

Public Nutrition

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MANUAL INTRODUCTION

Good food security and nutrition of the population is an important objective for all those involved in public nutrition, social welfare and socio-economic development. The scope of public nutrition, we know, covers knowledge and research on nutrition problems, controlling these by interventions, monitoring and surveillance, nutrition policy and programmes, public nutrition for behavioural change.

As part of the Master's Programme in Dietetics and Food service Management a need was felt to have a practical course in the area of Public Nutrition for learners which would provide basic education and skills required to raise awareness of the public nutrition problems, their nature, cause, consequences, and prevention; advocacy and linkage with, for example, population and environmental concerns; public education, specially nutrition education for behavioural change and planning and implementing, nutrition education programmes.

The practical course (MFNL-006), therefore, has been designed and developed with the same objectives. The Public Nutrition practical course is worth 2 credits (i.e. 60 study hours) and consists of 10 practical with suitable activities at the end of each practical for a thorough understanding of the subject and development of skills. Starting from understanding the fundamental principle and use of anthropometry, growth monitoring, clinical assessment, diet surveys as means of assessing nutritional status of community groups to understanding nutrition concerns among vulnerable groups and planning, formulating and implementing strategies/interventions to tackle these nutrition problems, to development, use and evaluation of methods and aids for nutrition education for behaviour change, all these aspects are covered in this manual. A brief review of each of the practical included in this manual follows.

Practical 1 focuses on the basic concept of assessment of nutritional status of children Anthropometric measurements, clinical assessment, dietary surveys are some of the tools to be used and developed by the learners in this practical for assessment of nutritional status of children. There are four activities included in this practical.

Practical 2 discusses the principle, use and interpretation of growth chart in the growth monitoring process. This practical will equip the learners to analyze and interpret the growth curve and suggest suitable remedies for the welfare of children through nutrition education.

Practical 3 enumerates the major nutritional problems among vulnerable groups and provide good practice in developing strategies and plan of action to tackle any nutritional problem among the vulnerable groups.

Practical 4 describes the significance of nutritive recipes for vulnerable groups. Malnutrition is widely prevalent in our country especially among the vulnerable groups like infants, preschoolers, adolescents, pregnant women, lactating women and the elderly. If these vulnerable people are not provided with adequate nutrition, they often suffer from serious consequences that not only affect their own development but also the progress of the nation. In this practical the learners will plan and develop nutritive recipes for vulnerable groups.

Lack of nutritional knowledge results in wrong selection of foods, faulty practices and ill-health. Nutrition education, we know, is a useful tool of community nutrition. What are the effective ways in which messages for nutrition/health education can be prepared and conveyed to the community to bring about desirable behaviour

change is the focus of *Practical 5*. The activities included in this practical will provide good practice and experience to learners to prepare relevant messages based on the problem, need, knowledge, attitude and practice of the target group.

Once the messages are formulated, the next step involves conveying the same to the target population. A variety of communication channels can be used for conveying these messages. *Practical 6* describes the development, use and evaluation of methods and aids for nutrition and health education. To help the learners in this task, handy reference related to methods of communication in nutrition and health education, have been included, in the Annexure section, at the end of the manual. This material will guide the learners in planning and developing the nutrition education communication material or the teaching aids for the activities included in this practical.

Much work in nutrition education has focused on the association between knowledge, attitude and behaviour (practice). Awareness about the existing nutrition knowledge, attitudes and practices of the community members is essential for nutrition educators, as well as, planners as this data is invaluable for planning programmes and policies to improve the nutritional status of the community. *Practical 7* is therefore devoted to the study of how to develop appropriate tools to assess knowledge, practice and attitudes of community groups.

Various nutrition education aids/materials are available today that help in increasing the awareness of people regarding topics in food and nutrition. *Practical 8* focuses on strategies to evaluate any available nutrition aids and judge its effectiveness.

Further, nutrition programme planning and implementation is one of the keys to successful nutrition intervention in the community How to plan, formulate and conduct nutrition education programmes? This is the focus of *Practical 9*. The activity included in this practical will equip learners to carry out the entire process of formulation and implementation of a nutrition education programme

Finally a knowledge about the various community agencies working within the community is essential. There are different agencies, both Government and Non-Government, working within the community to provide services for the welfare of the community members. Which are these agencies? *Practical 10*, is so designed to help the learners explore the various community agencies working in their region and understanding their role in the delivery of nutrition/health services for the target groups.

This practical course, we ensure, would provide the learners hands down experience of working with community groups in field settings. It will help you, the learner, develop and sharpen your skills and shape your attitudes towards working in the area of public nutrition. It would require that you follow the instructions as given in the manual for each practical and carry out the field visits/ and accordingly present your work in the manual for evaluation.

The objective of this practical course is not just to give you a feel of community work but also to develop in you the ability to analyze and evaluate the community problems, discover solution to the problems and develop interpersonal and communication skills. Trust, the course material would go a long way in enhancing the knowledge, attitude, practices and skills of learners in the area of public nutrition.

There are 14 sessions planned for you for this practical component of the Public Nutrition Course (MFNL-006). Each session will be of 4 hours. Each session will be preceded by a *PRE-LAB* session, where the instructions/important points shall be discussed by the counselor with you and followed by a *POST-LAB session*. At the post-lab session you will be expected to hand in written work relating to the practical, unless other arrangements have been announced. Conclusions from the practical activities and any problems arising during the practical will be discussed. Attendance at the practical sessions *is an essential part of the practical course*. Non-attenders may be penalized. Practical field work will contribute 40% to the assessment of this course (MFNL-006). Sixty per cent weightage is for the term-end practical exam. Examinations will be held at the term-end based on material presented in the manual and in the class.

A sample format of the practicals/activities which shall be conducted during the 14 sessions is enumerated herewith. The final format shall be given to you by your course counselor. The programme study centre coordinator shall arrange for the practical course work. So please be in touch with the coordinator for the allotment of the practical schedule.

FORMAT FOR PRACTICAL SESSION

SESSIONS/ DURATION	PRACTICAL/ACTIVITY
I (4 HOURS)	Introduction to the Manual Introduction to Practical 1 and 2 Instructions for conduct of Practical 1 in the field setting <i>Practical 2: Use and Interpretation of Growth Charts</i> Activity 1: Plotting and Interpretation of a Growth Chart
II (4 HOURS)	<i>Practical 1: Assessment of Nutritional Status of Preschoolers</i> (Field work for Activities 1, 2, 3 and 4)
III (4 HOURS)	<i>Practical 1: Assessment of Nutritional Status of Preschoolers</i> Activity 1: Anthropometric Measurements Activity 2: Clinical Assessment Preschool Children Activity 3: 24-Hour Diet Recall Method Activity 4: Using Food Frequency Questionnaire
IV (4 HOURS)	<i>Practical 3: Nutritional Concerns Among Vulnerable Groups and Strategies/ action to Tackle</i> Activity 1: Identification of Nutritional Problems and Strategies to Tackle the Nutritional Problem in Vulnerable Groups.
V (4 HOURS)	<i>Practical 4: Nutritive Recipes</i> Activity 1: Preparation of Low Cost Recipes Activity 2: Planning A Cycle Menu Activity 3: Plan A One-Dish Meal Specific to Your Region

VI (4 HOURS)	<i>Practical 5: Messages for Nutrition and Health Education</i> Activity 1: Nutrition and Health Education Messages Activity 2: Messages for Nutrition Education in Urban School Children
VII (4 HOURS)	<i>Practical 6: Development, Use and Evaluation of Methods and Aids for Nutrition and Health Education</i> Activity 1: Development of Nutrition Education Material (Planning and development in the lab)
VIII (4 HOURS)	<i>Practical 6: Development, Use and Evaluation of Methods and Aids for Nutrition and Health Education</i> Activity 1: Development of Nutrition Education Material (Carry out the activity in the field situation)
IX (4 HOURS)	<i>Practical 6: Development, Use and Evaluation of Methods and Aids for Nutrition and Health Education</i> Activity 2: Development Of Suitable Teaching Aid
X (4 HOURS)	<i>Practical 7: Development of Tools to Assess Nutrition Knowledge, Attitudes and Practices</i> Activity 1: Formulation of Nutrition Education Tools
XI (4 HOURS)	<i>Practical 8: Evaluation of Available Nutrition Education Material/Aids</i> Activity 1: Evaluation of Nutrition Education Aid
XII (4 HOURS)	<i>Practical 9: Planning and Implementation of Nutrition and Health Education Programme</i> Activity 1: To Plan a Nutrition and Health Education Programme (Planning and Development in the lab)
XIII (4 HOURS)	<i>Practical 9: Planning and Implementation of Nutrition and Health Education Programme</i> Activity 1: To Plan a Nutrition and Health Education Programme (Carry out the activity in the field setting)
XIV (4 HOURS)	<i>Practical 10: Community Agencies</i> Activity 1: Conducting A Field Trip
XV (6 hours)	Term End Examination

RECORDING PRACTICAL WORK

The practical manual for the course is actually a workbook. It contains not only the background information and concepts necessary for you to conduct the activities,

Practical Manual

but it also serves as a practical file or workbook. You are expected to write your experiences, observations, results, inference, conclusions etc. related to a particular activity in the manual itself in the space specified. Some important aspects are highlighted next. Please read then carefully.

General

Record the practical work directly into the bound practical manual (workbook), never on loose-leaf sheets. Every entry in the practical manual/book should be dated, and your own observations (including comments such as the difficulties you found in doing certain procedures, or ideas that occurred to you) should be written down as a permanent record.

Do not keep a rough, “working” lab book and then copy from this into another book later. Instead, recognize that your practical manual is the true record of what you did and observed at the time. You can (if you wish) use the back pages of your lab book for making calculations, notes, etc.



PRACTICAL 1 ASSESSMENT OF NUTRITIONAL STATUS OF PRESCHOOLERS

Structure

- 1.1 Introduction
 - 1.2 Assessment of Nutritional Status
 - 1.3 Nutritional Anthropometry
 - 1.3.1 Body Weight
 - 1.3.2 Height
 - 1.3.3 Mid-Upper Arm Circumference (MUAC)
 - 1.4 Indicators for Anthropometric Measurements
 - 1.4.1 Height-for-Age
 - 1.4.2 Weight-for-Age
 - 1.4.3 Height-for-Weight
 - 1.4.4 Body Mass Index
 - 1.5 Anthropometrical Measurements: Methodology
 - 1.6 Clinical Assessment
 - 1.7 Clinical Assessment: Methodology
 - 1.8 Dietary Assessment
 - 1.8.1 24-Hour Dietary Recall Survey
 - 1.8.2 Food Frequency Method
- Activity 1 : Anthropometric Measurements
- Activity 2 : Clinical Assessment Preschool Children
- Activity 3 : 24-Hour Diet Recall Method
- Activity 4 : Using Food Frequency Questionnaire

1.1 INTRODUCTION

You may recall studying about the assessment of nutritional status in the Public Nutrition theory course (MFN-006) in Unit 7. You are aware that assessment of nutritional status of the community members helps in identifying their nutritional needs and deficiencies so that proper measures can be taken to attain optimal nutritional status. It is therefore essential to know the nutritional status of the community to target specific strategies for improvement, if any. Assessment of nutritional status is a prime requisite for any nutritional intervention.

In this practical, we shall learn about the various methods that are used for assessment of nutritional status that a researcher needs to be equipped with before venturing into the community.

Objectives:

After undertaking this practical and the activities included herewith, you will be able to :

- select the correct measurements and tools for assessing the nutritional status of your subjects;

- explain the correct use of various tools to take measurements;
- compare your observations with standard reference values;
- classify your subjects into different grades of malnourishment based on IAP, and WHO classifications;
- identify different signs and symptoms of deficiency diseases;
- assess the presence of various nutritional deficiencies using clinical assessment method;
- conduct dietary surveys based on 24-hour recall and food frequency method;
- interpret the information gathered from the two methods of diet survey; and
- assess the nutritional status of the subjects based on dietary surveys.

1.2 ASSESSMENT OF NUTRITIONAL STATUS

Nutritional status, as you may already know, is defined as the condition of the body as it relates to the consumption and utilization of food. There are two methods for assessing the nutritional status - direct and indirect. Indirect methods involve the assessment of mortality rates; morbidity rates; various socioeconomic, cultural and geographical variables; other available health statistics; and dietary data such as food production, food availability and food consumption.

Direct assessment of nutritional status means when the individual or community is investigated directly and it includes methods such as nutritional anthropometry, clinical examination for nutritional signs and biochemical estimation. Indirect methods include dietary assessment that is also a very useful method of assessing the nutritional status.

Let us first study, as to what is nutritional anthropometry and what are the various methods of taking measurements included in it.

1.3 NUTRITIONAL ANTHROPOMETRY

Nutritional anthropometry is the science of measuring the size, weight and proportions of the human body at various ages and levels of nutritional status. It is an objective method that is easily understandable by the population at large. It is also an economical method and gives information about adequate growth, early PEM and obesity, which are not easily obtainable from other methods.

Anthropometry also has certain disadvantages like potential for inaccuracy of measurement, the need for reasonably precise ages in young children, and the problems with the selection of appropriate reference data.

Let us now study the most usual measurements that are used in nutritional surveys for preschool children.

1.3.1 Body Weight

Weight is the most widely used anthropometric measurement and is used as the basic indicator in the evaluation of nutritional status of young children. Weight is a measure of total body mass and a direct indicator of the health of the child which can be used by both the educated and the illiterate members of the community. Weight is sensitive to even small changes in nutritional status and a rapid loss of weight is an indicator of potential undernutrition. Weight estimations can be done on a single occasion or can be repeated at intervals. Serial measurements that are repeated at intervals give a better picture of the nutritional status of an individual.

What equipment to choose for measuring weight?

There are two types of weighing scales that are available for taking weights – beam balance and spring scales.

The choice of equipment will depend on the following needs:

- Age of the individual to be weighed
- Accuracy required
- Appropriate weight range.
- Cost
- Transportability
- Sturdiness
- Non-frightening appearance of the equipment, especially for young children
- Reliability.

Let us get to know about these measuring scales.

Spring Scales

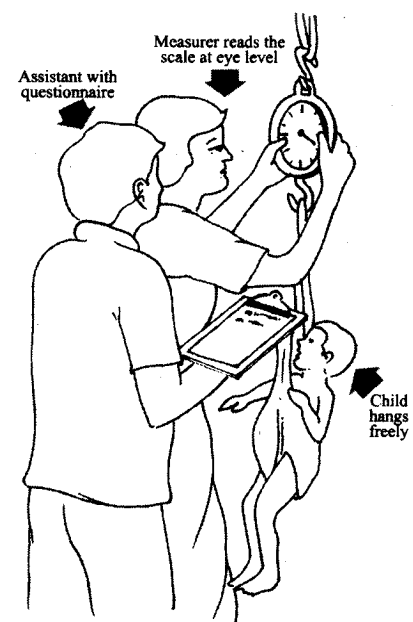
Spring scales are portable and are more practical to use in field studies but they have one major limitation of becoming inaccurate on repeated usage. Examples of spring balance include the *salter scale* and the *bathroom scales*. A brief review on these scales follow.

- a) *Salter scales* are based on the principle of spring balance and can be used to measure a maximum weight of 25 kg with increments of 100g. They are light, reliable and portable scales. These scales have a dial on which the weight is marked like a clock. The scale has two hooks. The one on top is used to suspend the scale from a beam or the branch of a tree and the lower one is used to hang the sling or the hammock in which the child is placed for weighing as you can see in Figure given below.

Next let us learn about the procedure involved for weighing individuals using salter scale.

Steps for weighing

1. Put a rope through the upper hook of the scale and hang it from a beam or the branch of a tree.
2. Make sure that the dial is at eye level so that the weight can be read correctly.
3. Place the sling or the hammock on the lower hook.
4. Adjust the needle to zero by turning the screw at the top of the scale.
5. Place the child to be weighed in the sling or the hammock. Make sure that the child's feet are not touching the ground nor is he holding on to anything.
6. Read the weight on the scale when the child is not moving and the needle is absolutely stationary.
7. Read the weight by standing in front of the scale and not on the side.



- b) *Bathroom Scales*: Bathroom scales also work on the principle of spring scales. These are not recommended unless nothing else is available. They are not very accurate, are fragile, and problems in recording correct weight can occur (parallax error) if using them. Frequent calibration and checking with known weights is important during weighing sessions, preferably after taking every twenty readings. They also need to be kept on firm and flat surface for recording weight. They can be used in situations where cost, portability and availability are the most important criteria.

Beam balances

Beam balances are more accurate and can be used for weighing preschoolers, older children as well as adults. But they are relatively heavy and difficult to transport. Butcher's steelyard is a scale based on the principle of beam balance and so is the adult Detecto scale that can weigh upto 140 kg.

Let us learn about the procedure involved for weighing individuals using the beam balance.

Steps for weighing

1. The subject to be weighed should be wearing minimal clothing and no footwear. If possible, the subject should be weighed in the nude. In situations where the subject has to be weighed with heavy clothing, an average weight of the clothing should be recorded and the subtracted from the weight of that subject.
2. The scale should be placed on a flat surface and it should read zero when no one is standing on it.
3. For recording weight, the subject should be made to stand on the platform of the scale and when the needle becomes stationary, the weight should be recorded.

If very young children have to be weighed on such scales, the mother and the child should be first weighed together, followed by weighing the mother alone. The difference between these two weights gives the weight of the child.

Weighing should not be done after a full meal or a full bladder but this precaution may not always be possible to take in community surveys. As far as possible, measurements should be taken early in the mornings before the individual has eaten his meal.

Readings for children up to the age of 10 years should be taken to the nearest 20-100g while for older children and adults it is sufficient to record the weight to the nearest 500g.

Let us now see, how to measure height and its importance in assessment of nutritional status.

1.3.2 Height

Height is a measure of the linear growth of the body and reflects the degree of skeletal development. It is made up of the sum of components: legs, pelvis, spine, and skull. The height of an individual is influenced by hereditary as well as environmental factors. The maximum growth potential of an individual is decided by hereditary factors while the environmental factors like nutrition and ill health determine the extent till which the genetic potential can be achieved. The height of an individual is not affected by sudden acute malnutrition but is a measure of long duration chronic malnutrition.

What equipments to choose for measuring height?

Various instruments available for measuring height are – non-stretch tape, a vertical measuring rod called anthropometer rod, a microtoise, a stadiometer etc.

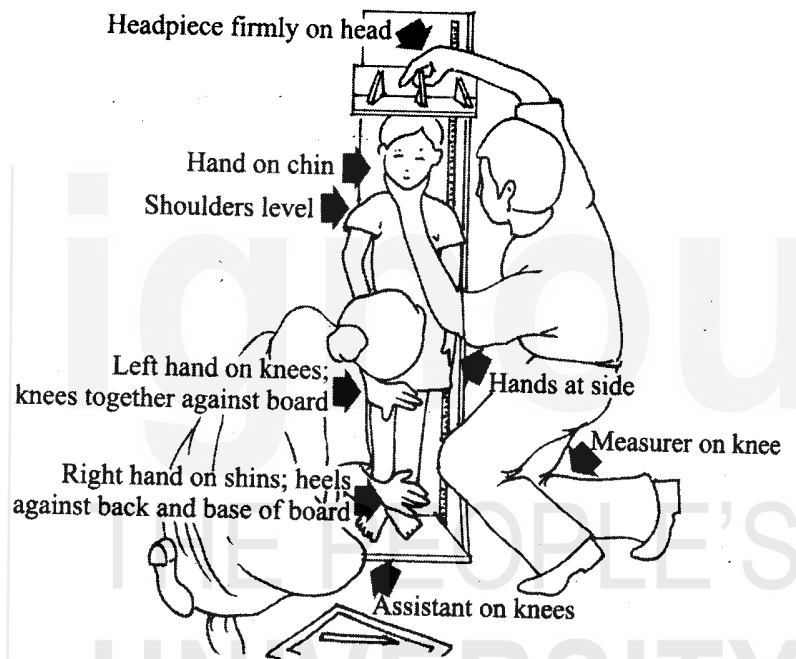
For older children and adults, a non –stretch tape or an anthropometer rod can be used for measuring height.

