

CHAPTER 1

INTRODUCTION

1.1 Background of the Survey

India's first National Family Health Survey (NFHS-1) was conducted in 1992–93 (International Institute for Population Sciences, 1995). The Ministry of Health and Family Welfare (MOHFW) subsequently designated the International Institute for Population Sciences (IIPS), Mumbai, as the nodal agency to initiate a second survey (NFHS-2), which was conducted in 1998–99. An important objective of NFHS-2 is to provide state-level and national-level information on fertility, family planning, infant and child mortality, reproductive health, child health, nutrition of women and children, and the quality of health and family welfare services. Another important objective is to examine this information in the context of related socioeconomic and cultural factors. The survey is also intended to provide estimates at the regional level for five states (Bihar, Jammu and Kashmir, Madhya Pradesh, Rajasthan, and Uttar Pradesh) and for three metro cities (Chennai, Kolkata, and Mumbai), as well as slum areas in Mumbai. This information will assist policymakers and programme administrators in planning and implementing strategies for improving population, health, and nutrition programmes. Comparative state results from NFHS-2 have already been published (International Institute for Population Sciences and ORC Macro, 2000). The current report provides a more comprehensive picture of the findings for Tamil Nadu.

The NFHS-2 national sample covers more than 99 percent of India's population living in 26 states. It does not cover the union territories. NFHS-2 is a household sample survey with an overall sample size of 90,303 ever-married women in the age group 15–49 living in 92,486 households.

NFHS-2 was conducted with financial support from the United States Agency for International Development (USAID), with additional funding from UNICEF. Technical assistance was provided by ORC Macro, Calverton, Maryland, USA, and the East-West Center, Honolulu, Hawaii, USA. Thirteen field organizations were selected to collect the data. Eight of the field organizations are private sector organizations and five are Population Research Centres (PRCs) established by the Government of India in various states. Each field organization had responsibility for collecting the data in one or more states. The PRC, Gandhigram, was selected as the field organization for NFHS-2 in Tamil Nadu.

1.2 Basic Socioeconomic and Demographic Features of Tamil Nadu

Tamil Nadu has a linguistic and cultural history that dates back about 6,000 years. The present state of Tamil Nadu was part of the Madras Presidency during the period of British rule in India. After India attained independence, the state of Madras was formed during the reorganization of states on a linguistic basis in 1956. The state included parts of present-day Andhra Pradesh and Kerala. In 1969, Madras state was renamed Tamil Nadu.

Tamil Nadu, the land of Tamil, is the seat of Dravidian culture and tradition. The major language is Tamil, which is also the official language of the state. Telugu, Kannada, Malayalam, and Urdu are other languages spoken in the state. Hindus (89 percent) constitute a large majority

of the population. Christians (5 percent) and Muslims (6 percent) are the other major religious groups in the state.

Chennai is the capital city of Tamil Nadu. According to the 2001 Census of India, Tamil Nadu has the sixth largest population among the states in India (Office of the Registrar General and Census Commissioner, 2001). It has an area of 130,058 km². When NFHS-2 was being planned, Tamil Nadu was divided into 29 districts. A new district (Ariyalur), formed recently, was carved out of Prembalur District.

Tamil Nadu is one of India's economically and industrially more developed states. Although it continues to be predominantly an agricultural state, Tamil Nadu's economy has been changing rapidly into an industrial economy. The contribution of the agricultural sector to the net state domestic product (NSDP) declined from 25 percent in 1980–81 to 19 percent in 1996–97. The manufacturing sector contributed 27 percent in 1980–81 and 22 percent in 1996–97. The share of other sectors increased from 48 percent in 1980–81 to 59 percent in 1996–97 (EPW Research Foundation, 1998). At the time of the 1991 Census, the agricultural sector provided a livelihood to 61 percent of the working population in the state as cultivators and agricultural labourers (Office of the Registrar General and Census Commissioner, 1992).

