3 MATERIALS AND METHODS

Adolescence is a phase of fast physical growth which requires proper nutrient consumption to meet body growth necessity. It is also a period of psychological and emotional changes during which there is a propensity to ignore conservative eating habits. Also, they are the future mothers and their health may affect the upcoming generation. During this period, girls are too much concerned about their body and physique rather than their physical and mental health. Moreover, adolescents make their food choices by social pressure. All these leads to various nutritional deficiencies. Nutritional problems of adolescents are common throughout the country. They have to face a series of nutritional issues not only upsetting their growth and development but also their livelihood as adults. Hence, the present study was commenced with a principled reason to create alertness in the society towards the position of female adolescents who always seem devoid of their fundamental freedoms of choosing right education, health and food, and also to generate awareness about the importance of nutrition among adolescents for good nutritional status. The main purpose of this study is to see the effect of imparting nutrition education through different methods on knowledge related to nutrition, attitude towards food, eating habits, haemoglobin levels and behavioral changes of adolescent girls. The information about the research design and procedures followed has been distinctively described under the following heads and sub-heads;

3.1 LOCALE OF STUDY

The study was conducted on females in adolescent age studying in government schools in rural and urban areas of District Kurukshetra.

3.2 SAMPLE SELECTION

Girls in adolescent between 13-18 years were selected from different government schools situated in urban and rural areas of district Kurukshetra, 200 adolescent girls were randomly selected from five different schools located in District Kurukshetra.

The names of schools were: Government Senior Secondary school Talheri, Government Senior Secondary school Dhurala, Government High School Surmi, Government Girls Senior Secondary school, Thanesar.
3.2.1 Criteria for The Selection of the Subjects for Imparting Nutrition Education

The adolescent girls who volunteered themselves for getting nutrition education were chosen from all surveyed girls. The total number of the selected girls was 200. The volunteered subjects (200) were first classified according to area wise i.e. urban and rural. One hundred subjects were chosen from an urban area and an equal number of subjects from a rural area. The selected 200 subjects were further subgrouped according to their age i.e. early adolescent (13-15 years) and late adolescent (16-18 years). The number of subjects in early adolescent period was 60 and in late adolescent period was 40 in both urban and rural area.

3.3 EXPERIMENTAL PLAN

All these 200 volunteered experimental subjects were categorized at different levels as under:

3.3.1 Classification of Subjects According to Age Group

The volunteered experimental subjects were first classified according to age (age of the respondents was confirmed from school’s records) into two groups namely; Early adolescence, Late adolescence as under:

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Status</th>
<th>Range of Age in Years</th>
<th>No. of the Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Early adolescence (E.A)</td>
<td>13-15</td>
<td>120</td>
</tr>
<tr>
<td>2</td>
<td>Late adolescence (L.A)</td>
<td>16-18</td>
<td>80</td>
</tr>
</tbody>
</table>

3.3.2 Classification of the Subjects According to Area

The subjects of above two groups are further classified into two groups according to their school area as under:

<table>
<thead>
<tr>
<th>Rural Area</th>
<th>Urban Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early adolescence</td>
<td>Early adolescence</td>
</tr>
<tr>
<td>Late adolescence</td>
<td>Late adolescence</td>
</tr>
</tbody>
</table>

The total number of subjects in each area of early adolescence group was sixty, and in late adolescence group was forty as presented in Fig 3.1.
3.3.3 Classification of Subjects According to Imparting Nutrition Education Plan

After sorting out the subjects according to age and area, each experimental group from early and late adolescence period was further classified into four subgroups (three groups according to the method used for imparting nutrition education and one group was no education group). Under early adolescence group each educational group had fifteen subjects and under late adolescence group the number of subjects in each educational group was ten.

While making groups of the experimental subjects, due care was taken that the subjects of respective groups live in the same area and study in the same school to minimize the error due to socio-economic variations.

