CHAPTER II
METHODS AND TECHNIQUES

Research design is a broad plan of empirical research, specifying in detail the sampling procedure and various techniques used for data collection and analysis. Research involves numerous stages and each step can be pursued in various ways. Methodology guides us in our choices of these ways in a given context.

Study Design

The design of research formulated for this study is comparative. In this study, a comparison has been undertaken between groups of different size and composition in order to understand the similarities and differences between them.

Unit of Analysis

The unit of analysis in the present study are families with particular size and composition of children.

Universe

For this study, the universe consists of all the couples residing in the urban areas of Chandigarh, in the reproductive age group of 15-44 years, having two or more living children and married for ten or more years. The sub-universe consists of all the couples who have children of the same sex and those who have children of different sex.

Chandigarh is a modern city of modern India designed by Le Corbusier. Initially, the city was planned to cater to a population of five lakhs in 30 sectors,
three quarter of a mile by half a mile. Today, the city has grown to double the targeted population, expanding in the process to about 50 sectors. Each sector is self-sufficient, having shops, schools, places of recreation and worship. The distribution of plots of various sizes is not evenly balanced in the different sectors. While some sectors have a proportionally large number of plots of smaller size, bigger plots preponderate in others (D’Souza, 1968). Besides, there are certain sectors which contain exclusively large sized plots. There are government houses and privately owned houses. In privately owned houses, the size of the plots vary from eight kanals or more, to less than five marlas.¹ The government houses have been classified into several types, each intended for separate income group. The plot size of different categories of government houses range from a minimum of two and a half marlas to a maximum of eight kanals or more and there are 13 major categories of houses (D’Souza, 1968; Sarin, 1982; Kalia 1987). The sectors close to the centre of power are inhabited by the elites, and the ones farther down by an eclectic mix of population. The sectors located in the first phase have reached the saturation point; those in the second phase have some scope for expansion, while the third phase is coming up.

Chandigarh occupies an area of 114 sq. kms of which 58.3 sq. kms is urban and the remaining (45.70 sq. kms) is rural. The urban area consists of the city, while the units of urban agglomerations are namely Manimajra, Burail and Attawa. The rural area consists of 24 inhabited villages. The population of

¹ One Kanal is approximately 500 square yards and consists of 20 marlas.
Chandigarh has recorded a tremendous increase as shown in Table 2.1 from 1951 to 1991.

**Table 2.1:** Population, Size and Growth in Chandigarh by Rural-Urban Status; 1951-1991

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Rural</th>
<th>Urban</th>
<th>Total</th>
<th>Rural</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>1951</td>
<td>24,261</td>
<td>24,261</td>
<td>—</td>
<td>7.47</td>
<td>7.47</td>
<td>—</td>
</tr>
<tr>
<td>1961</td>
<td>119,881</td>
<td>20,619</td>
<td>99,262</td>
<td>394.13</td>
<td>-15.01</td>
<td>—</td>
</tr>
<tr>
<td>1971</td>
<td>257,251</td>
<td>24,311</td>
<td>232,940</td>
<td>114.58</td>
<td>17.90</td>
<td>134.67</td>
</tr>
<tr>
<td>1981</td>
<td>451,610</td>
<td>28,769</td>
<td>422,841</td>
<td>75.55</td>
<td>18.33</td>
<td>81.52</td>
</tr>
<tr>
<td>1991</td>
<td>642,015</td>
<td>66,186</td>
<td>575,829</td>
<td>42.16</td>
<td>130.06</td>
<td>36.19</td>
</tr>
</tbody>
</table>


The steep rise in population has been largely due to a number of political and administrative changes that have taken place since its inception. Chandigarh city has now come to be the capital of three states, namely Punjab, Haryana and the Union Territory of Chandigarh. A large number of offices are located here, and the city today represents more or less a cosmopolitan culture. The city has also witnessed a mushroom growth of industries which has further contributed to growth of trade and commerce.

