

## 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 each birth interval of four or more years in order to prevent omission of births, especially of children who died soon after birth. Birth intervals of four or more years were also probed for stillbirths, miscarriages, and induced abortions.

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. While these problems can bias estimates of fertility levels and trends, the problems are likely to be minimized in Kerala that has a largely literate population.

#### 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 marriage is consummated. NFHS-2 measured age at first cohabitation as a proxy for age at consummation of marriage. Although in some states in India formal marriage is not always immediately followed by cohabitation, in Kerala, there are only negligible differences in the age at first marriage and age at first cohabitation with husband for all age groups (see Table 3.3). Thus ages at marriage, cohabitation, and consummation of marriage are all likely to coincide for the vast majority of women in Kerala. In Table 4.1, the median age at first cohabitation with husband is shown by age and background characteristics. The median age at first cohabitation for a group of women is defined in the table 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.

<b>Table 4.1 Age at first cohabitation with husband</b>					
Median age at first cohabitation with husband among women age 25–49 years by current age and selected background characteristics, Kerala, 1999					
Background characteristic	Current age				
	25–29	30–34	35–39	40–49	25–49
<b>Residence</b>					
Urban	22.8	21.7	22.1	20.7	21.7
Rural	20.6	20.1	19.2	19.6	19.9
<b>Education</b>					
Illiterate	(17.6)	18.6	18.2	18.0	18.1
Literate, < middle school complete	18.6	18.9	18.6	18.8	18.8
Middle school complete	20.4	19.4	20.1	20.6	20.2
High school complete and above	22.4	22.5	22.7	23.2	22.7
<b>Religion</b>					
Hindu	22.2	21.4	20.8	20.4	21.2
Muslim	18.2	17.6	17.5	17.4	17.7
Christian	23.3	22.6	22.5	22.3	22.6
<b>Caste/tribe</b>					
Scheduled caste	21.4	20.6	18.4	19.3	19.6
Other backward class	20.5	20.3	20.1	19.5	20.0
Other <sup>1</sup>	21.6	20.6	20.0	20.6	20.7
<b>Standard of living index</b>					
Low	20.1	19.9	19.0	19.6	19.6
Medium	20.9	20.2	19.6	19.6	20.1
High	21.8	21.5	21.5	20.8	21.3
Total	20.9	20.4	19.8	19.9	20.3
Note: Total includes women belonging to other religions and scheduled-tribe women, who are not shown separately.					
() Based on 25–49 unweighted cases					
<sup>1</sup> Not belonging to a scheduled caste, a scheduled tribe, or an other backward class					

In Kerala, the median age at first cohabitation with the husband is 20.3 years for women age 25–49. The median age is higher by about one year for women age 25–29 (21 years) than for older women (20 years).

For women age 25–49, the median age at first cohabitation is two years higher in urban areas than in rural areas. The median age at first cohabitation has risen slightly faster in urban areas than in rural areas, so the urban-rural gap has widened over time. The median age at first cohabitation rises sharply with women's level of education from 18 years among illiterate women to 23 years among women who have completed at least high school. The median is higher for Christian women (23 years) than for Muslim (18 years) or Hindu (21 years) women. It is lower by about one year for women from the scheduled castes and other backward classes than for women who do not belong to the scheduled castes, scheduled tribes, or other backward classes. The median age at first cohabitation is also higher among women from households with a high standard of living, compared with women from households with a low or medium standard of living.

## 4.2 Current Fertility Levels

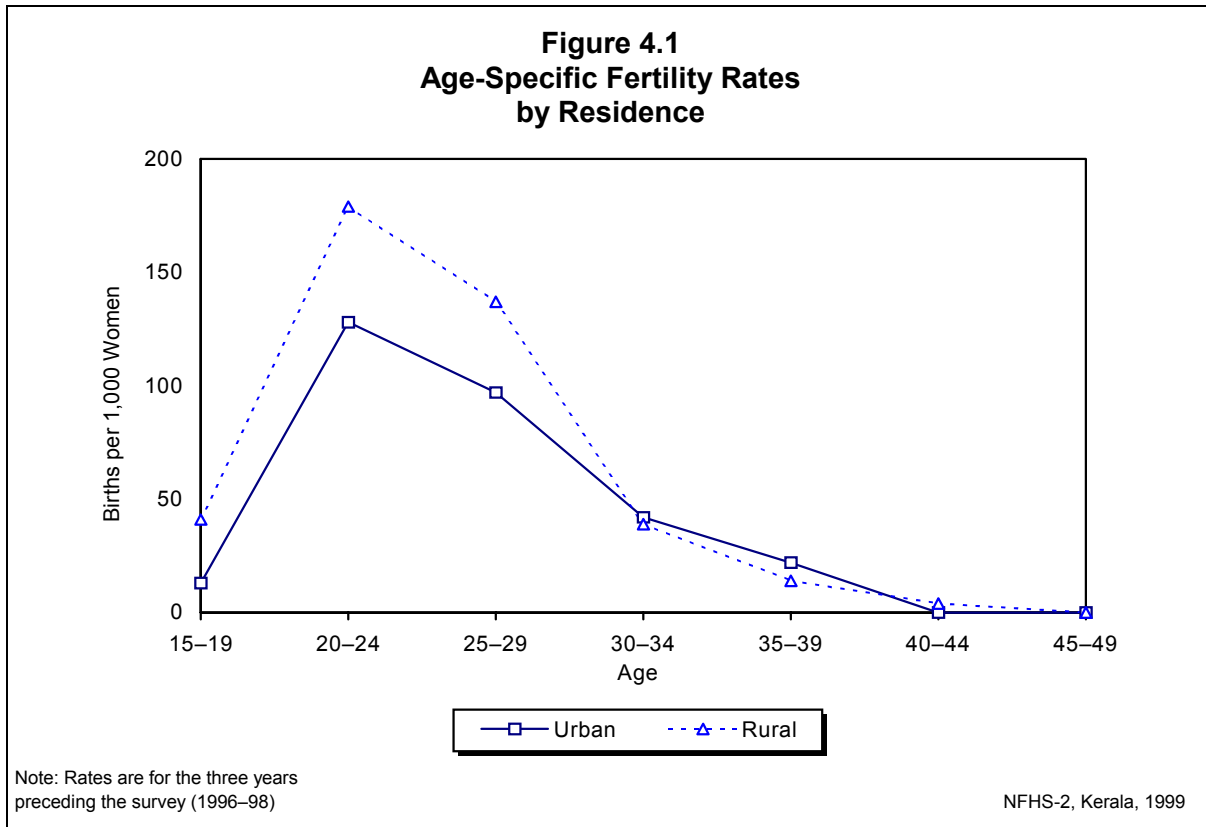
NFHS-2 provides estimates of age-specific fertility rates (ASFR), total fertility rates (TFR), and crude birth rates (CBR) for the three-year period preceding the survey, which in Kerala corresponds roughly to the period 1996–98. This three-year period was chosen as a compromise between the need to obtain 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, the CBR for Kerala is estimated at 18.8 live births per 1,000 population, and the TFR is estimated at 1.96 births per woman, as shown in Table 4.2. NFHS-2 fertility estimates are lower in urban areas than in rural areas. The CBR is 25 percent lower and the TFR is 27 percent lower in urban areas than in rural areas. The higher fertility in rural areas results from higher ASFRs in rural than in urban areas for the prime childbearing age group 20–29 and for the age group 15–19 (Figure 4.1).

