CHAPTER 5

DATA AND METHODOLOGY

5.1. DATA:

SURVEY METHODOLOGY OF THIRD NATIONAL FAMILY HEALTH SURVEY (NFHS-3)

5.1.1: SAMPLING METHODOLOGY AND SAMPLE SIZE

Third National Family Health Survey (NFHS-3) was conducted in 2005-06. It provides information on various socio economic factors both for women and men. In India it is the only source which provides gender related data in detail. All selected women and men are the usual residents of the sample household or visitors who stayed in the sample household the night before the survey. NFHS-3 canvassed three types of questionnaires namely the Household Questionnaire, the Women’s Questionnaire, and the Men’s Questionnaire. As this study is related to the women’s problems and behaviour, the discussion will be restricted to the Women’s Questionnaire only. This Questionnaire attempted to collect information on various aspects of women’s life in detail. However, present study considers only the relevant information about the women respondents related to
1. **Background characteristics** like age; marital status; caste/tribe; religion; education; employment status; exposure to mass media; place of residence and husband’s background.

2. **Marriage and cohabitation** including duration of marriage and cohabitation; number of times married.

3. **General health** including smoking habit; use of drugs like alcohol, injections; sufferings from diseases like tuberculosis, asthma, diabetes and thyroid.

4. **Status of women** like women’s autonomy which includes whether they can keep money with them; have money for own use; have knowledge of loan; receive any loan; have any bank account; take decisions to spend money, to spend husband’s earned money and about large purchase; gender relations; health care decisions; household decisions to run routine and various forms of daily household activities and mobility freedom.

In conducting the NFHS-3 in India, the size of the selected samples in a state was determined on the basis of size of women within the reproductive age to be interviewed as most of the key indicators to be estimated refer to women. Accordingly, the sample size was considered as 4,000 completed interviews with women for the states having population more than 30 million, 3,000 completed interviews with women for the states with population 30 to 5 million, and 1,500 completed interviews with women for the states with a population less than 5 million as par 2001 census. However, the sample size increased than the fixed target in some states for providing two additional estimates: in Andhra Pradesh, Karnataka, Maharashtra, Manipur, Nagaland, Tamilnadu and Uttar Pradesh for the
calculation of HYV prevalence estimate and in eight cities of Andhra Pradesh, Delhi, Maharashtra, Tamil Nadu, Madhya Pradesh and West Bengal for providing the estimates of slum and non-slum population. Finally, 124,385 women respondents including married and unmarried women of 15-49 years age were selected from all 29 states of India.

5.1.2: SAMPLING DESIGN

The urban and rural samples within each state were drawn separately. The samples within each state were allocated proportionally to the size of the state’s urban and rural populations. This method of selection enables proper representation of sample. A uniform sample design was adopted in all states. Final selected sampling unit, household, was selected using multi-stage sampling method. In each state, the rural samples were selected in two stages and urban samples were selected in three stages. All ever married and never married women in each sample household were considered to be eligible for interview and determined finally as the unit of observation, i.e., respondent. For this particular design, bias is absent in the survey and both men and women are represented in a sufficient number. Therefore, current study based on this survey is assumed to be reliable and reflect the actual empowerment picture of Indian women.

5.1.2a: SELECTION OF SAMPLE - RURAL AREAS

In each state, the rural samples were selected in two stages. From the 2001 Census list of villages in rural areas initially, the first level of stratification was done subdividing the districts into contiguous regions.
Then the villages within each of these regions were further stratified using the following information like (a) village size, (b) percentage of males working in the non-agricultural sector, (c) percentage of the population belonging to scheduled castes or scheduled tribes, and (d) female literacy. Then Primary Sampling Units (PSUs), villages, were selected with probability proportional to population size (PPS) in the first stage.