Although 61 percent of the population in Tamil Nadu depends on agriculture, the state has been changing rapidly. Food production has gone up from 7 million tonnes in 1970–71 to 9.2 million tonnes in 1995–96. Rice production has gone up from 5.3 million tonnes in 1970–71 to 7.6 million tonnes in 1995–96. More than 80 percent of food grains are produced during the *rabi* season and the rest are produced in the *kharif* season. Rice, groundnuts, sugar cane, cotton, and coconuts are the major crops grown in Tamil Nadu. Land is irrigated by canals (32 percent), tanks (23 percent), and wells (45 percent). Important natural resources include lignite, crude petroleum, and natural gas. Tamil Nadu is one of the largest maritime states in India. The two harbours, Chennai and Tuticorin, have more than 51,000 sailing vessels (1998–99) conducting foreign and coastal trade. Tamil Nadu has a good public transport system with more than 90 percent of villages covered by all-weather (*pucca*) roads. Most of the villages in the state have been electrified. Tamil Nadu has very good health infrastructure in both rural and urban areas. As per the Relative Infrastructure Development Index, Tamil Nadu ranks third among the 17 major states of India (Centre for Monitoring Indian Economy, 1997).

Tamil Nadu has experienced rapid industrial growth since the early 1960s. This is reflected in the fact that the number of registered factories increased from 13,800 in 1989–90 to 19,746 in 1997–98 (Central Statistical Organisation, 1999). Almost 1.3 million persons are engaged in factory work. The Integral Coach Factory at Chennai and the tank factory at Avadi were established at an early stage of development. The stainless steel plant at Salem has been producing steel for a variety of purposes. Other important industries are cotton, textiles, fertilizers, sugar, heavy electricals, refineries, automobiles, cement, paper, and handlooms.

The average annual per capita net domestic product in the state increased from Rs. 1,498 in 1980–81 to Rs. 2,880 in 1996–97 at constant (1980–81) prices or Rs. 11,215 at current prices. (EPW Research Foundation, 1998). As per the estimates provided by the Planning Commission for 1993–94, 32 per cent of the rural population and 40 percent of the urban population was living below the poverty line (Central Statistical Organisation, 1999).

According to the provisional population tables from the 2001 Census, Tamil Nadu had a population of 62.1 million, accounting for 6 percent of the total population of India (Office of the Registrar General and Census Commissioner, 2001). The total population of the state was 41.2 million in 1971, 48.4 million in 1981, and 55.9 million in 1991. The population growth rate decreased considerably from 17.5 percent in 1971–81 to 15.4 percent in 1981–91 and 11.2 percent in 1991–2001, which is half the decadal percentage increase for the country as a whole (21.3 percent) in 1991–2001. Except for Kerala, Tamil Nadu recorded the lowest population growth rate in 1991–2001 among all the states and union territories in India. Population density per km² in Tamil Nadu increased from 317 in 1971 to 372 in 1981, 429 in 1991, and 478 in 2001. The population density in Tamil Nadu (478) is much higher than the density for the country as a whole (324), which indicates substantial pressure on land and other resources. Tamil Nadu's share in India's land area is 4 percent.

According to the 2001 Census, Tamil Nadu has become one of the most urbanized states in the country. The percentage of the population living in urban areas increased from 33 percent in 1981 to 34 percent in 1991 and 44 percent in 2001, which is substantially higher than the 2001 level of urbanization for India (28 percent).

According to the 1991 Census, the proportion of the total population belonging to scheduled castes¹ was 19.2 percent, which is slightly higher than that in the country as a whole (16.7 percent). The scheduled-caste population increased slightly from 17.8 percent of the total population of Tamil Nadu in 1971 to 19.2 percent in 1991. The proportion of the total population belonging to scheduled tribes in the state is very low (only 1 percent, compared with 8 percent in India as a whole). The proportion of the population belonging to scheduled tribes has been almost stagnant in Tamil Nadu since 1971.