The detailed experimental plan is shown in the flow chart below:

![Fig 3.1 Experimental Plan](image)

3.4 DATA COLLECTION

3.4.1 General Information

Questionnaire cum interview schedule technique was adopted for collecting the data regarding family background, dietary pattern and behavior, nutritional knowledge, attitude towards health and common misconception about food of each respondent. The
interview schedule (Annexure-I) prepared for this purpose was further classified into the following sections:

i) Family profile
ii) Personal profile
iii) Nutritional awareness
iv) Dietary pattern
v) Attitude towards health
vi) Fad and Fallacies about food

i) **Family profile:** questions related the family profile included the type of family, caste and religion, ordinal position of each respondent, hereditary problem and family compositions of the subjects.

ii) **Personal profile:** Information regarding the school in which subjects were studying and educational status and health status of the respondents was collected.

iii) **Nutritional Awareness:** To adjudge the level of nutritional awareness of each respondent, questions based on food groups, nutrients, Malnutrition, nutritional problems, were enclosed.

iv) **Dietary pattern:** Dietary pattern included food preferences and habits, skipping meals, fasting and outdoor eating habits of the respondents.

v) **Attitude towards health:** questions related to consciousness and attitude towards health and conservation of nutrients of the respondents.

vi) **Fad and fallacies about food:** questions related to beliefs and misconception about the food of the respondents were outlined.

These questions were well explained to the experimental subjects to avoid any confusion. Every correct answer was confirmed and total accurate replies before and after imparting nutrition education were composed and transformed into a percentage.

### 3.4.1.1 Development of interview schedule for collecting the data

Literature regarding adolescent's dietary practices, nutritional knowledge, attitude, misconceptions about foods was studied to generate an interview schedule. To gather information of factors related to different parts of respondents like general information
and health status of subjects and their family background; dietary pattern both at home and outside and their nutritional knowledge, attitude towards health, a detailed interview schedule was prepared after consultation with experts (nutritionist, psychologist & pediatrician). In addition to this, questions regarding the general practices followed by them during food arrangements, misconceptions and beliefs about food prevalent in the family were also included. This questionnaire was first pre-tested on 25 subjects to crisscross the steadfastness and cogency; after that required modifications were completed according to the level of respondents and as per local reviews. The final schedule (Annexure-I) comprised of both open and close-ended questions, A Performa was also mounted to assemble the data concerning health status and medical history of the respondents (Annexure-II).

This Personal Interview Schedule Method was applied to find out the facts as it helped in gathering information through face to face dealings and thereby gain a description of the full personality and to incorporate the social and psychological background of the respondents. It was also designed for collecting personal data for the quantitative purpose, besides integrating data from the persons, who were a secondary source of information (Park, 2002).

For getting the real information, subjects and their family members, especially mothers were also initiated for interaction and group discussions.

### 3.4.2 Nutritional Status

Nutritional status may be defined as the state of health as it is influenced by the consumption and utilization of nutrients (Caliendo, 1970). Procedures used in assessment of nutritional status of the subjects were comprised of the following parameters:

#### 3.4.2.1 Anthropometric measurements

It is a method of quantitatively stating the form of the body (Cameron, 1984). Anthropometric measurements fluctuate in number and complexity, but can help in distinguishing sub-clinical phases of malnutrition. It has been documented as a reliable tool in the identification of nutritionally susceptible groups. For community studies, the foremost aim is to select a minimum number of moderately simple approaches that can
give determined practical information (Rao and Vijayaraghavan, 1996).

Given this, the height and weight, mid-upper arm, calf and chest circumference, were measured to evaluate growth and nutritional status of the adolescent females before the start of the experiment and at the end of the educational trial. Assessment of anthropometric extents with ICMR, NCHS and other reference values facilitated to determine growth performance, pervasiveness and incidence of grade of malnutrition among the adolescent girls.

3.4.2.1.1 Measurement of height:

Height was measured by using the procedures of (Jelliffe, 1966). A vertical measuring dowel attached to a stand was used. The girls were requested to position erect, without shoes on a flat surface with heels organized and upper limbs dangling closely to the sides of the body. The investigator reared on the left side of the subject. The anthropometric dowel, held in the right hand, was sited at the back of the subject, touching heels, buttocks and back of the head. The head was placed such that the invented line drawn from tragus of the ear to the intra-orbital margin i.e. lower border of the socket of the eye (Frankfurt horizontal plane) was parallel to the ground.

By placing the head in this position, a gentle rising tug was applied (taking care that the subject did not lift her heels) to straighten any arc in the spinal cord. Then the sliding head piece of the dowel was brought down so as to drop the crown firmly pressing the hair, taking care that the blade was in the sagittal plane (mid-line) of the body. At this juncture the height was read from the window of the head-piece. The procedure was repeated twice and the consistent reading was obtained. The height was logged in centimeters up to the nearest mm. (Jelliffe, 1966 and ICMR, 2005).