About three-fourths of total fertility in both urban and rural areas is concentrated in the prime childbearing ages of 20–29. Fertility at age 15–19, which accounts for 10 percent of total fertility, accounts for only 4 percent of fertility in urban areas but 10 percent of fertility in rural areas. This indicates that most of the early childbearing in the state is concentrated in the rural

Age	NFHS-1 (1990–92)	NFHS-2 (1996–98)		SRS (1997)			
	Total	Urban	Rural	Total	Urban	Rural	Total
15–19	0.038	0.013	0.041	0.039	0.029	0.025	0.026
20–24	0.160	0.128	0.179	0.166	0.130	0.143	0.140
25–29	0.123	0.097	0.137	0.128	0.126	0.132	0.131
30–34	0.054	0.042	0.039	0.040	0.058	0.049	0.051
35–39	0.017	0.022	0.014	0.016	0.014	0.011	0.012
40–44	0.006	0.000	0.004	0.003	0.002	0.002	0.002
45–49	0.001	0.000	0.000	0.000	0.000	0.001	0.000
TFR 15–44	1.99	1.51	2.07	1.96	1.80	1.81	1.81
TFR 15–49	2.00	1.51	2.07	1.96	1.80	1.82	1.81
CBR	19.6	14.8	19.7	18.8	17.9	19.7	17.9

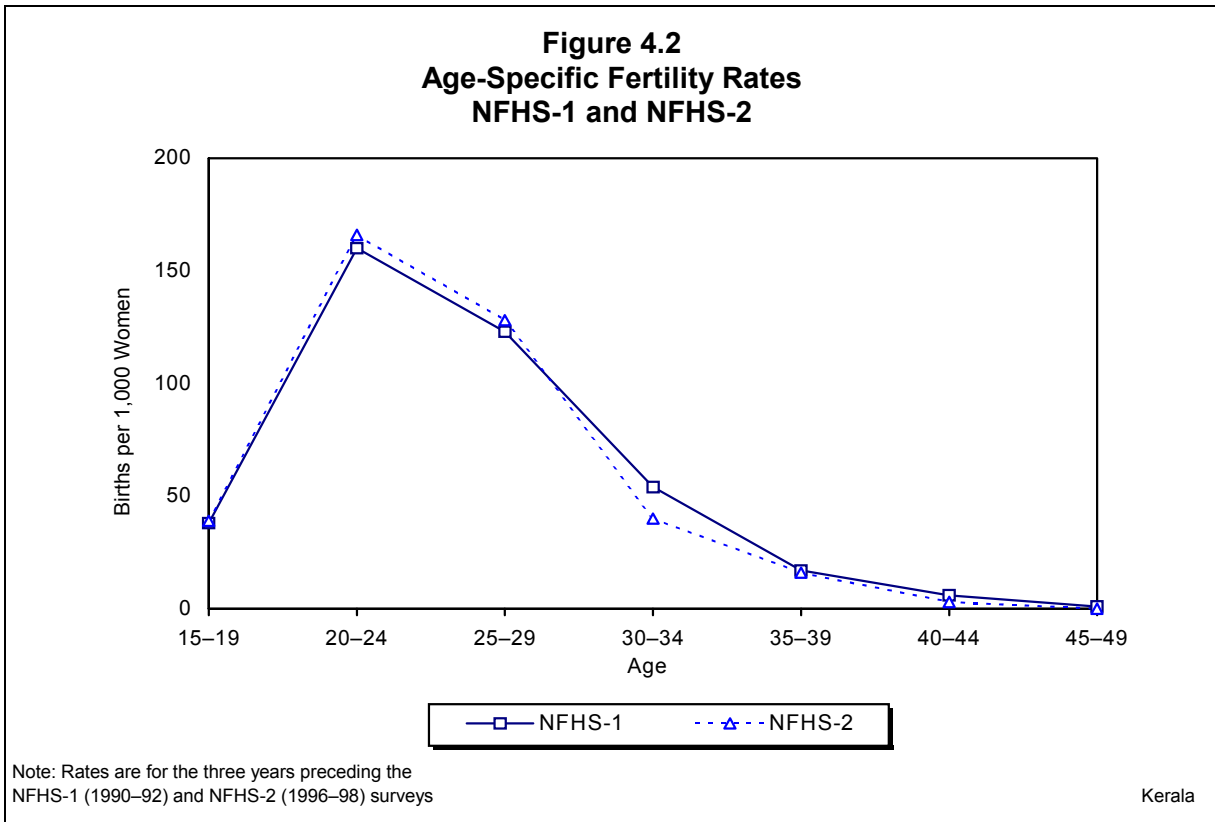
Note: Rates from NFHS-1 and NFHS-2 are for the period 1–36 months preceding the survey. Rates for the age group 45–49 might be slightly biased due to truncation. Rates from the SRS are for one calendar year. Age-specific and total fertility rates are expressed per woman.  
TFR: Total fertility rate  
CBR: Crude birth rate, expressed per 1,000 population  
Source for SRS: Office of the Registrar General, 1999a



areas. Although the ASFRs for age groups 30-34 to 40-44 are higher in urban than in rural areas, fertility at ages 35 and older accounts for only 5 percent of fertility in Kerala.

Based on estimates for the three-year periods preceding NFHS-1 and NFHS-2, the CBR fell from 19.6 to 18.8 between the two surveys, a decline of 4 percent in six and a half years. Over the same period, the TFR fell by 2 percent from 2.00 to 1.96. Table 4.2 and Figure 4.2 show that fertility has changed only marginally in all age groups. Nonetheless, the younger age groups (age 15-19 to age 25-29) now account for 85 percent of total fertility, compared with 80 percent at the time of NFHS-1. Fertility after age 34, which was already limited at the time of NFHS-1, has fallen further in NFHS-2.

NFHS-2 fertility estimates can be compared with the 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. Fertility estimates in NFHS-2 are slightly higher than the corresponding 1997 SRS estimates. Specifically, the estimate for the CBR is 18.8 from NFHS-2 and 17.9 from the SRS, and the estimate for the TFR is 1.96 from NFHS-2 and 1.81 from the SRS.



### 4.3 Fertility Differentials and Trends

Table 4.3 shows 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. 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 Kerala, where fertility has reached replacement level, differentials in fertility as measured by the TFR are relatively small. The largest differentials are by religion and urban-rural residence. Specifically, a differential of over half a child persists between urban and rural areas and the TFR for Muslims is almost one child higher than the TFR for Hindus and more than half a child higher than the TFR for Christians.

Differentials are also limited for the second measure of fertility, the percentage of women currently pregnant, shown in Table 4.3. Overall, 4 percent of women in Kerala report that they are currently pregnant (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 some exceptions. These exceptions are largely due to the fact that the TFR is not affected by the age structure, whereas the percentage currently pregnant is affected by the age structure. For example, the percentage pregnant increases with education from 1 percent among illiterate women to 5 percent among women who have completed at least high school. This relationship results from the fact that younger women are much more likely to be the ones having children as well as the ones with more education.

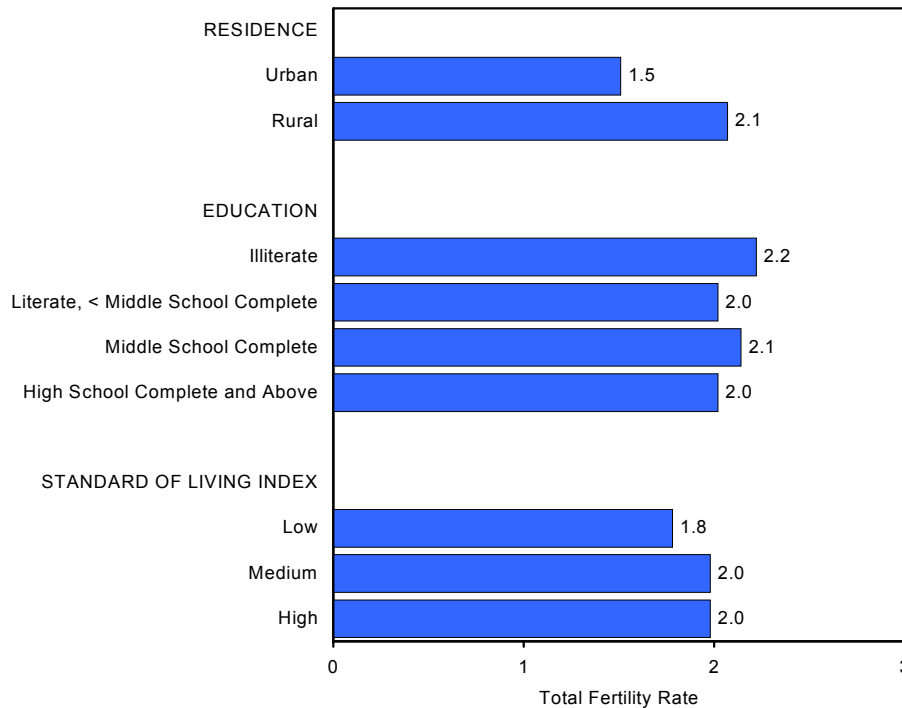
**Table 4.3 Fertility by background characteristics**