Tamil Nadu is one of the educationally more advanced states in the country. According to the 2001 Census, the literacy rate among the population age seven and above was 73 percent, compared with 65 percent for India as a whole. The literacy rates were 82 percent for males and 65 percent for females in Tamil Nadu, compared with 76 percent for males and 54 percent for females in India as a whole. Although female literacy has grown more rapidly than male literacy during 1971–2001, the female literacy level continues to be lower than the male literacy level in the state. However, the gap between male and female literacy rates decreased in absolute terms between 1971 and 2001, from 25 percentage points in 1971 to 18 percentage points in 1991. The gap between male and female literacy rates in Tamil Nadu is smaller than the gap in India as a whole.

According to estimates from the Sample Registration System (SRS), fertility in Tamil Nadu declined considerably during 1971–98. The crude birth rate (CBR) fell from 31.4 in 1971 to 19.2 in 1998. However the decline was faster during 1984–98 (when the CBR fell from 28.0 to 19.0) than it was during 1971–84 (when the CBR fell from 31.4 to 28.0). The total fertility rate also declined considerably, from 3.9 children per woman in 1971 to 2.0 children per woman in 1997. The natural growth rate of 10.7 per 1,000 population in 1998 was the lowest among the major states in India. For 1998, the infant mortality rate of 53 per 1,000 live births in Tamil Nadu was much lower than the estimate of 72 for India as a whole. The infant mortality rate in Tamil

¹Scheduled castes and scheduled tribes are castes and tribes which the Government of India officially recognizes as socially and economically backward and in need of special protection from injustice and exploitation.

Nadu declined substantially from 113 per 1,000 live births in 1971 to 53 per 1,000 live births in 1998. The crude death rate also declined, from 14.4 per 1,000 population in 1971 to 8.5 in 1998.

For 1996–2001, life expectancy in Tamil Nadu is projected to be 65.2 years for males and 67.6 years for females, a substantial increase from the estimates of 57 years for both males and females in 1981–86 (Ministry of Health and Family Welfare, 1999a). The projected increase in life expectancy is more for females than for males.

The couple protection rate (defined as the percentage of eligible couples effectively protected against pregnancy by various methods of contraception) in Tamil Nadu was 50.8 percent in 1998, compared with 13.3 percent in 1971 (Ministry of Health and Family Welfare, 1999a). But the couple protection rate in Tamil Nadu fell from 57.3 percent in 1991 to 50.8 percent in 1998 although the fertility rate continues to fall in the state.

The couple protection rate in Tamil Nadu in 1998 was substantially higher than the all-India estimate of 45.4 percent. Tamil Nadu is aiming to achieve population stabilization by 2010. The state policy note on health sets the following goals for 2005: a birth rate of 15 per 1,000 population, an infant mortality rate of 30 per 1,000 live births or less, and institutional deliveries of 90 percent (Government of Tamil Nadu, 2000).

1.3 Questionnaires

NFHS-2 used three types of questionnaires: the Household Questionnaire, the Woman's Questionnaire, and the Village Questionnaire. The overall content and format of the questionnaires were determined through a series of workshops held at IIPS in Mumbai in 1997 and 1998. The workshops were attended by representatives of a wide range of organizations in the population and health fields, as well as experts working on gender issues. The questionnaires canvassed in Tamil Nadu were bilingual, with questions in both Tamil and English.

The Household Questionnaire listed all usual residents in each sample household plus any visitors who stayed in the household the night before the interview. For each listed person, the survey collected basic information on age, sex, marital status, relationship to the head of the household, education, and occupation. The Household Questionnaire also collected information on the prevalence of asthma, tuberculosis, malaria, and jaundice, as well as three risk behaviours—chewing *paan masala* or tobacco, drinking alcohol, and smoking. Information was also collected on the usual place where household members go for treatment when they get sick, the main source of drinking water, type of toilet facility, source of lighting, type of cooking fuel, religion of the household head, caste/tribe of the household head, ownership of a house, ownership of agricultural land, ownership of livestock, and ownership of other selected items. In addition, a test was conducted to assess whether the household uses cooking salt that has been fortified with iodine. Finally, the Household Questionnaire asked about deaths occurring to household members in the two years before the survey, with particular attention to maternal mortality. The information on the age, sex, and marital status of household members was used to identify eligible respondents for the Woman's Questionnaire.