The microtoise is a metal tape container, which is fixed to a wall 2 metre above the floor and its bar is lowered down on the individual’s head to take a direct reading of the height from the bar window. Whereas, anthropometer rod as a four - piece chromium plated portable method with a headpiece of an accuracy of 0.1 cm.

The stadiometer is composed of a horizontal headboard and a vertical backboard. The backboard is so designed that it maintains a vertical position and the headboard moves freely over the surface of the backboard and can be brought down to the head of the person whose height is being measured.

Steps for measuring height

1. The subject should remove his shoes and stand up as straight as possible on a flat surface by the scale with feet together and the heels, buttocks, shoulders and back of the head touching the upright rod.
2. The head should be held comfortably erect with the lower border of the eye in the same horizontal plane as the external canal of the ear.
3. The arms should be hanging loosely at the sides.
4. The headpiece of the measuring device, which could be a metal bar or a wooden block, is then gently lowered, compressing the hair and making contact with the top of the head. If the subject has unusually thick hair, it should be taken into account.
5. If two investigator’s are measuring height, one should place his one hand against the subject’s knees to detect any bending of the lower limbs and the other hand on the upper surfaces of the subject’s feet to detect any lifting of the heels from firm contact with the flat surface as can be seen in Figure.
6. The eyes of the measurer should be as level as possible with the reading to avoid any errors in noting the reading.
7. The height should be read to the nearest 0.1 cm for children and 0.5 cm for adults.



1.3.3 Mid-Upper Arm Circumference (MUAC)

Poor muscle development and wasting are the main features of PEM in early childhood. MUAC indicates the status of muscle development. As the mid-upper arm is heavily muscled and approximately circular, MUAC essentially measures the amount of fat around the bone of the arm.

Arm circumference normally increases with age, but between one to five years, it does not change much and remains fairly constant. At this time the child is losing baby fat, which is getting replaced by muscle. Measuring the arm circumference of this age group, therefore gives a fairly good idea whether the child is in good health or not.

Shakir & Morley gave the classification for MUAC for age based on a reference point of 16.5 cm MUAC for children between 1-5 years as a standard value. This classification is as follows:

1MUAC (cm)	CATEGORY (of malnourishment)
> 13.5	Normal
12.5 – 13.5	Moderate malnourishment
< 12.5	Severe malnourishment

What equipment to choose for measuring MUAC?

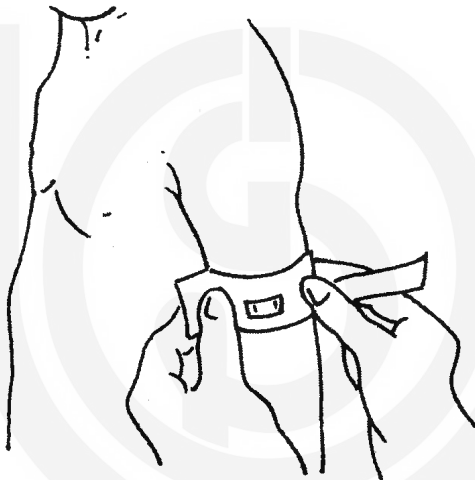
Arm circumference is easy to measure and is independent of age. A non-stretchable fibreglass tape can be used for measuring the MUAC. Another inexpensive colour coated tape called the Shakir’s tape marked ‘normal’, ‘malnourished’ and ‘severely malnourished’ according to reference arm circumference measurements can be utilized for a quick assessment of the degree of malnourishment.

The process involved for the measurement of MUAC is enumerated next.

Steps for measuring MUAC

1. The MUAC should be taken on the left hand of the child.
2. The mid-point between the tip of the shoulder bone and the tip of the forearm with the arm bent at the elbow should be marked with a pen.
3. The arm should then be left hanging freely and the fibreglass tape should be gently but firmly put around the marked point without exerting too much pressure on the soft tissues.
4. The reading should be taken to the nearest millimeter with the tape in position.

Having learnt about height, weight and MUAC , next let us consider the indicators for anthropometric measurements.



1.4 INDICATORS FOR ANTHROPOMETRIC MEASUREMENTS

Weight and height measurements have little significance if used individually. In correlation with age, these measurements can be used to derive three indicators – *Height-for-Age*, *Weight-for-Age*, and *Weight-for-Height*. These indicators give different information about nutritional status and their interpretation is also possible through comparisons with reference standards. We will review these indicators in a little while from now, but first let us elaborate on the significance of these measurements.

Significance of measurements

Once the anthropometric measurements of the subjects have been recorded they can be compared with measurements of a “reference” population to get some meaningful interpretation. The reference standards or reference values are base on anthropometric measurements of well-to-do population living in a healthy environment. The reference data could be based on international standards or

local standards. Depending on the nature of the study, suitable reference standards could be chosen for comparison.

The new WHO standards, developed on the results of the Multicentre Growth Reference Study (MGRS) and published in 2006, now has replaced NCHS standard.

The MGRS data provide a solid foundation for developing a standard because they are based on healthy children living under conditions likely to favour achievement of their full genetic growth potential. Furthermore, the mothers of the children selected for the construction of the standards engaged in fundamental health-promoting practices, namely breastfeeding and not smoking.

A second feature of the standard that makes it attractive as a basis for an internationally applicable standard is that it included children from a diverse set of countries : Brali, Ghana, India, Norway, Oman and the USA.

Tables providing the WHO standard measurement values are given in Annexure 1 at the end of the manual. These can be downloaded from the site : <<http://www.who.int.childgrowth/standards>.

Now, let us review the indicators.

1.4.1 Height-for-Age

Length or height is a very reliable measure that reflects the total increase in the size of the individual upto the moment it is determined. Recording the height helps us to know whether the child is growing normally and is in good health or not. But as height of an individual changes very slowly, this indicator is not a very sensitive measure for short duration malnutrition. Moreover, height does not decrease and therefore, cannot indicate deterioration in health. Height-for-Age is thus, only a measure for long duration malnutrition and low Height-for-Age indicates “*stunting*” or “*chronic malnutrition*” in an individual.

1.4.2 Weight-for-Age

This is a commonly used indicator of body size and it reflects the level of food intake. The relative change in body weight with age is more rapid than that of height and is much more sensitive to changes in the growth pattern of an individual. Significant changes in body weight can be observed over a period of few days. Therefore, Weight-for-Age is a very sensitive measure of *short duration malnutrition*. The weight of the children should be recorded regularly to check if there is any gain in weight. The recorded weight can then be compared with standard reference values for the same or weight can be plotted against age on a graph to see if the growth pattern is normal. A low Weight-for-Age denotes “*underweight*”.

1.4.3 Weight-for-Height

This can be used as an indicator for either “*wasting*” or “*obesity*”. It is a very good index for *short duration malnutrition*. It indicates current and acute malnutrition. It is also helpful in case the correct age of the children is not known, as this indicator is age-independent. A low weight-for-height is indicative of “*wasting*”.

Currently, new WHO classification is available to determine the degree and type of malnutrition below 5 years of children. Weight-for-Age, Height-for-Age and Weight-for-Height are popular WHO indicator to assess nutritional status. These indicator are given in Table 1.1.

Table 1.1: WHO SD classification to categorize children into different grades of nutritional status

SD Classifications	Weight-for-Age (Underweight)	Height-for-Age (Stunting)	Weight-for-Height (Wasting)
>Median-2 SD	Normal	Normal	Normal
<Median-2SD to Median -3 SD	Moderate Underweight	Moderate Stunting	Moderate Wasting
< Median-3 SD	Severe Underweight	Severe Stunting	Severe Wasting

1.4.4 Body Mass Index (BMI)

The ratio of weight (in kg)/Height(m)² is referred to as Body Mass Index (BMI). Body Mass Index for age is (BMI-for-Age) another index for assessment of nutritional status of children (5-19 years) in terms of both over nutrition and undernutrition. In children BMI is age and sex specific because the amount of fat varies with age and between boys and girls.

Table V of Annexure 1 gives the median BMI-for-age for boys and girls between 5 to 19 years. You can also assess the data from the site: who.int/childgrowth/standards/bmi-for-age/en.

After the cessation of linear growth around 21 years, weight-for-height indicates muscle fat mass in the adult body. It, therefore, provides a reasonable indication of the nutritional status of adults. The BMI has a good correlation with fatness (overweight or obesity). In case of adults, the classification designed by WHO is used which is presented in Table 1.2. Here you can notice that Asian Population BMI is different from International Population because the association between BMI, percentage of body fat and body fat distribution differ across populations.

Table 1.2: BMI classification for Adults (WHO)

Category	BMI (kg/m ²)	
	International	Asian Population
Underweight	<18.5	<18.5
Normal	18.2-24.9	18.5-22.9
Overweight	25.0-29.9	23-24.9
Obese	≥30	≥ 25
Class I obesity	30.0-34.9	
Class II obesity	35.0-39.9	
Class III obesity	>40	

1.5 ANTHROPOMETRICAL MEASUREMENTS : METHODOLOGY

The steps involved in taking anthropometric measurements are enumerated herewith. These steps will guide you to undertake the exercise as given in Activity 1 later in this practical. So, read these steps carefully.

1. Identify your subjects.
2. Decide the anthropometric measurements that have to be taken.
3. Select appropriate tools to take measurements like height, weight, MUAC. Learn proper techniques of using the instruments.
4. Prepare a format to enter the various measurements of the subjects
5. Find out the sex and correct age of the subjects till the nearest month and enter it in the table.
6. Measure height, weight and MUAC of the subjects. Take at least 2 readings and find out the mean. Enter all the readings and mean in the table.
7. Compare your observations of age, weight and height in terms of Weight-for-Age, Height-for-Age and Weight-for-Height indicators of WHO reference standards for the boys and girls. You would first have to convert the measurements in terms of the median value of WHO standards.
8. Now calculate the number and % of subjects above and below the median values for Weight-for-Age, Height-for-Age and Weight-for-Height.
9. Give conclusion about the nutritional status of your subjects based on all the above observations.

With a brief description of the methodology we end our study of anthropometric measurements. Activity 1 given later in this practical will give you hands down experience of anthropometric measurements. Next, we shall review clinical assessment.

1.6 CLINICAL ASSESSMENT

Clinical examination is the oldest, most practical and relatively cheaper method of assessing the nutritional status of individuals.

In clinical assessment, changes in the superficial tissues, especially the skin, eyes, hair, gums, nails, buccal mucosa and in the organs near the surface of the body such as thyroid gland are observed. In other words, the subjects' body from head to feet is examined visually. The visible symptoms in subjects generally appear when the deficiency state becomes severe so this method is not very useful for assessing the initial mild stages of the deficiency, which would be easier to cure. Also, very often the clinical signs and symptoms lack nutritional specificity. Various non-nutritional environmental causes are also capable of producing signs and symptoms which are similar to that of a nutritional deficiency. For example, angular stomatitis that is characterized by redness, inflammation and lesions at the corners/angles of the mouth could be due to riboflavin deficiency or a fungal infection. Also, in parts of India, excessive chewing of paan (betel leaves) which contains lime can produce a similar effect. Therefore, a very well trained observant investigator should be employed for conducting clinical examination. Moreover, the results of clinical assessment should always be correlated with a complete diet and medical history; and anthropometric and biochemical assessment.

Signs and symptoms that are usually observed in various deficiency states in children are given in Table 1.3. These signs/symptoms will help you in the activity related to clinical assessment later in this practical. Hence, study these signs/symptoms carefully.

Table 1.3: Common signs/symptoms of disorders

Deficiency	Signs/Symptoms
PEM	Oedema Dyspigmentation of hair Easy pluckability of hair Sparse and straight hair Muscle wasting Moon face Flaky paint dermatosis Hepatomegaly Psychomotor changes
Vitamin A deficiency	Bitot's spots Conjunctival xerosis Keratomalacia Xerosis of skin Follicular hyperkeratosis (Type I)
Riboflavin deficiency	Nasolabial dyssebacea Corneal vascularization Angular stomatitis Cheilosis Magenta tongue Atrophic lingual papillae Scrotal or vulval dermatosis
Thiamin deficiency	Oedema Loss of ankle and knee jerks Calf muscle tenderness Sensory loss Cardiac enlargement Tachycardia
Niacin deficiency	Pellagrous dermatosis Raw scarlet tongue Atrophic lingual papillae Fissuring of tongue
Vitamin C deficiency	Spongy bleeding gums Follicular hyperkeratosis (Type 2) Petechiae Ecchymoses Painful epiphyseal enlargement Haematoma in muscles
Vitamin D deficiency	Epiphyseal enlargement Beading of ribs Open fontanelle Craniotabes Muscular hypotonia Bow legs/ Knock knees
Iron deficiency	Pale conjunctiva Atrophic lingual papillae Koilonychia
Vitamin B ₁₂ deficiency	Pale conjunctiva
Iodine deficiency	Thyroid enlargement
Excess of fluorine	Mottled dental enamel

Now, let us look at the methodology for clinical assessment. we will use this methodology while conducting the Activity 2 given in this practical. So, understand the process carefully.

1.7 CLINICAL ASSESSMENT: METHODOLOGY

The methodology involved in clinical assessment of nutritional status is enumerated herewith:

1. Select your subjects for clinical examination.
2. Make a list of signs and symptoms whose presence/ absence needs to be identified in them.
3. Learn how to correctly identify the signs and symptoms.
4. Examine the signs and symptoms in your subjects and mark their presence/ absence in a checklist.

For example, if you are looking for the symptoms of PEM, you can make the following checklist for different number of subjects:

Sign/symptom	Present in subject				
	1	2	3	4	5
Dyspigmentation of hair					
Easy pluckability of hair					
Sparse and straight hair					
Muscle wasting					
Moon face					
Flaky paint dermatosis					
Hepatomegaly					
Psychomotor changes					

Dyspigmentation of hair

Easy pluckability of hair

Sparse and straight hair

Muscle wasting

Moon face

Flaky paint dermatosis

Hepatomegaly

Psychomotor changes

5. Lastly, if data on dietary, anthropometric and biochemical assessment is available, correlate your results with the clinical assessment results to comment on the nutritional status of your subjects.

With the methodology, we end our study of clinical assessment. Next, we move on to dietary assessment.

1.8 DIETARY ASSESSMENT

Diet surveys are one of the earliest methods of assessing the nutritional status of any population. When a systematic inquiry is made into the food supplies and food consumption of individuals and population groups, it is called a diet survey.

Diet surveys are of two types. One concentrates on the qualitative aspects of foods i.e. what kinds of foods are eaten. This gives an idea about food behaviour and possible nutritional problems. For example, if your frequency of consumption of good sources of iron is less, you could suffer from iron deficiency.

The other type of diet survey attempts to estimate the amounts of foods consumed in quantitative terms i.e. how much food is eaten. This can help us in estimating the amount of different nutrients that are consumed by individuals on a daily basis.

Both these types of dietary surveys provide important information which can be used to identify population groups who are consuming less than adequate amounts of specific nutrients. Such population groups are at a high risk of developing deficiency disorders.

There are various methods of conducting diet surveys. No single method is perfect and all have some advantages and disadvantages. It is best to use combinations

of two or more methods to provide reliability and accuracy. Depending on the purpose for which information is needed, and the availability of time and resources in terms of trained investigators, equipment, transport facility, funds etc., the survey method/methods can be decided.

The commonly used methods are-

1. Food Balance Sheet
2. 24-hour recall
3. Food frequency
4. Diet history

Let us study 24-hour recall and food frequency methods in greater details.

1.8.1 24-hour Recall Dietary Survey

This is the most widely used method of dietary assessment. In this method, the subject is asked to recall in as much detail as possible, the food intake for the previous day at each meal and inbetween meals. The individual recalls what food was eaten, how much was eaten, how was the food prepared, when was it eaten and other details related to food intake. Quantities are mostly stated in household units such as a glass of milk, two slices of bread, one katori pulse etc. If the subjects know the exact amounts of foods eaten that can be noted, otherwise, they are shown a set of models (of glasses, cups, spoons, katoris, different sized chapattis etc.) from which they can select the one similar to the amount they have consumed. This helps the investigator to get an idea of the amount of different raw ingredients used in the preparations consumed by the subjects. The nutrient values for these amounts are then calculated using ICMR's "Nutrient Composition Tables". The day's total intake of different nutrients can be thus assessed and compared with the RDA (ICMR, 2010) of those nutrients for the various age groups. RDA, ICMR (2010) Table is given in Annexure 2 at the end of the manual. The following information can also be assessed using the above data:

- 1) % of standard which is calculated as:

$$\frac{\text{Nutrient intake value}}{\text{Nutrient RDA}} \times 100$$

- 2) Nutrient value per 1000 Kcal which is calculated as:

$$\frac{\text{Nutrient intake value}}{\text{Energy intake value}} \times 1000$$

- 3) Allowance of nutrients per 1000 Kcal of RDA which is calculated as :

$$\frac{\text{RDA of nutrient}}{\text{RDA of energy}} \times 1000$$

- 4) Index of nutritional quality which is calculated as

$$\frac{\text{Amount of nutrients in 1000 Kcal of intake}}{\text{Allowance of nutrients in 1000 Kcal of RDA}} \quad \dots\dots \text{(point 2)}$$

$$\dots\dots \text{(point 3)}$$

In addition you can also calculate the mean food intake. Calculate the mean food intake for each food group consumed by the individual and compare it with the Balanced Diet for Indian, ICMR (2010) (Refer to Annexure 3).

As this method relies on memory, so the dietary information obtained by this method may not represent usual dietary intake. But as it is an easy to administer,

inexpensive method, it is considered to be a good method for a large sample size. A single day's intake may not be representative of a usual dietary intake therefore, at least a 3 days 24-hour recall including 2 working days and a holiday should be done. Moreover, young children may not be able to recall their food intakes, so their mothers or caretakers would be required to give information about the dietary intake.

A sample food recall is given as follows:

Working day

MEAL	MENU	HOUSEHOLD MEASURE (Katoris, glass, serving spoon, no. of slice, chapattis etc.)	INGREDIENTS IN DISH Name Measures (Teaspoon, pieces etc.)	REMARKS (Consistency/ greasiness/size etc.)
Bed Tea	Tea	1 cup	Milk 1 cup (toned) Sugar 1 tsp.	
Breakfast	Milk Aloo Parantha	1 small glass 1 medium	Milk toned Wheat flour Potato Fat 2 tsp.	Small size Moderate greasiness
Mid Morning	Curd Coffee	1 small katori 1 cup (Nestle)	Milk toned 4Tbsp. Sugar 2 tsp. Rice	Medium
Lunch	Boiled rice Rajmah curry Salad	4 serving spoons 1 medium katori 4 pieces	Rajmah Onion Fat Cucumber ½ piece	consistency Low greasiness
Evening Tea	Coffee	1 cup	Milk toned 4 tbsp. Sugar 2 tsp.	
Dinner	Chapatis Moong dal Potato dry	2 small 1 large katori 1 small katori 1 small glass	Whole wheat flour Ghee ½ tsp. Moong dal Dehusked Onion Ghee ½ tsp. Potato 5-6 pieces Oil ½ tsp.	Small size Medium consistency High greasiness
Post Dinner	Milk		Milk toned Sugar 1 tsp.	

Next, let us help you understand this survey method by giving you the guidelines on how to conduct this survey.

24-hour recall methodology

1. Prepare a set of instructions, forms for filling in the information received and a set of model to be shown.
2. Select your subject/ subjects.
3. Ask the subjects to recall the food eaten by them on the previous day in all meals and in between meals in as much detail as possible, also taking the

help of models. The recall should be done thrice based on the days selected and the information gathered should be recorded on the forms for each day as given in the above sample format.