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, Kerala, 1999

Background characteristic	Total fertility rate <sup>1</sup>	Percentage currently pregnant <sup>2</sup>	Mean number of children ever born to all women age 40–49 years
<b>Residence</b>			
Urban	1.51	3.6	2.61
Rural	2.07	3.9	3.14
<b>Education</b>			
Illiterate	2.22	0.8	3.83
Literate, < middle school complete	2.02	2.3	3.21
Middle school complete	2.14	4.2	2.53
High school complete and above	2.02	5.3	2.33
<b>Religion</b>			
Hindu	1.64	3.3	2.58
Muslim	2.46	5.1	4.26
Christian	1.88	2.8	2.64
<b>Caste/tribe</b>			
Scheduled caste	1.52	2.3	2.77
Scheduled tribe	*	(8.9)	*
Other backward class	1.90	4.0	3.10
Other	1.85	3.0	2.97
<b>Standard of living index</b>			
Low	1.78	3.2	2.94
Medium	1.98	4.1	3.16
High	1.98	3.7	2.79
Total	1.96	3.8	3.00
Note: Total includes women belonging to other religions, who are not shown separately. ( ) Based on 25–49 unweighted cases *Not shown; based on fewer than 125 woman-years of exposure for the total fertility rate and 25 unweighted cases for the mean number of children ever born <sup>1</sup> Rate for women age 15–49 years <sup>2</sup> For this calculation, it is assumed that women who are never married, widowed, divorced, separated, or deserted are not currently pregnant.			

Differentials are more pronounced for the mean number of children ever born to women age 40–49 (last column of Table 4.3) 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. The average number of children ever born to these women, who are at the end of their childbearing years, is 3.0. The substantial decline in fertility in Kerala over time is evident from the difference of over one child 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 the current age-specific fertility rates (the last column and first column of Table 4.3). Although differentials are pronounced, 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

**Figure 4.3**  
**Total Fertility Rate by Selected Background Characteristics**



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

NFHS-2, Kerala, 1999

survey. Notably, this is the only one of the three fertility measures inversely related to education, clearly displaying the strong expected negative relationship between fertility and education in a given age cohort of women. Indeed, other research suggests that female literacy may be the single most important factor explaining the demographic transition in Kerala (Bhat and Rajan, 1990).

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 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 collected only 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 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.

<b>Table 4.4 Fertility trends</b>				
Age-specific fertility rates for five-year periods preceding the survey by residence, Kerala, 1999				
Age	Years preceding survey			
	0–4	5–9	10–14	15–19
<b>URBAN</b>				
15–19	0.026	0.032	0.045	0.046
20–24	0.127	0.143	0.177	0.171
25–29	0.111	0.129	0.142	0.157
30–34	0.054	0.033	0.073	[0.100]
35–39	0.018	0.016	[0.023]	U
40–44	0.000	[0.007]	U	U
45–49	[0.000]	U	U	U
<b>RURAL</b>				
15–19	0.051	0.070	0.099	0.102
20–24	0.173	0.170	0.206	0.236
25–29	0.133	0.136	0.153	0.209
30–34	0.043	0.045	0.079	[0.118]
35–39	0.012	0.019	[0.029]	U
40–44	0.003	[0.000]	U	U
45–49	[0.000]	U	U	U
<b>TOTAL</b>				
15–19	0.049	0.060	0.086	0.088
20–24	0.162	0.164	0.199	0.220
25–29	0.128	0.135	0.150	0.196
30–34	0.046	0.042	0.077	[0.113]
35–39	0.014	0.019	[0.028]	U
40–44	0.002	[0.002]	U	U
45–49	[0.000]	U	U	U
Note: Age-specific fertility rates are expressed per woman. U: Not available [ ] Truncated, censored				

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, the CFR (15–39) declined little from 2.1 to 2.0 between these two five-year periods. The decline was of the same magnitude (0.1 child) in both the rural and urban areas. This indicates that fertility declined in Kerala prior to the 1990s. Other research on Kerala also supports this conclusion (Zachariah, 1984; Rajan and Zachariah, 1998; Guilmoto and Rajan, 2001).

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.<sup>1</sup> Fertility has declined

<sup>1</sup>Since 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.



<b>Table 4.5 Fertility by marital duration</b>				
Fertility rates for ever-married women by duration since first cohabitation with husband (in years) and residence for five-year periods preceding the survey, Kerala, 1999				
Duration since first cohabitation (in years)	Years preceding survey			
	0–4	5–9	10–14	15–19
<b>URBAN</b>				
< 5	0.279	0.288	0.315	0.337
5–9	0.098	0.080	0.131	0.146
10–14	0.023	0.037	0.046	0.087
15–19	0.008	0.009	0.026	*
20–24	0.002	0.013	*	U
25–29	0.000	*	U	U
<b>RURAL</b>				
< 5	0.304	0.297	0.343	0.354
5–9	0.120	0.136	0.159	0.209
10–14	0.043	0.048	0.076	0.158
15–19	0.014	0.022	0.066	(0.093)
20–24	0.004	0.019	(0.040)	*
25–29	0.004	(0.000)	*	U
<b>TOTAL</b>				
< 5	0.298	0.295	0.336	0.350
5–9	0.115	0.121	0.153	0.198
10–14	0.038	0.045	0.071	0.141
15–19	0.012	0.020	0.056	(0.102)
20–24	0.003	0.018	(0.033)	*
25–29	0.003	(0.000)	*	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

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 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 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 1.7 for all women and 2.3 for currently married women. The mean number of children ever born increases steadily with women's age, reaching a high of 3.2 children among all women age 45–49 and 3.4 among currently married women in this age group. The table also shows that early childbearing is fairly low in Kerala. Three percent of all women age 15–19 and 26 percent of currently married women age 15–19 have already had a child.

**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, Kerala, 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+				
<b>ALL WOMEN</b>															
15–19	96.6	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	100.0	673	0.03	0.03
20–24	57.2	23.0	15.3	4.2	0.3	0.0	0.0	0.0	0.0	0.0	0.00	100.0	632	0.67	0.67
25–29	21.6	25.0	36.8	12.3	3.4	0.9	0.0	0.0	0.0	0.0	0.00	100.0	636	1.54	1.50
30–34	10.1	14.1	45.9	20.5	7.5	1.7	0.2	0.0	0.0	0.0	0.00	100.0	566	2.07	2.00
35–39	8.2	8.9	38.8	26.8	9.3	3.8	2.0	1.6	0.2	0.2	0.40	100.0	541	2.53	2.42
40–44	5.8	7.6	31.1	32.3	11.7	5.6	3.5	0.8	0.4	0.7	0.50	100.0	459	2.83	2.65
45–49	6.8	7.5	23.4	26.1	16.1	8.9	4.8	3.1	1.3	1.1	0.80	100.0	391	3.21	2.96
Total	33.4	13.3	26.5	15.8	6.0	2.5	1.2	0.6	0.2	0.2	0.20	100.0	3,898	1.67	1.59
<b>CURRENTLY MARRIED WOMEN</b>															
15–19	73.8	26.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	89	0.26	0.26
20–24	26.1	39.7	26.4	7.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	100.0	363	1.17	1.15
25–29	9.7	27.9	42.5	14.7	4.1	1.0	0.0	0.0	0.0	0.0	0.0	100.0	533	1.79	1.74
30–34	3.0	14.3	49.8	22.5	8.3	1.9	0.2	0.0	0.0	0.0	0.0	100.0	511	2.25	2.18
35–39	3.2	6.8	41.8	29.5	10.2	3.6	2.3	1.8	0.2	0.2	0.5	100.0	473	2.72	2.60
40–44	2.2	6.1	32.6	33.8	12.7	6.2	4.0	0.9	0.0	0.8	0.5	100.0	399	2.99	2.80
45–49	3.3	5.8	23.4	28.1	18.0	9.8	5.0	3.1	1.1	1.4	1.0	100.0	309	3.41	3.17
Total	9.8	17.3	36.5	21.7	8.3	3.3	1.6	0.8	0.2	0.3	0.3	100.0	2,675	2.27	2.17

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-six percent of all women and 28 percent of currently married women age 45–49 have reached the end of childbearing with three children ever born. Two-fifth (39 percent) of currently married women in this age group had four 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) though low, is higher in Kerala than the national average of 2 percent.

