



## TECHNICAL NOTE

## Diet Survey: A Tool for Comprehensive Nutritional Assessment

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## ABSTRACT

The dietary habits of a person have been acknowledged as one of the most important determinant of different diseases or unfavorable outcomes in both developed and developing countries. Considering the importance of diet in the development of many diseases, assessment of the nutritional status of an individual / household / community carries a lot of significance. Different methods such as anthropometric measurements, biochemical and laboratory tests, clinical evaluation, diet survey, functional assessment and vital health parameters constitute a complete nutritional assessment. Diet survey is nothing but the scientific assessment of pattern of dietary intake or specific foods followed by the estimation of nutrient intake, and finally utilization of the obtained data for the benefit of masses. To conclude, diet survey can be regarded as a solution to the unique challenge of developing a balanced diet for different groups of people in order to bring about a substantial reduction in the suffering and deaths associated with lifestyle disorders.

A balanced diet is defined as the one which consists of a combination of different types of foods in such proportions that the need for nutrients and energy is adequately met for preserving individual health, development and well-being (1). The dietary habits of a person have been acknowledged as one of the most important determinant either in the development of different diseases (viz. lifestyle disorders such as coronary heart disease, hypertension, stroke, diabetes mellitus, cancer) (2,3); or in the occurrence of unfavorable clinical outcomes and negative impact on essential public health indicators (viz. low birth weight, malnourishment – underweight / overweight, maternal mortality) (4,5,6); in both developed and developing countries. Considering the importance of diet in the natural history of many diseases, assessment of the nutritional status of an individual / household / community bears a lot of significance from both clinician and policy makers point of view.

Nutritional status assessment are usually performed with an objective to identify individuals or population groups who are either at risk or actually suffer from a disease of nutritional origin; to develop nutrition-

based interventions that meet the community needs; and finally to measure the effectiveness of the nutritional interventions (2,3). Different methods such as anthropometric measurements, biochemical and laboratory tests, clinical evaluation, diet survey, functional assessment and vital health parameters constitute a comprehensive nutritional assessment (1).

Technically, diet survey is the scientific assessment of pattern of dietary intake or specific foods followed by the estimation of nutrient intake, and finally utilization of the obtained data for meeting the above mentioned objectives. It is considered as the most essential and integral element of the nutritional assessment because as the other methods can only detect the presence / absence of nutritional deficit, but in order to find out if this nutritional deficiency is because of dietary factors and which particular diet/nutrient, the only option is to perform a dietary survey. Various methods are available to undertake diet surveys in the different settings such as diet balance sheet method; inventory method; weighment method; 24-hour recall method; food frequency questionnaire method; and dietary score method (1,7).

a) **Diet balance sheet method:** This method is employed when information regarding availability and consumption of food are desired on a large scale, such as at the global, national, regional or state levels. This method finds practical utility in various types of planning and budgeting and public distribution system. Effectively the difference between the receipt of food from various sources and expenditure over a specified period of time indicates the net food consumed by the population. However, it is a gross method, and does not indicate the amount of food consumed by rich and poor people separately (1,8).

b) **Inventory method:** This form of dietary survey is applicable for a homogenous group of people from an institutional setting such as in a hostel, jail, mess, army barrack, orphanage etc. It is essentially done with the help of record books - amount of various food substances available as per records are taken into consideration and then the balance of various food items is again checked after a specified interval of time. Although it is a fast and relatively easy method, it neither accounts for wastage nor reflects individual consumption (1,8).

c) **Weighment method:** This method can be employed to estimate the dietary intake of individuals at household level. In this survey, foods – raw and cooked, are actually weighed using a grocer's balance. The raw weighment method is usually adopted in family surveys where people are reluctant to allow weighing of cooked food. In contrast, the cooked weighment method is employed in institutions as cooking is carried out at a central kitchen. However, in ideal circumstances a combination of both should be used. The disadvantage attributed to the method is that it is a very cumbersome, time consuming and tedious process as it involves weighing of all foods (1).

d) **24-hour recall (or questionnaire) method:** This technique is a relatively easy method of performing dietary surveys and is based on the recall capabilities of the individual in the past 24 hours. It is a fairly accurate and less time consuming method, in which the housewife is inquired about the types of food items prepared in the past 24-hours and the amount of raw ingredients are measured using a set of cups and ladles standardized for volumes. However, the disadvantage is that it is cumbersome, depends on cooperation of respondents and completely based on recall capability of the respondent so prone to inaccurate recall (1).

e) **Food frequency questionnaire method:** It is an epidemiological tool to study the meal patterns and dietary habits of people especially during pregnancy and lactation, etc. It is simply based on the concept as to how frequently an item is consumed over a period of time (7,8).

f) **Dietary score method:** Scores are assigned to a diet based upon the number of servings the diet

provides of each one of the eight groups (viz. cereals & millets; vegetables; sugar and jaggery; oils & nut seeds; fruits; animal foods; pulses; spices & condiments; and alcoholic & non-alcoholic beverages) in which food has been classified (8,9).

Diet survey is being used in different settings for evaluating the type of foods consumed. In a longitudinal descriptive study, the intake of nutrients was estimated using a dietary survey in HIV infected patients (10). In another cross-sectional study done in New Zealand, the trends of intake of specific nutrients such as iodine, iron, selenium and sodium has also been estimated (11). Similar sort of assessment has also been done to assess the compliance of nutrient intakes in individuals with celiac disease (12).

To conclude, a diet survey can be regarded as a solution to the unique challenge of developing a balanced diet for different groups of people in order to bring about a substantial reduction in suffering and deaths.

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