4. Based on the information gathered, the household measures should be converted to amounts of different food ingredients in grams.
5. The nutrients can be then calculated for amounts of different food ingredients using the “Food Composition Tables”.
6. Each nutrient calculated should be added to get the total intake for the day and this total intake can be compared with the RDA for that nutrient.

We will use this process in our activity 3 later in this practical. Next, let us get to know about the food frequency method.

1.8.2 Food Frequency Method

Food frequency method, you may recall studying in the theory course (MFN-006) in Unit 8, is a recall of the past food intake pattern. The procedure includes assessment of the frequency of consumption of different foods – daily, 3-4 times a week, weekly, fortnightly, monthly or occasionally. Sometimes, information on approximate quantities of foods consumed by individuals in household measures is also noted. This method is useful when the adequacy of intake of nutrients like vitamins is being measured, for example, the frequency of intake of different foods rich in vitamin A. It is also used as a cross validation technique along with 24-hour diet recalls to enhance the quality of dietary data.

The food frequency questionnaire consists of a list of foods which are important contributors to the population’s intakes of energy and other nutrients. A sample food frequency questionnaire is given herewith.

Sample Food Frequency questionnaire

Frequency of Consumption

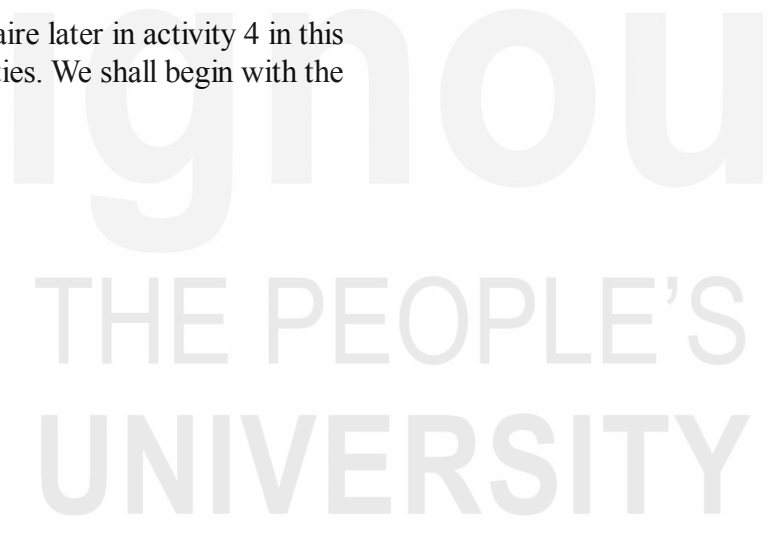
FOOD ITEMS	DAILY (Specify no. of times)	4-5 Times a Week	2-3 Times a Week	Once a Week	2-3 Times a Month	Rarely	Portion/ Serving size (i.e. amount consumed at one time in household measures)
CEREALS							
Chapati							
Rice							
Bread							
Pasta							
Makka roti							
Bajra roti							
Macaroni/ noodles							
Any other (Specify)							
PULSES							
Whole pulses (Rajmah, chana, soyabean etc.)							

Dehusked pulses (Arhar, moong, urad etc.)							
Sprouted pulses							
Any other (specify)							
ROOTS AND TUBERS							
Potato							
Carrot							
Onion							
Radish							

This list will continue and include more of food items whose intakes need to be studied.

In such a questionnaire, the subjects would have to tick their option correctly depending on their frequency of consumption of different foods. The amounts consumed on an average each time can also be indicated.

We will get to prepare a food frequency questionnaire later in activity 4 in this practical. So, then let us get started with the activities. We shall begin with the activity related to anthropometric measurements.



ACTIVITY 1

ANTHROPOMETRIC MEASUREMENTS

Date:

Aim: Measure the height, weight and mid upper arm circumference (MUAC) of 10 preschool children and comment on their nutritional status.

INTRODUCTION: (Hint – Write about preschoolers and the importance of height, weight and MUAC measurements during this period).



METHODOLOGY

(Follow the steps enumerated herewith and complete the exercise)

Step 1: Identify your subject(s). (Give the background information related to subjects).

Step2: Decide the anthropometric measurements that have to be taken.
Write these measures in the space provided herewith.

Step 3: Select appropriate tools (Give the standard method you will adopt to measure height, weight etc. in the space provided).

(Write about the instruments you would use to and the proper techniques of using the instruments).

OBSERVATIONS

Enter the various measurements of the subjects in the format given herewith. Find out the sex and correct age of the subjects till the nearest month and enter it in the table. Measure height, weight and MUAC of the subjects. Take at least 2 readings and find out the mean. Enter all the readings and mean in the table.

MEASUREMENTS	SUBJECTS									
	1	2	3	4	5	6	7	8	9	10
Sex										
Age (months)										
Weight (Kg)										
1 st reading										
2 nd reading										
Mean										
Height (cm)										
1 st reading										
2 nd reading										
Mean										
MUAC (cm)										
1 st reading										
2 nd reading										
Mean										

RESULTS

Compare your observations of age, weight, height and MUAC in terms of weight-for-age, length/height-for-age, weight-for-height and MUAC-for-age indicators of WHO reference standards for boys and girls. For example, if the age of your female subject is 12 months and her weight, length and MUAC are 9.9 Kg, 73.5 cm and 13.1 cm respectively, you would first have to convert her measurements in terms of the median value of WHO standards.

For weight-for-age calculations, see the WHO table on weight-for-age for girls from Birth to 5 years'. From the age column, identify the subject's age, i.e. 12 months. Now, against 12 months, move forward in this row to locate the value under the column Median. This value is 8.9. Now, calculate what percentage of this median is your measured weight of 9.9 Kg for this subject ($9.9/8.9$ multiplied by $100 = 111.2$). Similarly, for length-for-age, weight-for-length/height and MUAC-for-age, the calculated measurements can be used to find out what percent of median they are. All this data can be entered in the format given herewith. A sample recording is given for your reference. In the same manner complete the Table for the subjects identified by you.

Subject No.	Gender	Age (months)	Weight (Kg)	Height (cm)	MUAC (cm)	Weight-for-Age		Length/Height-for-Age		Weight-for-Length/Height		MUAC-for-Age	
						Median	% Median	Median	% Median	Median	% Median	Median	% Median
Sample Case	Girl	12	9.9	73.5	13.1	8.9	111.2	74 .0	99.3	8.9	111.2	14.2	92.2
1.													
2.													
3.													
4.													
5.													
6.													
7.													
8.													
9.													
10.													

Now, calculate the number and % of subjects above and below the median values for weight-for-age, length/height-for-age, weight-for-length/height and MUAC-for-age. Record your values in the format given herewith. For example, if out of 10 subjects 4 fall below median value for weight-for-age, enter the value 4 in the No. column and the percentage, i.e. $4/10 \times 100 = 40$ in the % column. Similarly, fill the Table referring to the previous Table.

	Weight-for-Age		Length/Height-for-Age		Weight for Length/Height	
	Subjects		Subjects		Subjects	
	No.	%	No.	%	No.	%
Below median						
Above median						

You can also use the Z-scores or SD-scores for identifying the subjects having various grades of malnutrition. For this, refer to the WHO Tables for Z-scores or SD-scores (can be accessed at www.who.int/childgrowth/standards/en) for weight-for-age, length/height-for-age and weight-for-length/height. For example, for identifying the severity of malnutrition based on weight-for-age, identify the column giving the subject's age, i.e. 12 months. Now against 12 months, move forward in this row to find out between which columns your measured value of weight for that subject is located. Here, the value of 9.9 kg lies between Median and + 1 SD. Similarly for length-for-age and weight-for-length/height, locate the columns between which the measured values lie. All this data can be entered in the format given herewith. A sample recording is given for your reference. In the same manner complete the Table for the subjects identified by you.

Subject No.	Gender	Age (Months)	Weight (Kg)	Height (cm)	Weight-for-Age (SD score)	Length/Height-for-Age (SD score)	Weight-for-Length/Height (SD score)
Sample Case	Girl	12	9.9	73.5	Between Median +1SD	Between Median and -1SD	Between +1SD and +2SD
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							

Now, as done in the case of median values, calculate the number and % of subjects falling under different SD scores (categories) as given in the following Table using the data obtained in the previous Table.

	Weight-for-Age		Length/Height-for-Age		Weight-for-Length/Height	
	Subjects		Subjects		Subjects	
	No.	%	No.	%	No.	%
>+3SD						
>+2SD						
+2SD to -2SD						
-2SD to -3SD						
< -3SD						

This will give you information about the total number and percentage of subjects in a sample having different grades of malnutrition.

CONCLUSION:

(Conclude about the nutritional status of your subjects based on your observations and result)

Submit the exercise for evaluation

Counselor Signature

ACTIVITY

2

CLINICAL ASSESSMENT OF PRESCHOOL CHILDREN

Date:

Aim: Conduct clinical assessment of 10 preschool children for identification of presence of deficiencies of iron, iodine and vitamin A in them.

INTRODUCTION

(Write briefly about the importance of clinical assessment and the deficiency problems in preschoolers)

METHODOLOGY

(The actual steps of conducting the exercise are listed herewith. Complete the exercise following the steps)

Step 1: Select your subjects for clinical examination. (Give the details with respect to the area/place from where selected, the age group included etc. in the space provided)

Step 2: Make a list of signs and symptoms (of iron, iodine and vitamin A deficiency) whose presence/ absence needs to be identified in the subjects. Present the information in a tabular form here in the space provided.

OBSERVATIONS

Examine the signs and symptoms for iron iodine and vitamin A deficiency in your subjects and mark their presence/absence in the checklist given herewith. Look up section 1.7 for reference.

Sign/symptom

Present in subject

(can put a tick mark ✓ for showing presence and a cross × for showing absence in subject no. 1 and so on)

1 2 3 4 5 6 7 8 10

Vitamin A Deficiency

Iron Deficiency

Iodine Deficiency

RESULTS/CONCLUSION

(Comment on the nutritional status of the subjects in terms of iron, iodine and vitamin A deficiencies. If data on dietary, anthropometric and biochemical assessments is available, correlate your observations with that).



Submit the exercise for evaluation

Counselor Signature

ACTIVITY

3

24-HOUR DIETARY RECALL METHOD

Date:

Aim: Conduct a 3 days 24-hour recall on a 4-year old preschool child and comment on his nutritional status.

INTRODUCTION

(Write about the importance of using a 24-hour recall method for assessing nutritional status)

METHODOLOGY

(Write the actual steps followed for doing the exercise in the space provided herewith)

OBSERVATIONS: 3 days 24-hour dietary recall

DAY 1

Record the recall in a tabular form here in the space provided.

MEAL	MENU	INGREDIENTS	AMOUNTS (g)	Energy (Kcal)	Protein (g)	Iron (g)	Vitamin A A (µg)

Total nutrient intake

DAY 2

Record the recall in a tabular format.

MEAL	MENU	INGREDIENTS	AMOUNTS (g)	Energy (Kcal)	Protein (g)	Iron (g)	Vitamin A (μ g)

MEAN FOOD INTAKE

Food group (g)	Balanced diet (ICMR, 2010)	Food intake (g)			Total mean intake	% Adequacy
		Day 1	Day 2	Day 3		
Cereal & millets						
Pulses						
Milk (ml) & milk products						
Roots & tubers						
Green leafy vegetables						
Other vegetables						
Fruits						
Sugar						
Fats & Oil (Visible)						

MEAN INTAKE OF NUTRIENTS

DAY	Energy (Kcal)	Protein (g)	Iron (mg)	Vitamin A (µg)
1				
2				
3				

RESULTS: (Fill in the following table)

NUTRIENT	RDA (ICMR) 2010)	MEAN INTAKE	% ADEQUACY	ALLOWANCE OF NUTRIENT PER 1000 Kcal	INDEX OF NUTRITIONAL QUALITY
Energy					
Protein					
Iron					
Vitamin A					

CONCLUSION : (Based on the results, conclude about the nutritional status of the child)

Submit the exercise for evaluation

ACTIVITY

4

USING FOOD FREQUENCY QUESTIONNAIRE

Date:

AIM: Prepare and administer a food frequency questionnaire on a 4-year old child to assess his intake of energy, protein, iron and vitamin A rich foods. Correlate your data with the results of the 24-hour diet recall method.

INTRODUCTION

(Give the importance of food frequency questionnaire and its correlation with 24-hour diet recall method)



METHODOLOGY: (Give the actual steps in conducting the exercise)

OBSERVATIONS

(Prepare a Food Frequency Questionnaire, as shown in section 1.8.2 above. Administerr the questionnaire to a 4 year old child and record the finding here in the space provided).

FOOD FREQUENCY QUESTIONNARE



Food Frequency Questionnaire continued.....



RESULTS

(Calculate and record the mean intake of nutrients in the format given herewith).

Mean Intake of Nutrients

Energy (Kcal)	Protein (g)	Vitamin A (μg)	Iron (mg)

CONCLUSION

(Correlate the intake of foods rich in energy, protein, iron and vitamin A with the average intakes of these nutrients obtained by 24-hour diet recall method)



Submit the exercise for evaluation

Counselor Signature

PRACTICAL 2 USE AND INTERPRETATION OF GROWTH CHARTS

Structure

- 2.1 Introduction
- 2.2 Growth Monitoring: Basic Concept
- 2.3 Steps in Plotting a Growth Chart

Activity 1: Plotting and Interpretation of a Growth Chart

2.1 INTRODUCTION

Growth monitoring is one of the most important method of assessing nutritional status of young children. Growth monitoring is a tool or a measure for reducing the incidence of malnutrition in children and favour healthy growth and development. It is in fact, an essential technique that promotes good health in children keeping them at bay from malnutrition.

In this practical we shall learn about growth pattern in early childhood and how inadequate nutrition and repeated episodes of infection can lead to malnutrition and poor health status of a growing child. The concept of growth monitoring and the use and interpretation of growth chart is the focus of this practical.

Objectives

After studying this practical and undertaking the exercises given herewith you will be able to:

- describe what is a growth chart;
- plot a growth curve;
- explain the reason for growth faltering; and
- analyze and interpret the growth curve and suggest suitable remedies through nutrition education.

2.2 GROWTH MONITORING: BASIC CONCEPT

Growth is the regular increase in the size or weight of living things. In the early childhood years, growth is very rapid. During this period, children are also very vulnerable to factors like inadequate diet and illness, which can slow down or stop their growth. Any negative deviation from the normal growth is known as *growth faltering*. Growth faltering indicates that there is something wrong with the child that needs to be immediately taken care of, after identification of the actual cause. Growth monitoring which can be done by weighing the child regularly is a good way of assessing the health status of the child.

Growth monitoring can be defined as *the regular measurement, recording and interpretation of change in child's growth in order to counsell, act and follow up results*. Its main purpose is to help identify the at-risk child, take action on the first sign of inadequate growth and integrate nutrition intervention (breast feeding, supplementary feeding, etc.) with other health interventions (immunization, ORT) to restore health and proper growth of children. *Growth monitoring is a preventive and promotive strategy aimed at action before malnutrition occurs.*

Growth monitoring can be done by the use of Growth Charts. A Growth Chart is basically a graph on which weight is plotted against age, so that growth can be followed graphically in comparison with reference standards. A growth chart is given on page in this practical for your reference and use.

Having looked at the concept of growth monitoring and growth chart, let us next get to know the steps involved in plotting the growth chart.

2.3 STEPS IN PLOTTING THE GROWTH CHART

As you read through this section you will realize that there are five basic steps involved in plotting a growth curve. These include:

Step 1: Determining the correct age of the child

Step 2: Accurate weighing of the child

Step 3: Plotting the weight accurately on the growth chart

Step 4: Interpreting the direction of the growth curve

Step 5: Analysis and follow up action

Let us now understand these steps as we shall be using them in plotting the growth chart in activity 1 included in this practical.

Step 1: Determining the correct age of the child

As growth monitoring involves comparing the weight of the child with their age, we first need to know the correct age of the child. Records of the child's birth with the parents or the local official register of birth with the village panchayat or the hospital card can be seen to get the exact age of the child. In case there are no such records, the parents can be questioned on the season, crop harvests, festivals etc. that occurred soon after or before the child was born, and then looking up the local event calendar to find out the exact birth month.

Step 2: Accurate weighing of the child

Accurate weighing of the child regularly is essential in growth monitoring. Accurate and sensitive weighing scales (Salter weighing scales or beam balances) should be used to weigh the child. We have already studied about how to weigh a child accurately in the last practical in section 1.3.1.

Step 3: Plotting the weight accurately on the growth chart

After determining the correct age and accurate weight of the child, the next step is to plot the same on the growth chart. For this, first write down the child's name, sex and other information in the information box given in the growth chart (refer to growth chart on page 46). Fill up the month and the year box. Let us suppose that you are preparing the growth chart for Rahul. If Rahul was born in February 2001, write Feb'01 in the first thickly outlined box of month and year. In the next box, write March 01, followed by April 01 and so on till you have covered five years since Rahul's birth i.e. till February 2006.

Next, you start plotting the weight for each month. If Rahul was born in Feb'01 and weighed 4 Kg in Mar'01, write down this weight below the box for Mar'01. Now to plot this weight on the growth chart, move your finger up the Mar'01 column until you come to the solid line that represents 4 Kg weight. Make a dot in the center of this column and encircle it. Then move on to the second month and similarly plot the weight on the chart. Then connect this dot with the previous dot by drawing a line. This line is called the Growth Curve. In the same way, plot Rahul's weight on the chart every month to get the growth curve for five years.

Step 4: Interpreting the direction of the growth curve

Once the growth curve is ready it is easy to interpret.

If the growth curve is in an upward direction (\bar{a}), it indicates that the child is gaining weight and is healthy and growing.

If the growth curve becomes flat (\hat{a}), it indicates that the child has not gained weight in that period and there has been no growth. This shows growth faltering and tells that there's something wrong with the child that requires attention.

If the growth curve starts going downwards (\bar{a}), it indicates that the child is losing weight. This is of great concern as it shows that the child is possibly suffering from some illness and an appropriate and quick action is required.

Another aspect that needs interpretation is the nutritional grade in which the growth curve lies. The growth chart has three lines dividing it into nutritional status as you may have noticed in the growth chart given on page. The curve should move in the direction towards the area called 'normal'. If the curve falls below the normal line, it indicates that the child is undernourished and needs help. Lower the position of the curve, the higher the degree of malnourishment. Plotting weight on the growth chart helps to determine the grade of malnutrition of the child

Step 5: Analysis and follow up action

After plotting and determining the trend of the growth curve, it is important to analyze the direction of the growth curve. The reasons that led to the growth curve being flat or going in the downward directions should be found out and proper corrective measures should be taken in consultation with the child's mother, so that the growth curve can again start moving in the upward direction.

Now, that we know how to plot and interpret the growth chart, let us practice what we have learnt so far. Attempt the activity given next and consolidate your understanding on growth monitoring.

PLOTTING AND INTERPRETATION OF GROWTH CHARTS

Aim: To plot and interpret the growth chart prepared for the case study given herewith.

Date:

Case Study: In April 1998, a girl called Priya was born in a household in Mehrauli, New Delhi. She was taken to the Anganwadi center regularly and her weight was recorded. Her weight profile from may 1998 till March 2001 is as follows:

YEAR	MONTH	WEIGHT (Kg)	
1998	May	3.0	
	June	4.0	
	July	4.5	
	August	5.0	
	September	6.0	
	October	6.5	
	November	-	
	December	6.5	
	1999	January	-
		February	not recorded (Measles)
		March	6.5 (Diarrhoea)
		April	6.0 (Put on a special diet)
May		6.5	
June		7.5	
July		-	
August		-	
September		9.0	
October		10.5	
November		-	
December		11.5	
2000	January	11.5 (Mother stopped breast feeding)	
	February	11.5	
	March	-	
	April	10.5	
	May	-	
	June	11	
	July	11.5	
	August	-	
	September	-	
	October	-	
	November	12 (She had a brother)	
	December	11.5	
2001	January	-	
	February	11.5	
	March	11.5	

Now, plot the above information on the growth chart (given on page 46) and comment on the growth of the child and identify the periods of growth faltering, identify the periods where intervention is required and about the nature of intervention in the format given herewith.