3.4.2.1.2 Measurement of weight:

Weight was measured using an automatic balance (Omron) with 100 g of accuracy. The weighing scale was placed on a stable and flat ground. The subject was asked to position on the platform of the balance without shoes and with minimal clothing. The weight was logged in kilograms, to the nearest (Jelliffe, 1966 and ICMR, 2005).
3.4.2.1.3 Body mass index (BMI):

BMI is an indicator of nutritional status and is independent of age. It is also considered a better indicator of up-to-date nutritional status than any other measurement or index.

The Body Mass Index (BMI) of adolescents was calculated using the following formula:

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

The adolescent girls were classified according to their BMI as per classification given by James et al., (1988).

### Table 3.4.1 Classification of Body Mass Index

<table>
<thead>
<tr>
<th>S. No.</th>
<th>BMI Class A</th>
<th>Presumptive Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&lt;16.0</td>
<td>CED Grade III (Severe)</td>
</tr>
<tr>
<td>2</td>
<td>16.0-17.0</td>
<td>CED Grade II (Moderate)</td>
</tr>
<tr>
<td>3</td>
<td>17.0-18.5</td>
<td>CED Grade I (Mild)</td>
</tr>
<tr>
<td>4</td>
<td>18.5-20.0</td>
<td>Low Weight Normal</td>
</tr>
<tr>
<td>5</td>
<td>20.0-25.0</td>
<td>Normal</td>
</tr>
<tr>
<td>6</td>
<td>25.0-30.0</td>
<td>Obese Grade I</td>
</tr>
<tr>
<td>7</td>
<td>&gt;30.0</td>
<td>Obese Grade II</td>
</tr>
</tbody>
</table>
3.4.2.1.4 Measurement of chest circumference:

In the nutritional assessment, chest circumference is worth in defining malnutrition (Jelliffe, 1966, WHO, 1995). Chest circumference was logged with the minimum clothing in an upright position of females. The arms were somewhat raised to allow a way of the tape around the chest and then dropped to the natural place at the side of the trunk. Circumference at the level of nipples was logged in two positions i.e. in normal and in expanded forms. The first girl was permitted to breath normal and reading was noted in mid inspiration with a non-elastic flexible tape to the adjacent completed unit in centimeters. Then the girl was asked to breathe in maximum air as she could and hold and then reading was taken. This process was done for three times and the mean was calculated. But ease of the girls was also ensured in the process. The investigation was recorded before the start and at the end of the educational program.

3.4.2.1.5 Measurement of the mid-upper arm and calf circumference:

Commonly, mid-upper arm circumference and calf circumference specify the status of muscle development. These two regions are heavily muscled and almost circular. This dimension is moderately simple and easily available in any age and sex. It helps in recognizing malnutrition.
For figuring mid-upper-arm circumference, the left arm of the subject was first moved at
the right angle and marked mid-way. It was then straightened out and positioned by the
side of the body dangling freely. Tape was passed around the arm and placed vertically
to the long axis of the arm at the clear point such that it was closely covering the arm
encompassing the soft tissue, without applying too much of compression and the reading
was noted to the nearest finished unit in centimetres as per recommended standards (Rao
and Vijayaraghavan, 1996; WHO, 1995; Cameron, 1984; Jelliffe, 1966). For measuring
Calf circumference, the same technique was trailed to the left leg of the subject as in the
case of measuring arm circumference. Care was taken that body pressure applied on the
leg should be least and without clothing.

3.4.3 Clinical Observations

Clinical observations of all the adolescent subjects were done under the supervision of a
pediatrician. A pre-tested questionnaire of ICMR (1989) was cast-off with several
alterations after consultation with a panel of familiar experts (Annexure-II).

3.4.4 Serum Iron, Total Iron Binding Capacity (TIBC) and Haemoglobin

Haemoglobin, Serum Iron and Total Iron Binding Capacity were stanch to know the iron
status of experimental female adolescents. Two ml of blood was taken from the subjects
by an expert technician from Mittal path lab, Kurukshetra, in the vials to measure Serum
Iron and TIBC. Haemoglobin was tested on the spot and the blood samples taken from
the subjects were sent to the pathological laboratory (Mittal Path Lab, Kurukshetra) for
the determination of Serum Iron and TIBC. Haemoglobin, Serum iron and TIBC were
measured in two phases; before the start and at the end of the experimental trial.

