Materials and Methods

The materials used in the study and sampling procedures adopted in the study “Impact of Nutrition health education and Food Technological practices on the nutritional status of women (30-50 years) in self help groups in Sivagangai district” and the research techniques adopted have been discussed under the following headings.

3.1 Materials

3.1.1. Slide projector
3.1.2. Audio Cassettes
3.1.3. Video Cassettes
3.1.4. Charts
3.1.5. Booklets

3.2. Methods

3.2.1. Formation of interview schedule
3.2.2. Sample Design
3.2.3. Selection and measurement of socio economic variables
3.2.4. Method of Data collection
3.2.5. Pre-testing of the tool
3.2.6. Validity and Reliability of the tool
3.2.7. Processing of Data
3.2.8. Variables studies
3.2.9. Tabulation analysis and interpretation of data
3.3. Statistical tools used.
Materials

3.1.1. Slide Projector

Slide projector (Kodak carousel – type G). belongs to the Matha college of Nursing was used to project the slides on balanced diet (five food group), health status (protein calorie malnutrition, vitamin A deficiency, goitre, anemia and diarrhoea) and personal hygiene and environmental sanitation.

3.1.2. Audio

Audio cassettes pertaining to balanced diet (five food groups), cooking method, nutrient conservation, health status (vitamin A: causes, prevention sources and treatments, Anemia, causes, control, prevention and sources, Scabies curing and prevention) and personal hygiene and sanitation (importance, followings and benefits) were collected from the District Project Nutrition Office, Sivagangai and used.

3.1.3 Video

Video cassettes on the various subjects as mentioned 3.1.2. for projection to the selected groups were collected from Food and Nutrition Board, Sivagangai. The objectives of the study demanded the use of video unit and visit to be made to the selected blocks.
3.1.4. Charts & Exhibition

Charts depicting the aspect of balanced diet (five food groups, importance, nutritive value, benefit) health, status (protein calorie malnutrition, vitamin A deficiency, goitre, anemia and diarrhoea) hygiene and sanitation (followings and benefits) were collected from the District Project Nutrition Office (DPNO), Sivagangai and also prepared by the researcher were used for meeting the educational objective fixed in the study (Appendix – 3).

3.1.5. Booklets

Booklets regarding the balanced diet, deficiency disorders and hygiene and sanitation were used for meeting the educational objectives fixed in this study. (Appendix 4 & 5)

3.2 Methods

3.2.1. Formation of Interview schedule

Keeping in the view of the objectives and the variables of the study a comprehensive structured schedule was prepared and contained two parts. The first part consisted of the information regarding age, religion, caste, type of family, type of house, monthly income, educational status, details of food expenditure per month, food beliefs and taboos, facilities available in the villages to improve the nutritional status of the community, exposure to audio visual aids on nutrition, health, and hygiene. The second part contained questions to elicit background information about the self help groups, socio
economic profile of the entrepreneurs which included age, caste, religion, educational status, occupation, marital status, years of starting business, age of the SHG, monthly savings and profit earned.

3.2.2 Sampling Design

From the list of SHGs 63 percent of SHGs were selected from six NGOs. After selecting the sample SHGs the numbers in each SHG had been compiled. From each group respondent were selected by purposively random sampling method. Thus for 300 groups 500 members were selected for the purpose of this study.

For the selection of the sample respondents the researcher approached the NGOs functioning under the Mahalir Thittam (Plan of women) a Government sponsored programme under this programme in the Sivaganga district 11 NGOs had developed self help groups in 11 blocks.

