Chapter 2 MATERIALS AND METHODS

Background information on population and area

History of Calcutta

Calcutta, known as the City of Palaces, has a history which extends backwards beyond 300 years. The first time one comes across the name, it is in the Ain-i-Akbari of Abul Fajil, who has included in that work a copy of Raja Todur Mull's Asl-i-Jama-Tumar or rent-roll, compiled in the year 1582. In that rent-roll, Bengal is stated to have been divided into 19 “sarkars”, containing 689 “mahals”, or revenue divisions. One of these sarkars named after Satagaon, contains 53 “mahals”. The 35th “mahal” is mentioned under the name of Kalikata (Chunder 1978). Presumably it refers to Calcutta, at least a part of it. Several centuries ago, when the river Saraswati at Satgaon showed signs of silting some people, especially the mercantile and trading community, felt the necessity of moving elsewhere. Hooghly then was becoming an important mercantile town, but among the great merchants five opulent families, one of Setts and four of Bysacks, emigrated to colonized the east bank. About 425 years ago, they arrived at site of Govindapur and, having cleared the jungle, settled at the place. They also established a cloth market which was named “Sutanuti Hat” - a market for the sale of skeins of thread and woven cloth - and the village in which the market was situated was called “Sutanuti”.

The history of modern Calcutta is associated with the name of Job Charnock of the East India Company. After an initial setback, he landed at one of the “ghats” (landing points) of Sutanuti on 24th August 1690 and unknowingly laid the foundation of the British rule in India.

The British started trading. At the end of the 17th century they acquired three villages - Sutanuti, Kalikata and Govindapur - from the Muslim rulers. They were granted permission to build a fort (Old Fort William) and “an European town started growing around the fort”. In 1756, Sirajudaullah, the Nawab of Bengal, attacked Calcutta and
the English were thoroughly beaten. The fort was captured and what followed was the tragedy in the Black Hole prison. The very next year Sirajudaullah lost the Battle of Plassey and the British became the rulers of Bengal (Calcutta 200 years 1981).

The primal elements of Calcutta were the three sister villages, Sutanuti, Kalikata and Govindapur, the former being well-known earlier, on account of the trade. These three villages were welded together in 1698 under the Sanad of Azimashan. Subsequently, after the Grant of Ferokhsere in 1719, out of the 38 neighboring towns which were granted to the Company, several were added to the amalgamated villages; others from time to time were brought within the Company's bounds till the combined localities as exhibited in the Free Tenure Grant in 1757 formed the city of Calcutta almost as it now is (Bysack 1978). The boundaries of Calcutta remained officially undefined till 6th February 1779 when Justice John Hyde of the Supreme Court laid down the municipal limits of the city in connection with a case. Then on 11th September 1794 came a Proclamation by Governor General Lord Cornwallis, fixing the boundaries in detail for municipal and judicial purposes (Nair 1990). As it stands today the city proper (i.e. core area under Calcutta Municipal Corporation) covers no less than 100 sq.km. With the addition of three erstwhile municipal areas in 1984, the total area of the Corporation is now 187.33 sq.km. (Das Gupta 1990).

Location and topography of Calcutta

Calcutta rests on a clay bed deposited by rivers forming the lower plain of the Gangetic delta. The clay overlies a thick pile of alluvial sediments deposited in the recent geological era. The city is situated about one hundred miles from the sea on the eastern side of Hooghly river, one of the branches of the Ganges (Mittra 1978). The city lies on 22°34' north latitude and 88°24' east longitude. The present site of Calcutta was possibly the best available to Job Charnock, as it afforded not only a favorable trading location but also the high land needed for building a fort (Fort William) and its 5 sq. km. parade ground; it also had enough space for the massive business houses, residential quarters, villas and other establishments needed for the administrative and commercial activities of the East India Company, and the growing British
Fig. 2.1. Calcutta and its adjoining areas
Raj (Das Gupta 1996). The principal suburbs of Calcutta are Baranagar to the north, South Dum Dum to the north east, and parts of North and South 24-Parganas districts to the north and south. Howrah, situated on the west bank of Hooghly, is considered its twin-city (fig. 2.1).

Climate of Calcutta

Calcutta is notoriously known for its hot, humid and enervating weather conditions. It has subtropical climate with a seasonal regime of monsoons (rain bearing winds). The maximum temperature reaches about 108°F (42°C) and the minimum temperature about 44°F (7°C). The average annual rainfall is about 64 inches (1625 mm.). Most of this rainfall occurs from June to September, the monsoon season. These months are very humid and sultry. During October and November the rainfall decreases. The winter extends from about the end of November to the end of February and is pleasant and generally rainless.