3.4.4.1 Method of Determination

Determination of Haemoglobin (Hb): Haemoglobin level of all girls was measured by
using Sahili type of clinical haemoglobinometer (Oser, 1954). The forefinger was
meticulously cleaned with a cotton gauze dipped in spirit and punctured with the needle.
Blood was drawn into micropipette provided in hemoglobinometer and shifted to the Hb
tube containing N/10 HCL taken up to the mark 10 at the bottom of the graduated tube
on the percentage scale. The blood was thoroughly mixed with the help of a stirrer. The
HCL converted the Hb to haematin which had a brown color. After a few minutes,
distilled water was added drop by drop, each time mixing with a glass stirrer and the color of the solution was compared with standard prism tube provided on either side of the haemoglobinometer. When the color matched, the height of the solution was read in gram percentage from the gradation on other side of the Hb tube.

**Determination of Serum Iron and TIBC:**

Serum Iron and TIBC of the blood was determined by Enzyme-linked immunoabsorbent assay (ELISA) quantitative immunoassays using enzymes as labels were developed as an alternative to radioisotopes. The technique of testing was elucidated as shown in Fig. 3.2.

3.5 **DIETARY ASSESSMENT**

Dietary information assisted as a counterpart to the nutritional status, as not only it facilitated in evaluating the nutritional status of the persons but also illuminated the association between nutrient consumption and dearth. It also abetted to identify the food behaviors and dietary pattern of the subjects at the individual, family and community levels.

Several dietary investigation procedures were available for data collection. For the current study, data was collected and composed by using 24-hour recall method for three consecutive days (Thimmayamma and Rao, 1996; Wadhwa and Sharma, 2003). The
dietary survey was done before and after imparting nutrition education. To aid a correct estimate of food eaten by the girls, a set of domestic ampoules were standardized. Then the mean for three days of different food groups like grains and cereals, pulses and legumes, milk and dairy products, green leafy vegetables etc., were calculated and compared with Dietary Guidelines for Indians-A Manual (1998).

Nutrient contents of the diet were premeditated using food composition tables/nutritive value book (Gopalan et al., 1993; Kaur and Bhat, 1986).

3.6 **BEHAVIORAL ASPECT**

Behavioral aspect was arbitrated by putting diverse psychological tests subjected to their confidence level, sense of deprivation at school and home environment and about their study habits. Details of the psychological tests were specified as under:

3.6.1 **Psychological Tests**

Psychological tests were applied to determine the behavioral aspect of the subjects. For this exercise, three psychological tests namely; **Agnihotri's Self-Confidence Inventory** - Dr. Rekha Gupta, **Self-expression Inventory** - Dr. R. P. Verma and Dr. Usha Upadhyaya, **Test of Study Habits and Attitudes** – Dr. C. P. Mathur were selected (Annexure-V).

3.6.1.1 **Agnihotri's Self-Confidence Inventory (Dr. Rekha Gupta)**

This test was designed in 1987 to judge the level of Self-Confidence among adolescents. Self-Confidence is an optimistic attitude of one’s thoughts and feelings, his view of what he has been and currently is and his attitude pertaining to his own worth. In short, self-confidence is a positive view of oneself to one's self-concept and attribute of his perceived self. A self-confident person is confident, satisfied, assertive and is socially competent. This test consists of 56 statements and one has to mark a cross in the boxes given in front of every statement if in his/her belief the statement is correct or incorrect. Higher scores show higher sense of alienation in a student and hence lower sense of confidence. Attained scores were interpreted according to details given in Table 3.6.1.
Table 3.6.1 Interpretation of Raw Scores for Self Confidence

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Raw Scores</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4 &amp; Below</td>
<td>Very High Self-Confidence</td>
</tr>
<tr>
<td>2</td>
<td>5-19</td>
<td>High Self-Confidence</td>
</tr>
<tr>
<td>3</td>
<td>20-30</td>
<td>Average Self-Confidence</td>
</tr>
<tr>
<td>4</td>
<td>31-46</td>
<td>Low Self-Confidence</td>
</tr>
<tr>
<td>5</td>
<td>47 &amp; Above</td>
<td>Extremely Low Self-Confidence</td>
</tr>
</tbody>
</table>

3.6.1.2 Self-expression inventory

This test was designed by Verma and Upadhyaya (1984) to measure sense of deprivation caused due to non-fulfilment of a child’s need due to deficiency of various aspects of the school and home environment of that child. This test contains of 30 items with each item has two parts. The 1st part deals with stem-questions and 2nd part deals with four alternative responses, out of which two responses are such that the 'Yes' reply to them disclosed the respondent's sense of deprivation and the two other options were neutral statements. These were 60 responses are divided into two equal parts, i.e.30 replies are associated with a sense of deprivation at home environment and the remaining indicated a sense of deprivation in the school atmosphere. Obtained scores were interpreted as per table given below (Table 3.6.2).