Then within each PSU, village, in every state, a mapping and a detailed household listing (which included information regarding type of structures – residential and others with location, names of heads of households) were prepared for selecting households at the second stage. Large sample villages having number of households more than 500 were segmented and considered as separate PSU. The selection of sample households for interview in each PSU from this list was made assigning equal probability to each household in the list using systematic sampling method. On an average, 30 households were initially targeted for selection ranging from minimum of 15 to maximum of 60 households from a particular PSU and no replacement was made if a selected household was absent during data collection. Only a replacement of PSU with similar characteristics was made by IIPS in case of non-accessibility and provided to the research organization.

5.1.2b: SELECTION OF SAMPLES - URBAN AREAS

In the first stage, wards were selected with PPS sampling. In the next stage, one census enumeration block (CEB) was randomly selected from each
sample ward. In the final stage, households were randomly selected within each selected CEB.

In urban areas, a three-stage selection procedure was followed. Here, at the first stage, the wards that were available from the 2001 Census were arranged according to districts, then within districts by the level of female literacy, and samples of wards were selected systematically with probability proportional to size (PPS). In the second stage, each census enumeration block (CEB), consisting of approximately 150-200 households, was selected from each selected ward using the PPS method. A household listing was prepared for each selected census enumeration block, which provided the necessary frame for selecting households in the third stage, final stage, of sample selection. On an average, 30 households are selected from each census enumeration block with minimum and maximum limits of 15 to 60 households.

5.1.3: SAMPLE WEIGHTS

A self-weighting system was designed in NFHS-3 at the domain level, i.e., at the urban and rural areas of each state, and the slum and non-slum areas of each of the eight selected cities. All households and individuals in the same domain will share a common household weight and individual weight, respectively. The weight was determined as the inverse of the overall sampling fraction in each domain, which was the product of the selection probabilities at each sampling stage (two stages in rural areas and three stages in urban areas) and adjusted for household non-response in the calculation of the household sampling weight. The
household sampling weight was again adjusted for individual non-response to get the individual sampling weight and both adjustments for non-response were done at the domain level. To get the national standard weights and standard state weights, the sampling weights are normalized at the national level and at the state level, which ensured the equality of weighted and un-weighted cases at the national and state levels respectively.

5.1.4: DATA COLLECTION IN NFHS 3

NFHS-3 fieldwork was carried out in two phases. First phase (November 2005 to May 2006) of survey covered 12 states including Andhra Pradesh, Assam, Chhattisgarh, Delhi, Gujarat, Maharashtra, Meghalaya, Orissa, Punjab, Rajasthan, Uttar Pradesh, and West Bengal. In the second-phase (April to August 2006) remaining 17 states including Arunachal Pradesh, Bihar, Goa, Haryana, Himachal Pradesh, Jammu and Kashmir, Jharkhand, Karnataka, Kerala, Manipur, Madhya Pradesh, Mizoram, Nagaland, Sikkim, Tamil Nadu, Tripura, and Uttaranchal were surveyed. All total 124,385 women were interviewed out of 131,596 who stayed in the household the night before the household interview. The individual response rate, i.e., the number of completed interviews per 100 eligible women identified in the households, was 95 percent for the country as a whole (93 percent in urban areas and 96 percent in rural areas). The response rate for eligible women varied from 90 percent in Maharashtra and Meghalaya to 99 percent in Madhya Pradesh and Chhattisgarh. Summary of these are given below in Table 5.1.4.1.
Table 5.1.4.1: Results of the household and individual interviews
Number of households, number of interviews with women and response rates, according to residence, India, 2005-06

<table>
<thead>
<tr>
<th>Result</th>
<th>Residence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Urban</td>
</tr>
<tr>
<td>Household interviews</td>
<td></td>
</tr>
<tr>
<td>Households selected</td>
<td>54,453</td>
</tr>
<tr>
<td>Households occupied</td>
<td>51,846</td>
</tr>
<tr>
<td>Households interviewed</td>
<td>50,236</td>
</tr>
<tr>
<td>Household response rate&lt;sup&gt;1&lt;/sup&gt;</td>
<td>96.9</td>
</tr>
<tr>
<td>Interviews with women age 15-49</td>
<td></td>
</tr>
<tr>
<td>Number of eligible women</td>
<td>61,028</td>
</tr>
<tr>
<td>Number of eligible women interviewed</td>
<td>56,961</td>
</tr>
<tr>
<td>Eligible women response rate&lt;sup&gt;2&lt;/sup&gt;</td>
<td>93.3</td>
</tr>
</tbody>
</table>

Source: NFHS-3

Note: Eligible women are of age 15-49 who stayed in the household the night before the household interview (including both usual residents and visitors).

