Research Methodology
Chapter-IV

RESEARCH METHODOLOGY

This chapter deals with the research procedures applied in conducting the present study. For convenience, the research methodology has been discussed under the following three sub-heads

1. Research design
2. Variables and their operationalization
3. Data gathering procedure and statistical techniques used

(I) Research design

It comprises of the following sub-parts

(i) Locale of the study
(ii) District under study
(iii) Selection of the blocks
(iv) Selection of the villages
(v) Selection of the wards
(vi) Sample of respondents
(vii) Pilot study
(viii) Pre-test of instruments

(i) Locale of the study

Uttar Pradesh was chosen as locale of the study. This was done with the intension that U.P. is a major state of the country.

(ii) District under study

District Faizabad was purposively selected for this study as the researcher hailed from this place. This helped the investigator to collect the necessary
information accurately and timely. The researcher being from the same place could easily have dialogue and discussion with both during pilot study and final data collection.

Rural

(iii) Selection of the block

For the study of rural people, out of 12 blocks of Faizabad district, Milkipur block was selected randomly.

(iv) Selection of the villages

out of 113 villages, 4 villages were selected randomly for the study area namely Anjrauli, Inayatnagar, Khandasa, Sidhauna.

Urban

(v) Selection of wards

For the study of urban people, out of 29 wards of Faizabad district, 4 wards namely Devkali, Rikabganj, Fatehganj and Wazeerganj were selected randomly.

(iv) Sample of respondents

After selecting the rural and urban areas, the selection of number of respondents was done. Sample of the study consists 200 elderly people in which 100 elderly people (above 60 years) from urban areas and 100 elderly above 60 years from rural areas were selected. It was a type of purposive sampling in which people having age above 60 years were contacted. There was an almost distribution of male and female elderly. 100 females elderly (50 from rural area and 50 from urban area) and 100 males elderly (50 from rural area and 50 from urban areas).
**Fig. 4.2: Map of Milkipur Block (Faizabad)**
(vii) Pilot study

Prior to finally deciding the title of the project a pilot survey of the area was conducted. This gave an idea about the place of the study and nature of the samples that could be drawn and type of aspects and problems, which could be explored out.

(viii) Pre-testing of instruments

Before collecting the necessary data from the finally selected samples of 200 elderly, 20 people was identified other than those included in the final sample of respondents. These 20 elderly were interviewed with the help of schedules and questionnaires developed for collecting the data. This helped the investigator in making necessary changes in the instruments to be finally used their wording and composing.

(2) Variables and their measurements

I. Independent variables

(a) Age:

The chronological age of elderly people at the time of investigation was taken. All elderly were listed according to following age groups and given the scores as follows:

<table>
<thead>
<tr>
<th>Age (in years)</th>
<th>Scores assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) 60-70</td>
<td>1</td>
</tr>
<tr>
<td>(b) 70-80</td>
<td>2</td>
</tr>
<tr>
<td>(c) 80-90</td>
<td>3</td>
</tr>
<tr>
<td>(d) Above 90</td>
<td>4</td>
</tr>
</tbody>
</table>

(b) Education of respondents

Education was operationalized as the number of years of formal education obtained by the respondents. Scores assigned to different categories on the basis
Fig. 4.3: Sampling procedure for the study
of modified Kulshreshtha’s socio-economic status (SES) scale for rural was as follows:

<table>
<thead>
<tr>
<th>Educational qualifications</th>
<th>Scores assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illiterate</td>
<td>0</td>
</tr>
<tr>
<td>Read and write only</td>
<td>1</td>
</tr>
<tr>
<td>Primary</td>
<td>2</td>
</tr>
<tr>
<td>Middle</td>
<td>3</td>
</tr>
<tr>
<td>High School</td>
<td>4</td>
</tr>
<tr>
<td>Intermediate</td>
<td>5</td>
</tr>
<tr>
<td>Graduate &amp; above</td>
<td>6</td>
</tr>
</tbody>
</table>

(c) Religion

The selected study areas were having mostly Hindu religion and some are Muslims. The following scoring pattern was adopted.

<table>
<thead>
<tr>
<th>Category</th>
<th>Scores assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hindu</td>
<td>1</td>
</tr>
<tr>
<td>Muslim</td>
<td>2</td>
</tr>
<tr>
<td>Sikh</td>
<td>3</td>
</tr>
<tr>
<td>Christian</td>
<td>4</td>
</tr>
</tbody>
</table>

(d) Caste

The subjects of the present investigation were grouped into three categories i.e. upper caste, backward caste and scheduled caste/scheduled tribe. The scores were assigned as

<table>
<thead>
<tr>
<th>Caste</th>
<th>Scores assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper caste</td>
<td>3</td>
</tr>
<tr>
<td>Other backward caste</td>
<td>2</td>
</tr>
<tr>
<td>Scheduled caste/Scheduled Tribe</td>
<td>1</td>
</tr>
</tbody>
</table>

(e) Type of the family

Family type was divided into two major categories viz. nuclear and joint. Nuclear type was referred to the family composing of parents and their children only while joint family referred to the family composing of more than one
couple and their children including other persons related to them. The scoring procedure adopted was taken form the modified socio-economic status scale for rural of Kulshresta.