For all women age 15–49, the average number of children who died is 0.08 per woman. For currently married women, the average number of dead children is 0.10, indicating that 4 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 0 percent for women age 15–19 and 2 percent for women age 20–24 to 7 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. Forty percent of all births are first-order births, 39 percent are second-order births, and 14 percent are third-order births. The low proportion of births of order four or higher, at 7 percent, compared with the national average of 28 percent, is another indication of the low level of fertility in Kerala.

Forty-four percent of births to women age 20–29 are first-order births and another 39 percent are second-order births. Less than one in five births to women in this age group are third or higher order births. Even among women age 30–39 the majority of births (62 percent) are first- or second-order births. The proportion of births that are of order three or higher are more than twice as high in rural areas (24 percent) as in urban areas (9 percent). Nonetheless, even in rural areas, less than one in four births is of order three or higher. While the likelihood of first-order births increases sharply with education, the likelihood of births of order four or higher declines sharply with education. Muslim women and women in households with a low standard of living are more likely than other women to have a birth that is of order three or higher. Notably, more than one-third of the births to Muslim women are of order three or higher, compared with about one-tenth of the births to Christian or Hindu women.

#### **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 characteristics. In Kerala, 10 percent of births occur within 18 months of a previous birth and 21 percent occur

<b>Table 4.7 Birth order</b>						
Percent distribution of births during the three years preceding the survey by birth order, according to selected background characteristics, Kerala, 1999						
Background characteristic	Birth order				Total percent	Number of births
	1	2	3	4+		
<b>Mother's current age</b>						
20–29	44.1	39.3	13.5	3.1	100.0	543
30–39	16.6	45.2	20.3	17.9	100.0	136
<b>Residence</b>						
Urban	44.8	45.7	7.1	2.3	100.0	134
Rural	38.9	37.4	15.9	7.7	100.0	575
<b>Mother's education</b>						
Illiterate	(18.7)	(33.1)	(7.6)	(40.6)	100.0	29
Literate, < middle school complete	25.3	41.0	18.7	15.0	100.0	153
Middle school complete	37.1	32.7	24.2	6.0	100.0	145
High school complete and above	48.7	41.0	9.2	1.1	100.0	381
<b>Religion</b>						
Hindu	46.3	44.3	8.4	1.1	100.0	315
Muslim	31.3	32.1	22.0	14.6	100.0	287
Christian	45.2	41.9	10.8	2.1	100.0	106
<b>Caste/tribe</b>						
Scheduled caste	34.2	47.3	12.7	5.8	100.0	57
Other backward class	36.4	39.4	17.0	7.2	100.0	306
Other <sup>1</sup>	43.6	37.4	12.4	6.6	100.0	339
<b>Mother's work status</b>						
Employed by someone else	38.3	50.0	10.0	1.8	100.0	62
Not worked in past 12 months	40.1	37.7	14.8	7.4	100.0	615
<b>Standard of living index</b>						
Low	33.8	38.7	15.1	12.3	100.0	105
Medium	37.8	40.6	14.4	7.2	100.0	399
High	47.6	35.9	13.6	2.9	100.0	204
Total	40.0	39.0	14.3	6.7	100.0	709
Note: Total includes 22 and 8 births to mothers currently age 15–19 and age 40–49, respectively, 7 births to mothers belonging to the scheduled tribes, 11 births to mothers working in a family farm/business, and 21 births to self-employed mothers, which are not shown separately.						
( ) Based on 25–49 unweighted cases						
<sup>1</sup> Not belonging to a scheduled caste, a scheduled tribe, or an other backward class						

within 24 months. Fifty-four percent of births occur after an interval of three years or more. The median birth interval in Kerala is 38 months, longer than for any other state in the country. The median birth interval is 33 months for women age 20–29 and tends to increase with birth order.

The median birth interval is about three months longer if the previous birth was a girl than if it was a boy, contrary to the experience in many other states in India. In states with strong son preference it is often the case that the interval after the birth of a girl is shorter than after the birth of a boy. The median birth interval increases with household standard of living from 33 months for births to women in households with a low standard of living to 44 months for births to women in households with a high standard of living. Birth intervals for scheduled-caste women are 8–9 months shorter than birth intervals for women from other backward classes and

**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, Kerala, 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+			
<b>Mother's current age</b>									
20–29	1.8	9.7	14.3	29.8	19.7	24.8	100.0	33.3	432
30–39	0.3	6.6	7.8	15.9	15.8	53.6	100.0	NC	251
<b>Residence</b>									
Urban	2.3	5.2	8.7	27.3	19.8	36.7	100.0	39.3	135
Rural	1.0	9.2	12.4	23.7	17.7	36.0	100.0	37.7	559
<b>Mother's education</b>									
Illiterate	(0.0)	(10.5)	(12.1)	(10.4)	(14.8)	(52.3)	100.0	(48.4)	42
Literate, < middle school complete	2.2	10.1	10.9	25.5	20.4	30.9	100.0	36.3	199
Middle school complete	1.5	8.4	13.3	30.7	11.7	34.4	100.0	34.1	145
High school complete and above	0.6	7.0	11.4	22.7	20.1	38.2	100.0	41.0	308
<b>Religion</b>									
Hindu	1.1	8.0	11.0	27.0	19.3	33.6	100.0	37.4	281
Muslim	1.2	8.8	11.0	23.7	16.6	38.7	100.0	38.7	308
Christian	1.7	8.2	15.5	19.8	19.2	35.5	100.0	38.9	106
<b>Caste/tribe</b>									
Scheduled caste	0.0	10.1	16.5	30.3	17.6	25.6	100.0	30.3	63
Other backward class	1.2	8.8	8.4	25.8	20.5	35.3	100.0	38.3	306
Other <sup>1</sup>	1.5	7.8	13.5	22.1	15.6	39.6	100.0	39.3	319
<b>Standard of living index</b>									
Low	0.0	10.7	15.7	29.2	13.4	31.0	100.0	33.1	122
Medium	1.5	9.6	12.2	24.2	18.7	33.7	100.0	36.8	395
High	1.5	4.0	7.7	21.6	20.0	45.3	100.0	44.1	176
<b>Order of previous birth</b>									
1	1.5	7.2	11.5	25.4	19.7	34.7	100.0	37.5	445
2	0.0	11.7	11.1	24.6	11.6	41.1	100.0	38.7	161
3	(3.6)	(8.7)	(15.7)	(14.2)	(27.9)	(30.0)	100.0	(38.8)	51
4+	(0.0)	(8.6)	(11.3)	(25.7)	(13.9)	(40.5)	100.0	(44.3)	38
<b>Sex of previous birth</b>									
Male	1.5	8.6	12.9	26.3	14.1	36.5	100.0	36.3	358
Female	0.9	8.2	10.5	22.4	22.3	35.8	100.0	39.4	336
<b>Survival of previous birth</b>									
Living	1.0	8.5	11.9	24.6	18.0	36.1	100.0	38.0	668
Dead	(7.1)	(6.8)	(7.0)	(20.7)	(20.1)	(38.2)	100.0	(40.1)	26
Total	1.2	8.4	11.7	24.4	18.1	36.2	100.0	38.1	694

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 12 births to mothers currently age 40–49 and 6 births to mothers belonging to the scheduled tribes, which are not shown separately.