This table is based on the un-weighted sample.

1 Households interviewed/households occupied.

2 Respondents interviewed/eligible respondents.

5.2: SELECTION OF DATA AND VARIABLES

5.2.1: SELECTION OF DATA

The study area covers up all 29 states of India. Number of women respondents, ever and never married within 15 – 49 age groups from these 29 states finally included in the NFHS-3 survey was 124385. However, all of the respondents could not be included in the present study. Like most of the primary level survey data, NFHS 3 is also characterized by non-response to the questions on behavioural characteristics, particularly on decision-making behaviour. Though this rate varies, however, there exist non-responding respondents, at least for some particular enquiries, in all the
states in India. Figure 5.2.1.1 (and also Table A1 in Appendix A) shows that this rate varies from 21 to 45 percent by states. Non-response rate is highest and over 40 percent in Northeastern states like Manipur, Nagaland, Meghalaya, it is between 35 to 40 percent in J & K and Karnataka. This rate is relatively lower in Bihar, Rajasthan and Uttarakhand and varies between 21 to 23 percent. In remaining states this non-response rate varies from 23 to 35 percent.

Throughout the questionnaire, this is more frequent for sensitive queries, and this rate is found to be as high as 29 percent only for decision related questions. Present study concentrates only on those cases, for whom, responses are available for most of the study variables under consideration. As the objective of the present study is to analyze the level of women empowerment and its determinants in India, as a

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1 As main objective is to estimate women empowerment, fourteen decision-making variables available from NFHS 3 survey are included in this study. If the number of non-response for a particular respondent appeared more than seven out of these fourteen, then that respondent is dropped out from this study.
consequence, total number of respondent included in the study reduces from 124385 to 87815 (about 71 percent of the total). The distribution of 87815 women by states is shown in Figure 5.2.1.2. Highest number of women is surveyed from Uttar Pradesh following Maharashtra, Andhra Pradesh, Madhya Pradesh, Karnataka and Tamil Nadu. Sample size of these states varies from 6322 to 4181. States having sample size below 4000 but above 2000 are Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, Uttaranchal, Delhi, Rajasthan, Bihar, West Bengal, Assam, Jharkhand, Orissa, Gujarat, Chattisgarh, Goa and Kerala. The states having sample size below 2000 are Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, and Meghalaya

**Figure 5.2.1.2: Number of women surveyed in different States of India, 2005-06**

Source: Data extracted from NFHS 3.
For operational purpose, NFHS 3 classified India into six geographical regions in the following way:

(1) North
(2) West
(3) Central
(4) East
(5) North East and
(6) South

All these six regions encompass the entire Indian states within its periphery. States covered under these six regions and distribution of women respondents among these regions are depicted in Table 5.2.1.1.

*Table 5.2.1.1: Regional distribution of Indian States & number of women in these regions, 2005-06*

<table>
<thead>
<tr>
<th>Regions</th>
<th>States</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. North</td>
<td>Delhi, Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab, Rajasthan, Uttaranchal</td>
<td>16522</td>
</tr>
<tr>
<td>2. West</td>
<td>Goa, Gujarat and Maharashtra</td>
<td>11274</td>
</tr>
<tr>
<td>3. Central</td>
<td>Chhattisgarh, Uttar Pradesh and Madhya Pradesh</td>
<td>16599</td>
</tr>
<tr>
<td>4. East</td>
<td>Bihar, Jharkhand, West Bengal and Orissa</td>
<td>13510</td>
</tr>
<tr>
<td>5. North-East</td>
<td>Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura</td>
<td>13626</td>
</tr>
<tr>
<td>6. South</td>
<td>Andhra Pradesh, Karnataka, Kerala and Tamil Nadu</td>
<td>16284</td>
</tr>
<tr>
<td>All states</td>
<td></td>
<td>87815</td>
</tr>
</tbody>
</table>