The Woman's Questionnaire collected information from all ever-married women age 15–49 who were usual residents of the sample household or visitors who stayed in the sample household the night before the interview. The questionnaire covered the following topics:

Background characteristics: Questions on age, marital status, education, employment status, and place of residence provide information on characteristics likely to influence demographic and health behaviour. Questions are also asked about the background characteristics of a woman's husband.

Reproductive behaviour and intentions: Questions cover dates and survival status of all births and, for each woman, current pregnancy status and future childbearing intentions.

Quality of care: Questions assess the quality of family planning and health services.

Knowledge and use of contraception: Questions cover knowledge and use of specific family planning methods. For women not using any contraceptive method, questions are included about reasons for not using contraception and intentions about future use.

Sources of family planning: Questions determine where a user obtained her family planning method.

Antenatal, delivery, and postpartum care: The questionnaire collects information on whether women received antenatal and postpartum care, who attended the delivery, and the nature of complications during pregnancy for the last two births since January 1996.

Breastfeeding and health: Questions cover feeding practices, the length of breastfeeding, immunizations, and recent occurrences of diarrhoea, fever, and cough for the last two births since January 1996.

Reproductive health: Questions assess various aspects of women's reproductive health and the type of care sought for health problems.

Status of women: The questionnaire asks about gender roles, women's autonomy, and violence against women.

Knowledge of AIDS: Questions assess women's knowledge of AIDS and sources of their knowledge, as well as their knowledge about ways to avoid getting AIDS.

In addition, the health investigator on each survey team measured the height and weight of each woman and each of her children born since January 1996. This height and weight information is useful for assessing levels of nutrition prevailing in the population. The health investigators also took blood samples from each woman and each of her children born since January 1996 to assess haemoglobin levels. This information is useful for assessing prevalence rates of anaemia among women and children. Haemoglobin levels were measured in the field at the end of each interview using portable equipment (the HemoCue) that provides test results in less than one minute. Severely anaemic women and children were referred to local medical authorities for treatment.

For each village selected in the NFHS-2 sample, the Village Questionnaire collected information on the availability of various facilities in the village (especially health and education facilities) and amenities such as electricity and telephone connections. Respondents to the Village Questionnaire were also asked about development and welfare programmes operating in the village. The village survey included a short, open-ended questionnaire that was administered

to the village head, with questions on major problems in the village and actions that could be taken to alleviate these problems.

1.4 Survey Design and Sample Implementation

Sample Size and Reporting Domains

The NFHS-2 sample in Tamil Nadu was designed to provide estimates for the state as a whole, for urban and rural areas separately, and for Chennai. The sample is not large enough, however, to provide reliable estimates for all districts.

A target sample size of 4,000 completed interviews with eligible women was initially divided between urban and rural areas by allocating the sample proportionally to the population of these two areas. The NFHS-1 nonresponse rates at the household and individual levels were used to estimate the sample size that would be required to achieve the target number of completed interviews in NFHS-2. The sampling rates used in urban and rural areas take expected rates of nonresponse into account based on urban and rural nonresponse rates from NFHS-1. In order to provide separate estimates for Chennai, a higher sampling rate was used in Chennai than in other urban areas. Specifically, 750 additional interviews were conducted in Chennai in order to achieve a sample size of 1,000.

Sample Design

There were three sampling domains: rural areas, urban areas excluding Chennai, and Chennai. Within each of the sampling domains, a systematic, multi-stage stratified sampling design was used. The rural sample was selected in two stages: the selection of Primary Sampling Units (PSUs), which are villages or groups of villages (in the case of small linked villages), with probability proportional to size (PPS) in the first stage, followed by the selection of households using systematic sampling within each selected PSU in the second stage. In the remaining two domains (Chennai and urban areas excluding Chennai), a three-stage sampling procedure was followed. In the first stage, wards were selected with PPS. From each selected ward, one census enumeration block (CEB) was selected with PPS in the second stage, followed by the selection of households using systematic sampling within each selected CEB in the third stage.