People of Calcutta

According to the 1991 census, the city of Calcutta has a total population of 4,388,262 with a decennial growth rate of 6.33% during 1981-91, and a sex ratio (number of females per 1000 males) of 797 in 1991 (the decennial growth between 1971-81 was 11.04% and sex ratio in 1981 was 741).

The Bengali-speaking people are the original residents of the city, and as mentioned earlier they were mainly the merchants - Bysacks and Setts. They and some others became famous as “babus”, the wealthiest and most powerful section of the Bengali-speaking society through British patronage (Gupta 1990). They were the people who brought about radical changes in the society and also awareness of the happenings in both the country and abroad. With the increasing importance of Calcutta people immigrated from neighbouring villages, districts and even states. In the early 20th century, a new class of Indian financiers, mostly from Rajasthan and Gujrat, came to enjoy a major hold in the economy of the city. Gradually the city got
its cosmopolitan character and the migrants built up separate residential areas of their own (Bose 1968). After the partition of Bengal in 1947 many migrants came from East Bengal and settled in Calcutta. Bengali-speaking Hindus make up half of the total population of the present day Calcutta and form an integral part of the "middle" and "upper-middle" classes of Calcutta. A sizable portion of the Bengali-speaking middle class prefer the job of teaching much more than any other and are engaged in either school level or college level teaching. This group constitutes a socioeconomically relatively homogeneous group.

**Study design**

In order to fulfill the objective of the study it was necessary to select a fairly homogeneous group of individuals residing in Calcutta. College teachers constitute an important component of the "middle class" society of Calcutta. In order to ensure economic and cultural homogeneity, the study was restricted to Bengali-speaking undergraduate college teachers. Men and women were compared within each retirement status group (RSG), i.e. retired and not-retired, and four age groups (AG) and also in pooled age groups, to evaluate "gender difference", if any. The retired group was compared with the not-retired group in each gender, to detect "retirement status group difference" (RSG difference), if any. To enquire if there is any "age group difference" (AG difference), four five-yearly age groups were compared, i.e. 50-54, 55-59, 60-64 and ≥65 years. The relationships between traits were studied using suitable statistical tests.

**Selection of study population**

Men and women undergraduate college teachers of Calcutta in the age-range 50-70 years were chosen for this study for the following reasons:

(i) The formal retirement age is generally 60 years, which therefore indicates the institutionalized recognition of a person as "elderly". Using this age as the cut-off point, the retired and not-retired groups were defined for comparison. A 10-year
margin was kept on both sides of this arbitrary cut-off point, assuming that the actual onset of old age lies within those age margins.

(ii) For the gender comparison to be meaningful, men and women having the same occupation were studied.

(iii) Undergraduate college teachers were chosen as large numbers of both men and women belonging to the middle class society of Calcutta are engaged in college level teaching. The "middle class" here refers to the "white collar workers" (Kapur 1970). Moreover, pursuing an academic profession, they were expected to be more interested in this study and easily persuaded to participate in it than individuals from other professions.

(iv) The city of Calcutta was chosen as a large number of such undergraduate colleges are situated here and most of their teachers also reside in Calcutta. Operational convenience also influenced the decision.

The following procedure was followed in selecting the sample of individuals:

(i) A list of colleges affiliated to the University of Calcutta was obtained from the Inspector of Colleges, University of Calcutta.

(ii) All those colleges were requested to send lists of their college staff (teaching and non-teaching) along with their residential addresses to us. Forty such lists were obtained.

(iii) A selected sample of 100 Bengali-speaking individuals for each of the four categories - retired men, retired women, not-retired men and not-retired women - was drawn.

The field work consisted of contacting the individuals in the list personally, either in their colleges during working hours (if they belonged to the not-retired group) or at their homes. Selection has been made solely on the basis of being able to contact and convince individuals to participate in the survey. No statistical sampling tech-
unique could therefore be applied. The field work (data collection from respondents) was conducted from August 1993 to July 1996. Out of the 100 selected individuals drawn for each retirement status group, the complete set of all questionnaires could be obtained from approximately 85% of each group. Age-wise, the study population was divided into four five-yearly age groups and the sample sizes for the various groups are given in Table 2.1.

The individuals who completed all the questionnaires fully and from whom all the necessary information were collected were included in the study while the rest were rejected.