Source: NFHS extracted data

Northern region includes Delhi, Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab, Rajasthan and Uttaranchal and number of women surveyed in this region is 16522. States lying in western region are Goa, Gujarat and Maharashtra. Total of 11274 women are surveyed from this region. States within central region are Chhattisgarh, Uttar Pradesh and
Madhya Pradesh and cover 16599 women as respondents. Eastern zone includes the state of Bihar, Jharkhand, West Bengal and Orissa taking 13510 women as respondents. States under Northeast region are Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura, which include 13626 women respondents in the survey. And Southern zone consists of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu states with 16284 women respondents.

5.2.2: SELECTION OF VARIABLES

Present study is an empirical study and based on unit level data provided by NFHS-3, which is the only largest source of data relating to various aspects of women life in this regard. As per objectives of the study information are required on two sets of variables; one set of variables related to the measurement of level of women empowerment and other set of variables representing the factors influencing that level. NFHS 3 provides information on their attitude towards decision-making on various activities of life indicating the level of empowerment achieved by them as well as women’s socio-economic characteristics influencing their decision-making attitude.

Various decisions are to be taken regarding household works done inside and outside the house for maintaining the regular life leading as well as for issues beyond household boundary like political participation. Various indicators are identified from existing studies in this regard. However, present study considers only a sub set from an exhaustive set of indicators representing household matters, only which is available from NFHS 3 survey.
data. This sub-set includes 14 indicators to be considered in the analysis. No indicators related to political participation are available in NFHS 3, so not included in the study. Therefore, this study is confined to the decision making power of women at the household level and house related activities outside, as indicators of women empowerment.

The variables used as proxy to the women empowerment level are qualitative data represented by categorical value. Total of 14 indicators, included in the present study, may be classified into four broad categories and defined as women’s right to have access to money, spending money decisions, routine household decisions and freedom of mobility. The indicators included in all these four categories are as follows.

► **Access to Money (AMI)**

Whether a woman respondent has

(1) Money for her own use,

(2) Bank or savings account,

(3) Knowledge of loan and

(4) Been given Loan.

► **Spending money decisions (SPI)**

Whether a woman respondent has the right to

(1) Spend money,

(2) Spend husband’s earned money and

(3) Make large purchases decisions.
➤ **Routine household decisions (RHDI)**

Whether a women respondent has the right to take decisions for

1. Own health care,
2. Daily purchases,
3. To visit relatives’ or friends’ houses and
4. Using contraception.

➤ **Freedom of Mobility (MI)**

Whether a women respondent is

1. Allowed to go market,
2. Allowed to go outside village/community and
3. Allowed to go for health facility.

Though there are various indicators available in the literature assumed as proxy to socio-economic and cultural characteristics of the respondents, information related to the variables like religion, caste, mass media exposure (including reading newspaper, listening radio and watching TV), age, educational qualification and occupational standard of respondent and her partner, wealth index, marital status, type of employment of respondent, earning more than husband and household structure available from NFHS 3, are included in the study. Some of these are qualitative and others are quantitative in nature. However, for the purpose of the study all the indicators are converted into qualitative data and new codes are assigned to them keeping the compatibility with NFHS 3 codes.
5.3: METHODS OF ESTIMATION

Following analytical methods are attempted in analyzing the women empowerment in India in the present study.

(1) Construction of an Empowerment Index (EI) to assess the level of women empowerment using 14 indicators representing women’s decision-making attitude.

(2) Categorization of EI as low, medium and high to study the pattern of achievement level.

(3) Estimation of a regression model by regressing EI on the socio-economic indicators mentioned above to identify the factors that act as catalyst to empowerment at national level as well as by population groups.

(4) Development of a state wise mapping of women empowerment to identify the nature of variation in empowerment level among the states in India.