NC: Not calculated because less than 50 percent of mothers have had their first birth by age 30

( ) Based on 25–49 unweighted cases

<sup>1</sup>Not belonging to a scheduled caste, a scheduled tribe, or an other backward class

women who do not belong to the scheduled castes, the scheduled tribes, and other backward classes. Differentials by rural-urban residence and religion in the median birth interval are small, and differentials by education tend to be inconsistent.

#### 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, Kerala, 1999						
Background characteristic	Current age					
	25–29	30–34	35–39	40–44	45–49	25–49
<b>Residence</b>						
Urban	24.6	23.5	23.3	22.8	21.4	23.3
Rural	21.8	21.8	20.8	21.3	21.3	21.4
<b>Education</b>						
Illiterate	(18.3)	(19.8)	19.5	20.0	20.0	19.7
Literate, < middle school complete	19.9	20.5	20.3	20.5	20.3	20.3
Middle school complete	21.5	21.6	21.6	21.8	(21.7)	21.7
High school complete and above	23.9	24.0	24.4	24.8	25.4	24.2
<b>Religion</b>						
Hindu	23.7	23.0	22.5	22.1	22.1	22.8
Muslim	19.7	19.5	19.2	19.3	19.1	19.4
Christian	24.5	24.4	24.1	23.4	23.8	24.0
<b>Caste/tribe</b>						
Scheduled caste	(22.8)	(22.9)	19.6	(20.7)	(19.8)	21.3
Other backward class	21.8	22.1	21.6	21.2	20.7	21.5
Other <sup>1</sup>	23.1	22.4	21.9	22.3	22.1	22.4
<b>Standard of living index</b>						
Low	20.8	21.1	20.7	21.4	(22.6)	21.1
Medium	22.4	22.0	21.0	21.2	20.7	21.6
High	23.4	23.0	22.9	23.1	21.9	22.9
Total	22.5	22.2	21.5	21.6	21.3	21.9
Note: Total includes women belonging to other religions and scheduled-tribe women, who are not shown separately.						
( ) Based on 25–49 unweighted cases						
<sup>1</sup> Not belonging to a scheduled caste, a scheduled tribe, or an other backward class						

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, Kerala, 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			
40–44	2.9	1.9	24.2	42.6	21.2	6.6	0.7	100.0	27.7	445
45–49	4.4	2.8	19.8	35.0	28.6	8.7	0.7	100.0	28.9	381
40–49	3.6	2.3	22.1	39.1	24.6	7.6	0.7	100.0	28.1	826

As shown in the last row of the table, the median age at first birth in Kerala has risen only by one year in a period of 20 years, from 21.3 years for women age 45–49 to 22.5 years for women age 25–29. The median age at first birth is relatively low (19–20 years) for Muslim women, illiterate women, and literate women who have not completed middle school. It is relatively high, at 24 years, for women who have completed at least high school and Christian women. Notably, the median age at first birth has risen much more rapidly in urban areas than in rural areas. Whereas, the median age at first birth was similar (21 years) for rural and urban women age 45–49, the median age at first birth for women age 25–29 in urban areas (25 years) is three years higher than the median age at first birth for this age group in rural areas (22 years).

For older women, the age at last childbirth is an indicator of the 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. Sixty-four percent of women in this age group had their last birth by age 30, 88 percent by age 35, and 96 percent by age 40. The median age at last birth is 28 years for women age 40–44 and 29 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 at first birth for women who have ever had a birth) is considerably shorter in Kerala (7 years) than in India as a whole (10 years), consistent with the low level of fertility in Kerala (see International Institute for Population Sciences and ORC Macro, 2000: Table 4.15). Other research on age at maternity in Kerala suggests that the reproductive span may be even shorter (Mishra and Rajan, 1997).

#### 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

<u>Table 4.11 Postpartum amenorrhoea, abstinence, and insusceptibility</u>				
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, Kerala, 1999				
Months since birth	Percentage of births whose mothers are:			Number of births
	Amenorrhoeic	Abstaining	Insusceptible	
< 2	(93.5)	(96.5)	(100.0)	32
2–3	(68.5)	(79.4)	(91.9)	43
4–5	(44.5)	(37.2)	(60.9)	34
6–7	(20.5)	(21.4)	(37.9)	48
8–9	(19.6)	(17.5)	(28.0)	35
10–11	(7.5)	(22.0)	(27.3)	36
12–13	(14.7)	(18.8)	(30.9)	43
14–15	(2.2)	(15.2)	(17.4)	34
16–17	(5.9)	(5.9)	(5.9)	37
18–19	4.2	9.4	13.7	52
20–21	(0.0)	(3.0)	(3.0)	37
22–23	(0.0)	(8.9)	(8.9)	43
24–25	0.0	5.9	5.9	52
26–27	(0.0)	(6.4)	(6.4)	47
28–29	(0.0)	(13.1)	(13.1)	39
30–31	(0.0)	(0.0)	(0.0)	28
32–33	(0.0)	(0.0)	(0.0)	29
34–35	(0.0)	(3.0)	(3.0)	34
Median <sup>1</sup>	4.0	4.2	5.7	NA
Mean	5.9	7.5	9.3	NA
Prevalence/incidence mean	5.3	7.1	8.9	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  
<sup>1</sup>Based on a three-period moving average of percentages

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.

The median durations of amenorrhoea and abstinence are each 4 months. The median and mean durations of insusceptibility are 6 and 9 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 small number of births at each of the different durations prevents a more detailed discussion of postpartum amenorrhoea, abstinence, and insusceptibility by the number of months since childbirth. However, these data suggest that women in Kerala are insusceptible to pregnancy for about 6–9 months after childbirth.



**Table 4.12 Menopause**

Percentage of currently married women age 30–49 years who are in menopause by age and residence, Kerala, 1999

Age	Urban		Rural		Total	
	Percentage	Number	Percentage	Number	Percentage	Number
30–34	0.6	128	1.4	383	1.2	511
35–39	5.5	116	3.1	357	3.7	473
40–41	(6.1)	38	8.9	110	8.2	148
42–43	11.8	47	12.8	120	12.5	167
44–45	(16.4)	34	22.3	127	21.1	161
46–47	(41.5)	23	36.3	84	37.4	107
48–49	(55.4)	37	51.9	88	53.0	125
30–49	12.0	422	11.5	1,269	11.6	1,691

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

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 Kerala, menopause is not common among women in their thirties, but its incidence increases rapidly after age 45. At age 44–45, 21 percent of women are menopausal. The proportion menopausal increases to 37 percent for women age 46–47 and 53 percent for women age 48–49.

#### 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. Seventeen percent of currently married women say that they do not want any more children, an additional 51 percent cannot have another child because either the wife or the husband has been sterilized, and 2 percent of women say that they cannot get pregnant (that is, they are ‘declared infecund’). More than one-fourth of women (28 percent) say that they would like to have another child (14 percent within two years, 12 percent after waiting at least two years, and 2 percent are undecided when they want the next child). Overall, 80 percent of women either want to space