The details about the number of SHGs in the Sivaganga district is presented in Table – 1.
## TOTAL SHGs IN THE SIVAGANGA DISTRICT – 2009

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Name of the NGO</th>
<th>Rural</th>
<th>Municipality</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>IRCDS</td>
<td>93</td>
<td>48</td>
<td>141</td>
</tr>
<tr>
<td>2.</td>
<td>VIDYAL</td>
<td>20</td>
<td>8</td>
<td>28</td>
</tr>
<tr>
<td>3.</td>
<td>TRUPA</td>
<td>75</td>
<td>-</td>
<td>75</td>
</tr>
<tr>
<td>4.</td>
<td>SMSSS</td>
<td>16</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>5.</td>
<td>TRUSS</td>
<td>39</td>
<td>-</td>
<td>39</td>
</tr>
<tr>
<td>6.</td>
<td>CRWD</td>
<td>105</td>
<td>24</td>
<td>129</td>
</tr>
<tr>
<td>7.</td>
<td>CHORD</td>
<td>165</td>
<td>31</td>
<td>196</td>
</tr>
<tr>
<td>8.</td>
<td>PERD</td>
<td>85</td>
<td>-</td>
<td>85</td>
</tr>
<tr>
<td>9.</td>
<td>SWOT</td>
<td>84</td>
<td>58</td>
<td>142</td>
</tr>
<tr>
<td>10.</td>
<td>DRAP</td>
<td>53</td>
<td>12</td>
<td>65</td>
</tr>
<tr>
<td>11.</td>
<td>SGF</td>
<td>103</td>
<td>-</td>
<td>103</td>
</tr>
<tr>
<td>12.</td>
<td>REEDA</td>
<td>30</td>
<td>-</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>868</strong></td>
<td><strong>183</strong></td>
<td><strong>1051</strong></td>
<td></td>
</tr>
</tbody>
</table>

Table 1 presents the details about the NGOs and their self help group in both rural and municipality areas of Sivaganga district.

In the present study six NGOs have been selected for the study on the basis of those NGOs which helped to start maximum number of self help groups in this area. The criterion adopted for selecting the self help groups was
that they should be working for 3 years and above. On the basis of this 1051 SHG’s had been operating in the study area in the year 2009 of these 868 SHGs were operating in the municipality areas.

Table 2 presents the number of sample SHGs selected for the study and the number of members in the selected SHGs for the study.

3.2.2.1. Sample Design of the study

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Name of the NGO</th>
<th>Number of SHG’s operating in Rural area</th>
<th>Number of samples selected</th>
<th>Number of SHG’s operating in municipal area</th>
<th>Number of samples selected</th>
<th>Total numbers of SHG</th>
<th>Total number of samples selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>IRCDS</td>
<td>93</td>
<td>85</td>
<td>48</td>
<td>18</td>
<td>141</td>
<td>103</td>
</tr>
<tr>
<td>2</td>
<td>CRWD</td>
<td>105</td>
<td>70</td>
<td>24</td>
<td>9</td>
<td>129</td>
<td>79</td>
</tr>
<tr>
<td>3</td>
<td>CHORD</td>
<td>165</td>
<td>62</td>
<td>31</td>
<td>11</td>
<td>196</td>
<td>73</td>
</tr>
<tr>
<td>4</td>
<td>PERD</td>
<td>85</td>
<td>82</td>
<td>-</td>
<td>-</td>
<td>85</td>
<td>82</td>
</tr>
<tr>
<td>5</td>
<td>SWOT</td>
<td>84</td>
<td>52</td>
<td>58</td>
<td>22</td>
<td>142</td>
<td>74</td>
</tr>
<tr>
<td>6</td>
<td>DARP</td>
<td>103</td>
<td>89</td>
<td>-</td>
<td>-</td>
<td>103</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>635</td>
<td>440</td>
<td>161</td>
<td>60</td>
<td>796</td>
<td>500</td>
</tr>
</tbody>
</table>

Sources : Primary Data
Note:

IRCDS : Integrated Rural Community Development society

REEDA : Rural Educational and Economic Development Association

CHORD : Community Health Organization of Rural Development

PERD : People Education for Rural Development

SWOT : Social Welfare Organisation Trust

SGF : Sri Ganesh Foundation

On the basis of the information obtained regarding NGOs and area of their operations the above sample design was prepared for the present study. The purposive random sampling technique was employed to select the sample SHGs. Five hundred self help groups (about 63 percent of the total number of self-help groups) were selected and through purposive random sampling method proper weightage was given for each of the NGOs. These five hundred members of the self help groups was selected.