*Types of data collected*

**General particulars (socioeconomic traits)**

(i) particulars about household: number of members, family type, marital status of respondent, present activity status, etc.;

(ii) economic particulars: total monthly household expenditure, respondent's monthly income, number of earning members, personal expenditure, debt, liabilities, savings, if any; and

(iii) living condition: living with whom, house rented or owned and by whom, satisfied with room staying in or not, dining with family or not, etc.

(iv) opinions and attitudes: whom the respondent chiefly misses, dine with household members or not, criterion for identifying the “elderly”, positive and negative aspects of old age, problems faced by the elderly.

**Biological traits**

(i) health condition: perceived as good or poor, prevalence of chronic problems, medical expenditure, etc.;
TABLE 2.1

Different groups and their sample sizes

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Retirement status groups</th>
<th>N</th>
<th>Age groups (AG)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td>173</td>
<td>Not-retired Women (NRW)</td>
<td>87</td>
<td>50-54 years</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Retired Women (RW)</td>
<td>86</td>
<td>55-59 years</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60-64 years</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>≥65 years</td>
<td>29</td>
</tr>
<tr>
<td>Men</td>
<td>170</td>
<td>Not-retired Men (NRM)</td>
<td>85</td>
<td>50-54 years</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Retired Men (RM)</td>
<td>85</td>
<td>55-59 years</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60-64 years</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>≥65 years</td>
<td>42</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>343</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(ii) blood pressures: both systolic and diastolic;

(iii) pulse rate; and

(iv) reported problems related to various organ systems, eyes and ears, skin, fatigability, frequency of illness and miscellaneous diseases.

**Psycho-social traits**

(i) reported problems related to depression, anxiety, sensitivity, anger and tension; and

(ii) perceived well-being.

The data were collected through a single question (about satisfaction) and through multiple questions ("Subjective Well-being" questionnaire)

**Time allocations by individuals to different activities**

This was recorded hour by hour for any normal day (i.e. not a holiday or festive day). Time spent for five major activities - household maintenance, professional activity, personal chores, leisure activities and sleeping - were studied. Time spent in different leisure activities were also recorded separately.

**Techniques of data collection and analysis in different sub-chapters**

**Sub-Chapter 3.1**

Data on socioeconomic particulars have been collected through a pre-tested questionnaire having structured as well as open-ended questions. Information on household, economic condition, living arrangement and opinions about various aspects were obtained in this questionnaire. In most cases the respondent was to circle the answer (or code number for it); in a few cases they were requested to put down in
words the salient points of the answers. These information were later coded before entering into the computer using dbase software. Computation of the coded answers was supposed to show the percentage of individuals in different groups offering a particular answer. For quantitative data, mean and standard deviation were computed using Minitab software. The test of significance was done using binomial test of equality of proportions in case of coded (qualitative) data and the t-test in case of quantitative data.

Sub-Chapters 3.2 and 3.3

3.2.1

Systolic and diastolic blood pressures were measured by the auscultatory method using mercury sphygmomanometer and a stethoscope. Care was taken to follow the under-mentioned conditions:

(i) the measurement was made after allowing the respondents 10 minutes of rest;

(ii) uniformly, the measurement on all respondents was made on the left arm, with the respondent in the sitting position;

(iii) the muscles are to be relaxed and height of the upper arm should allow the cuff to be at the same level as that of the heart;

(iv) the brachial pulse (on the inside half of the arm) is identified before placing the stethoscope's diaphragm at the elbow joint;

(v) when placing the stethoscope to one's ears the earpieces should face slightly forward, not backward; and

(vi) the eye is kept at the same level as the top of the mercury column of the sphygmomanometer to avoid parallax error.
With the cuff firmly bound to the upper arm and stethoscope placed on the brachial artery, air is pumped in up to a certain level and then slowly released. The mercury level at which the first appearance of faint clear tapping is heard is recorded. This sound becomes crisper with further reduction in pressure till a point comes when it disappears. The mercury level at this point is also noted. The initial reading shows the systolic blood pressure and the latter the diastolic blood pressure.

Pulse rate was measured at the radial artery on the left hand with the respondent in the sitting position, after 10 minutes of rest. The number of beats in one minute were counted and recorded.

As all the information were quantitative the mean and standard deviation were computed using Minitab software. Test of significance of difference between values in different groups was done using the t-test.

3.2.2 and 3.3.1

Data on reported biological and psychological problems were collected using a standard questionnaire known as the Cornell Medical Index Questionnaire (CMI). This questionnaire was devised at the Cornell University Medical College to collect a large body of medical and psychological data within a short period of time.