Table 3.6.2 Interpretation of Raw Scores for Self-Expression Inventory

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Raw Scores</th>
<th>Stanine</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>50-59</td>
<td>9</td>
<td>Very High Sense of Deprivation</td>
</tr>
<tr>
<td>2</td>
<td>40-49</td>
<td>7-8</td>
<td>High Sense of Deprivation</td>
</tr>
<tr>
<td>3</td>
<td>20-39</td>
<td>4-6</td>
<td>Average Sense of Deprivation</td>
</tr>
<tr>
<td>4</td>
<td>10-19</td>
<td>2-3</td>
<td>Low Sense of Deprivation</td>
</tr>
<tr>
<td>5</td>
<td>0-9</td>
<td>1</td>
<td>Very Low Sense of Deprivation</td>
</tr>
</tbody>
</table>
### 3.6.1.3 Test for study habits and attitudes

This test was created and standardized by Dr. C.P. Mathur and meant to be used with school, college and university going students ranging from age 13 plus years to adult age. It is meant to measure The Study habits and Attitudes of the students and can be used for both the sexes. This test is meant to identify good and poor study techniques of students. It comprises of 60 items and is based on nine major areas of the study methods, habits and attitudes, viz, Attitude towards teachers, education, home environment, Study habits, Mental Conflict, Attentiveness/Concentration, Self-confidence, Examination and Home Assignment. Attained scores were interpreted according to the details given in Table 3.6.3 and 3.6.4, for different age groups i.e., 13-15 years and 16 years and above.

A few precautions were engaged while managing the psychological tests. The subjects were made clear about the aims of the study by the investigator so that all girls feel easy and prompt their opinions without any pressure. Statements and items/queries were well explained to the girls to avoid any confusion and doubts. Questionnaires (Annexure-I) were filled by the investigator during free hours after getting the permission from the Principals and teachers in-charge in respective schools/institute of the respondents.

#### Table 3.6.3 Interpretation of Scores for Study Habits and Attitudes for Early Adolescents

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Raw Scores</th>
<th>T-Scores</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>56 &amp; Above</td>
<td>71 &amp; Above</td>
<td>Excellent</td>
</tr>
<tr>
<td>2</td>
<td>42-55</td>
<td>55-70</td>
<td>Good</td>
</tr>
<tr>
<td>3</td>
<td>33-41</td>
<td>45-54</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>4</td>
<td>19-32</td>
<td>30-44</td>
<td>Poor</td>
</tr>
<tr>
<td>5</td>
<td>0-18</td>
<td>8-29</td>
<td>Extremely Poor</td>
</tr>
</tbody>
</table>
3.7 IMPARTING NUTRITION EDUCATION

This study was designed to see the consequence of nutrition education on the dietary pattern, Nutritional Awareness, Attitude towards health, misconception about foods and nutritional status of adolescent girls belonging to different age and socio-economic status. For that purpose, nutrition education was imparted to the selected experimental group for a period of three months. The frequency of imparting education was twice a week for two months and once fortnightly for the subsequent month. Education was imparted through lectures, one to one contact and making use of leaflets and pamphlets related to nutrition and associated diseases. Lectures were delivered to the respondents in the school/institute premises mostly on Saturdays without affecting their studies. Group discussions and interaction with family members especially mothers and siblings were also encouraged. Modules used for the educational purpose are listed in Annexure-III and IV.: Nutrition education imparted to the subjects was based on the following points:

- What is food and what is its effect on body
- Importance of food, nutrition and nutrients
- Food groups
- Rich sources of different nutrients
- Right cooking practices for conservation of nutrients
- Healthy eating and ill effects of junk food

Table 3.6.4 Interpretation of Scores for Study Habits and Attitudes for Late Adolescents