Note : You can download the growth charts from WHO site in link who.int/childgrowth/standards/chts_wfa_glute_z/enf.

INTRODUCTION

(Give a brief introduction about growth monitoring and enumerate what are growth charts in the space provided herewith)

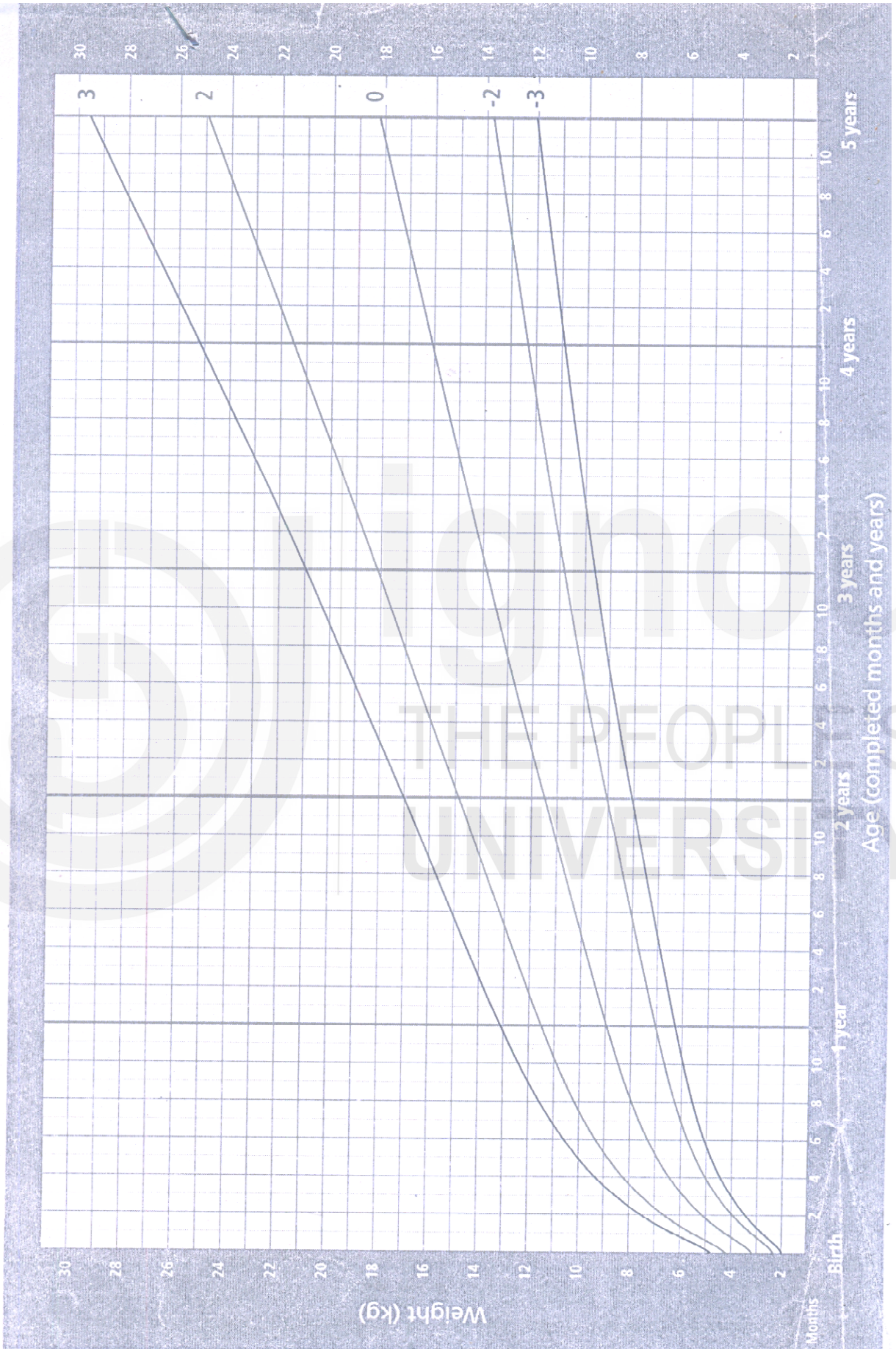
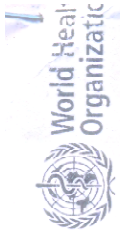


METHODOLOGY

(Write the steps involved in the plotting of growth chart for Priya)

Weight-for-age GIRLS

Birth to 5 years (z-scores)



RESULTS

Based on the exercise (plotting) done above answer the following questions:

1. Commenting on the growth of the child and identify the periods of growth faltering giving reasons for the same.
2. Identify the periods where intervention is required. Suggest the nature of intervention.
3. Why did the Anganwadi worker put Priya on a special diet? Suggest two food items that can be given in the special diet.

INFERENCE/CONCLUSION

(Write a suitable conclusion to this exercise and plan appropriate strategies to improve the nutrition of Priya)



Submit the exercise for evaluation

Counselor signature

PRACTICAL 3 NUTRITIONAL CONCERNS AMONG VULNERABLE GROUPS AND STRATEGIES/ ACTION TO TACKLE

Structure

- 3.1 Introduction
- 3.2 Planning of strategies: Basic Concept
- 3.3 Methodology for Selecting/Implementing an Intervention Strategy

Activity 1: Identification of nutritional problems and strategies to tackle the nutritional problem in vulnerable groups.

3.1 INTRODUCTION

Most of the developing countries of the world including ours are facing a double burden of malnutrition today. Almost all the people who are not practicing healthy dietary and lifestyle patterns are vulnerable to some or the other form of malnutrition. People belonging to lower strata of the society usually suffer from the problems of under nutrition and nutrient deficiencies (PEM, anaemia, IDD, night blindness, scurvy, pellagra, rickets, etc.) whereas people belonging to the affluent sections show problems of over nutrition and excessive intakes (obesity, diabetes, heart problems etc.).

In this practical, we shall learn about various nutritional problems, our people are facing in the community and develop strategies to tackle them.

Objectives:

After undertaking this practical you will be able to:

- enumerate the major nutritional problems in various vulnerable groups;
- develop strategies and action to tackle any one nutritional problem among the vulnerable groups.

So, let us now look at some of the basic strategies that can be adopted to tackle the problems in nutrition prevalent in our community.

3.2 PLANNING OF STRATEGIES: BASIC CONCEPT

Various strategies can be adopted for tackling the problems of malnutrition like supplementary feeding, nutrition and health education, family planning, immunization etc. Look up the Units 12 and 13 in the Public Nutrition theory course (MFN-006) and review the different strategies described therein. For your benefit these strategies are enumerated here as well:

- A) *Diet/Food based strategies* i.e. dietary diversification/modification, food fortification, horticulture intervention, nutrition/health education.
- B) *Nutrient based strategy* i.e. supplementation – the medicinal approach - distribution of vitamin and mineral supplements

- C) *Immunization* programme in the context of prevention of public nutrition programmes
- D) *Supplementary feeding*
- E) Improving the quality of food produced by *genetic approaches*.
- F) *Clean water and sanitation* as a strategy to combat public nutrition problems
- G) Improving *food and nutrition security*

The important issue here for us to consider is which of these strategy(s) should we adopt for a particular vulnerable group. Well, this is a difficult question to answer. There is really NO ONE-SIZE-FITS-ALL STRATEGY, meaning several approaches exist (to prevent and treat malnutrition) each with its own strengths and limitations, but which are highly effective if applied in complementary ways. The strategies and actions for different vulnerable groups, you would realize, would vary depending on the following factors:

1. *Characteristics of the target group* – their problems, needs, knowledge, practices, traditions, customs etc. For example, in a community, a problem of nutritional concern can be iron deficiency anemia amongst adolescent girls, hence planning of strategies will solely center around increasing iron uptake through dietary intervention, since anaemia due to dietary insufficiency is very common.
2. *Resources available* – human and non-human. For example, one needs to consider before planning the available resources such as money, technology, human resources, on hand. To illustrate, if we want to adopt fortification as a strategy, we need to consider whether we have the technology or food processing facility for fortification. Similarly, for medicinal supplementation, we might need to consider whether we have the human resource to implement the administration of the vitamin/mineral supplements in the community. Many a times constraints of resource hinder the planning of useful strategies.
3. *Willingness/ Motivation* among the people to adopt new strategies and change their dietary and lifestyle patterns. For example, dietary modification as a strategy to prevent public nutrition problems requires changes in the eating behaviour of the target population. However, achieving this is not easy. Such a change requires a vigorous and concerted efforts to motivate people to make lifestyle changes and the willingness of the target group to adopt the changes.

Based on the information available on the above factors, suitable strategies and actions can be planned out for different vulnerable sections of the society. In the next section, we shall learn about the methodology for identifying the various nutritional concerns in our community and how to tackle them.

3.3 METHODOLOGY FOR SELECTING/ IMPLEMENTING AN INTERVENTION STRATEGY

There are several points to consider in selecting/implementing an intervention strategy. These points will guide you in the field situation. These are illustrated herewith:

1. *Identification of the vulnerable groups in the community.* The vulnerable group of a community is always specific to a problem. For example, in any community very often infants, young children, particularly the girl child and pregnant women constitute the vulnerable group. Pregnant women, children are at risk of anaemia.
2. *Identification of various nutritional problems* existing in one vulnerable group. A community may have the burden of many nutritional problems such as PEM, iron deficiency anaemia, vitamin A deficiency etc. as problems of public health significance and on the other hand the problem of overnutrition such as obesity, cardiovascular disorders, diabetes etc. Identification of the public nutrition problem is crucial step in implementing the strategy.
3. *Selecting one major nutritional problem* occurring in the vulnerable groups. Having identified the various nutritional/health problems, which problem requires immediate attention, is crucial. In a community, for example, children are found to be suffering from diarrhoea, anaemia and also vitamin A deficiency. Which of these problems should we tackle first? Obviously, the immediate action would be to treat diarrhoea and/or dehydration and then implement the strategies to tackle the other problems.
4. *Studying the causes of that problem and resources available* in the community.
Having identified the problem, it requires that we look for the causative factors. For example, after identifying the vulnerable group in a community, for anaemia it is important to find the causes for iron deficiency anaemia in that population. Is the cause dietary in origin or is anaemia due to parasitic infestation? If the cause is dietary in origin we need to know what is the typical diet or the eating behaviour of the target group etc. Once the causative factors have been identified, we also need to review the resources available within the community or outside to tackle the problem.
5. *Suggesting appropriate strategies and actions* to tackle the problem along with their possible outcomes. Once the causes of the problem have been established suitable strategies must be planned. For example, in a community once the reasons for say the prevalence of iron deficiency anaemia have been established, as dietary inadequacy, appropriate strategies such as dietary modifications and/or fortification, horticulture interventions may be planned. However, you would realize that these are long term strategies to bring about improvement in the iron status of the population. As a short term measure, we may consider iron supplementation, as a strategy.

Having gone through the guidelines enumerated above, you should find yourself quite equipped now to take on a small project, whereby you would plan and implement strategies to combat a public nutrition problem in a community setting. Let us test your understanding and skills by requesting you to take up the exercise given next in this practical. Certainly, the exercise will help you understand the concept better.

IDENTIFICATION OF NUTRITIONAL PROBLEM AND STRATEGIES TO TACKLE THE PROBLEM IN VULNERABLE GROUP

ACTIVITY 1

Aim: Conduct a survey in any community setting to identify any one major nutritional problem in any vulnerable group. Suggest strategies/actions to tackle the problem.

Date:

INTRODUCTION

(Present a brief review on the public nutrition problems and the strategies to combat the public nutrition problems in the space provided herewith).



METHODOLOGY

(The steps to be followed in doing the activity are listed herewith).

a) ***Collect background information about the community***

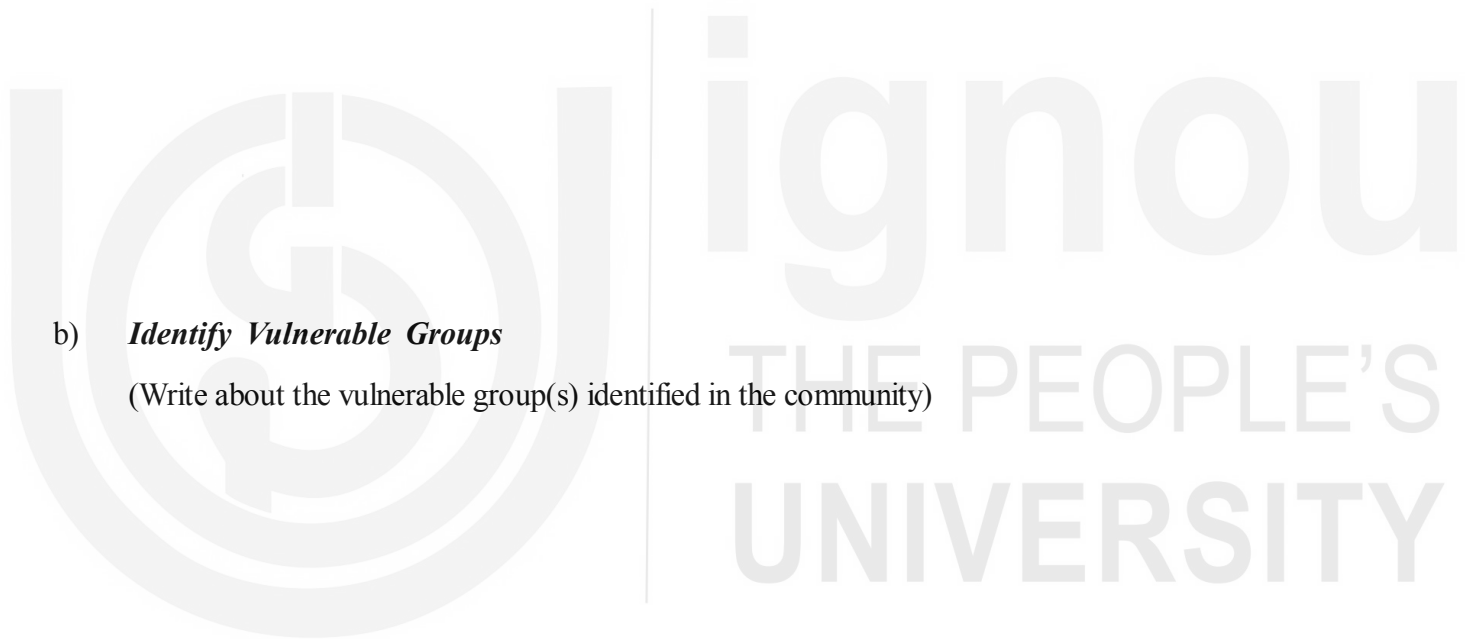
(Write about the area/community surveyed, the population size, characteristics and the reasons for selecting the community)

b) ***Identify Vulnerable Groups***

(Write about the vulnerable group(s) identified in the community)

c) ***Problems Identified***

(List the existing nutritional problem(s) in the community)



d) ***Problem Selected (and why?)***

(List the nutritional/health problem identified and the reasons for your selection of the problem)

e) ***Possible Available Strategies to Combat Public Nutrition Problems***

(Briefly describe the various strategies available for combating the problems of public health consequences)

RESULTS

Write your results in the format given herewith. Write only the strategies you adopted for combating the nutritional problem of concern in the community surveyed. Elaborate the possible outcomes of implementing the strategy.

Strategies/Actions

Possible Outcome



CONCLUSION

(Comment on the effectiveness and the appropriateness of the strategies/actions planned on the basis of their possible outcome)



Submit the exercise for evaluation

Counselor signature

PRACTICAL 4 NUTRITIVE RECIPES

Structure

- 4.1 Introduction
- 4.2 Low Cost Nutritious Recipes
- 4.3 Steps for Preparing Low Cost Nutritious Snacks
- 4.4 One-Dish Meals: What Are They?
- 4.5 Cycle Menu: An Overview

Activity 1: Preparation of Low Cost Recipes

Activity 2: Planning a Cycle Menu

Activity 3: Plan a One-Dish Meal Specific to your Region

4.1 INTRODUCTION

Malnutrition is widely prevalent in our country especially among the vulnerable groups like infants, preschoolers, adolescents, pregnant women, lactating women and the elderly. If these vulnerable people are not provided with adequate nutrition, they often suffer from serious consequences that not only affect their own development but also the progress of the nation.

It has been frequently observed that poverty is one of the major factors leading to malnutrition. Those who have less money to spend on food, consume foods that are cheap and easily available are more prone to malnutrition. Lack of *nutritional knowledge* also results in wrong selection of foods. The foods chosen by these people mainly provide energy, some protein and fat, but are most often lacking in minerals and vitamins. Deficiency of important minerals and vitamins like iron, calcium, vitamin A etc. lead to illnesses and in severe cases can be fatal too.

Keeping this in view, one should try to prepare food that is not only nutritious but is also within the means of the family or the institution. It is a misconception that the most expensive foods provide the best nutrition. In fact, seasonal foods that are available in abundance are inexpensive and have the highest amounts of different nutrients, especially minerals and vitamins. Therefore, one should carefully plan out the different recipes and menus which are nutritious and contain, inexpensive seasonal food items, so as to avoid becoming malnourished.

The present practical, shall give us an insight into the various low cost ingredients available in the market, and how to prepare nutritious yet inexpensive dishes out of them.

Objectives

After going through this practical, you will be able to:

- identify food items that are rich sources of different nutrients;
- explain which nutrients are of maximum importance for different vulnerable groups;
- learn how to plan nutritious recipes for vulnerable groups;
- discuss the significance of one-dish meals; and
- plan cycle menus for different meals.

4.2 LOW COST NUTRITIOUS RECIPES

Low cost nutritious recipes contain different food ingredients that are not expensive and at the same time provide good nutrition. For preparing such recipes, a good knowledge of various food items, their availability and cost is essential.

Low cost recipes contain cereals and pulses as the main ingredients along with small amounts of fruits, vegetables, nuts and oilseeds. These are mainly given to the vulnerable groups to bridge the gap between their dietary intake and the recommended allowances of nutrients for their age, sex and occupation. These are snack recipes that should supplement and not substitute the main meals. These snacks can be either sweet or salty and can be made easily using simple cooking methods and equipments. Some examples of low cost nutritious snacks are included herewith:

1. Wheat Besan Laddoo (Makes 6 *laddoos*)

Ingredients:

Atta - 50 g, *Besan*- 50 g, Fat – 40 g, Castor sugar – 100 g

Methodology:

1. Roast *atta* and *besan* separately in a *karahi*.
2. Mix the *atta* and *besan* and fry for 10 minutes on low heat.
3. Remove from heat, add powdered sugar, and form into *laddoos*.

Nuts can also be added to these *laddoos*, if required.

2. Besan Spinach Cheela (Makes 2 *Cheelas*)

Ingredients:

Atta – 20 g, *Besan* – 20 g, Spinach – 10 g, Fat – 10 g, and Salt – To taste

Methodology :

1. Wash spinach and cut it finely.
2. Mix *atta*, *besan* and spinach. Add salt and make a batter with water.
3. Heat the *tava*, smear it with fat; pour a ladleful of batter on the *tava* and spread it with the help of the ladle.
4. Fry on both sides applying a little fat.

Many other similar low cost nutritious recipes can be developed which are based on the traditional foods of the individuals. Certainly you may be aware of some such nutritious recipes available in your region. Minor modifications in those recipes would not only make them interesting but also improve their nutritive values.

So, let us now get acquainted with the basic steps for preparing low cost nutritious snacks.