3.2.3 Selection and Measurements of socio economic variable

3.2.3.1 Age

Age has been operationalised as the number of completed years of the respondent at the time of enquiry and chronological age was taken as the
measure. The completed years of the respondents were taken as such for analysis. The respondents were categorized into three groups according to their age.

<table>
<thead>
<tr>
<th>Age group</th>
<th>Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Young</td>
<td>Between 30 – 35 years.</td>
</tr>
<tr>
<td>Middle</td>
<td>Between 35 – 45 years.</td>
</tr>
<tr>
<td>Old</td>
<td>Above 45 years.</td>
</tr>
</tbody>
</table>

3.2.3.2. Educational status

It referred to the educational qualification of the respondent. The sub items were illiterate, functionally literate, primary education, middle education, secondary education, and collegiate education.

3.2.3.3. Community status

The community of the common was classified as notified by the government viz., other castes, Backward caste, Most Backward caste, Scheduled caste and Scheduled Tribe.

3.2.3.4. Type of house

The type of house of selected women were classified as thatched, concrete and tiled.
3.2.3.5 Monthly Income

Monthly income was operationalised as the monthly income obtained by the respondents from various sources in rupees.

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Income Group Level</th>
<th>Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Low</td>
<td>up to 2500</td>
</tr>
<tr>
<td>2.</td>
<td>Medium</td>
<td>2500-3000</td>
</tr>
<tr>
<td>3.</td>
<td>High</td>
<td>Above 3000</td>
</tr>
</tbody>
</table>

3.2.3.6 Food expenditure pattern

The food expenditure pattern was collected for the following items viz., cereals and millets, pulses, vegetables, fruits, roots and tubers, green leafy vegetables, milk and milk products, fleshy foods, spices and condiments ready to use foods and beverages each of them were also having sub-divisions within them, which were assessed per year.

3.2.3.7 Collection of data on food consumption

By using 24 hours recall method the dietary intake of each woman was collected for three consecutive days.

The quantum of various food item consumed for each meal (breakfast, lunch, tea time and dinner) by each SHG woman for three consecutive days were collected by interviewing them. The standardized set of vessels was used to measure the actual amounts of cooked food consumed both in the home and
outside was also recorded. The food items consumed outside the home by the subjects were purchased from the shop of the same area and were weighed thrice and average was recorded. Foods eaten in between the meals were also recorded. The amount of ingredients used for each preparation was calculated by using the methods adopted by Ryan (1996).

The dietary nutrients consumed by the respondents were calculated by using Indian Food composition tables (Gopalan et al 1989). The nutrient intake of the subject for each day was calculated separately, summed and average was noted for each nutrient. The average nutrients intake in term of the subject was compared with recommended dietary allowances (RDA of ICMR 1989).

3.2.3.8 Variables studied

The present study describes the relationship between certain independent and dependent variables.

The independent variables included the age, educational level, caste, religion, marital status, the family income level, the occupation of the respondents, number of members in the SHG, the age of the enterprise, the kind of enterprise, the type of entrepreneurship, the type of marketing, the training undergone the area of training, the number of methods adopted to improve sales the place of selling utilised. If one variable depend upon or is a consequence of the other variable it is termed as dependent variable (Kothari
knowledge gain and knowledge retention were the two dependent variables also taken up for this study.

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Dependent variable</th>
<th>Scoring procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Knowledge gain</td>
<td>Schedule developed for the study.</td>
</tr>
<tr>
<td>2.</td>
<td>Knowledge retention</td>
<td>Schedule developed for the study.</td>
</tr>
</tbody>
</table>

3.2.3.7.1. Knowledge gain and Knowledge retention

McLeod (1992) defined knowledge as the facts and experience known by a person, Knowledge was operationalised in this study as the quantum of scientific information known to the SHG women, response about the nutrition knowledge in balanced diet, health status and hygiene and sanitation.

3.2.3.7.2 Measurement of Knowledge gain

It was operationalised as the difference in the knowledge level of the selected women possessed before and after the exposure of selected item on health and nutritional aspects through two educational packages, slides, video, audio and chart education. This is expressed in terms of mean and mean percentage.