In the periphery of this Union Territory, two new townships have come up: Panchkula in Haryana and SAS Nagar, popularly known as Mohali in Punjab. As a matter of fact, the three townships are contiguous to each other and can be considered as parts of Greater Chandigarh.
Like all urban centres, Chandigarh is also thickly populated. The increase in population has led to a high density of population. According to the 1991 census (Census of India, 1991) a density of 5620 persons was recorded. It has been noted that certain sectors of Chandigarh are more densely populated as compared to others. The sectors which are located to the north of Madhya Marg, an arterial road, have exclusively large size plots as compared to sectors located to the south of Madhya Marg. This is the reason the sectors located to the south of Madhya Marg are more densely populated. Meanwhile, the sex ratio of the city is favourable towards males as there are 793 females per thousand males (Census of India, 1991). The literacy level of the city is one of the highest in the country: 78.73 per cent of the population is literate. Among these, 82.67 per cent are males and 73.61 per cent females (Census of India, 1991). The city is predominantly inhabited by people in the service sector. Recently, there has been a shift within the class structure of population due to internal changes in the service sector (Krishan, 1994).

**Sampling Procedure**

In order to have a representation of socio-economic status (SES) of people living within the city, a multi-stage sampling technique was employed. The numerous stages of sampling are described below.

At the first stage of sampling, the selection of the sectors had to be done. For selecting the sectors we had to keep in mind the criteria of eligibility (women in 15-44 years age group, i.e., where greater proportion of women in 15-44 years reside), and the size of the plots to approximate the socio-economic status. The higher socio-economic status was associated with size of residential
plots of more than ten marlas or 250 sq. yards. The middle group were approximated by plot size between 5-10 marlas and those residing in government house of type III and above. The lower socio-economic status was associated with plot size less than five marlas and houses for economically weaker sections of society. In the absence of any comprehensive information on the distribution of population by SES, plot size/type of house to approximate the social class has been found useful. Similar criterion has also been used in a few studies done in Chandigarh (D’Souza, 1968; Bansal, 1983).

In order to capture the heterogeneity of population in our sample, five sectors viz. 8, 15, 20, 21 and 23 were selected. In sectors 20 and 23 there is a predominance of the low income group whereas, in sector 15 and 21 middle income group predominates, with a small fraction of the higher income group; sector 8 has a predominance of high income group with a small proportion of the middle income group.

Thus, the population distribution in these sectors represents the general class structure of the people residing in the city. Population living in slums, and squatter areas have been excluded from the present study.

After the selection of sectors, a list of eligible couples having two or more living children was prepared for all the five sectors. This job was done with the help of Eligible Couples Registers (ECRs) which are available at the dispensary/health centre of the respective sector. The ECRs are maintained by the health department and the information is updated monthly. The ECRs contain information about the eligible couples. It has the house number in which the eligible couple resides, name of the husband/wife, age of the husband/wife, total
number of living children, their sex, age of the youngest child and the name of the contraceptives used.

On the basis of the information collected from the ECRs it was found that there were 9247 eligible couples in all the five sectors selected. Out of these, 6265 couples had two or more living children. The distribution of these couples having two or more living children is given in the following table, sectorwise.

Table 2.2: Distribution of Eligible Couples in Five Sectors Having Two or More Living Children.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Total number of eligible couples</th>
<th>Two or more Living children</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Same Sex</td>
</tr>
<tr>
<td>8</td>
<td>804</td>
<td>189</td>
</tr>
<tr>
<td>15</td>
<td>2758</td>
<td>886</td>
</tr>
<tr>
<td>20</td>
<td>2347</td>
<td>481</td>
</tr>
<tr>
<td>21</td>
<td>958</td>
<td>380</td>
</tr>
<tr>
<td>23</td>
<td>2380</td>
<td>659</td>
</tr>
<tr>
<td>Total</td>
<td>9247</td>
<td>2595</td>
</tr>
</tbody>
</table>

Thus, out of 9247 eligible couples, 67.75 per cent had 2 or more living children and 32.25 per cent eligible couples had either only one living child or no child.

The age of the youngest child and the age of the mother (respondent) were taken into consideration while preparing the lists of eligible couples who had completed ten or more years of married life. The rationale behind choosing eligible couples with ten or more years of married life was that these couples would have at least two or more living children and were most likely to have
completed their family size. The total number of eligible couples with ten or more years of married life and having two or more living children were 4065. Table 2.3 gives the distribution of eligible couples with ten or more years of married life and having two or more living children in the five sectors.