4.3 STEPS FOR PREPARING LOW COST NUTRITIOUS SNACKS

The basic steps involved in preparing low cost nutritious recipes include:

1. Identify the target group for whom the snacks have to be prepared. List their nutritional and dietary requirements.
2. Based on the requirements of the target group, prepare a list of snacks that they would enjoy eating and which are also easy to prepare.
3. Identify the rich sources of nutrients that the target group requires and that are available locally.
4. Decide what kinds of modifications are possible in the traditional foods so that the foods rich in various nutrients can be incorporated in them.
5. Plan out the entire recipe – the amounts of various ingredients to be used based on the nutritional requirements of the target group and the method of cooking the recipe.
6. Calculate the nutritive value of the recipe using the “Nutritive Value of Indian Foods” tables.

Let us take an example to understand the above steps. Suppose you have to plan a nutritious snack for a preschooler.

Step 1: Identify the target group and nutritional requirements

Target Group : Preschool child

Nutritional requirements (of a preschool child): As a preschool child is in the growing phase of life and is susceptible to various infections and dietary deficiencies, the important nutrients for them are energy, protein, calcium, iron, and vitamin A. So, the snack should provide energy, protein and at least one or more of the other important nutrients.

Dietary requirements (of a preschool child): Nutrient dense foods should be selected and preferably be made into finger foods that the child can eat himself. The snack should also look attractive.

Step 2: Prepare a list of snacks

Based on the above requirements, the following are examples of some snacks that can be prepared for preschoolers:

Burfi, Laddoo, Mathri, Biscuit, Vada, Idli, Chikki, Namakparas, Cheela, Dhokla, Upma, Poha etc.

Step 3: Identify the rich sources of nutrients

Various rich sources of nutrients can be listed down, for example

Energy – Cereals and cereal products, nuts and oilseeds, sugar, jaggery etc.

Protein – Milk and milk products, meat, fish, eggs, pulses and legumes etc.

Calcium – Milk and milk products, meat, fish, eggs, green leafy vegetables etc.

Iron – Organ meats like liver, kidney, spleen, green leafy vegetables, cereals, pulses, jaggery etc.

Vitamin A – Milk and milk products, meat, fish, egg, green leafy vegetables like spinach, *methi*, *bathua* etc; red and yellow vegetables like carrots, tomatoes, pumpkin; and fruits like mango, papaya etc.

Since, the snacks should be low cost, therefore, only those sources that are inexpensive should be chosen out of the list prepared.

Step 4: Decide what kinds of modifications

If you want to prepare *cheelas* containing energy, protein, and calcium, list out the ingredients that you will use. Here, you can use besan, spinach, fat and salt.

Step 5: Plan out the recipe

Decide the amounts of ingredients based on the nutritional requirements of the preschoolers. A preschooler requires between 250-300 Kcal and 8 – 10 g of protein at snack time. So let us plan this recipe in a way that it provides at least 250-300 Kcal, 8 – 10 g protein and also provides a good source of calcium.

Name of the recipe : *Besan Spinach Cheelas*

S.No.	Ingredient	Amount (g)	Energy (Kcal)	Protein (g)	Calcium (g)
1.	<i>Besan</i>	40	149	8.32	22
2.	Spinach	50	14	1.0	36
3.	Oil	10	90	-	-
TOTAL			253	9.32	58

Having gone through the example above we hope you are now well versed with the steps involved in planning nutritious snacks. We shall move on to the next concept that is one dish meal now.

4.4 ONE-DISH MEALS: WHAT ARE THEY?

One-dish meals are those meals that contain only one dish, for example, the lunch of a person being vegetable *khichdi*. These meals, if carefully planned, can provide all the nutrients in adequate amounts and contain foods from all food groups, i.e., energy giving; bodybuilding; protective and regulatory foods. In this vegetable *khichdi*, the main ingredients are rice, pulse, vegetables and fat where rice and fat are providing mainly energy, pulse is providing protein, and vegetables are providing minerals, vitamins and fibre.

One-dish meals are comparatively easy to prepare, as all the food ingredients have to be made into one dish only. It saves preparation and serving time also and is convenient for women belonging to low socioeconomic sections that go out for work. The dishes given in one-dish meals are also known as whole meal dishes as they are complete meals. Some examples of one dish meals include *poushtik roti* (wheat–pulse–green vegetable preparation from North India), *bissibele bhath* (rice–pulse–vegetable preparation from South India), *thepla* (wheat–pulse–vegetable preparation from West India)

Next, let us learn how to prepare one-dish meals. The steps are enumerated next.

Steps for preparing a one-dish meal

Let us now look at the steps we would follow for preparing one-dish meals. You would realize that the steps are somewhat same as we enumerated in the care of nutritious low-cost recipes above. These include:

1. Identify the target group for whom the one-dish meal has to be prepared. List their nutritional and dietary requirements.
2. Based on the requirements of the target group, prepare a list of one-dish meals that they would enjoy eating and which are also easy to prepare.
3. Identify the rich sources of nutrients that the target group requires and that are available locally. Try to incorporate more of these in the one-dish meals.
4. Plan out the entire recipe – the amounts of various ingredients to be used based on the nutritional requirements of the target group and the method of cooking the recipe.
5. Calculate the nutritive value of the recipe using the “Nutritive Value of Indian Foods” tables.

Finally, let us understand the concept of cycle menu.

4.5 CYCLE MENU : AN OVERVIEW

What do we mean by cycle menu?

A cycle menu is a carefully planned set of menus that is repeated at definite intervals. The length of a cycle depends on the kind of institution for which it is planned. A cycle menu is useful in places where the requirements of the consumers are known and they do not vary much. It is also quite useful in places where there is a tight budget.

There is one disadvantage of having cycle menus as they produce menu fatigue. If one is following a weekly cycle menu, then people generally tend to remember what they are going to get on a particular day of the week. This may result in loss of interest in eating that food week after week. But this problem can be avoided by planning cycle menus in such a way that the same item is not repeated on the same day of the week and there is something for the consumer to look forward to. For this, menus can be planned for either more or less number of days than a week. This problem usually does not arise if cycle menus are planned for a fortnight or a month. Sometimes, some variations can also be introduced in the items that are being repeated. For example, if *paranthas* are being served, you can serve a different kind in each cycle.

An example of a cyclic menu of snacks (for a hostel) is given next.

Day 1 - *Samosa*

Day 2 – Burger

Day 3 – Cutlet

Day 4 – Sandwich

Day 5 – *Pakor*s

And then the cycle can be repeated so that the same dishes are not always given on the same days in a week. Similarly, menus can be planned for different meals on a cyclic basis.

Similarly, we can plan cycle menu for lunch, dinner or for all the meals in a day. How to plan the cycle menu? The steps involved in planning are enumerated next.

Steps for planning a cycle menu

1. Identify the target group for whom the cycle menu has to be prepared. List their nutritional and dietary requirements.
2. Based on the requirements of the target group, prepare a list of dishes/snacks that they would enjoy eating and which are also easy to prepare.
3. Allot the days on which the various dishes would be given on a cyclic basis. Look at the example given above carefully. The days on which a particular snack is to be provided are allotted.
4. Plan out the entire recipe – the amounts of various ingredients to be used based on the nutritional requirements of the target group and the method of cooking the recipe.
5. Calculate the nutritive value of the recipes using the “Nutritive Value of Indian Foods” tables.

Now, based on the above learning let us do the activities included here in this practical to clear our concepts further.

ACTIVITY

1

PREPARATION OF A LOW COST RECIPE

Date:

Aim: Plan a suitable low cost recipe for adolescent girls attending an MCD school.

INTRODUCTION

(Write about the importance of nutritional requirements of adolescent girls and also about the significance of low cost recipes in the space provided herewith)



METHODOLOGY

(Look up the steps given in section 4.3. These steps are also included here in the methodology section. Following these steps, write the information required in the space provided herewith and complete the activity)

Step 1: Identify the target group and their nutritional and dietary requirement

Step 2: Prepare a list of snacks suitable for adolescent girls. Also list the traditional snacks available within the community

Traditional snacks available

Snacks suitable for adolescent girls

Step 3: Identify rich food sources of nutrients required by adolescent girl.

Step 4: Decide modifications in traditional food

Step 5: Plan a low cost recipe (give in a tabular format as indicated herewith) including the ingredients, methodology and nutritive value (in terms of energy, protein and any two other important nutrients).

Name of the recipe:

Nutritive value:

S.No.	Ingredients	Amount (g)	Energy (Kcal)	Protein (g)		

Methodology for preparing the recipe

CONCLUSION

(Comment on the appropriateness of the recipe planned and suggest changes, if required)



Submit the exercise for evaluation

Counselor signature

ACTIVITY

2

PLANNING A CYCLIC MENU

Date:

Aim: Plan a 6-day cyclic menu for a nutritious snack for preschool children attending an Anganwadi Center.

INTRODUCTION

(Write about the concept, significance of cyclic menu)



format given herewith)

Step 1: Identify the target group and their dietary and nutritional requirements

Step 2: Prepare a list of snacks suitable for preschool children attending the anganwadi

Step 3: Identify rich food sources of nutrients required by preschool children

Step 5: Plan a cycle menu (give in a tabular format as indicated herewith)

CYCLE MENU

Day 1

Day 2

Day 3

Day 4

Day 5

Day 6

Now, give the ingredients, methodology and nutritive value (energy, protein and any two other nutrient) for each recipe in the format given herewith.

DAY 1

Name of the Recipe:

S.No.	Ingredients	Amount	Energy (Kcal)	Protein (g)		

Methodology for preparing the recipe

DAY 2

Name of the Recipe:

S.No.	Ingredients	Amount	Energy (Kcal)	Protein (g)		

Methodology for preparing the recipe



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DAY 3

Name of the Recipe:

S.No.	Ingredients	Amount	Energy (Kcal)	Protein (g)		

Methodology for preparing the recipe



DAY 4

Name of the Recipe:

S.No.	Ingredients	Amount	Energy (Kcal)	Protein (g)		

Methodology for preparing the recipe



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DAY 5

Name of the Recipe:

S.No.	Ingredients	Amount	Energy (Kcal)	Protein (g)		

Methodology for preparing the recipe



DAY 6

Name of the Recipe:

S.No.	Ingredients	Amount	Energy (Kcal)	Protein (g)		

Methodology for preparing the recipe



Conclusion

(Comment on the appropriateness and usefulness of the cycle menu prepared)



Submit the exercise for evaluation

Counselor signature

PREPARATION OF ONE-DISH MEAL

Aim: Plan one-dish meal specific to your own region, for a lactating mother.

Date:

INTRODUCTION

(Write about the concept, significance and the planning of one-dish meals)

METHODOLOGY

(Write the information required in each step in the space provided herewith and complete the activity)

Step 1: Identify the target group and their nutritional and dietary requirement

Step 2: Prepare a list of one-dish meals suitable for lactating women

Step 3: Identify rich food sources of nutrients to be included in the one-dish meal for lactating women.

Step 4: Plan a one-dish meal (give in a tabular format as indicated herewith) including the ingredients, methodology and nutritive value (in terms of energy, protein and any two other important nutrients).

Name Of The One-Dish Meal :

S.No.	Ingredients	Amount (g)	Energy (Kcal)	Protein (g)		

Conclusion

(Comment on the appropriateness of the recipe planned and list other dishes that can be planned for a lactating mother).

Submit the exercise for evaluation

Counselor signature

PRACTICAL 5 MESSAGES FOR NUTRITION AND HEALTH EDUCATION

Structure

5.1 Introduction

5.2 Messages for Nutrition and Health Education: A Basic Concept

5.3 Characteristics of a Good Message

Activity 1: Nutrition and Health Education Messages

Activity 2: Messages for Nutrition Education in Urban School Children

5.1 INTRODUCTION

Nutrition and health education, as you are already aware, is an essential tool of community nutrition. Its main objective is to inform people about various nutrition and health resources, and motivate and help people to adopt and maintain health practices and lifestyles. In other words, nutrition and health education brings about desirable positive changes in the knowledge, attitudes and practices in order to enhance the nutritional status of the individual and the community.

In this practical, we shall learn about the effective ways in which messages for nutrition and health education can be prepared and conveyed to the community to bring about a desirable change.

Objectives:

After undertaking this practical, you will be able to:

- select your target group for which messages have to be prepared,
 - identify the problems, needs, knowledge, attitudes, and practices of the target group,
 - prepare relevant messages for target group to enhance knowledge, and
 - bring about modification in attitudes and practice.
-

5.2 MESSAGES FOR NUTRITION AND HEALTH EDUCATION: A BASIC CONCEPT

For increasing nutrition and health awareness in the community, people need to be given appropriate and motivating messages. It is the message that stay in people's minds and help them modify their behaviour. You may recall studying in Unit 16, Section 16.4 in the theory Course that *message is the formulation of an idea or concept to be transmitted to a specific population*. Once the message or an idea or concept has been defined, next, we need to assess how the message we have in mind could be best put across. This, you would realize, depends on the community with which we are working or plan to work with, as well as, on the nature of the message. However, any message must be action-oriented. In other words, it should urge people to adopt a practice or to give up an existing practice.

We have already studied about the essential elements of a message design earlier in Unit 16, Section 16.4.1, in our theory book. To help you recall, for a message to be coherent, persuasive and effective, the essential elements include:

- *Content* – this includes the problem identification, target audience, resistance points, solutions and required action.
- *Design* – the design factors such as use of single ideas, using language that is relevant, portrayal of characters with which the target audience can identify or relate themselves.
- *Persuasion* – that is dispelling doubts and reducing the chances of the doubts acting as a barrier to action.
- *Memorability*- that is, idea reinforcement, minimizing distraction and using repetition as a strategy.

Remember, a well designed message should reach their target audience. Although, there is no one formula for effective message design, there are several useful guidelines. For example, messages should be positive such as:

‘EAT GREEN LEAFY VEGETABLES. IT KEEPS YOUR EYES HEALTHY’

Messages can be negative, such messages need to have a cause and effect relationship such as.

‘STOP EATING KESARI DAL. IT CAN CAUSE PARALYSIS’

Further guidelines on how to design coherent and persuasive messages are already included in Section 16.4.2 in Unit 16 of our theory book. So please check out these guidelines before you read further. Thus, it is important to know that when a message is conveyed to a community group or individuals, the target group receives both elements:

- Content of message
- Presentation

Next, let us review what are the characteristics of a good message.

5.3 CHARACTERISTICS OF GOOD MESSAGES

It is essential to decide the correct content of the messages to be conveyed to the community. In fact, the messages should have the following characteristics.

1. The content and presentation of the messages should be based on the characteristics and requirements of the target group. The content will include the actual words, pictures, sounds that make up the communication and convey the appeals.
2. The messages, can have a positive or negative appeal as highlighted above. The appeal is the way we organize the content of the message to persuade or convince people
3. Messages should be action-oriented.
4. The messages should be brief, clear and concise.
5. Use of simple language should be made in writing messages.

6. The messages should give the pros and cons of the action the community is going to adopt or is already practicing.

Having looked at the characteristics of a good message, let us move on to the methodology for formulating a message

5.4 NUTRITION AND HEALTH MESSAGE FORMULATION: METHODOLOGY

While preparing messages for providing nutrition and health education, follow the steps given below.

1. Get to know your target group very well their problems, needs, resources available etc. For example, your target group in a community could be pregnant or lactating mothers suffering from anaemia.
2. Based on the above information, write simple messages, that are relevant. For example a message to prevent anaemia could be:

'EAT GREEN LEAFY VEGETABLES TO PREVENT ANAEMIA'

3. Design messages which are short. Do not give one message in too many sentences.
4. After preparing the message, critically evaluate it and analyze its effect on the target group.

For example, the message *'EAT GREEN LEAFY VEGETABLES TO PREVENT ANAEMIA'* looks plain it can be reworded to *'GREENS A DAY KEEP ANAEMIA AT BAY'*

5. After evaluation and analysis, make modifications in the message if required.
6. Present the message to the target group.

Once, the message has been put across to the target group, it is essential to check for its effectiveness, and see how people react towards it.

Now, let us undertake an exercise based on the above learning.

**NUTRITION AND HEALTH EDUCATION
MESSAGES**

AIM: Develop 5-10 relevant messages for nutrition and health education of rural mothers Date:

INTRODUCTION

(In the space provided herewith write briefly about what a message is, the essential elements and characteristics of a good message)



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Methodology

(Write about the actual steps followed in preparation of messages starting from the target group chosen/identified, their problems, needs, resources available, the nutritional problem/topic identified, messages designed, evaluated etc.)

The target group chosen/identified, their problems, needs, resources available

Topic, subject area/content selected

(Choose any particular area/topic of interest where you can make messages to educate the target group and write why you chose this particular area)

Messages prepared:

- 1.
- 2.
- 3.
- 4.
- 5.



Conclusions

(Comment on appropriateness and effectiveness of messages prepared and give suggestions for improvement of messages).

Submit the exercise for evaluation

Counselor signature

ACTIVITY

2

MESSAGES FOR NUTRITION EDUCATION IN URBAN SCHOOL CHILDREN

Date:

Aim: Develop 5 – 10 relevant messages for nutrition and health education of urban school children.

INTRODUCTION

Write about, i) the background information of urban school children, and ii) significance of appropriate nutrition and health education messages for urban school children.



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METHODOLOGY

(Write about the actual steps followed in preparation of messages starting from the target group chosen/identified, their problems, needs, resources available, the nutritional problem/topic identified, messages designed, evaluated etc.)

The target group chosen/identified, their problems, needs, resources available

Topic, subject area/content selected for designing message

(Choose any particular area/topic of interest where you can make messages to educate the urban school children and write why you chose this particular area)

Messages prepared:

- 1.
- 2.
- 3.
- 4.
- 5.

Message Evaluation/Critical Analysis

(Elaborate on the relevance of the messages formulated in the format given herewith).

MESSAGE

RELEVANCE/ SIGNIFICANCE



CONCLUSION

(Comment on appropriateness and effectiveness of messages prepared and give suggestions for improvement of messages).

Submit the exercise for evaluation

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PRACTICAL 6 DEVELOPMENT, USE AND EVALUATION OF METHODS AND AIDS FOR NUTRITION AND HEALTH EDUCATION

Structure

- 6.1 Introduction
- 6.2 Communication Method: An overview
- 6.3 Methodology
- 6.4 Choosing of Appropriate Aids for Nutrition and Health Education

Activity1: Development of Nutrition Education Material

Activity 2: Development of Suitable Teaching Aid

6.1 INTRODUCTION

Nutrition and health education can be defined as a planned effort to improve nutrition and health status by bringing about changes in the behaviours of people. Nutrition and health education is a process by which people gain the knowledge and develop the confidence and skills needed for establishing good dietary and health practices. However, you would realize, that changing behaviour is not easy. Such a change requires a vigorous and concerted effort through a variety of communication channels, e.g., radio/television, print media, interpersonal communications, group communication etc. We have already studied in the theory course in Unit 16, that supports are the materials on which the message is transmitted (for example, flip charts, radio programme etc). Media, on the other hand, is the channel of communication through which the message is transmitted (for example, counseling, group discussion etc).

Therefore, in this practical we shall learn about the development, use and evaluation of teaching/ nutrition aids, for the nutrition and health education to be effective.

Objectives:

After undertaking this practical, you will be able to:

- identify different aids used for nutrition and health education,
- plan and develop aids for nutrition and health education,
- use different methods for providing nutrition and health education, and
- evaluate various methods and aids used for nutrition and health education.

6.2 COMMUNICATION METHODS: AN OVERVIEW

Figure 6.1 illustrates the different channels/media one can use for communication. You may recall studying about these channels in details in the theory course in Unit 16, Section 16.5.

