.64	2.49
Scheduled tribe	1.90	2.38
Other backward class	1.40	1.85
Other	1.64	2.24
Standard of living index		
Low	1.72	2.53
Medium	1.52	2.03
High	1.43	1.81
Total	1.56	2.13
<p>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 caste/tribe and the standard of living index, who are not shown separately. () Based on 125–249 woman-years of exposure</p>		