Table 2.3 : Distribution of Eligible Couples With Ten or More Years of Married Life and Having Two or More Living Children

<table>
<thead>
<tr>
<th>Sector</th>
<th>Total number of eligible couples</th>
<th>Two or more Living children</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Same Sex</td>
</tr>
<tr>
<td>8</td>
<td>307</td>
<td>102</td>
</tr>
<tr>
<td>15</td>
<td>1158</td>
<td>502</td>
</tr>
<tr>
<td>20</td>
<td>1029</td>
<td>364</td>
</tr>
<tr>
<td>21</td>
<td>498</td>
<td>248</td>
</tr>
<tr>
<td>23</td>
<td>1033</td>
<td>398</td>
</tr>
<tr>
<td>Total</td>
<td>4025</td>
<td>1614</td>
</tr>
</tbody>
</table>

Among the 4025 eligible couples, 1614 (40.10 per cent) couples had children of same sex and 2411 (59.90 per cent) couples had children of different sex. Further, the same sex children families were divided into the ratio 60:40 corresponding to the families with sons only : daughters only.

This whole process of screening the information and noting down took approximately three months.

Using random tables, a sample of 300 cases each from two categories, from the five sectors were selected assuming that the total and sub-sample would represent a heterogeneous population located in these sectors. Thus, in one
category 300 couples had two or more children of different sex while in the other category, 300 couples had two or more children of same sex, of which 179 couples had sons only and 121 couples had daughters only. Once the 600 cases were selected, their houses were located and they were contacted with the help of sector directory prepared by the Chandigarh Administration.

A replacement sample through random process was used in the event of missing cases. Thus, in all, 300 cases from each category were taken from the marked sector.

### Data Collection

The data were collected from primary and secondary sources. Secondary sources consist of various surveys like World Fertility Survey, materials published in journals, unpublished dissertations and other published materials. These data sources were useful for formulating issues, comparing results and examining trends. The primary data for this study has been collected by conducting a sample survey whose details are discussed hereafter.

### Interview Schedule

On the basis of the objectives identified the items on which information was to be elicited were: background of the couples, their attributes and reproductive history. Apart from these, their opinion on many issues of social psychological nature relating to themselves and their children were sought.

For preparing the schedule for the current survey, schedules related to fertility used by other people and organizations were examined. Secondly,
discussion and consultation with experts in the field of demography proved to be very helpful in formulating questions for the schedule.

After careful screening of the questions, we arrived at the conclusion that it would be useful to collect information from members of the family other than the principal respondent. Therefore, two schedules were prepared. One set of schedule (called the main schedule) was addressed to the wives and was used for collecting information pertaining to the couple and the second set was addressed to the husbands and an elderly member staying in the family. In the latter case, it was generally the mother-in-law and occasionally the father-in-law.

The main schedule was divided into four parts. The first part of the schedule consisted of questions seeking information about the household, like number of persons living in the house, relationship, age, marital status, education, occupation and level of living. The second part elicited information regarding the background of the couple, i.e., age at marriage, caste, religion, occupation, education and residential background at the time of marriage. Information was also collected about their parental background.

In the third part, information pertaining to fertility, mortality and family planning was elicited with the help of a roster using the family history method.

In the fourth part of the schedule, the views of the respondent regarding sex preference were asked. Information on perception of women regarding composition and size of the family, as also the problems related to each type of family were collected. Information was also sought to assess the self-perception of the status of women having particular size and composition of family. Opinion about women’s status corresponding to a given number and composition of their
children was also obtained from other members in the family as representative opinion of the community.

Fertility decisions are highly influenced by other members in the family. Therefore, the respondent’s husband was interviewed separately in order to assess their views regarding ideal family size, completion of family, as well as the status of women with a particular composition of children. Besides the couple, if any parent-in-law, especially mother-in-law, was residing with the couple he or she was also interviewed to assess views on ideal family size as well as the status of women with a particular size and composition of the children.