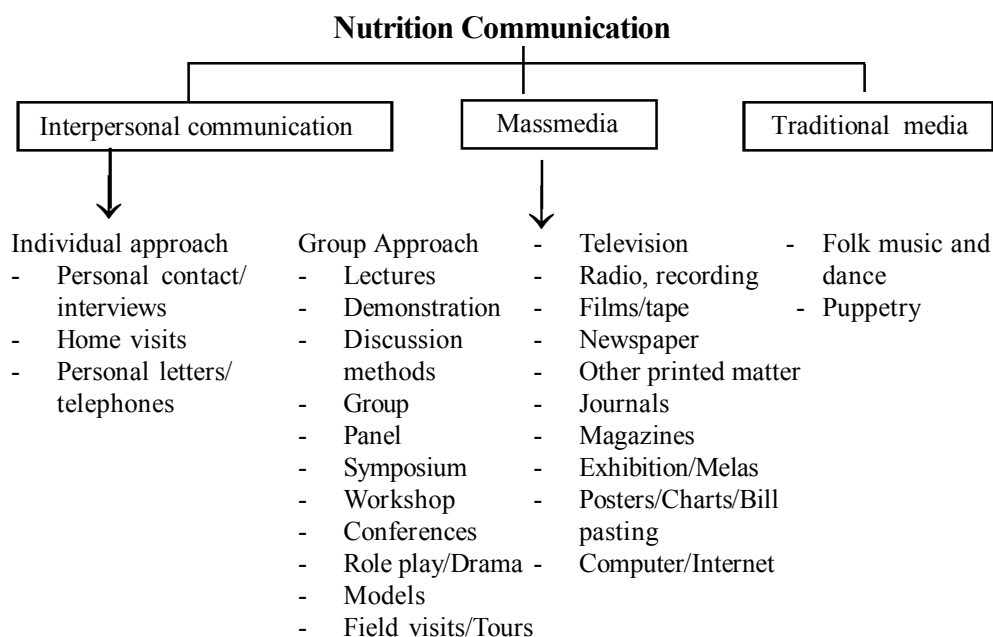


Figure 6.1: Channels of Communication

The methods of communication can be broadly classified into two categories:

A. Information- centered methods

B. Behaviour – centred methods

Let us get to know these methods.

A. *Information- centered methods*

The main objective of the information-centred method is the provision of knowledge which leads to change in attitude and practice. Information-centred methods include lecture, discussions etc. A brief review follows.

Lecture Method: This is the most economical way of getting a vast amount of information across to a large group of people within the least time. But it has many disadvantages too. As this method does not involve the learners actively, it is not suitable to promote behaviour modification or teaching skills that need practice. Lecture method is a one-way communication method that does not involve the people much.

For increasing the effectiveness of a lecture, it should be based on the characteristics of the audience and the topic should be of interest to the audience. Appropriate aids should be used at appropriate times in between and at the end of the lecture, there should be some provision of discussion.

B. *Behaviour-centred methods*

The Behaviour-centred methods emphasize on dissemination of information which can influence behaviour. These methods include:

1. **Group Discussion method:** In this method, there is a two-way communication and it is one of the best ways to modify behaviour. This method gives a feeling of belonging and the support of other members makes it easier for people to take decisions and change their attitudes and practices. Discussions can be carried out in small groups with group leaders where the topic can be discussed separately and then leaders can express their group's viewpoints

to the larger groups. For discussions to bring about desired results, a good leader should be chosen. The members of the group should get acquainted with each other and they should actively participate. They should share their experiences, listen to what the others have to say, learn from each other and find out solutions of their problems together.

2. *Role play/Drama method:* Role play is a specialized form of drama and is very effective as in this, the members of a learning group act out real life situations. This helps in understanding the real problem and its implications in greater depth.

Drama could be in the form of a skit or a short play. It could also be done using puppets as an aid. While planning out a role play or a drama,

- make sure that everyone in the audience can easily see and hear.
- use simple objects/ props and costumes that make the play look more realistic.
- try to hold the attention of the audience by constant movement, humour and action.
- try to involve the audience in the act by asking/ discussing simple questions in between.

The usual procedure adopted for role play/ drama should be-

1. Identifying the problem
 2. Defining the problem and the roles
 3. Selecting members for various roles
 4. Enacting the problem situation
 5. Evaluating the presentation and discussing the problem situation and its remedies.
3. *Story telling:* Stories are a traditional form of learning that people experience since childhood. Stories can be closed-ended followed by a discussion initiated by the story-teller or they can be open-ended where the group members themselves would complete it. After the story telling session is over, the major points of learning should be repeated for reinforcement. This can be done by simply asking “What you have learnt from this story?”
 4. *Demonstration:* Demonstration is a way to show people how to do something step by step so that they can learn new skills and how to do things themselves. Each step of a demonstration is accompanied by an explanation of what is being done, how is it being done and why is it being done. The people, therefore, get an opportunity to see how to do something before they actually try it themselves. Demonstrations can be of two types-
 - *Method Demonstration*, where a procedure is carried out step by step, slowly and accurately.
 - *Result Demonstration*, where the results of an activity are demonstrated and discussed. The end products of each step are prepared beforehand in this method.

For making demonstrations more effective-

- i) They should always be well planned and practiced.
 - ii) Simple tools and equipments should be used.
 - iii) Seating arrangement for the audience should be such that they can clearly see and hear.
 - iv) Audience should be involved if possible in helping to carry out some steps and to give responses in between.
 - v) Time should be given at the end to discuss the actual demonstration and to answer any queries.
 - vi) The demonstrator should have a pleasing personality and should be well versed with the actual demonstration and related topics.
5. *Problem-solving method/Brainstorming*: This technique helps people to logically come out with solutions to their own problems. A group leader can identify and present the problem to the entire group. He can then ask the group members to share information and ideas related to the problem that can be listed down. The most practical ideas/solutions can be selected and acted upon to solve the identified problem situations.

The above are some of the commonly used methods/techniques in teaching nutrition and health to various groups of people. Almost all these methods require the use of some tools that aid in increasing the effectiveness of the method used. These aids make learning real, practical and fun through seeing, hearing, discovering and doing.

Teaching aids could be *machine operated* like the film strips/ slides, audio tapes, video tapes etc., or *non-machine operated* like posters, charts, pictures, flash cards, flannel graphs, flip charts etc. A detail review on these methods is included in Annexure 1 given at the end of the manual. You will find the information very useful and handy when you actually get down to planning and developing these aids later in the activities included in this practical.

While preparing any teaching aid, one must consider the following points:

They must be made from low cost, locally available material.

They must be in accordance with the message they intend to convey.

They must be selected in accordance with the target audience for which they have to be used.

The message on the aids should be brief and clearly written. The language used should be simple to understand by the target audience.

The aids should be attractive but that should not suppress the actual message that needs to be conveyed.

Some handy tips/cues for making effective teaching aids are also given in Annexure 4 at the end of the manual. These will guide you developing the teaching aids. So do study them carefully.

Now, let us move on to the methodology i.e. what steps to follow in developing the communication material, media and aids for nutrition communication.

6.3 METHODOLOGY FOR DESIGNING AND DEVELOPING THE NUTRITION COMMUNICATION MATERIAL

From our discussion above, it must be evident, that planning and designing any support material or communication media requires, innovative ideas, creativity and understanding of the nutrition problem. Given herewith are the steps, which will guide us in developing the material. Read them carefully as you would be following these steps later in the activity included in this practical for developing the media. These steps include:

1. Identification of the group to which nutrition and health education has to be given.
2. Study of the characteristics of the target group.
3. Selection of the topic for nutrition and health education.
4. Selection of suitable methods and aids to impart nutrition and health education to the target group.
5. Preparation of details of the methods and the aids to be used.
6. Practicing the methods and proper use of tools
7. Conducting nutrition and health education session.
8. Evaluating the methods and aids used in nutrition and health education sessions.

The steps listed above are self-explanatory. Hence, we shall not elaborate further on them. We shall, however, like to highlight few aspects to be considered while choosing an appropriate aid for nutrition communication. This is covered in the next section.

6.4 CHOOSING OF APPROPRIATE AIDS FOR NUTRITION AND HEALTH EDUCATION

It is essential to choose an appropriate aid for nutrition and health education, so as to bring about effective delivery of information. Look up Sub-section 16.5.4 in Unit 16 of the theory booklet which is entitled 'Criteria for Selecting Methods'. Going through this material you would realize that, selection or choice of an appropriate media will depend upon the various parameters such as what are the objectives? who is the audience? what is the budgetary allocation? etc. You would realize that it is always better to use several channels to transmit the same message than a single channel. Why? Using several channels will reinforce the message delivery and is more likely to be effective for behaviour change. On the whole, it is the type of aid chosen that effectively can put across the information to be conveyed. An aid should generate interest. Yet at the same time should not deviate from what we the communicators wants to convey. In short an aid should be attractive, as well as, have clarity of idea to be conveyed and should be appropriate for the target audience. We will not elaborate further on this aspect

here but would surely request you to look up Table 16.2, in Unit 16 (in the Course MFN-006) which gives the relative strengths of the media in changing various parameters of nutrition education and also Table 16.3 which highlights the methods of communication which may or may not be effective for different target groups. This information will guide you in choosing and developing an appropriate aid for nutrition communication.

Now, let us get our concepts clear by doing an exercise given herewith.



DEVELOPMENT OF NUTRITION EDUCATION MATERIAL

Aim: Develop a suitable nutrition, education method to teach the rural women the important of weaning among infants. Critically evaluate the method used. Date:

Introduction:

(Give a brief discussion on various communication methods and their significance)



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Methodology:

(The various steps involved in planning and development of the nutrition communication material as listed in Section 6.3 above are enumerated herewith. Complete the schedule as requested. Under certain steps the information has already been included as you would notice. Follow this lead.)

Identification of the group to which nutrition and health education has to be given

For example: 'Rural Women' as is clear from the aim of the activity given

Study of the characteristics of the target group

(Write about the characteristics here)

Selection of the topic for nutrition and health education

'Importance of weaning' (as already given in the aim of this activity)

Selection of suitable methods and aids

Demonstration cum lecture would be an appropriate method for conveying the importance of weaning foods to mothers.

(Why, elaborate on this in the space provided herewith)

Preparation of details of the methods and the aids selected

For the demonstration, you would have to develop a recipe of weaning food. Give the name of the weaning food, including the ingredients and methods used for preparing the recipe.

Name of the Weaning Foods:

Recipe of Weaning Food

a) Ingredients

(Mention the ingredients, the amounts used and calculate the nutritive value in terms of energy, protein and any other nutrient of significance for the infant. Present the information in a tabular form.)

b) Method for preparing the recipe:



Conducting nutrition and health education session using the recipe.

(Here write the script of the demonstration session just as you would present it in front of your target audience)

Script for Demonstration:



Evaluation of the method(s) used in nutrition and health education sessions

(Write about the appropriateness, usefulness, relevance of the exercise carried out by you).

Conclusion:

(Comment on appropriateness and effectiveness of the method used and give suggestions for improvement in the methodology).

Submit the exercise for evaluation

Counselor signature

ACTIVITY

2

DEVELOPMENT OF SUITABLE TEACHING AID

Date:

Aim: Develop a suitable teaching aid to increase the awareness about anaemia among adolescent girls.

Introduction:

(Write about teaching aids, their use, features and cues for developing effective teaching aids. Look up Annexure 4 given at the end of this manual for this write-up).



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Methodology:

(Write the various steps used in the preparation of the teaching aids. You can be guided by the steps included in Section 6.3 above and also in the Activity 1 earlier).



Sample of the aid prepared:

(Attach a miniature sample of the aid planned and developed by you in the space provided herewith)



Conclusion:

(Comment on appropriateness and effectiveness of the teaching aid planned and developed for increasing the awareness about anaemia among adolescent girls).



Submit the exercise for evaluation

Counselor signature

PRACTICAL 7 DEVELOPMENT OF TOOLS TO ASSESS NUTRITION KNOWLEDGE, ATTITUDES AND PRACTICES

Structure

- 7.1 Introduction
- 7.2 Knowledge, Attitudes and Practices: Basic Concept
- 7.3 Methodology for Assessing Knowledge, Attitudes and Practices in a Community

Activity1: Formulation of Nutrition Education Tools

7.1 INTRODUCTION

Awareness about the existing nutrition knowledge, attitudes and practices of the community members is essential for nutrition educators, as well as, planners as this data is invaluable for planning programmes and policies to improve the nutritional status of the community.

Therefore, in this practical we shall learn to develop appropriate tools to assess knowledge, practice and attitudes, which will later equip us in formulation of action plan.

Objectives:

After undertaking this practical, you will be able to-

- select the tools you want to use to assess the nutritional knowledge, attitudes and practices of community members, and
- develop tools to assess the nutrition knowledge, attitudes and practices of community members.

7.2 KNOWLEDGE, ATTITUDES AND PRACTICES: BASIC CONCEPT

Much work in nutrition education has focused on the association between knowledge, attitude and behaviour (practice). *Knowledge* can be defined as the fact or condition of being aware or familiar of something. *Attitude* is a mental position with regard to a fact or state. *Allport* (1935) defined the attitude concept as 'a mental and neural state of readiness to respond, organized through experience, exerting a directive and dynamic influence on behaviour'. Researchers in social-psychology conceptualize attitudes as complex systems comprising the *person's belief about the object, his/her feeling towards the object, and the action/tendencies* with respect to the object. *Fishbein & Ajzen* (1975) suggests that an attitude 'is a learned predisposition to respond to an object in a consistently favourably or unfavourably manner.' *Practice, on the other hand, is the usual way of doing something.*

Several socio-psychological theories state that the knowledge, attitude and behaviour should be consistent, however a number of studies indicate that relationships are not simple or automatic. Four possible models of the

interrelationship of nutritional knowledge, attitudes and practices have been described by Schwartz (1975) as given in Figure 7.1. In *Model 1*, attitudes mediate knowledge and practice. *Model 2* acknowledges the role of knowledge and attitude interaction to influence practice. *Model 3* highlights that the knowledge and attitude independently influence practice and *Model 4* states that knowledge influences practices both directly and indirectly, as mediated by attitudes, concurrently.

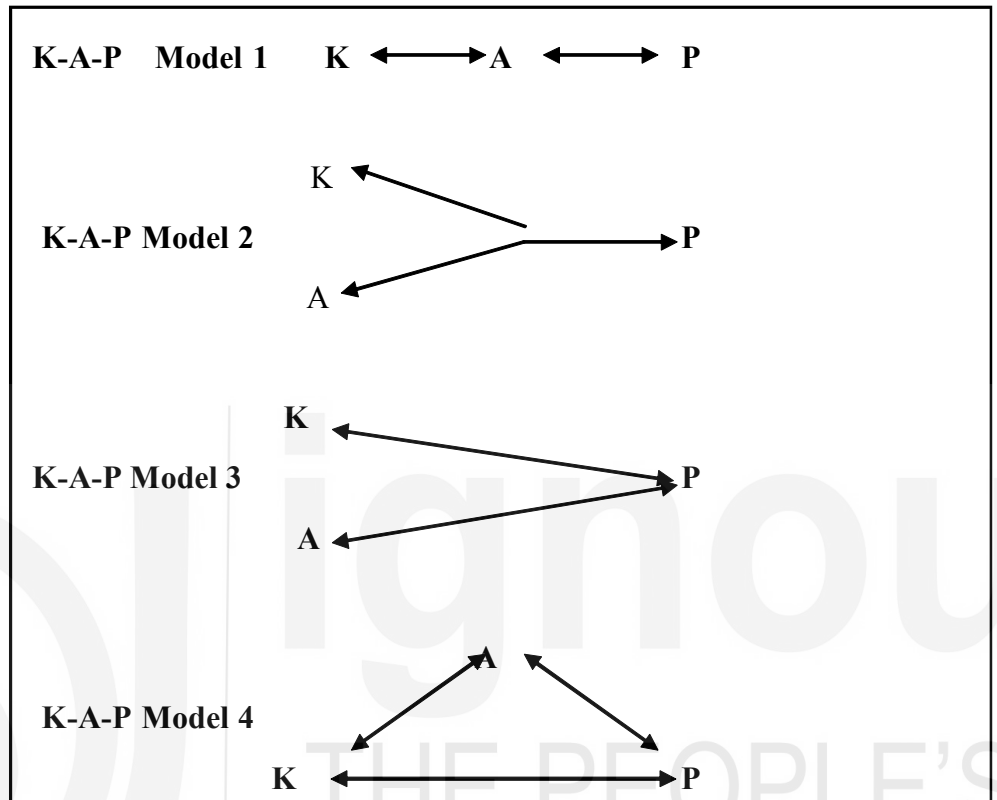


Figure 7.1: Four possible models of the interrelationship of nutritional knowledge, attitudes, and practices

With this basic understanding about knowledge, attitude, practices and their interrelationship, we move on to the study of the methods used for assessing knowledge, attitudes and practices.

7.3 METHOD FOR ASSESSING KNOWLEDGE, ATTITUDES AND PRACTICES IN A COMMUNITY

Assessment of knowledge attitude and practices in a community setting is not easy. Various methods can be used for this. Let us get to know of these methods by considering the methods for assessing knowledge first.

A. Methods for Assessing Knowledge

The most suitable method of assessing the knowledge of the community is by working with *interview schedules* and *questionnaires*. What is the difference between the two techniques? Let us find out.

A questionnaire is a list of questions with spaces marked out for answers, if administered to an individual. Such individual must of course be literate in order to fill the responses.

To assess the knowledge of people who are literate, we can give them the questionnaires that they can fill themselves rather than interviewing them. The questionnaire can include all questions regarding the knowledge that one wants to assess. For example, if we want to assess the knowledge about breast feeding among lactating mothers, some of the following questions can be asked to get information on their knowledge level.

e.g. Q.1 When should breast feeding be initiated among infants?

Q.2 List some advantages of breast feeding.

Q.3 Till what age should the child be exclusively breast fed?

The questions can be *open ended* or *closed ended*. The example given above is that of an open ended questionnaire. The person, you would have noticed, can respond in anyway she likes. Now, let us consider closed ended questionnaires. In a *close ended questionnaire* the respondent(s) are given the options from which they will select the appropriate answers. Here it is important to frame the questions in a manner that will best extract the answer which the investigator is looking for. This is also referred to as multiple choice format. Let us understand this with a help of an example.

e.g. Q) Colostrum, the first milk, secreted by the breast should be:

- a) fed to the baby
- b) discarded
- c) never given to the baby
- d) do not know

From the example above it is evident that in the multiple choice close ended questionnaires, for every questions, few choices are provided and the respondent has to identify any one best answer. These examples given above, we hope, would have helped you understand the difference between open and closed ended questionnaires. Here, it is also important for us to know that analyzing open ended questions is much more difficult because people may come up with many different kinds of answers and we will then be left with the tough task of categorizing the answers and making sense of the responses. So, we should use open ended questionnaires only when we expect wide variation in people's responses which we cannot predict. Close ended multiple-choice questionnaire is most commonly used in research.

It is easy to score multiple close questionnaire as for every correct answer a score of 1 can be given and for every wrong answer Zero (0) score, so it will be easy to calculate the overall mean knowledge score.

Now, let us get to know about the interview schedule.

An interview schedule lists the possible questions which the interviewer could ask the person being interviewed.

Remember, while using questionnaires or interview schedule, the questions included in them must proceed from simple and impersonal questions to more complicated personal ones. Start the questionnaire/interview schedule with the background information i.e. with questions related to name, address, educational background, socio-economic status of the respondents etc. Then begin with questions related to the topic under consideration.

The response of mothers to these questions will indicate their infant feeding practices.

Besides the questionnaires, the other good method is *observational* method. Observing the behaviour of the community members, give good indication of the practices. For example, observing whether colostrum is being fed to a newly born baby or not or how many times in a day the child is being breast fed etc, will give a good indication of the practices related to infant feeding followed by mothers. Using observation method, though very accurate, may be quite cumbersome and demanding.

Thus, we may summarize our discussion above as :

Summary

- Nutrition knowledge can be best assessed by, interview schedule or by using a structured questionnaire.
- In case the community is literate, one can request to fill them.
- Framing situation/statements where one can say a Yes/No are best used to assess attitude in a community. Alternatively, respondent attitude (personal feeling) towards the questions can be assessed using the *Likert* response scales (Likert, 1932) labeled only at extreme ends.
- Nutritional practices can also be assessed through structured questionnaire and observational studies.