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Raw Scores</th>
<th>T-Scores</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>55 &amp; Above</td>
<td>71 &amp; Above</td>
<td>Excellent</td>
</tr>
<tr>
<td>2</td>
<td>43-54</td>
<td>56-70</td>
<td>Good</td>
</tr>
<tr>
<td>4</td>
<td>34-42</td>
<td>45-55</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>5</td>
<td>22-33</td>
<td>30-44</td>
<td>Poor</td>
</tr>
<tr>
<td>7</td>
<td>0-21</td>
<td>2-29</td>
<td>Extremely Poor</td>
</tr>
</tbody>
</table>
- Factors leading to anemia during adolescence
- Implications of anemia in later lives
- Various methods of improving the iron status in a person
- Locally cheap and easily available food sources rich in iron
- Environmental, personal and food hygiene
- Modifications of diet during common ailments
- Common misconceptions about food

3.8 PLAN FOR IMPARTING NUTRITION EDUCATION

I. The experimental trial in all the subjects was carried out from mid of July to February end. Nutrition education was given to the subjects of three experimental groups i.e. Group acquiring Nutrition Education through Audio Aids alone (GNEVA), Group acquiring Nutrition Education through Visual Aids alone (GNEVA), Group acquiring Nutrition Education through Audio -Visual Aids (GNEAVA), for the period of three months. The impact of nutrition education on the dietary pattern, knowledge about foods and Nutritional Awareness, Attitude towards health, misconception about foods among adolescents was calculated and total impact of three groups (GNEAA+GNEVA+GNEAVA) was assessed and compared to the percent score obtained by adolescents before imparting nutrition education.

II. The impact of nutrition education on Nutrient intake, nutritional and dietary status, Haemoglobin, serum iron and TIBC, self-confidence, self-expression (at school and home), study habits, among adolescents was assessed and compared with the subjects of the control group to whom no education was given.

3.8.1 Preparation of Different Teaching Modules

3.8.1.1 Audio Aids

Lectures on foods and its components, Balanced diet, nutrients and its needs, anemia in adolescents, common nutritional problems, healthy eating, ill effects of junk foods, benefits and methods of cooking for conservation of nutrients, discussions on misconception about foods and healthy vs fast foods, debates on common nutrition problems, Voice recordings related to hazards of unhealthy fast foods, were used for imparting nutrition education to GNEAA.
3.8.1.2 Visual Aids

Set of posters, power point presentations about common nutritional problems like PEM, anemia, an exhibition of food groups and food guide pyramid, flash cards depicting misconception about foods. Other visual aids that were used are power point slides about healthy eating, foods and its components, Balanced diet, nutrients and its needs, anemia in adolescents, common nutritional problems, ill effects of junk foods, benefits and methods of cooking for conservation of nutrients, photos and handouts of above topics were used for imparting nutrition education to GNEVA (Annexure-III and IV).

Photo 3 Power Point Presentation

Photo 4 Reading Handouts
3.8.1.3 Audio-Visual Aids

Power point slides about healthy eating, foods and its components, Balanced diet, nutrients and its needs, anemia in adolescents, common nutritional problems, ill effects of junk foods, benefits and methods of cooking for conservation of nutrients, audio video short movies about hazards of unhealthy eating, skits about learning eating habits, drama with dialogues, exhibition of nutritious cooked foods like vegetable poha, channa chikki, chiwda namkeen, nutritious laddu, spinach kebabs, spinach bread, paneer pakora, moong dal pan cake were used for imparting nutrition education to GNEAVA.

Information related to healthy eating habits, healthy snacks, ill effects of junk foods, foods and its components, nutrients and its need were given. Awareness regarding nutrition, magnitude of the problem and its consequences were told to subjects in various forms like audio, visual and audio visual. Information about anemia, its consequences, locally available iron rich and vitamin C rich foods was also provided to the experimental subjects.
Photo 6 Food Exhibition.

Photo 7 Learning about common nutritional problems Through Skits
Photo 8 Nutrition Counselling

Photo 9 Giving Information about conservation of nutrients to mothers
3.9 DATA PROCESSING AND STATISTICAL ANALYSIS

The information composed during the study was summarized and a codebook was established. The replies were then coded and shifted to the coding pages and tabularized. The readings and scores attained before the start and at the end of the experiment were statistically analyzed using Microsoft Excel to derive means, standard deviation, run paired T-test and Two-way ANOVA (analysis of variance) and derived conclusions based on them.