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, Kerala, 1999

Desire for children	Number of living children <sup>1</sup>					Total
	0	1	2	3	4+	
<b>URBAN</b>						
<b>Desire for additional child</b>						
Wants another soon <sup>2</sup>	63.0	28.3	2.5	0.0	1.9	12.4
Wants another later <sup>3</sup>	10.8	36.1	3.6	0.7	0.0	10.3
Wants another, undecided when	9.2	4.8	1.1	0.0	0.0	2.3
Undecided	3.0	1.8	0.5	0.7	0.0	1.0
Up to God	4.8	0.6	0.6	1.4	0.0	1.0
Wants no more	4.6	21.3	23.6	16.5	20.5	20.1
Sterilized	0.0	5.3	67.1	79.9	71.8	51.1
Declared infecund	4.6	1.8	1.1	0.7	5.7	1.8
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	51	134	287	114	42	628
<b>Preferred sex of additional child<sup>4</sup></b>						
Boy	20.5	33.1	*	*	*	28.9
Girl	14.9	35.0	*	*	*	28.3
Doesn't matter	60.9	31.9	*	*	*	41.6
Up to God	3.7	0.0	*	*	*	1.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women wanting more <sup>4</sup>	43	79	16	1	1	140
<b>RURAL</b>						
<b>Desire for additional child</b>						
Wants another soon <sup>2</sup>	75.0	31.7	6.0	4.4	3.7	14.9
Wants another later <sup>3</sup>	13.8	43.6	5.8	4.4	3.3	12.5
Wants another, undecided when	0.8	3.6	1.7	1.2	0.4	1.7
Undecided	0.0	1.8	1.1	0.2	1.8	1.1
Up to God	0.8	0.0	0.3	0.5	1.1	0.4
Wants no more	2.3	12.5	21.5	11.4	21.9	16.2
Sterilized	0.8	4.5	62.2	75.8	65.6	51.0
Declared infecund	6.6	2.4	1.4	2.1	2.2	2.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	148	368	770	468	294	2,048
<b>Preferred sex of additional child<sup>4</sup></b>						
Boy	20.1	29.7	28.6	(32.4)	*	26.6
Girl	5.6	34.1	18.5	(17.5)	*	22.0
Doesn't matter	72.7	34.4	50.7	(47.6)	*	49.6
Up to God	1.6	1.8	2.3	(2.6)	*	1.8
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women wanting more <sup>4</sup>	135	243	95	44	19	535

**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, Kerala, 1999

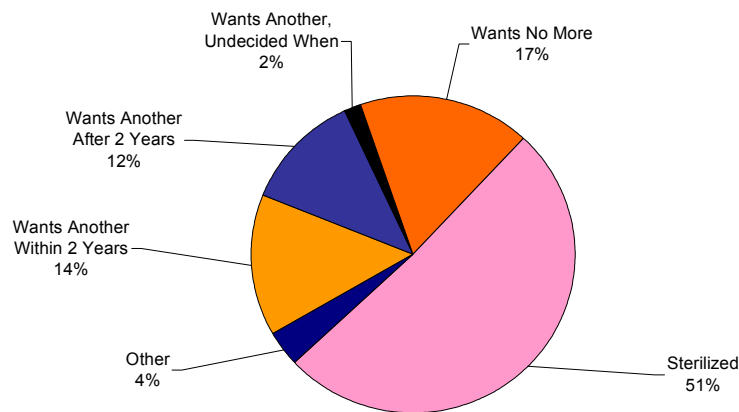
Desire for children	Number of living children <sup>1</sup>					Total
	0	1	2	3	4+	
<b>TOTAL</b>						
<b>Desire for additional child</b>						
Wants another soon <sup>2</sup>	71.9	30.8	5.0	3.6	3.4	14.3
Wants another later <sup>3</sup>	13.1	41.6	5.2	3.7	2.9	12.0
Wants another, undecided when	2.9	3.9	1.5	1.0	0.3	1.8
Undecided	0.8	1.8	1.0	0.3	1.6	1.0
Up to God	1.8	0.2	0.4	0.7	1.0	0.6
Wants no more	2.9	14.8	22.0	12.4	21.7	17.1
Sterilized	0.6	4.7	63.6	76.6	66.4	51.0
Declared infecund	6.1	2.2	1.3	1.8	2.7	2.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	200	501	1,057	582	336	2,675
<b>Preferred sex of additional child<sup>4</sup></b>						
Boy	20.2	30.5	29.3	(31.8)	*	27.1
Girl	7.8	34.3	19.9	(19.0)	*	23.3
Doesn't matter	69.8	33.8	48.8	(46.7)	*	47.9
Up to God	2.1	1.3	1.9	(2.5)	*	1.7
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women wanting more <sup>4</sup>	178	322	111	44	20	675
( ) Based on 25–49 unweighted cases *Percentage not shown; based on fewer than 25 unweighted cases <sup>1</sup> Includes current pregnancy, if any <sup>2</sup> Wants next birth within 2 years <sup>3</sup> Wants to delay next birth for 2 or more years <sup>4</sup> Excludes currently pregnant women						

their next birth or do not want any more children, including women who are sterilized or whose husbands are sterilized. This proportion varies little between urban areas (82 percent) and rural areas (80 percent). One 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 72 percent of women with no living children to 5 percent or less for women with two or more living children. Among women with one living child, 42 percent (36 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, few women in Kerala use temporary methods of contraception. These findings suggest that encouraging the use of temporary methods will help women better meet their own need for spacing births, while also helping to yield health benefits associated with increased birth spacing for mothers and children.

Twenty-seven percent of women who want another child say that they want the next child to be a boy, 23 percent say that they want it to be a girl, and the rest say that the sex of the

**Figure 4.4**  
**Fertility Preferences Among Currently Married Women**



NFHS-2, Kerala, 1999

child is either up to God (2 percent) or does not matter (48 percent). Among women with no living children, 72 percent say that the sex of the child is up to God or does not matter, 20 percent want their first child to be a son, and 8 percent want a daughter. Among women with two or more living children also, an overwhelming 50 percent say that the sex of the child is up to God or does not matter, although, among those who specify the desired sex of the child, a son is desired more frequently than a daughter. However, women who have only one living child reveal a somewhat different pattern of preference. Only 35 percent of these women say that the sex of the child is up to God or does not matter, 34 percent specify a desire for a daughter, and a slightly smaller proportion (31 percent) specify a desire for a son.

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 9 out of 10 women (86–89 percent) with two or more 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, 65 percent of women want no more children. At age 35 and above, 90 percent of women want no more children. The proportion who want no more children is slightly higher among urban women (71 percent) than among rural women (67 percent). The proportion wanting no more children declines sharply with education with 85 percent of illiterate women not wanting any more children, compared with 60 percent of women who have completed at least high school. The inverse relationship between not wanting any more children and education reflects the differences in the age distributions of women in each educational group with younger women tending to dominate in the groups with more education and the reverse being true in groups with low or no education. Three-fourths of Hindu and Christian women (75–76 percent) want no more children, compared with half of Muslim women (52 percent). Scheduled-caste women are more likely to want no more children (79 percent) than

**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, Kerala, 1999

Background characteristic	Number of living children <sup>1</sup>					Total
	0	1	2	3	4+	
<b>Age</b>						
15–24	1.0	6.0	53.1	(59.9)	*	20.2
25–34	4.6	15.7	84.9	79.3	71.5	64.6
35–49	(9.1)	60.5	95.3	96.0	93.0	89.6
<b>Residence</b>						
Urban	4.6	26.7	90.7	96.5	92.3	71.2
Rural	3.0	17.0	83.7	87.2	87.5	67.2
<b>Education</b>						
Illiterate	*	*	93.0	92.0	92.5	85.2
Literate, < middle school complete	(5.5)	29.5	81.9	87.5	86.9	75.5
Middle school complete	(3.5)	13.2	79.4	85.4	(84.0)	64.7
High school complete and above	1.6	18.4	88.9	92.0	(85.2)	59.9
<b>Religion</b>						
Hindu	4.7	26.2	96.6	97.6	98.8	76.2
Muslim	1.5	7.2	47.9	73.6	82.8	51.8
Christian	(4.1)	20.1	91.1	96.2	*	75.0
<b>Caste/tribe</b>						
Scheduled caste	*	(14.8)	92.1	98.2	*	79.4
Scheduled tribe	*	*	*	*	*	(66.5)
Other backward class	2.2	18.8	83.5	88.1	86.9	66.7
Other	3.2	20.8	86.0	87.5	87.3	67.4
<b>Standard of living index</b>						
Low	(10.6)	18.5	91.4	92.3	96.1	77.2
Medium	2.2	17.1	85.8	88.5	87.4	68.1
High	2.8	23.6	82.5	88.0	84.1	64.0
<b>Number of living sons<sup>2</sup></b>						
0	3.4	24.8	85.8	88.5	*	44.7
1	NA	17.8	87.1	89.0	86.3	72.6
2	NA	NA	86.6	89.5	92.7	88.8
3+	NA	NA	NA	90.8	86.8	88.2
<b>Number of living daughters<sup>2</sup></b>						
0	3.4	17.8	86.6	90.8	*	45.0
1	NA	24.8	87.1	89.5	84.6	75.1
2	NA	NA	85.8	89.0	91.6	88.2
3+	NA	NA	NA	88.5	90.4	89.8
Total	3.4	19.5	85.6	89.0	88.1	68.1

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, who are not shown separately.