The CMI contains 195 questions. The questions are in informal language, so worded as to be understood by persons with a reading knowledge of simple English. Technical terms are avoided (e.g. diabetes is explained as "sugar disease"). After each question a "Yes" and a "No" appear; the respondents answer the question by circling either of them. In every instance a "yes-answer" indicates that the respondent claims to have the symptom.

Questions are of four kinds: those relating to bodily symptoms (e.g. "Do you usually feel bloated after eating?"); those related to past illness (e.g. "Has a doctor ever said you had kidney or bladder disease?"); those relating to family history (e.g. "Did any-
one in your family ever have a nervous breakdown?" and those relating to behavior, moods and feeling (e.g. "Do you often feel unhealthy and depressed?"). Related questions are grouped in different sections. In total there are 18 sections, of which twelve sections deal with somatic health problems and six sections deal with psychological problems like depression, anxiety etc. (Table 2.2).

The CMI questionnaire can be applied on both genders, but one must remember that 6 out of 11 questions in genitourinary section are different for men and women.

The number of "yes-answers" in a particular section (say respiratory system) of the CMI questionnaire were counted for all individuals belonging to a group (e.g. RM). The total is divided by the number of individuals in that group (in this case 85) to get the average value. The average number of "yes-answers" in a particular section for one group (say NRM) is comparable to that in another group (say RM). Thus comparison can be made between different groups with respect individual sections of the CMI, using the value mentioned above. However as the number of questions in different sections differ, comparison between sections cannot be made unless the average values are divided by the number of questions in the respective sections. This value can be converted into percentage. Thus when a group has a higher percentage in a section (e.g. cardiovascular) than in another (e.g. respiratory) it is indicated that the group has more problem related to the former than the latter section (i.e. more problem related to cardiovascular than respiratory). An illustrative numerical example is given in the "Note" under Table 3.2.2.1.

3.2.3 and 3.3.2

All the data pertaining to overall health (not particular ailment) are studied in various ways.

Data obtained from CMI: According to the CMI manual individuals with more than 25 "yes-answers" in CMI have "serious disorder" and those with more than three "yes-answers" in the psychological section face "psychological disturbance".
<table>
<thead>
<tr>
<th>Sections</th>
<th>Questions referring to</th>
<th>Number of questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 / A</td>
<td>Eyes and ears</td>
<td>9</td>
</tr>
<tr>
<td>2 / B</td>
<td>Respiratory system</td>
<td>18</td>
</tr>
<tr>
<td>3 / C</td>
<td>Cardiovascular system</td>
<td>13</td>
</tr>
<tr>
<td>4 / D</td>
<td>Digestive system</td>
<td>23</td>
</tr>
<tr>
<td>5 / E</td>
<td>Musculoskeletal system</td>
<td>8</td>
</tr>
<tr>
<td>6 / F</td>
<td>Skin</td>
<td>7</td>
</tr>
<tr>
<td>7 / G</td>
<td>Nervous system</td>
<td>18</td>
</tr>
<tr>
<td>8 / H</td>
<td>Genitourinary system</td>
<td>11</td>
</tr>
<tr>
<td>9 / I</td>
<td>Fatigability</td>
<td>7</td>
</tr>
<tr>
<td>10 / J</td>
<td>Frequency of illness</td>
<td>9</td>
</tr>
<tr>
<td>11 / K</td>
<td>Miscellaneous diseases</td>
<td>15</td>
</tr>
<tr>
<td>12 / L</td>
<td>Habits</td>
<td>6</td>
</tr>
<tr>
<td>13 / M</td>
<td>Inadequacy</td>
<td>12</td>
</tr>
<tr>
<td>14 / N</td>
<td>Depression</td>
<td>6</td>
</tr>
<tr>
<td>15 / O</td>
<td>Anxiety</td>
<td>9</td>
</tr>
<tr>
<td>16 / P</td>
<td>Sensitivity</td>
<td>6</td>
</tr>
<tr>
<td>17 / Q</td>
<td>Anger</td>
<td>9</td>
</tr>
<tr>
<td>18 / R</td>
<td>Tension</td>
<td>9</td>
</tr>
<tr>
<td>1 - 12 (A-L)</td>
<td>Somatic problems</td>
<td>144</td>
</tr>
<tr>
<td>13 - 18 (M-R)</td>
<td>Psychological problems</td>
<td>51</td>
</tr>
<tr>
<td>1 - 18 (A-R)</td>
<td>Total</td>
<td>195</td>
</tr>
</tbody>
</table>
Data from the single question on health or health related aspects, questions asked were:

“How do you describe your present health?”