Sample Selection in Rural Areas

In rural areas, the 1991 Census list of villages served as the sampling frame. The list was stratified by a number of variables. The first level of stratification was geographic, with villages classified into five contiguous regions. The district composition of the five geographic regions (based on the 21 districts in Tamil Nadu at the time of the 1991 Census) is as follows (districts that have been bifurcated and renamed are shown in parentheses):

Region I: Coimbatore, Dindigul Anna (Dindigul), Madurai (Madura and Theni), Periyar (Erode), Nilgiri

Region II North Arcot-Ambedkar (Vellore), Dharmapuri, Tiruvannamalai-Sambuvarayan, Salem (Salem and Namakal), Tiruchirappalli (Tiruchirapalli, Karur, and Perambalur)

Region III	Kanniyakumari
Region IV	Chengalpattu-MGR (Kanchipuram and Tiruvallur), South Arcot (Cuddalore and Villupuram), Thanjavur (Thanjavur, Nagappattinam, and Tiruvarur), Chennai
Region V	Pudukkottai, Pasumpon Muthuramalinga Thevar (Sivagangai), Kamarajar (Virudhunagar), Ramanathapuram, Chidambaranar (Thootukudi), Tirunelveli Kattabomman (Tirunelveli)

In each region, villages were further stratified by village size and the percentage of the population from scheduled castes and scheduled tribes. Table 1.1 provides details of the sample stratification in rural areas along with the population of each stratum. The final level of stratification was implicit for all strata, consisting of an ordering of villages within each stratum by level of female literacy (obtained from the 1991 Census Village Directory). From the list of villages arranged in this way, villages were selected systematically with probability proportional to the 1991 Census population of the village. Small villages with 5–49 households were linked with one or more adjoining villages to form PSUs with a minimum of 50 households. Villages with fewer than five households were excluded from the sampling frame.

Table 1.1 Sampling stratification				
Sampling stratification procedure in rural areas, Tamil Nadu				
Stratification variables				
Stratum	Region	Village population	Percentage of SC/ST population	Population ¹
1	1	≤ 7,000	≤ 20.0	2,499,868
2	1	≤ 7,000	> 20.0	2,334,526
3	1	> 7,000	NU	2,223,790
4	2	≤ 2,500	≤ 19.0	1,739,724
5	2	≤ 2,500	> 19.0	2,389,437
6	2	> 2,500 and ≤ 4,200	≤ 19.0	1,732,212
7	2	> 2,500 and ≤ 4,200	> 19.0	1,809,126
8	2	> 4,200	≤ 19.0	2,340,081
9	2	> 4,200	> 19.0	1,851,427
10	3	NU	NU	1,330,240
11	4	≤ 1,900	≤ 32.0	1,786,629
12	4	≤ 1,900	> 32.0	2,390,883
13	4	> 1,900 and ≤ 4,500	≤ 32.0	2,372,767
14	4	> 1,900 and ≤ 4,500	> 32.0	1,729,533
15	4	> 4,500	NU	1,887,432
16	5	≤ 3,500	≤ 19.0	2,212,062
17	5	≤ 3,500	> 19.0	2,012,950
18	5	> 3,500	NU	2,137,748
Total	NA	NA	NA	36,780,435

Note: The level of female literacy is used for implicit stratification.
SC: Scheduled caste, ST: Scheduled tribe
NA: Not applicable
NU: Not used for stratification
¹The population shown is the 1991 Census population, excluding persons living in villages with fewer than five households.