NA: Not applicable

( ) Based on 25–49 unweighted cases

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

<sup>1</sup>Includes current pregnancy, if any

<sup>2</sup>Excludes pregnant women

‘other’ women, women of other backward classes, and scheduled-tribe women (all 67 percent). The proportion who want no more children decreases with the standard of living, from 77 percent for women in households with a low standard of living to 64 percent for women in households with a high standard of living.

In Kerala, there is almost no difference in the desire for no more children by the number of living sons and the number of living daughters. For example, 45 percent of women want no more children whether they have no sons or no daughters. Also 88 percent of women want no more children if they have three or more sons and 90 percent want no more children if they have three or more daughters. Analysis by parity also gives almost no evidence of a preference for sons affecting women’s desire for more children.

#### 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 89 percent of women in Kerala were able to give a numerical response.

Table 4.15 shows that 73 percent of ever-married women in Kerala consider two or three to be the ideal number of children. Only 16 percent have an ideal that differs from two or three

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, Kerala, 1999						
Ideal number of children	Number of living children <sup>1</sup>					Total
	0	1	2	3	4+	
0	0.8	0.0	0.0	0.0	0.0	0.1
1	9.0	10.7	2.8	1.3	0.6	4.2
2	56.0	61.5	72.3	31.0	14.6	52.9
3	10.3	12.5	14.1	43.0	17.5	20.1
4	5.2	4.3	3.1	10.8	18.4	7.1
5	3.2	1.2	0.7	1.9	13.2	2.8
6+	0.9	0.7	0.6	1.0	8.0	1.7
Non-numeric response	14.6	9.1	6.3	11.0	27.8	11.2
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	232	560	1,116	618	358	2,884
Mean ideal number <sup>2</sup>	2.3	2.2	2.2	2.8	3.9	2.5
Number of women giving numeric response	198	509	1,045	550	259	2,561

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

**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, Kerala, 1999

Background characteristic	Current age							Total
	15–19	20–24	25–29	30–34	35–39	40–44	45–49	
<b>Residence</b>								
Urban	*	2.2	2.1	2.1	2.3	2.5	2.6	2.3
Rural	3.0	2.5	2.5	2.5	2.6	2.7	2.8	2.6
<b>Education</b>								
Illiterate	*	*	(2.5)	(2.5)	2.9	3.2	(3.1)	2.9
Literate, < middle school complete	*	2.7	2.9	2.8	2.7	2.9	2.9	2.8
Middle school complete	*	2.5	2.6	2.5	2.5	2.3	(2.6)	2.5
High school complete and above	(2.8)	2.3	2.1	2.2	2.2	2.4	2.3	2.2
<b>Religion</b>								
Hindu	(2.0)	2.0	2.0	2.1	2.2	2.3	2.5	2.2
Muslim	(3.4)	2.9	3.2	3.2	3.5	3.7	3.7	3.3
Christian	*	(2.0)	2.0	2.2	2.3	2.6	2.5	2.3
<b>Caste/tribe</b>								
Scheduled caste	*	(2.2)	(2.0)	(2.1)	2.4	(2.4)	*	2.3
Scheduled tribe	*	*	*	*	*	*	*	(2.4)
Other backward class	(2.9)	2.5	2.5	2.5	2.7	2.7	2.7	2.6
Other	(3.2)	2.4	2.4	2.4	2.5	2.7	2.7	2.5
<b>Work status</b>								
Working in family farm/business	*	*	*	*	*	*	*	2.3
Employed by someone else	*	(2.1)	2.1	2.1	2.4	2.5	2.5	2.3
Self-employed	*	*	*	(2.1)	(2.4)	(2.7)	*	2.3
Not worked in past 12 months	3.0	2.5	2.4	2.5	2.7	2.8	2.8	2.6
<b>Standard of living index</b>								
Low	*	2.2	2.3	2.4	2.5	2.8	(2.8)	2.5
Medium	(3.0)	2.5	2.4	2.4	2.7	2.7	2.8	2.6
High	*	2.4	2.3	2.5	2.3	2.5	2.6	2.5
<b>Husband's education</b>								
Illiterate	*	*	(2.6)	(2.2)	(3.0)	(3.1)	(2.8)	2.8
Literate, < primary school complete	*	*	2.7	2.6	3.0	3.0	3.0	2.9
Primary school complete	*	2.5	2.8	2.6	2.7	2.7	2.7	2.7
Middle school complete	(2.8)	2.4	2.4	2.4	2.4	2.6	2.7	2.5
High school complete	*	2.3	2.2	2.3	2.2	2.4	2.6	2.3
Higher secondary complete and above	*	2.4	2.0	2.1	2.2	2.4	(2.3)	2.2
Total	2.9	2.4	2.4	2.4	2.6	2.7	2.7	2.5

Note: Means are calculated excluding women who gave non-numeric responses. Total includes women belonging to other religions and women with missing information on husband's education, who are not shown separately.  
 ( ) Based on 25–49 unweighted cases  
 \*Mean not shown; based on fewer than 25 unweighted cases

children. Among all women who gave a numeric response, the average number of children considered ideal is 2.5, ranging from 2.2–2.3 for women who have two or fewer children to 3.9 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 Kerala. For example, among women with four or more living children who gave a numeric response, 45 percent state that fewer than four children would be ideal. Similarly, among women with three living children who gave a numeric response, 36 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 Kerala already have more children than they now consider ideal. This proportion may be taken as one 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. The mean ideal number of children is higher among women age 35–49 (2.6–2.7) than among women age 20–34 (2.4); however, women age 15–19 have, at 2.9 children, a higher mean ideal number of children than women in all other age groups. The average ideal number of children is slightly lower in urban areas (2.3 children) than in rural areas (2.6 children). The mean ideal number of children tends to decline with the education of women, as well as with the education of their husbands. Illiterate women have a mean ideal family size of 2.9, more than half a child higher than women who have completed at least high school (2.2). The mean ideal number of children is similar for Hindus and Christians (2.2–2.3), but is about one child higher for Muslims (3.3). The mean ideal family size varies little by caste/tribe status and by the standard of living index. Although the variation in the mean ideal number of children by women's work status is small, women who have not worked in the 12 months preceding the survey have a higher mean ideal family size than employed women.

#### **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; Das Gupta and Bhat, 1997; Kishor, 1995; Koenig and Foo, 1992; Kulkarni et al., 1996; Murthi et al., 1995; Nag, 1991; Parasuraman et al., 1994; and Sudha and Rajan, 1999). 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.

Overall, the average ideal family size of 2.5 children consists of 1 son, 0.8 daughters, and 0.7 children of either sex. Fifteen percent of women want more sons than daughters, but only 5 percent want more daughters than sons. Although Kerala is generally believed to be an exception to the widespread son preference in India, these data suggest the existence of some amount of preference for sons in women's conception of an ideal family. Nonetheless, the majority of women want at least one son (73 percent), and a similar majority want at least one daughter (71 percent).

