Chapter - III

MATERIAL AND METHODS
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The present study has been carried over a period of two and a half years with the aim to obtain information about "Nutritional Status and Dietary Habits of Kashmiri Women".

1. Material Selection:
   
a) Selection of Area: Out of six districts of Kashmir Division, two districts were selected viz. district Srinagar and district Budgam. From each district a systematic proportionate random sampling technique has been used to select the area. District Srinagar included only urban area where as district Budgam mainly rural area. The urban area of Srinagar city was arbitrarily divided in four zones (North, South, East and West). From each zone six wards were randomly selected and thereafter ward to be surveyed from zone were identified from the list provided by municipality (Srinagar). Similarly, from district Budgam blocks were randomly selected (Khansahib, Beerwah, Baghat-Kanipora, Khag, Narbal and Nagam) for the survey representing various geographic areas (six were included to obtain proportionately same sample size as for urban area).

b) Sample Size: The total number of women selected for this study were 1600 with equal proportion of 800 from rural and 800 from urban area. From each group same number of women belonging to different physiological status like Pre-pregnant (married but without children), pregnant (mostly women in 1st trimester of pregnancy), lactating and Non-pregnant non-lactating women were included in equal proportion.
2. **Method used:**

Women were approached in their natural settings and various methods for collecting different information was as under:

- **For assessment of nutritional status:**
  i. For clinical assessment: A standard pre-designed schedule used as criteria for clinical assessment as per WHO expert committee within classified signs used in nutrition surveys appeared in WHO technical report series 258 was used.
  ii. Anthropometric assessment: Anthropometric measurement of height and weight (thereby calculating body mass index) was used.

- **For dietary intake / habits:**
  For this 24 hour dietary recall was collected for dietary intake and information on dietary likes and dislikes, food taboos and food consumption pattern was collected as per proforma to know about food habits.

- **Nutritional knowledge:**
  Nutritional knowledge was obtained by collecting information about sources, functions, nutrient requirements and cooking practices.

3. **Tool used:**

   *For Anthropometry:*-
   - A weighing machine (Krups) for assessment of weight of women.
   - For assessment of height fixed tape on wall was used.
   - For assessment of BMI calculations of wt/Htm² was used.
   - Nutritional assessment schedule (clinical examination) was used to find out deficiency symptoms
For dietary intake habits:
- For dietary intake 24 hours recall method was used.
- For dietary habits pre-tested and pre-designed questionnaire was used.

For nutritional knowledge:
- A scoring technique was used.

4. Collection of Data:

Data collection was done by the questionnaire cum interview method on women and various questions in the schedule were discussed in detail before-hand. Assessment of nutritional status was performed by the investigator with the help of a general practitioner and then applied on a trial basis on some women in the presence of same. The exercise was repeated several times to become familiar with anthropometry as well as clinical assessment. A pre-designed and pre-tested schedule was tested on 10% of the sample for finding its acceptability and completeness before administering it on the entire sample population. The requisite modification to the questionnaire was incorporated on the proforma that was finally used.

Structure of questionnaire:

The five different parts of questionnaire were:

A. General information: This section was pertaining to the family background of the respondents and included residential address, age, religion, literacy, occupation, income, type of family, family size and number of children etc.

B. Anthropometric Measurements:

Height: Height was measured with the help of a non-stretch tape that was fixed to a flat wall. The women were asked to remain barefoot
and the hair flat. Both feet were lying together with heels, buttocks, shoulders touching the wall. The women were asked to stand erect, looking straight ahead. The top of the ear and outer corner of the eye were in line parallel to the floor (Frankfort plane). The hands were hanging by the sides in a natural manner.

A horizontal bar was allowed to rest flat on the top of the head and the height was recorded to the nearest 0.5 cm.

*Weight:* Weight was recorded with the help of weighing machine (Spring type). Woman was asked to stand on the balance without shoes and minimal clothing. Before recording the weight of a woman everyday, using the known weight (standard weight) balance was standardized and the scale was adjusted accordingly if required. Weight was recorded to the nearest 100 grams.

*BMI:* BMI was calculated directly from the observed measurements of weight and height. The formula used for calculation was:

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

C. *Clinical Examination:*

This section included information on general appearance, hair, eyes, lips, tongue, teeth, gums, skin and nails of the women which helped in assessing out any signs of nutritional deficiencies.
D. Dietary Habits:

A quantitative and qualitative diet survey was carried out on the sample to collect information regarding the nutrient intake. This was done by:-

❖ 24 hour recall (Quantitative assessment) The quantity of food consumed by the sample in terms of household measurements was recorded and latter converted into metric weights and the nutritive value was calculated with the help of food composition table.

❖ Qualitative diet survey included respondents information about the number of meals consumed per day, nature of diet, food likes and dislikes, food beliefs and taboos, medium of cooking food, inclusion of special foods in daily diet during pregnancy / lactating.

❖ Frequency of consumption of different food stuffs was also found.

E. Nutritional Knowledge:

Respondents knowledge regarding sources and functions of nutrients, nutritional requirements and methods of cooking were assessed by scoring the information gathered from the respondents by ordinal scale. For this purpose a special scoring technique was devised which was approved by a sociologist. The scoring technique is as under:-

Scoring technique for assessing knowledge regarding sources and functions of Nutrients- E:

This section included information gathered from respondents regarding sources and functions of nutrients. The total number of questions which could be scored in this section was eleven. The maximum score for this section was 29 and according to scores obtained women were categorized in three groups i.e. with
score = or > 20 as Good, 14 – 19 Fair, and < 14 Poor. Details of score are given in annexure I.

*Scoring system adapted for assessing knowledge regarding nutritional requirements* $E_2$: Section $E_2$ included information gathered from respondents regarding nutritional requirements. Total number of questions which could be scored were seven and the maximum score in this section that could be obtained by a woman was 13. Women were categorized again in 3 groups with score of ≥ 9 as Good, 6 – 8 as Fair and score below 6 as Poor. The details of scoring are shown in annexure II.

*Scoring system regarding assessment of knowledge of cooking practices and nutrient loss* $E_3$: Total number of questions in this section which could be scored was eight and the maximum score a woman could get was 18. Categorization was again made as Good with 13 or more, Fair as 12-9 and Poor as less than 9 score. The details are given in annexure III.

Women were also categorized as per total score obtained for their knowledge on nutrition. Overall score for nutritional knowledge for section $E_1 + E_2 + E_3$ was 60 points. Women scoring 43 and above points were categorized as possessing overall Good nutritional knowledge those scoring between 42 – 30 as Fair and those with below 30 points were termed as possessing Poor nutritional knowledge.
5. **Data Analysis:**

The analysis was divided into three main parts. First part dealing with general characteristics, second with nutritional assessment and third with nutritional knowledge. Data was analyzed by descriptive procedures for evaluating contingency tables (for various comparisons), averages and dispersion. Besides this inter and intra group comparison between / among the groups was made by using chi-square test, students t-test was also used to analyze the data.

**LIMITATIONS:**

The researcher had to face a number of difficulties while collecting data. Prevailing conditions in the valley proved to be at times a hindrance in collecting data, secondly women were not much cooperative and were occasionally reluctant to allow the investigator to take anthropometric measurements and record 24 hour recall. Some women were also reluctant to disclose their food habits, taboos, likes and dislikes. It needed lots of persuasion and motivation on the part of the investigator to overcome these hindrances. District Budgam is near to Srinagar city and some of the areas cannot be truly considered rural areas. Also religious ethnicity between the two districts may be a limiting factor.