Interview schedules were pre-tested on 40 cases in the field to assess their suitability and validity. Some modifications like sequencing, format and the language of questions became necessary. The final draft was prepared in English and a translation of all questions was kept handy for use in the field.

It took the researcher nine months to complete all the interviews. The data collection was done in one stretch from January’92 to September’92.

Interviewing

All the sampled respondents, their husbands and any elderly member (if present) were personally interviewed. In many cases, prior appointments for interview were sought. Inspite of this, some of the respondents were not available at home. Thus, repeated visits were made. In many cases while interviewing the women, if the husband and/or mother-in-law were sitting by her side, they were politely asked to leave. Sometimes the respondents were hesitant to provide information and at times the elders restrained the respondents from giving
information. So, all of them had to be persuaded to co-operate with the researcher after carefully explaining the purpose of this interview. Some respondents felt hesitant in answering questions about fertility history. At times, a few of them found it difficult to recall information about their parents, for example, number of siblings of parents and educational level of parents and often consulted the husbands. By and large, the majority of the respondents were very co-operative and willingly provided all the information.

The time taken to complete the interview was 45-50 minutes. To ensure uniformity, the questions were asked in the same order from all the respondents. Sometimes questions had to be translated in Hindi to help respondents understand them better and to build a closer rapport.

Interviewing the husbands of the respondents was a bit difficult, as many of them were available only in the evenings or on holidays. Repeated visits were needed to contact them. The husbands were often not willing to give the interview and often would ask the wife to give the interview on his behalf. The rationale they offered was that both share more or less the same views. However, the truth was that some of them felt hesitant to respond to questions asked by a woman researcher in the presence of the wife. However, on requesting and explaining the purpose of interview, they did co-operate. In the presence of the wife, husbands, while responding to the questions, usually asked the wife whether she shared the same view. At some questions, the husband would simply laugh and say that you write whatever is thought to be right. In all, a total number of 589 respondents’ husband’s were interviewed as 11 were out of station during the period of interview.
The elderly members readily gave all the information except for a few cases who were hard of hearing. However, they were quite articulate in expressing their opinion. Only those elderly members were interviewed who were found residing with the respondent during the period of interview. In all 91 elderly members were interviewed.

Coding and Analysis

After collecting the data, all the schedules were thoroughly scrutinized. Since the schedule was long, it was decided to divide it in seven parts. Accordingly, seven code manuals were prepared. The close ended questions were taken as pre-coded. The open ended questions entailed detailed information, which were condensed into fewer categories. These categories were later assigned codes for transcribing data. For index items, unidimensional scoring procedure was adopted for positive and negative statements. After coding the data, it was fed into the computer. Several checks were carried out manually and with the help of computer programme. Bivariate and multivariate tables were made depending upon the requirement. While presenting the tables in this study, at times the number of categories of a variable have been compressed into fewer ones for the sake of clarity and brevity. However, at the first instance tabulation was carried out using all the categories in the variable. Statistical tests appropriate to the data have been applied for examining statistical variation and drawing inferences. In the main text of the thesis by and large, the test of significance has been carried at .05 level unless specified otherwise.
Measurement Indexes

Several composite indexes were prepared for comparison of background and behaviour of couples between the study groups. These indexes are briefly mentioned below.

Level of Living Index. This index was prepared by assigning a value to possession of each item that the household had. The total score indicated the overall level of living. In all 22 items were used in formulating this index. Each item was weighted and the total score was assessed and reformulated into five categories. The details are given in Appendix A-1.

Family Satisfaction Index. A list of six statements pertaining to sense of satisfaction of existing family were used to formulate the index. The statements were measured on a five point scale and on the basis of the observed score they were recategorised into three categories (See Appendix A-2).

Value of Children Index. A list of 26 statements pertaining to positive and negative values of children, covering social, economic, psychological/emotional, religious and cultural aspects were taken. The VOC statements were measured on a five point scale, and on the basis of the observed score they were recategorised into three categories (See Appendix A-3).

Status of Women Index. This index was also prepared to elicit information on status of women. In all a set of 12 statements pertaining to attitude – pro sons, pro daughter and neutral-were used to formulate the index. These statements were measured on a five point scale and were recategorised into three categories (See Appendix A-4).