Taking all indicators together, son preference, however limited, is most evident among illiterate or less educated women, women whose husbands are illiterate or less educated, and Muslim women. The finding of some amount of son preference is also supported by recent



**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, Kerala, 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					
<b>Residence</b>								
Urban	0.9	0.8	0.6	14.2	4.8	74.6	71.3	596
Rural	1.0	0.8	0.8	14.8	5.3	72.0	70.5	1,936
<b>Education</b>								
Illiterate	1.0	0.9	1.0	18.5	6.3	69.4	67.4	284
Literate, < middle school complete	1.1	0.9	0.9	20.0	5.3	73.3	70.0	715
Middle school complete	1.1	0.9	0.5	15.9	5.8	79.7	78.8	452
High school complete and above	0.8	0.8	0.7	9.5	4.6	70.0	68.6	1,081
<b>Religion</b>								
Hindu	0.9	0.8	0.6	11.7	4.3	73.6	71.2	1,374
Muslim	1.2	1.0	1.1	20.9	7.1	70.1	69.0	742
Christian	0.9	0.8	0.6	13.2	4.6	73.8	72.1	415
<b>Caste/tribe</b>								
Scheduled caste	0.9	0.8	0.5	15.6	6.4	78.4	74.5	241
Scheduled tribe	(1.1)	(0.8)	(0.5)	(23.5)	(9.8)	(75.4)	(65.6)	31
Other backward class	1.0	0.9	0.7	16.2	3.8	75.8	74.0	1,083
Other	0.9	0.8	0.8	12.8	6.0	68.4	67.0	1,177
<b>Work status</b>								
Working in family farm/business	0.8	0.8	0.7	14.2	8.8	66.7	66.6	58
Employed by someone else	0.9	0.8	0.6	15.9	7.3	71.1	70.5	439
Self-employed	0.9	0.8	0.7	12.5	7.6	71.5	70.5	146
Not worked in past 12 months	1.0	0.9	0.8	14.5	4.4	73.2	70.8	1,889
<b>Standard of living index</b>								
Low	0.9	0.8	0.8	14.8	4.6	70.5	67.4	400
Medium	1.0	0.9	0.7	14.9	5.0	74.0	71.7	1,385
High	0.9	0.8	0.7	14.1	5.8	71.2	70.5	747
<b>Husband's education</b>								
Illiterate	1.1	0.8	0.9	23.4	3.5	71.7	67.0	178
Literate, < primary school complete	1.1	0.9	0.9	18.4	5.8	75.5	74.4	305
Primary school complete	1.0	0.9	0.8	17.2	6.3	72.2	69.9	576
Middle school complete	1.0	0.9	0.6	15.0	3.7	77.4	75.3	475
High school complete	0.9	0.8	0.6	10.9	4.7	72.0	69.9	609
Higher secondary complete and above	0.8	0.7	0.7	8.4	6.5	66.0	66.0	382
Total	1.0	0.8	0.7	14.6	5.2	72.6	70.7	2,532

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 2 women belonging to other religions and 6 women with missing information on husband's education, who are not shown separately.

( ) Based on 25–49 unweighted cases

research that finds that in 2 out of 14 districts in Kerala, sex ratios at birth and for the population age 0–1 and 0–6 years are higher than those compatible with no son preference (Rajan et al., 2000).

#### **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. About one-fifth of all pregnancies (19 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). Sixteen percent were wanted later and 3 percent were not wanted at all. According to mother's age at birth, the proportion of births that were unplanned is highest for the age group 20–24 (22 percent) and lowest for the age group less than 20 (12 percent). Within the unplanned category, the proportion of births that were wanted later peaks for women age 20–24 and then falls with mother's age. The proportion that were not wanted at all rises as mother's age at birth increases.

The proportion of births that were unplanned varies by some socioeconomic characteristics. This proportion is higher in rural areas (20 percent) than in urban areas (14 percent), and declines with the standard of living. Women who are literate but have not completed middle school are more likely than women at other levels of education to have births that are unplanned. The proportion of births that were unplanned is somewhat higher among Christian women (21 percent) than among women of other religions (18–19 percent). The proportion of births not wanted at all increases with birth order but the proportion of births wanted later is relatively high only for births of order 2. Notably, however, the fact that about one-fifth of births of order two or higher are unplanned suggests that the family welfare programme is failing to meet the differing needs of women at different stages of their family formation process. The substantial proportion of women at all parities who would have liked to have their births later suggests that attention 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

**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, Kerala, 1999

Background characteristic	Planning status of pregnancy				Total percent	Number of births and current pregnancies
	Wanted then	Wanted later	Not wanted at all	Missing		
<b>Mother's age at birth<sup>1</sup></b>						
< 20	88.0	12.0	0.0	0.0	100.0	89
20–24	77.2	21.2	0.6	0.9	100.0	355
25–29	80.7	15.1	3.2	1.0	100.0	292
30–34	87.2	5.4	7.4	0.0	100.0	85
35–39	(79.7)	(3.5)	(16.8)	(0.0)	100.0	30
<b>Residence</b>						
Urban	86.0	12.2	1.4	0.5	100.0	168
Rural	79.4	16.8	3.0	0.8	100.0	688
<b>Mother's education</b>						
Illiterate	(90.1)	(3.3)	(6.6)	(0.0)	100.0	32
Literate, < middle school complete	74.6	20.0	4.8	0.6	100.0	175
Middle school complete	81.1	15.4	1.7	1.9	100.0	173
High school complete and above	82.2	15.4	2.0	0.4	100.0	475
<b>Religion</b>						
Hindu	81.1	15.2	2.7	1.0	100.0	384
Muslim	81.4	15.9	2.7	0.0	100.0	347
Christian	77.5	18.1	2.7	1.7	100.0	124
<b>Caste/tribe</b>						
Scheduled caste	73.0	20.9	4.5	1.7	100.0	66
Other backward class	80.2	16.3	2.6	0.9	100.0	370
Other <sup>2</sup>	82.2	14.8	2.6	0.5	100.0	409
<b>Standard of living index</b>						
Low	75.8	18.2	3.5	2.6	100.0	125
Medium	79.6	16.7	3.2	0.4	100.0	485
High	85.3	13.1	1.2	0.4	100.0	246
<b>Birth order<sup>3</sup></b>						
1	85.1	12.6	1.3	1.0	100.0	403
2	76.0	21.4	1.9	0.7	100.0	291
3	78.8	14.6	6.6	0.0	100.0	112
4+	(76.8)	(12.9)	(10.2)	(0.0)	100.0	50
Total	80.7	15.9	2.7	0.7	100.0	856

Note: Table includes the two most recent births in the three years preceding the survey and current pregnancies. Total includes 4 births to women age 40–44 and 11 births to women belonging to the scheduled tribes, which are not shown separately.

( ) Based on 25–49 unweighted cases

<sup>1</sup>For current pregnancy, estimated maternal age at birth

<sup>2</sup>Not belonging to a scheduled caste, a scheduled tribe, or an other backward class

<sup>3</sup>Includes current pregnancy, if any

<b>Table 4.19 Wanted fertility rates</b>		
Total wanted fertility rate and total fertility rate for the three years preceding the survey by selected background characteristics, Kerala, 1999		
Background characteristic	Total wanted fertility rate	Total fertility rate
<b>Residence</b>		
Urban	1.41	1.51
Rural	1.90	2.07
<b>Education</b>		
Illiterate	2.13	2.22
Literate, < middle school complete	1.86	2.02
Middle school complete	1.92	2.14
High school complete and above	1.90	2.02
<b>Religion</b>		
Hindu	1.50	1.64
Muslim	2.29	2.46
Christian	1.69	1.88
<b>Caste/tribe</b>		
Scheduled caste	1.32	1.52
Other backward class	1.76	1.90
Other <sup>1</sup>	1.70	1.85
<b>Standard of living index</b>		
Low	1.49	1.78
Medium	1.82	1.98
High	1.91	1.98
Total	1.81	1.96
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 scheduled-tribe women, who are not shown separately. <sup>1</sup> Not belonging to a scheduled caste, a scheduled tribe, or an other backward class		

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.

Overall, the total wanted fertility rate of 1.81 in Kerala is lower by 0.15 children than the total fertility rate of 1.96. As in the case of the TFR, differentials in the wanted TFR are also small and are similar to the differentials in the TFR for most variables. The difference in the TFR and the wanted TFR is highest at 0.3 children only for women from households with a low standard of living. For all other groups, the difference is about 0.2 or less.