The domain sampling fraction, i.e., the probability of selecting a woman in rural Tamil Nadu (f) was computed as:

$$f = \frac{n}{N}$$

where n = number of rural women to be interviewed, after upward adjustment to account for nonresponse and other loss, and
 N = projected rural population of eligible women in May 1999.

The probability of selecting a PSU from rural Tamil Nadu (f_i) was computed as:

$$f_i = \frac{a \times s_i}{\sum s_i}$$

where a = number of rural PSUs selected from the state,
 s_i = population size of the i^{th} PSU, and
 $\sum s_i$ = total rural population of the state.

A mapping and household listing operation carried out in each sample area provided the necessary frame for selecting households at the second stage. The household listing operation involved preparing up-to-date notional and layout sketch maps of each selected PSU, assigning numbers to structures, recording addresses of these structures, identifying residential structures, and listing the names of heads of all the households in residential structures in the selected PSUs. Sample villages larger than 300 households were segmented into three or more segments, and two segments were selected randomly using the PPS method. The household listing in these PSUs was carried out only in the selected segments. The work was carried out by 10 teams, each comprising 1 lister and 1 mapper, under the supervision of 5 field supervisors and 3 field executives. The teams were trained from 1–5 February 1999 in Gandhigram by the Chief of the PRC, Gandhigram, who was earlier trained in a workshop conducted by IIPS. The mapping and household listing operation was carried out from 6 February to 15 March 1999. The households to be interviewed were selected with equal probability from the household list in each selected enumeration area using systematic sampling.

The probability of selecting a household from a selected rural PSU (f_2) was computed as:

$$f_2 = \frac{f}{f_1}$$

On average, 30 households were initially targeted for selection in each selected enumeration area. To avoid extreme variations in the workload, minimum and maximum limits were put on the number of households that could be selected from any area, at 15 and 60, respectively. All the selected households were visited during the main survey, and no replacement was made if a selected household was absent during data collection. However, if a PSU was inaccessible, a replacement PSU with similar characteristics was selected by IIPS and provided to the field organization.

Sample Selection in Chennai and Other Urban Areas

The 1991 Census list of urban wards was arranged according to districts and within districts by the level of female literacy and a sample of wards was selected systematically with probability proportional to population size. Next, one census enumeration block (CEB), consisting of approximately 150–200 households, was selected from each selected ward using the PPS method. As in rural areas, a household listing operation was carried out in the selected CEBs and, on average, 30 households per block were targeted for selection.

The domain sampling fraction, i.e., the probability of selecting a woman from an urban domain (Chennai and other urban areas) in Tamil Nadu (f) was computed as:

$$f = \frac{n}{N}$$

where n = number of urban women to be interviewed, after upward adjustment to account for nonresponse and other loss, and

N = projected urban population of eligible women in the state in May 1999.

The probability of selecting an urban ward (f_1) was computed as:

$$f_1 = \frac{a \times s_i}{\sum s_i}$$

where a = number of wards selected from the domain,

s_i = population size of the i^{th} ward, and

$\sum s_i$ = total population in the domain.

The probability of selecting a CEB from a selected ward (f_2) was computed as:

$$f_2 = \frac{B_i}{\sum B_i}$$

where B_i = population size of a specific CEB, and

$\sum B_i$ = total population of the ward.

A household listing operation carried out in each selected block provided the necessary frame for selecting households in the third stage of sample selection. The probability of selecting a household from a selected CEB (f_3) was computed as:

$$f_3 = \frac{f}{f_1 \times f_2}$$

Sample Weights

In Tamil Nadu, the sample was weighted at the level of the sampling domain. Sample weights for households and women are based on design weights, adjusted for the effect of differential

nonresponse in different geographical areas. The method of calculating the weights is specified below.

Let R_{Hi} and R_{wi} be the response rates for households and eligible women, respectively. Then the household weight (w_{Hi}) is calculated as follows:

$$w_{Hi} = \frac{w_{Di}}{R_{Hi}}$$

where w_{Di} = the design weight for the i^{th} domain, calculated as the ratio of the overall sampling fraction ($F = n/N$) and the sampling fraction for the i^{th} domain ($f = n_i/N_i$). Note that $n = \sum n_i$ and $N = \sum N_i$.