<table>
<thead>
<tr>
<th>Family type</th>
<th>Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear family</td>
<td>1</td>
</tr>
<tr>
<td>Joint family</td>
<td>2</td>
</tr>
</tbody>
</table>

(f) Occupation

It has been defined as the specific work a person does to earn livelihood. The occupation of rural was divided into two major categories, farming and non farming. Scores assigned to different categories on the basis of modified Kulshresta’s SES scale for rural were as follows:

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non earning</td>
<td>0</td>
</tr>
<tr>
<td>Daily labour</td>
<td>1</td>
</tr>
<tr>
<td>Agriculture</td>
<td>2</td>
</tr>
<tr>
<td>Pensioners</td>
<td>3</td>
</tr>
<tr>
<td>Business</td>
<td>4</td>
</tr>
<tr>
<td>Service</td>
<td>5</td>
</tr>
</tbody>
</table>

(g) Family structure

Family composition was scored on the basis of

<table>
<thead>
<tr>
<th>Family size</th>
<th>Scores assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 5 members</td>
<td>1</td>
</tr>
<tr>
<td>6 to 10 members</td>
<td>2</td>
</tr>
<tr>
<td>11 and above</td>
<td>3</td>
</tr>
</tbody>
</table>

(h) Economic status

The position of an individual or a family occupies with reference to the prevailing average standards of cultural possession, effective income, material possession and participation in the group activity of the community. The
economic status of the respondents were categorized and scored were assigned as:

<table>
<thead>
<tr>
<th>Economic status</th>
<th>Scores assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>1</td>
</tr>
<tr>
<td>Medium</td>
<td>2</td>
</tr>
<tr>
<td>High</td>
<td>3</td>
</tr>
</tbody>
</table>

II. Dependent variables

(a) Anthropometric measurement

Anthropometric measurement is concerned with the measurement of variation of physical dimension and the gross composition of human body at different age levels and degree of nutrition. All the subjects were measured for weight height and BMI was then calculated.

(a.1) Height

Height was measured with the help of measuring rod having least count of 0.1 cm. The rod was made to stand straight on a leveled ground. The subject was asked to remove foot wear and head wear and to stand erect, near the rod with heels buttocks, shoulders blades and head in a vertical plane touching anthropometric rod. The pin was kept parallel to ground. The height was recorded in centimeter.

(a.2) Weight

A weighing machine was used to weight the subject in kg with least count of 0.5 kg. Weighing balance was placed on leveled ground and adjusted to zero before measurement. The subject was made to stand erect without touching anything on the weighing balance with minimum clothing and weight was recorded in kilogram.
(a.3) BMI

The continuous BMI variable was categorized into low, middle and high categories, as under weight and overweight status cofer risk of different public health problems. The BMI was calculated as –

\[ \text{BMI} = \frac{\text{Weight (kg)}}{\text{Height (m)}^2} \]

(b) Clinical survey

All the subjects were visually examined for the various deficiency disorder in the clinical examination. The method is based on examination for changes believed to be related to inadequate nutrition that can be seen as felt in superficial epithetical tissues especially skin, eyes, hair, clinical examination consist of routine medical history and physical examination. In order to find nutritional adequacy clinical examination was done. Eyes are examined for cataract, myopia, hypermetropea. Hair was examined for normal, hair loss and loss of colour (whiteness). Teeth were examined for normal, caries or tooth loss. Skin was examined for normal, dry loss of luster and wrinkles.

Dietary pattern

The strong symbolic and cultural influence and emotional reasons for food choices are broad concepts create a particular food habits of an individual or a community. The diets they consumed in a day is reflected in the food choices which is known as dietary pattern.

Nutrient intake

The proper design for an adequate diet is a variety and amount of different food, sufficient to provide each day the requirement of nutrient. Nutrient intake may be considered under two general headings.
(i) the nutritionally adequate or balanced diet which maintains and promotes health and vigour.

(ii) special diet prescribed for treatment or prevention of disease state.

Micronutrients

The organic substances presents in small amount in several food stuffs. They have important functions in many of the vital processes of life the refer, essential for health and well being and needed only in small amounts, such organic substances are known as ‘micronutrients’ such as vitamins, minerals and fibers.