The sets of selected questions were administered to the experimental group before and after the exposure to the treatments. The difference between the pre-exposure was considered as knowledge gain. A unit was given for
every correct answer and zero for a wrong answer. The scores obtained by each of the respondents was converted into percentage (Pandian, 2000).

3.2.3.7.3 Measurement of Knowledge retention

Knowledge retention was operationalised as the portion of three months of information or message retained from the nearly learnt through slides video, audio, chart education and three months of exposure to educational packages.

The same list of questions was administered for assessing the knowledge gain and for measuring the retention of knowledge after three months. The difference between the recall score and pre-exposure score was taken as retention scores of the knowledge gain by individual respondent.

Method of Data Collection

Data were collected by interviewing the selected women. The interview method is one of the most powerful technique of data collection from primary sources. This method was selected for the present study as it is the suitable method for gathering first hand information even from illiterate. After identifying the respondents the researcher met them individually and explained to them the purpose and mode of data collection. A good rapport was built up and mutually agreeable timings were fixed with the respondents for the interview.
The interview was conducted invariably between 7.00 a.m and 5.00 p.m and occasionally from 3.00 p.m to 5.00 p.m. A maximum of one hour was needed to interview each respondent.

As the SHG women had already been exposed to such interviews, there was no full Cooperation from them. Some were first not cooperative. Only after much persuasion they agreed to be interviewed. Secondly, they were not ready to sit through the entire interview. Only after establishing a good rapport with them many gave their consent to be interviewed. Sometimes more than one visit was required to collect data.

A few women refused to respond because of fear of NGOs, bank and government departments. They were also afraid of the income tax officials. The entrepreneurs were not ready to convey the truth about profits. The interview had also to be conducted in interior places sometimes. Good rapport was built so that reliable and valid data could be collected. The field work took about 8 months. The entire study was done during a period of 36 months from January 2008 – January 2011.

**Tool used for data collection**

The tool used for data collection was a pre-tested interview schedule. A interview schedule generally contains a set of questions logically related to the problem under study. Review of studies available in the area of SHG women
and articles from various journals, magazines and dailies were the sources of information helpful for the constitution of the tool.

**Pre-testing of the tool**

Pre testing is essential to construct a valid and reliable tool. Therefore, pre-testing of the tool was done with 50 SHG women. It enabled to answer, and identify those items which were vague and ambiguous. Items with which no one was familiar were deleted. Thus the schedule was finalised with appropriate items after pre-test.

**Validity and reliability of the tool**

The term validity means that something is logical and acceptable. An interview schedule is valid when it is usable by the researcher. It is usable by the researcher when it is accepted, approved and properly answered by the respondents.

The term reliability means that something can be depended upon and trusted. An interview schedule is reliable when the respondent is able to understand and answer the questions clearly. Test retest method was used to find out the reliability of the tool.

**Processing of the Data**

After collecting the data the data were edited for completeness, accuracy and uniformity. They were coded and transcribed into computer readable form
coding of the data was very elaborate and time consuming. After coding and classification, the data were transcribed into computer using the Statistical Package for Social Sciences (SPSS) transcription of data helped in tabulating and preparing the frequency tables.

3.2.4. Tabulation, Analysis and Interpretation of data

The data were tabulated and analysis was done to see whether there is any significant difference exists between the knowledge level percentage. Analysis was performed to explain and discuss the knowledge gain and knowledge retention.

3.3. Statistical tools used

The data gathered were subject to analysis by making use of the following statistical tools.

1. t-test:

The t-test is used to significant difference between the quantitative variables like loan, income expenditure and categories of nutrient intake and anthropometric measurements.

2. Correlation co-efficient:

Another statistical tool namely correlation coefficient of variation used to study the level of savings and loan amount of SHGs.
Having adopted the methodology explained the study was conducted, data gathered, processed and subjected to analysis. The outcome of the investigation has been reported in the succeeding chapters.
Assessing the Weight of the Respondents
Measuring the Height of the Respondents
Knowledge gain through Nutrition Education
Giving Nutrition Education through Lecture Method to Self Help Groups Women
Distributing the Booklets and Leaflets Regarding Nutrition Education
Exemining the Haemoglobin level of the Respondent