The eligible woman's weight (w_{wi}) is calculated as follows:

$$w_{wi} = \frac{w_{Di}}{R_{Hi} \times R_{wi}}$$

After adjustment for nonresponse, the weights are normalized so that the total number of weighted cases is equal to the total number of unweighted cases. The final weights for households and eligible women are:

$$W_{Hi} = \frac{\sum n_i}{\sum w_{Hi} \times n_i} \times w_{Hi}$$

$$W_{wi} = \frac{\sum n_i}{\sum w_{wi} \times n_i} \times w_{wi}$$

where n_i refers to the actual number of cases (households or eligible women) interviewed in the i^{th} domain.

For the tabulations on anaemia and height/weight of women and children, two separate sets of weights were calculated using a similar procedure. In this case, however, the response rates for anaemia (for both women and children) are based on the percentage of eligible women whose haemoglobin level was measured, and the response rates for height/weight (for both women and children) are based on the percentage of eligible women whose height or weight was measured.

Sample Implementation

A total of 158 PSUs were selected in Tamil Nadu, of which 70 were urban and 88 were rural. In Chennai, 33 PSUs were selected. Table 1.2 shows response rates for households and individuals and reasons for nonresponse. Nonresponse can occur at the stage of the household interview or at the stage of the woman's interview. The last row of the table shows the total effect of nonresponse at the two stages. The survey achieved an overall response rate of 99.5 percent. The

Table 1.2 Sample results

Sample results for households and ever-married women age 15–49 by residence, Tamil Nadu, 1999

Result	Urban		Rural		Total		Chennai	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Households selected	2,409	100.0	2,920	100.0	5,329	100.0	1,123	100.0
Households completed (C)	2,388	99.1	2,893	99.1	5,281	99.1	1,110	98.8
Households with no household member at home or no competent respondent at home at the time of interview (HP)	3	0.1	4	0.1	7	0.1	1	0.1
Households absent for extended period (HA)	2	0.1	8	0.3	10	0.2	1	0.1
Households postponed (P)	1	0.0	0	0.0	1	0.0	1	0.1
Households refused (R)	0	0.0	0	0.0	0	0.0	0	0.0
Dwelling vacant/address not a dwelling (DV)	12	0.5	8	0.3	20	0.4	10	0.9
Dwelling destroyed (DD)	0	0.0	0	0.0	0	0.0	0	0.0
Dwelling not found (DNF)	0	0.0	0	0.0	0	0.0	0	0.0
Other (O)	3	0.1	7	0.2	10	0.2	0	0.0
Households occupied	2,392	100.0	2,897	100.0	5,289	100.0	1,112	100.0
Households interviewed	2,388	99.8	2,893	99.9	5,281	99.8	1,110	99.8
Households not interviewed	4	0.2	4	0.1	8	0.2	2	0.2
Household response rate (HRR) ¹	NA	99.8	NA	99.9	NA	99.8	NA	99.8
Eligible women	2,124	100.0	2,568	100.0	4,692	100.0	937	100.0
Women interviewed (EWC)	2,113	99.5	2,563	99.8	4,676	99.7	929	99.1
Women not at home (EWNH)	8	0.4	4	0.2	12	0.3	7	0.7
Women postponed (EWP)	0	0.0	0	0.0	0	0.0	0	0.0
Women refused (EWR)	1	0.0	0	0.0	1	0.0	0	0.0
Women partly interviewed (EWPC)	0	0.0	0	0.0	0	0.0	0	0.0
Other (EWO)	2	0.1	1	0.0	3	0.1	1	0.1
Eligible women's response rate (EWRR) ²	NA	99.5	NA	99.8	NA	99.7	NA	99.1
Overall response rate (ORR) ³	NA	99.3	NA	99.7	NA	99.5	NA	99.0

Note: Eligible women are defined as ever-married women age 15–49 who stayed in the household the night before the interview (including both usual residents and visitors). This table is based on the unweighted sample; all other tables are based on the weighted sample unless otherwise specified.