Dietary survey

A structured interview schedule was developed and pre-tested before use. Data were collected by paying personal visits to the respondents. Information regarding food consumption habit, dietary intake, nutritional intake etc were obtained. For this purpose 24 hours recall method was used in the sense that respondents were advised to provide information on the consumption of various food items of the elderly people of the day prior to the day of survey. Dietary recall data was not collected after the day of any occasion or fasting. Showing them standard cups, catories, spoons, glass made the standardization and then they were asked that how many cups or catories of the food they have consumed. In this context the data on the amount of various food items were obtained with were later on converted into the form of raw material. It is to be mention here that it is quite difficult to measure the consumption of various food items very accurately because the respondent themselves were not having any accurate records and the information provided by them may be considered only as approximate one.
To calculate the nutrients like energy, protein, and fat, are used comprehensive Food Exchange List, the amount of food in household measures was converted into metric weight and the nutrient intake was calculated according to the Recommended Dietary Allowances (ICMR).

**Food habits**

A pattern of food eaten called food habit. A number of factor influences the food habits these include, educational and economic level of community, availability and cost of foods and social and cultural practices.

**Diseases**

Webster defined disease, as a condition in which body health is impaired or departure from a state of health, an alteration of the human body interrupting the performance of vital function.

The Oxford English Dictionary defined disease as ‘a condition of the body or some part or organ of the body in which its functions are disrupted or dangerous’.

**Construction of interview schedule**

The schedule for the present investigation was thus developed in accordance with the methodological procedure described above, keeping in view the objectives of the investigation.

**Data collection**

The necessary evidence were collected in line with the objectives of the study. All the 200 elderly respondents were inclusively approaches by the researcher. By personal contact, all the respondents were interviewed with the help of the structured schedule developed for the study.

**Period of investigation**

The data collection was initiated from August 2005 to September 2006.
Statistical analysis

"Statistical analyses are procedures used in finding out the numerical value of the whole study". The statistical techniques for data analysis used in the study are as follows:

1. Percentage
2. Average
3. Chi-square test
4. Correlation coefficient
5. Arithmetic mean
6. Standard deviation

1. Percentage

Single comparisons were made on the basis of the percentage, for drawing percentages, the frequency of a particular cell was multiplied by 100 and divided by total number of respondents in that particular category to which they belonged.

\[
\text{Percentage} = \frac{\text{The sum of all the responses}}{\text{Total number of all the responses}} \times 100
\]

2. Average

It is defined as the sum of the observation divided by its number. If \(X_1, X_2, X_3, \ldots, X_n\) are \(N\) observation then average is as -

\[
\bar{X} = \frac{\sum X}{N}
\]

For calculating average score, weighted average formula was used. If \(n_i\) is number of participants and \(X_i\) is scale value, the

\[
\text{Average score} = \frac{\sum f_i X_i}{\sum f_i}
\]
3. Chi-square test

In order to test the independence of two attribute, a Chi-square test is applied as -

\[
\chi^2 = \frac{\sum_{i=1}^{n} (o_i - e_i)^2}{e_i}
\]

Where

\( o_i \) = Observed frequency of \( i^{th} \) cell

\( e_i \) = Expected frequency of \( i^{th} \) cell

For \( r \times c \) contingency table \( \chi^2 \) calculated \( \chi^2 \) value is compared at \((r-1)(c-1)\) degree of freedom with theoretical value of \( \chi^2 \) on 5 per cent level of significance.

4. Correlation coefficient

Karl Pearson has given a coefficient of correlation for the measurement of linear relationship, which exists between two variables. If \( X \) and \( Y \) are two variables and if \( E(X, Y) \neq 0 \) then correlation coefficient \( (r) \) is

\[
\frac{\text{Cov.} (X, Y)}{\sqrt{\text{Var.} (X) \cdot \text{Var.} (Y)}}
\]

or

\[
\frac{\sum xy}{\sqrt{\sum x^2 \cdot \sum y^2}}
\]

where,

\[
\sum xy = \left[ \sum XY - \frac{\sum X \cdot \sum Y}{n} \right]
\]

\[
\sum x^2 = \left[ \sum X^2 - \frac{(\sum X)^2}{n} \right]
\]
\[ \sum y^2 = \left[ \sum y^2 - \frac{(\sum y)^2}{n} \right] \]

and \( n \) = Sample size

Here, one variable is dependent on other. For testing the significance of correlation coefficient \( (r) \), t test is applied. Degree of lack of relationship or coefficient of alienation is measured as –

\[ K = \sqrt{1 - r^2} \]

5. Arithmetic mean

Arithmetic mean is the average used in the present study symbolically,

(i) For ungrouped data

\[ \bar{X} = \frac{\sum X_i}{N} \]

(ii) For grouped data

\[ \bar{X} = \frac{\sum f_iX_i}{\sum f_i} \]

where,

\( X \) = Arithmetic mean

\( X_i \) = \( i^{th} \) variable

\( f_i \) = \( i^{th} \) frequency

\( \sum f_i \) = Total frequency

6. Standard deviation (S.D.)

It is defined as the square root of the means of the squares of the deviations taken from arithmetic mean –

(i) For ungrouped data – S.D. = \[ \sqrt{\frac{1}{n} \sum (X_i - \bar{X})^2} \]

(ii) For grouped data – S.D. = \[ \sqrt{\frac{1}{n} \sum f_i (X_i - \bar{X})^2} \]