Now, let us look at the methodology for development of tools for assessing the nutritional knowledge, practices and attitudes.

7.4 METHODOLOGY FOR ASSESSING KNOWLEDGE ATTITUDE AND PRACTICES

In the section above we have learnt about what tools for assessing nutrition education, attitude and practices. Geared with this knowledge, let us now review the process involved in developing and collecting data using these tools.

The steps involved include:

1. Get some background information about the target group to know whether they are literate or not. Knowing the literacy level of the target group will in turn affect the formulation of tools to assess knowledge.
2. List the possible tools/ methods that can be used for that target group and assess their feasibility/appropriateness to get the required information.
3. Select the tool that would get you the maximum information. It is essential to choose the right tool with correct framework of questions to extract the right answers.
4. Develop the tool, pretest it and modify it if required.

You may recall studying in Unit 17, Sub-section 17.3.2 in the theory course that pretesting refers to the activity conducted to predict the impact of a communication material/message prior to its implementation. We have already described the process of pretest in that Unit. We suggest you look up the section again and accordingly finalize the tool. Let us now understand this concept even further by doing an exercise.

**FORMULATION OF NUTRITION EDUCATION
TOOL TO ASSESS KNOWLEDGE, ATTITUDE
AND PRACTICES**

**ACTIVITY
1**

Aim: Develop a tool/ tools to assess the nutrition knowledge, attitudes and practices of young college going girls regarding obesity. Date:

Introduction:

(In the space provided herewith write about the significance of knowledge, attitude and practices and about the kind of tools we can develop to assess them)



METHODOLOGY:

(Elaborate the steps involved in developing the tools)

Collect background information about the target group and the problem/area/topic regarding which KAP is to be assessed.

Possible tools/methods available for assessing knowledge, attitude, practices

Tool/method selected (and why?)



Tools developed

(Give the tools for assessing knowledge, attitude and practice developed by you in the space provided herewith)

TOOL FOR ASSESSING KNOWLEDGE

(Prepare the knowledge questionnaire and include in the space provided).



TOOL FOR ASSESSING ATTITUDE

(Prepare the attitude questionnaire and attach in the space provided).



TOOL FOR ASSESSING PRACTICES

(Prepare the practices questionnaire and attach in the space provided).



Submit the exercise for evaluation

Counselor signature

PRACTICAL 8 EVALUATION OF AVAILABLE NUTRITION EDUCATION MATERIAL/ AIDS

Structure

- 8.1 Introduction
- 8.2 Nutrition Education Aids: An Overview
- 8.3 Evaluation of Nutrition Education Material
- 8.4 Methodology

Activity1: Evaluate of Nutrition Education Aids.

8.1 INTRODUCTION

Various nutrition education aids/materials are available today that help in increasing the awareness of people regarding topics in food and nutrition. The aids may be prepared by individuals or by agencies involved in spreading awareness among people. Some aids may be suitable only for educating small groups, whereas, some may provide information to the masses.

Sometimes, these aids are prepared by agencies that have no knowledge of the subject and this can lead to preparation of aids that do not provide correct factual information but actually mislead and confuse the people. Also, the effectiveness of the aids depends on how well they have been prepared to convey the intended messages to the people. Evaluation of the available nutrition education material is, therefore, essential to ensure that correct information is being conveyed effectively to the people. If on evaluation, one finds that the material is not suitable then it can be modified based on the suggestions given by the evaluators.

In this practical, we shall learn how to evaluate any available nutrition aids and judge for its effectiveness. So, let us get started.

Objectives:

After undertaking this practical, you will be able to

- select suitable methods to evaluate nutrition education aids.
- evaluate different nutrition education aids, and
- enumerate various nutrition aids required for different purposes.

8.2 NUTRITION EDUCATION AIDS: AN OVERVIEW

Mass communication media – written, spoken, and audiovisual – carry information from source to receivers. The media may be used effectively in dealing with all sections of people everywhere. Mass communication media may be in the written form as in newspapers, booklets, magazines etc; spoken as in radio programmes;

and audiovisual as in television programmes, video films etc. All these media have varying levels of effectiveness to convey messages to different population groups as you may recall studying in Unit 16, Table 16.2. Do look up Section 16.5.4 once again now in Unit 16 to understand the concept better.

You may recall studying that the educational media in its total form consists of a variety of materials. In trying to make teaching effective, one must not depend only on the spoken word to convey meaning but must utilize a variety of nutritional aids or teaching aids. Thus, we can say that materials used to reinforce the spoken word in teaching, which contribute to better learning by the learners, can be termed as “Teaching aids”. You already have gone through Practical 6 earlier which is totally devoted to the planning and developing of the teaching aids. Here, let us quickly review the classification of nutrition communication material once again.

8.3 CLASSIFICATION OF TEACHING AIDS/ NUTRITION EDUCATION AIDS

The educational media (teaching aids) can be broadly divided into two types based on their operation.

- Non-machine operated
- Machine operated

As the name suggest, non-machine operated aids are simple to make, and do not require complicated machinery for their operation. On the other hand, the machine operated are basically aids that belong to the mass communication media such as the television, film clips etc.

Now, let us classify some of these education aids to understand them better. Look at Table 8.1 that depicts various education aids and classifies them according to non-machine and machine operated aids.

Table 8.1: Classification of Education/Teaching Aids

<p>1. Non-machine operated Media/aids</p>	<p>a) Poster b) Charts: Bar charts Pie charts Flow charts Pictorial Charts Pull Charts Flip Charts Over-lay charts Flip Charts c) Flash Cards d) Flannel graph kit e) Pictures f) Models</p>
<p>2. Machine operated media/aids</p>	<p>a) Television b) Video films c) Radio d) Movies</p>

A detailed discussion on these aids is provided in the Units appended in Annexure 1 at the end of this manual. We suggest you look up this section now. This information will help you understand the teaching aids their uses and limitations.

Next, we will move on the process involved in evaluation of nutrition education aids.

8.4 EVALUATION OF NUTRITION EDUCATION MATERIALS

Evaluation, you may recall studying in Unit 18 in the theory course, is a systematic and scientific process, determining the extent to which any action/object has been successful in the achievement of pre-determined objectives. It involves measurement of adequacy, effectiveness and efficiency.

Evaluation of the available nutrition education material is, therefore, essential to ensure that correct information is being conveyed effectively to the people. If on evaluation, one finds that the material is not suitable then it can be modified based on the suggestions given by the evaluators.

While evaluating a teaching material, one needs to consider its suitability to the target group in terms of:

- *Aid used:* check to see that whether the aid used (machine operated or non-machine operated) is appropriate for the community.
- *Title of aid:* whether it attracts audience attention. The title, particularly should also reflect the message to be conveyed.
- *Language used:* whether it is easy to comprehend and is the programme made in the language commonly used by the target group
- *Content:* whether it gives correct information, gives to many messages in a short duration, whether it gives any practical tips that can be adopted by the target group etc.

For checking the effectiveness of the aid, we may consider questions/issues such as:

- Is the material suitable for the audience?
- Does it serve the purpose?
- Is it used appropriately?
- Is there provision for audience participation?
- Is the message conveyed appropriately in terms of language, content, illustrations etc?

The answer to these questions will help you assess the suitability and effectiveness of a particular aid. It should also be seen that there is a provision of the aid being used correctly in providing education so that the information can be conveyed effectively and the aid used serves its purpose to the maximum.

Besides the issues discussed above, certain direct and indirect indicators may also be considered for evaluation purposes. These include:

Direct Indicators:

- test the understanding of the audience using oral questionnaire
- obtain opinion through dialogue or questionnaire
- undertake follow-up studies and observe results.

Indirect Indicators

- Note the reactions of the audience - facial expressions, conversations, emotions etc. during and at the end of the presentation
- Observe any voluntary participation by learners, request for clarification, additional information, reaction etc.

With this basic knowledge, let us now, examine the methodology we can use for evaluation of an aid.

8.5 METHODOLOGY

Having gone through the discussion above, you would have realized that there are many ways by which we can evaluate a teaching aid. We can use the questionnaire or the simple observation method for evaluating the aids. Let us consider, how?

First, for evaluation of nutrition education aids, the evaluators can devise *questionnaire* based on the information provided in the teaching aids. These questionnaires can be given to the target group after they have been exposed to the teaching aid. They can fill in the information based on their learning from the teaching aid. Questions on whether they liked the aid, its usefulness, attention holding capacity and time spent can also be asked. Sometimes, if it is not possible to assess their nutrition knowledge gained through exposure to the aid, score cards can be used. The group can be asked to score the teaching aid in terms of its suitability, information provided, ease of use, effectiveness etc. after providing them with a key to score. The key can have scores from 1-3, where score 1 can denote 'Excellent', 2 can denote 'Good' and 3 can denote 'Poor'. Such keys can vary depending on what exactly the evaluator wants to evaluate.

While working with illiterate community members, to improve comprehension, the items and their responses in the questionnaire can be presented in visual (graphic/pictorial) form.

Observation method can also be used by the evaluator to study the understanding of the information provided by the aid, wherein the evaluator can study the facial expressions of the people and the conversations among them or the questions asked after exposure to the aid. The indirect indicators described above would be quite useful for evaluation.

In evaluating teaching aids, it is important that a few experts in the field of nutrition education and a few members of the group for which the aid is prepared evaluate the aid. This will provide validity for the evaluative process in terms of content inclusion, wording, comprehension and discriminating power of the aid.

Equipped with this knowledge let us now get hands down experience in this area. Activity 1 given next, involves evaluation of some nutrition education aids. So get started.

ACTIVITY

1

EVALUATION OF NUTRITION EDUCATION AIDS

Date:

AIM: Evaluate the given nutrition education aids – A video film/chart/poster/ leaflet etc.

(Counsellor to arrange for the entire group to watch this video programme or other aid provided. This can be a group activity where the whole group evaluates together and writes their comments on the aids)

INTRODUCTION:

(Write briefly about the chosen nutrition education material as educational aids).

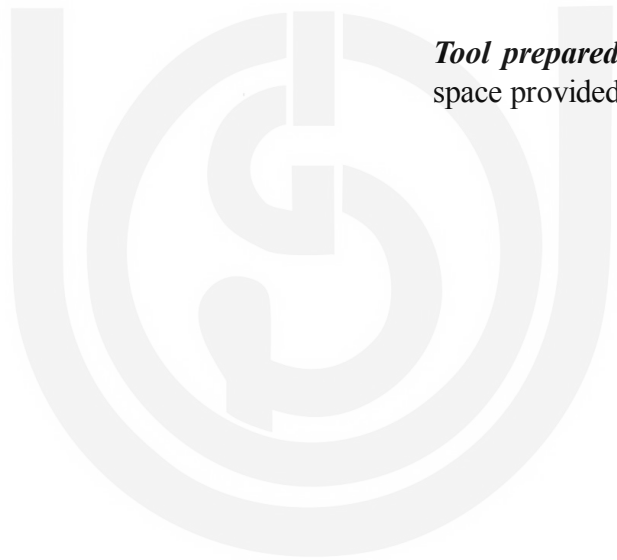


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Methodology:

(Present a brief review of the aid viewed)

Tool prepared for Evaluation. Give the sample of the aid reviewed in the space provided herewith.



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RESULTS:

(Give the results of evaluation in terms of appropriateness, title, language, content of the aid etc.)

Conclusion: (Comment on the usefulness of the evaluation of the aid and suggest changes, if required).

Submit the exercise for evaluation

Counselor signature

PRACTICAL 9 PLANNING AND IMPLEMENTATION OF NUTRITION AND HEALTH EDUCATION PROGRAMME

Structure

9.1 Introduction

9.2 Nutrition and Health Education Programme: Planning

9.3 Methodology: Formulation and Implementation

Activity 1: To plan a nutrition and health education programme

9.1 INTRODUCTION

Nutrition programme planning and implementation is one of the keys to successful nutrition intervention in the community. You may recall, Units 16 and 17 of the theory booklet that enumerates the formulation and implementation of a nutrition education programme. It is a known fact now that, ignorance among the people is one of the root causes of all malnutrition problems in the country. Therefore, increasing awareness among people by conducting suitable nutrition and health education (NHE) programmes in the community is the first step to solving the problem of ignorance. Such nutrition and health education programmes should aim towards bringing about positive behavioural modifications among the people. Therefore, in this practical we shall learn how to formulate i.e give shape and structure to the different elements of nutrition education, as well as, implement nutrition and health education programme by identifying the problems in the community. We have already learnt in the earlier practicals about how to design messages and develop these messages on to appropriate teaching aids and communication material. Here in this practical, we will carry out the entire process of formulation and implementation of a nutrition education programme. We will learn how to chalk out a plan of action for programme planning.

Objectives:

After undertaking this practical, you will be able to-

- plan nutrition and health education programmes,
 - develop appropriate messages for educating the target audience,
 - select appropriate methods and tools for educating the target audience, and
 - conduct nutrition and health education programmes.
-

9.2 NUTRITION AND HEALTH EDUCATION: PLANNING

Keeping the general goals and objectives of the NHE programme in mind, planning has to be done for the following based on the information obtained from the situational analysis of the community and its members :

- Common health and nutritional problems and their causes
- People's knowledge, attitudes, practices, traditions, culture etc.
- Resources available – human and non-human
- Choice of educators, influence of community leaders
- Previous experiences of NHED programmes
- Any obstacles that exist or are likely to cause problems.

After the assessment of the above points, one needs to develop a detailed plan of action. The key elements to be considered in the detailed plan of action for intervention programme are highlighted in Figure 9.1. You may recall studying about these points in your theory course in Unit 15, Section 15.6. If not, we suggest you look up this unit now.

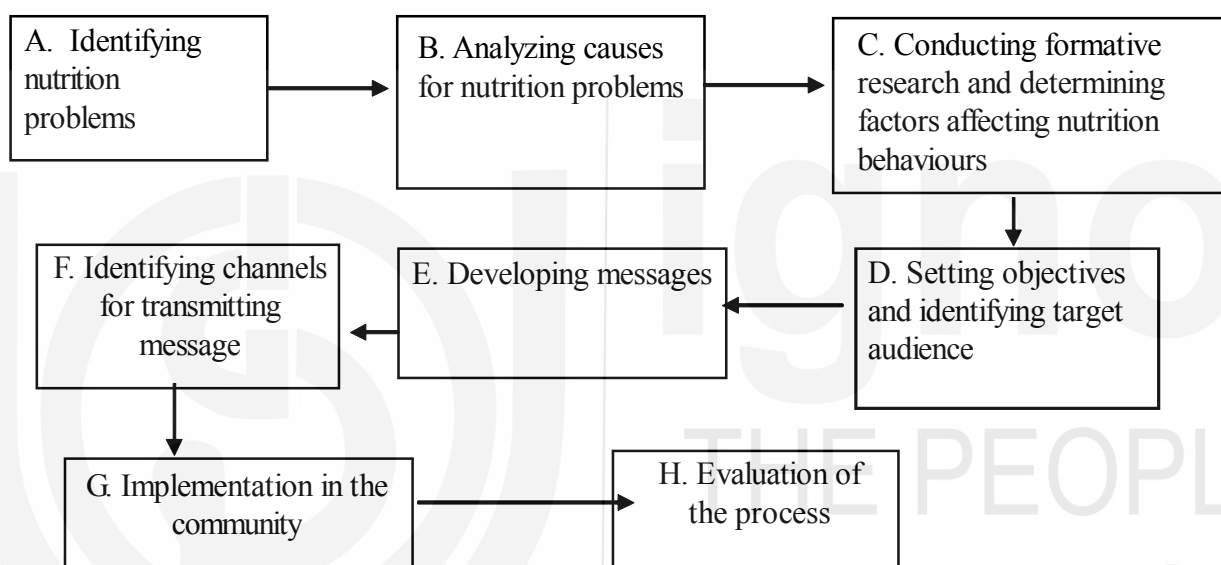


Figure 9.1: Key elements in the intervention design for behavior change

The action points are elaborated herewith:

1. *What do we need to educate the people about?*

Here, the situational analysis of the community and its members will help the planner to decide the subject of NHE programme. Accordingly, appropriate messages that need to be given can be formulated. Look up Section 15.7 in Unit 15 of theory book. This provides step-by-step instruction on how to identifying the type and extent of nutritional problems, identifying the population groups at risk and analyzing the causes of nutritional problems within the target group. Having decided on the problem, next we need to plan who will impart the education? Let us find out about this in the next action point.

2. *Who is going to provide the education?*

It is the various members of the government, non government organizations and community who are actually going to conduct the nutrition education programme. It is very important for the educators to be sensitive to the problems and needs of the target group. They should also possess the right skills to impart knowledge to the target group. Therefore, a correct choice

of educators has to be made for the NHED sessions to be effective. It is usually beneficial that implementation of a nutrition education programme be carried out by a multidisciplinary team.

3. ***What are the techniques and tools that are required for providing education?***

We have already learnt about the various techniques/methods like lecture method, demonstrations, brainstorming, role-play etc. and tools/aids like posters, charts, flip books, flash cards, flannel graphs etc. that can be used for conducting nutrition and health education sessions in Practical 6 earlier. Remember we actually got a hands down experience of planning and developing simple teaching aids and communication materials in this practical.

Note, an essential element of many successful nutrition education programmes has been to use a multimedia combination. A multimedia combination involves a systematic and organized use of several channels of communication. If we use several channels of communication in such a way that each one of them reinforces the other, so that their collective impact is greater than the sum of their influence taken separately, their overall impact on the education intervention is increased. However, the challenge is to find the best combination which can result in the realization of objectives. For example, if we want to reach a group of rural illiterate women, we can use popular theater or traditional/ folk music to communicate specific message. We can also communicate the same message through counseling and practical demonstration. This will have a synergic effect and lead to reinforcement of messages.

Having planned and developed the communication techniques and tools, the next step is to decide where to provide the nutrition education. Let us get to know about this aspect next.

4. ***Where to provide nutrition and health education?***

The location/site where educational sessions have to be conducted should be accessible to the target audience. The place should have enough space to accommodate the total number of members one wants to have in one session of nutrition and health education. Usually community schools, meeting grounds, panchayat ghar or other such local sites are appropriate for organizing the programme.

Based on the salient points discussed above, a suitable nutrition and health education session can be planned and implemented for various vulnerable groups in the community.

So, let us now learn about the methodology we can adopt for the formulation and implementation of NHED programme.

9.3 METHODOLOGY: FORMULATION AND IMPLEMENTATION

In the section above we have planned the nutrition education programme. Now, how do we implement the plan? Given herewith are some handy guidelines:

1. *Selection of the community/ target group* for NHE sessions: It is important before planning the plan of action to identify the needs of the target population and then plan appropriate actions, needed to be implemented.

2. *Situational analysis of the community and the target group*: This refers to the level to which intervention needs to be planned. Situational analysis can be termed as a pre-assessment done before formulation of any NHE programme. We have already described this step in Section 9.2 above. So, accordingly carry out the situational analysis.
3. *Identification and decisions* about the following:
 - Problem to be tackled: What is the problem that the community is facing and which one needs to be addressed first.
 - Objectives of the educational session: You may recall studying in Unit 16, Section 16.2 that the objectives of the NEC programme can be set at different levels i.e. nutritional, educational and communication objectives. Formulate the objectives accordingly.
 - Number of target group audience.
 - Medium of instruction
 - Messages to be given
 - Duration of the educational session
 - Selection of nutrition educators
 - Techniques and tools for educational sessions
 - Location of conducting educational sessions.
4. Writing the entire script for conducting the educational session keeping in mind the objectives and deciding the various techniques and tools to be used at different place while conducting the session.
5. Conducting the Nutrition and Health Education session.
6. Evaluating the educational session based on audience response

The guidelines given above, you would find are quite handy when you get down to actually planning and implementing a nutrition education programme. So, what are you waiting for? Get started. Given next is activity 1, where you are expected to plan a nutrition communication programme for school age children.