“Do you have any chronic health problem?”

“What is your average monthly expenditure on medical treatment of self?”

The answers were coded. The numbers and percentages of individuals having those specifications (or codes) were tabulated in different gender groups, RSGs and AGs. Test of significance was done using the binomial test of equality of proportions.

3.3.3

An important component of psychological well-being is satisfaction. The individual is considered to be the best judge of his situation and therefore his state of well-being. The single question asked was “What is your overall state regarding this phase of life?” The options given were: “Very satisfied”, “Complacent”, “Dissatisfied”, “Extremely dissatisfied” and “Do not wish to comment”. The answers were coded. The reason for the answer given was also asked. The numbers and percentages of individuals in different groups offering a particular answer were tabulated. The test of significance was done using the binomial test of equality of proportions.

3.3.4

Data on Subjective Well-being were collected using a questionnaire devised by Nagpal and Sell (1985) under the auspices of WHO. The shortened version of it consists of 82 questions. Unlike most personality questionnaires, this questionnaire is framed in such a manner that both positive and negative effects can be elicited. The respondents were asked to express their feelings on a three-point (occasionally four-point) scale which represents his/her feeling best. In case of confusion they were asked to clarify in descriptive terms. This was later coded.
The well-being of an individual has objective and subjective components. Objective components relate to things like level of education, employment status, financial resources, housing condition and comforts of modern living. The subjective components are his/her expectations and perceived reality.

Charles Dickens (1992 reprint) observed in *David Copperfield*: "Annual income of twenty pounds, annual expenditure nineteen pounds nineteen and six, results happiness. Annual income twenty pounds, annual expenditure twenty pounds eight and six, results misery." For expenditure read expectation to get the meaning. In order to identify life concerns relevant to the assessment of subjective well-being factor analysis was done on the whole population for the 82 questions in the questionnaire.

Factor analysis is a statistical tool for searching for structure in multidimensional data. The basic assumption of factor analysis is that there exists a smaller number of hypothetical variables known as "common (shared) factors", which can be used to explain the complex nature of multidimensional data, as the observed correlations between the variables result from sharing these common factors. In addition to the shared factors, factor analysis also permits the identification of unique (unshared) factors that are assumed to be uncorrelated with each other. In this analysis, "factors" are extracted from the original data in such a way that the intercorrelations among the original variables are retained to the maximum extent possible. Thus, factor analysis identifies latent structures in the data, especially latent variables common to all observations, with minimum distortion to the observed correlation structure.

The data obtained on the questionnaire from 343 respondents were subjected to factor analysis. The analysis was performed using the BMDP-4m package. Each extracted factor was scrutinized in respect of the rotated item loading. Ten factors have moderate to high loadings (.3 and above) in at least six items, and three more have .3 and above loading in at least four or five items. The remaining eight factors have moderate to high loading in less than four items. This last group was rejected from further study. Thus 13 factors with substantial loadings were retained. All the items
(questions) loading highly on each retained factor showed a very high degree of common content permitting clear, meaningful interpretation, e.g., the factor, “Transcendence” has items related to Belongingness - community (item 17), Belongingness - mankind (item 18), shared aims (item 16), Belongingness - common force (item 15), Belongingness - supportive group (item 48), Moments of intense happiness (item 14), Life - compared to others (item 27), Life - enjoyable (item 29) and Having someone to talk to (item 12). The factors with the number of items (with high loading) in each are given in Table 2.3.

Of the original 82 questions:

1 question (item) is repeated 4 times,

2 questions (items) are repeated 3 times,

16 questions (items) are repeated 2 times, while

54 questions (items) are not repeated in any other factors.

The above list shows the factors in their ranking order of factor loading. Brief descriptions of the item content of the retained factors are given below:

(i) Family group support: reflects positive feeling derived from the perception of the wider family as supportive, cohesive and emotionally attached;

(ii) Transcendence: relates to life experiences that are beyond the ordinary day-to-day material and rational existence;

(iii) Social support: contains items related to the perception of the social environment beyond the realm of the family as supportive in general and in times of crises;

(iv) Perceived ill health: relates to complaints about the body and worries over health and physical fitness in general;
### TABLE 2.3