NA: Not applicable

¹Using the number of households falling into specific response categories, the household response rate (HRR) is calculated as:

$$\text{HRR} = \frac{C}{C + \text{HP} + \text{P} + \text{R} + \text{DNF}} \times 100$$

²Using the number of eligible women falling into specific response categories, the eligible women's response rate (EWRR) is calculated as:

$$\text{EWRR} = \frac{\text{EWC}}{\text{EWC} + \text{EWNH} + \text{EWP} + \text{EWR} + \text{EWPC} + \text{EWO}} \times 100$$

³The overall response rate (ORR) is calculated as:

$$\text{ORR} = \frac{\text{HRR} \times \text{EWRR}}{100}$$

overall response rate is very high in urban areas (99.3 percent), in rural areas (99.7 percent), and in Chennai (99.0 percent).

Of the 5,329 households selected in Tamil Nadu, interviews were completed in 99.1 percent of the cases. In 0.2 percent of the cases, the household was absent for an extended period, and in 0.4 percent of the cases, the dwelling was vacant or the address was not a

dwelling. The household response rate—the number of households interviewed per 100 occupied households—was 99.8 percent in urban areas and 99.9 percent in rural areas.

In the interviewed households, 4,692 women were identified as eligible for the individual interview. Interviews were successfully completed with 99.7 percent of the eligible women. The response rate for women was almost equal in urban areas (99.5 percent) and rural areas (99.8 percent). Very few eligible women (less than 1 percent) were not at home at the time of interview.

1.5 Recruitment, Training, and Fieldwork

Field staff for the main survey were trained in Gandhigram by officials from the PRC, who were trained earlier in a Training of Trainers Workshop in Kodaikanal conducted by IIPS, Mumbai. Training in Tamil Nadu consisted of classroom training, general lectures, and demonstration and practice interviews, as well as field practice and additional training for field editors and supervisors. The classroom training included instruction in interviewing techniques and survey field procedures, a detailed review of each item in the questionnaires, instruction and practice in weighing and measuring women and children, and mock interviews between participants. Health investigators attached to interviewing teams were given additional specialized training on measuring height and weight and testing for anaemia in a centralized training programme conducted by IIPS in collaboration with the All India Institute of Medical Sciences (AIIMS), New Delhi. This specialized training took place in Mumbai. It included classroom training and extensive field practice in schools, *anganwadis*, and communities.

Six interviewing teams conducted the main fieldwork, each team consisting of one field supervisor, one female field editor, four female interviewers, and one health investigator. The fieldwork was carried out between 8 March 1999 and 7 June 1999. Coordinators and senior staff of the PRC monitored and supervised the data collection operations. IIPS also appointed one research officer to help with monitoring throughout the training and fieldwork period in order to ensure that correct survey procedures were followed and data quality was maintained. From time to time, project coordinators, senior research officers, and other faculty members from IIPS, as well as staff members from ORC Macro and the East-West Center, visited the field sites to monitor the data collection operation. Medical health coordinators appointed by IIPS monitored the nutritional component of the survey. Field data were quickly entered into microcomputers, and field-check tables were produced to identify certain types of errors that might have occurred in eliciting information and filling out questionnaires. Information from the field-check tables was fed back to the interviewing teams and their supervisors so that they could improve their performance.

1.6 Data Processing

Completed questionnaires were sent to the PRC in Gandhigram for data processing, which consisted of office editing, coding, data entry, and machine editing, using the Integrated System for Survey Analysis (ISSA) software. Data entry was done by five data entry operators under the supervision of one research officer and one programmer at the PRC who were trained at a data-processing workshop in Mumbai. Data entry and editing operations were completed by June 1999. Tabulations for the preliminary report as well as for the present final report were carried out at IIPS in Mumbai.