**Number of items in different factors of the Subjective Well-being questionnaire**

<table>
<thead>
<tr>
<th>Factor no.</th>
<th>Factor</th>
<th>Number of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>Family group support</td>
<td>10</td>
</tr>
<tr>
<td>(ii)</td>
<td>Transcendence</td>
<td>9</td>
</tr>
<tr>
<td>(iii)</td>
<td>Social support</td>
<td>11</td>
</tr>
<tr>
<td>(iv)</td>
<td>Perceived ill health</td>
<td>9</td>
</tr>
<tr>
<td>(v)</td>
<td>Inadequate mental mastery</td>
<td>6</td>
</tr>
<tr>
<td>(vi)</td>
<td>General well-being - negative aspect</td>
<td>11</td>
</tr>
<tr>
<td>(vii)</td>
<td>Expectation-achievement congruence</td>
<td>6</td>
</tr>
<tr>
<td>(viii)</td>
<td>General well-being - positive aspect</td>
<td>8</td>
</tr>
<tr>
<td>(ix)</td>
<td>Confidence in coping</td>
<td>7</td>
</tr>
<tr>
<td>(x)</td>
<td>Primary group concern</td>
<td>6</td>
</tr>
<tr>
<td>(xi)</td>
<td>Expectation-achievement discrepancy</td>
<td>4</td>
</tr>
<tr>
<td>(xii)</td>
<td>Spouse support</td>
<td>5</td>
</tr>
<tr>
<td>(xiii)</td>
<td>Achievement related to education</td>
<td>4</td>
</tr>
</tbody>
</table>

**NOTE:** Of the original 82 questions
1 question (item) is repeated 4 times,
2 questions (items) are repeated 3 times,
16 questions (items) are repeated 2 times, while
54 questions (items) are not repeated in any other factors.
(v) Inadequate mental mastery: implies a sense of insufficient control over, or inability to deal efficiently with, certain aspects of everyday life that are capable of disturbing the mental equilibrium;

(vi) General well-being - negative aspect: describes life in a broad or general perspective - whether one considers it useless, miserable, boring, etc;

(vii) Expectation-achievement congruence: refers to the feelings of well-being generated by achieving the standard of living, social status, success, etc. as per one's expectations;

(viii) General well-being - positive aspect: reflects feelings of well-being arising out of an overall perception of life as functioning smoothly and joyfully, as at present;

(ix) Confidence in coping: relates to positive personality strengths, ability to manage situations when these do not turn out as expected and ability to concentrate (mental mastery over environment);

(x) Primary group concern: relates to feeling of happiness or worry about one's relationship with the primary family;

(xi) Expectation-achievement-discrepency: relates to not feeling satisfied with one's accomplishments;

(xii) Spouse support: relates to support received from spouse, economically or otherwise, relation with spouse and children; and

(xiii) Achievement related to education: reflects perception of achievement with respect to education received.

In the three-point scale the number of individuals answering strongly in the affirmative (i.e. Code 1 - very much/most of the time/very good, etc.) were sorted out in each group and the percentages calculated. These percentages for items in a factor are studied to find a uniform trend. These are then used to show the relative status of the groups with respect to each factor (further details in the Results section).
Sub-Chapter 3.4

Data on time allocation (TA) were collected by the recall method using a questionnaire/schedule devised by Acharya (1982). The questionnaire/schedule was pre-tested. Study on TA gives a comprehensive record of the entire array of activities in which individuals engage, so as to understand the trade-offs between different possible allocations of time. The respondent is asked to report, hour by hour, activities engaged in on any normal day (preferably the previous day, provided it was not a holiday or festive day). A pre-coded list of activities accompanied the questionnaire/schedule. Five broad headings of activities were given: maintenance of household, professional activities, personal chores, leisure activities and sleeping. A number of related activities were clustered under a broad heading, e.g. “Maintenance of household” which includes cooking, cleaning, child care, care of sick, grooming (other than self), shopping of any kind, going to bank, paying tax, bills and the like.

The answering schedule consisted of 24 rows with the left corner of the first row reading 5-6 AM, followed by 6-7 AM in second row, and so on. The respondents were asked to write down the code of activities in the appropriate hour space (row). Different activities carried out in a single hour were recorded in the same space. In case of confusion they were requested to write explicitly in words within the hour space; these uncoded answers were later coded manually. Mean and standard deviation values for the “five major activities” and “types of leisure activities” were tabulated. Test of significance was done using the t-test.

Sub-Chapter 3.5

To evaluate the relationship between traits two methods were used. When the relationship between quantitative traits was measured the correlation coefficient was computed. When the between qualitative traits (attributes) were evaluated the Chi-square test was done and coefficient of association was checked to detect if the association was positive or negative.