TO PLAN A NUTRITION AND HEALTH EDUCATION PROGRAMME

AIM: Plan and conduct a nutrition and health education session for dissemination of important nutritional messages to school age children in government schools catering to urban slums.

Date:

INTRODUCTION

(Write about importance of NHE programmes and significance of such programmes for school age children)



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METHODOLOGY:

(Write about the following aspects/steps, which are included in Section 9.3, for planning and conducting the NHE session in the format given herewith)

Topic of NHE Session

Target Group:

Venue/Location:

No. of audience members:

Objectives of NHE session: (Give the nutritional, communicational objectives)

Tools used:

(Draw/stick miniature versions/samples)

Techniques used:



Medium of instruction:

Duration and timing of the session:

Script Developed

(Write the entire script that you have developed for actual presentation for e.g. dialogues spoken in role play, story in story telling etc. in the format given herewith. You may attach an extra sheet if the space provided is not sufficient)

CONTENT (Write the script for actual presentation)	METHOD AND TOOL USED

CONTENT	METHOD AND TOOL USED

Conduct of NHE Programme

(Decide a date and carry out the NHE session. Paste picture of the session you have undertaken along with the audience here in the space provided).

EVALUATION

(Comment on the conduct of NHE session - the process, the achievements and drawbacks)

CONCLUSION

(Comment on the overall experience and give suggestions for improvement based on audience response)



Submit the exercise for evaluation

Counselor signature

PRACTICAL 10 COMMUNITY AGENCIES

Structure

10.1 Introduction

10.2 Community Agencies: An insight

10.3 Methodology for Conducting a

Activity 1: Conducting a field trip

10.1 INTRODUCTION

Community is a group of people sharing common interests, culture, traditions, practices etc. and when groups of people live together, they usually become dependent on each other for various services. The extent to which the members of a community share their socio cultural, economic and political characteristics and interests and values, including health, may also show wide variations. On the other hand, in some ways the whole world is coming together as a global community sharing similar interests and concerns relating to health. There are different agencies, both Government and Non-Government, working within the community to provide services for the welfare of the community members. Which are these agencies? In this practical, we shall learn about various community agencies and their role in the delivery of nutrition/health services.

Objectives:

After undertaking this practical, you will be able to:

- describe the organization structure of community agencies,
 - enumerate the functions performed by community agencies, and
 - assess the benefits provided by the community agencies to their beneficiaries.
-

10.2 COMMUNITY AGENCIES: AN INSIGHT

There are various community agencies that work in the area of nutrition and health. Can you mention some of these agencies. Yes, you have already studied about them in Unit 1 in the theory course. In our health delivery system, we have Primary Health Centres (PHCs), community health centers (CHCs), district hospitals, regional hospitals etc. that provide health services at different levels. For this purpose, the country is divided into 29 states and 7 union territories. These are further divided into smaller administrative units called the districts, which are 718 in number presently. The districts harbour smaller demarcated units. Other than the primary health centre and the community health centres there are other government agencies/centres working for the welfare of children and other vulnerable groups. There are various voluntary organizations too. Let us recapitulate these agencies, as you may recall, we have already studied about some of these agencies in our theory course.

1. *Primary Health Center (PHC)* : This was initially planned for taking care of the health needs of a population of 1,00,000 or more, covering some 100 villages in each community development block. Now, the revised strategy

is to have a PHC for a population of 30,000 in the rural and 20,000 in the hilly, tribal and backward areas. The role of the PHC is to take care of the simple and basic health needs of a community. Hence, Primary Health Center is a primary community agency.

2. *Community Health Center (CHC)*: As part of the overall strategy to improve the basic health services provided to the community, it was suggested to upgrade a PHC as a facility with 30 beds, X-ray and laboratory facilities (which would provide specialist services surgery, medicine obstetrics and gynecology and pediatrics). The community health center per community development block caters to a population of 1,00,000.
3. *Schools* also act as community agencies as besides teaching of different subjects, they also provide health and nutrition education, regular medical check-ups and mid day meals. They help in increasing the health and nutrition awareness of the children, as well as, their families.
4. *Anganwadis* are the other community centres established by the government under the ICDS programme for the welfare of children and pregnant and lactating women. You may recall studying about this in the theory course in Unit 10.
5. *Voluntary organizations*: Besides the government organizations dealing with health and nutrition, there are several non-governmental organizations like ‘Prayas’, Katha Khazana’, ‘Voluntary Association of India’ etc. working in this area. You may have heard about many such agencies in your region. List all such agencies in your region. All these community agencies, you would realize, together help in building up the health and nutrition status of the millions of people residing in our country.

A study of the functioning of such agencies would be very interesting. What are their objectives? What activities do they carry out in the community? How are these activities implemented? Who are their beneficiaries? These are a few issues which should be of interest to a public nutritionist. In the next section we will learn the methodology for collecting information about a community agency.

10.3 METHODOLOGY

To study any community agency in detail, field trips can be conducted to get first-hand experience and information about it.

Information needs to be collected on the followed points:

1. Background of the organization
2. Organizational structure
3. Functions services provided
4. Beneficiaries

This information can be collected by conducting *formal/informal interviews* using structured/unstructured questionnaires, *observation method* using a checklist and by *actual checking of the records* of that agency.

Let us know, about the method of formal and informal interviews in a little detail.

An interview is a direct face-to-face attempt to obtain reliable and valid measures in the form of verbal responses from one or more respondents. This method allows interviewers to clarify questions. *Informal interview* can be used with young children and illiterates. In this, interviewing allows the interviewer to observe verbal and non-verbal behaviour of the respondents. It is easier to obtain personal information, attitudes and perceptions through this method. However, informal interview often yield data too difficult to summarize. Whereas, *formal interviews*, on the other hand, are rigidly standardized and structured. In this method the same questions are presented in the same manner and order to each subject. This type of interviewing is more rigid and many elicit some kinds of answer from different people.

Next, let us examine the questionnaire method.

A *questionnaire* is a means of eliciting the feelings, beliefs, experience, perceptions, or attitudes of some sample of individuals. It is most frequently a very concise, preplanned set of questions designed to yield specific information. As a data collecting instrument, it could be *structured* or *unstructured*. It is economical as many respondents can be covered at a given time. However, its limitations lie in its use with only literate population.

Employees at different levels in the agencies can be interviewed regarding the information required. Investigators can themselves also observe the various aspects of services provided using a checklist and going through official records to cross check whether all the information that is being told to them by the employees of the agency is authentic or not. Sometimes, the beneficiaries can also be interviewed to assess the functioning of the agency from the beneficiaries' viewpoint.

Now let us take up an exercise where we shall study a community agency and find out about their activities.

ACTIVITY

1

CONDUCT A FIELD TRIP

Date:

AIM: Conduct a field trip to any one community agency i.e. Anganwadi (AW)/ Primary Health Centre/ Hospital/School etc. and report your findings.

INTRODUCTION:

(Write briefly about the i) background of the agency visited, ii) purpose of your visit, and iii) reason for selecting the agency in the space provided. First name the agency selected).



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METHODOLOGY:

(Write about i) conduct of the visit i.e. date, time etc, ii) tools prepared and used and iii) techniques used to gather information regarding the agency).

Observation/ Information Gathered (write in the format given herewith)

Background of the Organization



Organizational Structure (describe and give the flow chart)

Beneficiaries/Target group



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Achievements so far

CONCLUSION:

(Write about i) what did you learn from the field trip, ii) usefulness of the agency to the community, and iii) recommendations/suggestions for the improvement of the agency and pictures of the agency/locale visited).



Submit the exercise for evaluation

Counselor signature



Table I: The WHO standards for Weight-for-age for boys and girls (Birth to 18 years)

Age	Weight (kg)	
	(months)	Boys
Birth	3.3	3.2
6	7.9	7.3
12	9.6	8.9
18	10.9	10.2
24	12.2	11.5
30	13.3	12.7
36	14.3	13.9
42	15.3	15.0
48	16.3	16.1
54	17.3	17.2
60	18.3	8.2
66	19.4	19.1
72	20.5	20.2

Age	Weight (kg)	
	(years)	Boys
7	22.9	22.4
8	25.4	25.0
9	28.1	28.2
10	31.2	31.9
11	35.3	37.0
12	39.8	41.5
13	45.0	46.1
14	50.8	50.3
15	56.7	53.7
16	62.1	55.9
17	66.3	56.7
18	68.9	56.6

Source: The WHO child growth standard.

Internet source: <http://www.who.int/childgrowth/standards/in>

Table II: The WHO standards for Height-for-age for boys and girls (Birth to 18 years) (50th percentile)

Age (months)	Height (cm)	
	Boys	Girls
Birth	49.9	49.1
6	67.6	65.7
12	75.1	74.0
18	82.3	80.7
24	87.1	85.7

20	91.9	90.7
36	96.2	95.7
42	99.9	99.0
48	103.3	102.7
54	106.7	106.2
60	110.0	109.4
66	112.9	112.2
72	116.0	115.1

Age (years)	Height (cm)	
	Boys	Girls
7	121.7	120.8
8	127.3	126.6
9	132.6	132.5
10	137.8	138.6
11	143.1	145.0
12	149.1	151.2
13	156.0	159.4
14	163.2	159.8
15	169.0	161.7
16	172.9	162.5
17	175.2	162.9
18	176.1	163.2

Source: WHO child growth standards.

Internet Source: <http://www.who.int/child-growth/standards/ac-for-age/en/index.html>

Table III : The WHO standards for Mid-arm Circumference-for-age for boys and girls (1-5 years) (50th percentiles)

Age	Male	Female
1 year	14.6	14.2
2 years	15.2	14.9
3 years	15.7	15.6
4 years	16.1	16.2
5 years	16.5	16.9

Source: WHO child growth standards.

Internet Source: <http://www.who.int/child-growth/standards/ac-for-age/en/index.html>

Table IV : The WHO standards for weight-for-length /height (boys and girls)

Length (cm)	Weight (kg)	
	Boys	Girls
49	3.1	3.2
50	3.3	3.4
55	4.5	4.5
61	6.3	6.1
67	7.7	7.5

73	9.1	8.8
79	10.3	9.9
82	10.8	10.5
85	11.5	11.2
88	12.2	12.0
91	13.0	12.7
94	13.7	13.5
97	14.4	14.2
100	15.2	15.0
103	16.0	15.9
106	16.4	16.9
109	17.9	18.0
112	19.2	19.4
115	20.4	22.0
118	21.6	22.0
120	22.4	22.8

Source: WHO child growth standards.

Internet source: <http://www.who.int/childgrowthstandards/weight-for-height/enlindex.html>.

Table V : BMI-for-Age 2 to 19 years

Age (years)	BMI (kg/mt ²)	
	Boys	Girls
2	16.0	15.7
3	15.6	15.4
4	15.3	15.3
5	15.2	15.3
6	15.3	15.4
7	15.5	15.7
8	15.7	16.1
9	16.0	16.6
10	16.4	17.2
11	16.9	18.0
12	17.5	18.8
13	18.2	19.6
14	19.0	20.2
15	20.5	20.7
16	21.1	21.0
17	21.7	21.3
18	22.2	21.4

Source: WHO child growth standards.

Internet source: http://www.Who.int/childwnc2007_bmi_for_ageicnindex.html

**Recommended Dietary Allowances for Indians
(Macronutrients and Minerals)**

Group	Particulars	Body weight kg	Net Energy Kcal/d	Protein g/d	Visible Fat g/day	Calcium mg/d	Iron mg/d
Man	Sedentary work	60	2320	60	25	600	17
	Moderate work		2730		30		
	Heavy work		3490		40		
Woman	Sedentary work	55	1900	55	20	600	21
	Moderate work		2230		25		
	Heavy work		2850		30		
	Pregnant woman		+350	+23	30	1200	35
	Lactation 0-6 months		+600	+19	30	1200	21
	6-12 months		+520	+13	30		
Infants	0-6 months	5.4	92 Kcal/kg/d	1.16 g/kg/d	-	500	46 µg/kg/day
	6-12 months	8.4	80 Kcal/kg/d	1.69 g/kg/d	19		5
Children	1-3 years	12.9	1060	16.7	27	600	09
	4-6 years	18	1350	20.1	25		13
	7-9 years	25.1	1690	29.5	30		16
Boys	10-12 years	34.3	2190	39.9	35	800	21
Girls	10-12 years	35.0	2010	40.4	35	800	27
Boys	13-15 years	47.6	2750	54.3	45	800	32
Girls	13-15 years	46.6	2330	51.9	40	800	27
Boys	16-17 years	55.4	3020	61.5	50	800	28
Girls	16-17 years	52.1	2440	55.5	35	800	26

Recommended Dietary Allowances for Indians (Vitamins)

	Vitamin A		Vitamin B ₁	Vitamin B ₂	Vitamin B ₆	Vitamin C	Vitamin E	Vitamin K	Folate	Vitamin B ₁₂	Calcium	Iron	Magnesium	Zinc
	µg	mg												
Man	Sedentary work	600	1.2	1.4	16	2.0	40	200	1	340	12			
	Moderate work		1.4	1.6	18									
	Heavy work	4800	1.7	2.1	21									
Woman	Sedentary work	600	1	1.1	12	2.0	40	200	1	310	12			
	Moderate work		1.1	1.3	14									
	Heavy work	4800	1.4	1.7	16									
Pregnant woman		800	+0.2	+0.3	+2	2.5	60	500	1.2					
	Lactation		+0.3	+0.4	+4	2.5	80	300	1.5					
	0-6 months	950	+0.2	+0.3	+3	2.5								
Infants	6-12 months		0.2	0.3	710mg/kg	0.1	25	25	0.2	30				
	0-6 months	--	0.3	0.4	650mg/kg	0.4				45				
Children	6-12 months	350	0.3	0.4										
	1-3 years	400	0.5	0.6	8	0.9		80		50				5
	4-6 years	3200	0.7	0.8	11	0.9	40	100		70				7
Boys	7-9 years	600	0.8	1.0	13	1.6		120		100				8
	10-12 years		1.1	1.3	15	1.6	40	140	0.2-	120				9
	10-12 years		1.0	1.2	13	1.6			1.0	160				9
Girls	13-15 years	600	1.4	1.6	16	2.0	40	150		165				11
	13-15 years		1.2	1.4	14	2.0				210				11
Boys	16-17 years		1.5	1.8	17	2.0	40	200		195				12
	16-17 years		1.0	1.2	14	2.0				235				12

Balanced Diet for Adults - Sedentary/ Moderate/ Heavy Activity
(Number of portions)

	g/portion	Type of work					
		Sedentary		Moderate		Heavy	
		Man	Woman	Man	Woman	Man	Woman
No. of portions							
Cereals & millets	30	12.5	9	15	11	20	16
Pulses	30	2.5	2	3	2.5	4	3
Milk & milk products	100 ml	3	3	3	3	3	3
Roots & tubers	100	2	2	2	2	2	2
Green leafy vegetables	100	1	1	1	1	1	1
Other vegetables	100	2	2	2	2	2	2
Fruits	100	1	1	1	1	1	1
Sugar	5	4	4	6	6	11	9
Fat	5	5	4	6	5	8	6

To calculate the days requirement of above mentioned food groups for an individual, multiply grams per portion with number of portions.

**Balanced Diet for Infants, Children and Adolescents
(Number of Portions)**

Food groups	g/ portion	Infants		Years							
		6-12 months	1-3	4-6	7-9	10-12		13-15		16-18	
						Girls	Boys	Girls	Boys	Girls	Boys
Cereals & millets	30	0.5	2	4	6	8	10	11	14	11	15
Pulses	30	0.25	1	1.0	2	2	2	2	2.5	2.5	3
Milk (ml) & milk products	100	4 ^a	5	5	5	5	5	5	5	5	5
Roots & tubers	100	0.5	0.5	1	1	1	1	1	1.5	2	2
Green leafy vegetables	100	0.25	0.5	0.5	1	1	1	1	1	1	1
Other vegetables	100	0.25	0.5	1	1	2	2	2	2	2	2
Fruits	100	1	1	1	1	1	1	1	1	1	1
Sugar	5	2	3	4	4	6	6	5	4	5	6
Fat/ oil (visible)	5	4	5	5	6	7	7	8	9	7	10

^a Quantity indicates top milk. For breastfed infants, 200 ml top milk is required.

One portion of pulse may be exchanged with one portion (50 g) of egg/meat/chicken/fish.

For infants introduce egg/meat/chicken/fish around 9 months.

(Unit 8, 9 and 10 are included in the Annexure 4. These units are part of the Diploma in Nutrition and Health Education (DNHE) Programme launched by IGNOU. These units provide basic knowledge and guidelines for planning and developing nutrition communication aids and material. They will serve as handy reference material).

THE PEOPLE'S
UNIVERSITY

Structure

- 8.1 Introduction
- 8.2 Concept of Mass Communication
- 8.3 Purpose of Mass Communication Media
- 8.4 Classification of Mass Communication Media
 - 8.4.1 Written Media
 - 8.4.2 Spoken Media
 - 8.4.3 Audio Visuals

8.1 INTRODUCTION

What are the different mass communication methods suitable to nutrition and health education? How do we go about preparing printed media? These are the few issues discussed in this unit. You have learnt about group communication methods in the preceding unit. In this Unit you are going to learn about the concept of mass communication.

Mass communication is, generally, identified with modern media like television, radio, cinema and the printed media. These media are the channels through which communication occurs. These media must not be mistaken for the phenomenon of mass communication itself.

Indeed, the term mass communication ought to refer to the totality of communication which takes within its compass not only the electronic media, but also spoken word, song, drama, dance, painting and architecture. These are organs of the mass media in a developing country. They are far less expensive but powerful organs, as they communicate at a direct and personal level. Also their reach, is far and wide in our country.

Objectives

After studying this Unit, you will be able to:

- classify the methods of mass communication
- differentiate between different types of print media
- prepare some print media
- discuss the usefulness of radio, film and television
- evaluate radio listening and television viewing behaviors.

8.2 CONCEPT OF MASS COMMUNICATION

The term 'mass' in mass communication has kept stretching its meaning to include even greater numbers with the development of every new technological tool for

communication. It has, thus, become an elastic term referring to no fixed number of a country's or world's population. How many people ought to be reached, for instance, cannot be defined for a communication via a traditional or electronic medium. The concept of 'mass' like 'communication' itself vague and indefinite. The concept 'mass communication'; is doubly so.

Nevertheless, experts in the field attempted to pin down the term mass communication thus.

Mass communications comprise the institutions and techniques by which specialised groups employ technological devices (press, radio, films, television etc.) to disseminate symbolic content to large heterogeneous and widely dispersed audiences.

Hence, this unit of mass communication methods also deals with the technological devices like press, print media, radio, films, television. However, the traditional media which are powerful are not left out, but dealt under Block 4 on "Communication approaches in nutrition and health education".

8.3 PURPOSE OF MASS COMMUNICATION MEDIA

Mass communication media-written, spoken, and audio visual-carry information from sources to receivers. The media may be used effectively in dealing with all sections of people everywhere. They are specially important not just for news transmission, but also deal with knowledge of different kinds and attitude or frame of mind of the communicator. It is experimentally proved that mass media helps 'to be aware of' and 'interested in' the new idea presented. It is also proved that mass media need to be coupled with interpersonal methods in order to reach the stage 'adoption of new practices' through evaluation and trial.

8.4 CLASSIFICATION OF MASS COMMUNICATION MEDIA

Mass Communication media are essentially classified, based on the form in which information is communicated to different masses. The classification is like this written, spoken and audio-visual.

As the term '*written*' indicates, the information is presented in the script form using language, with or without illustrations and also exclusively through illustrations. Examples of written media are wall newspaper, banners, etc. These media call for effecting reading skill of the learner for successful communication.

Spoken media means oral communication using language. Radio is an example of spoken media. This medium can be utilized successfully based on the listening skill of the audience.

Audio-visual includes both oral and visual communication simultaneously which stimulates both audio and visual senses of the audience. Film is one such medium. Audio-visual media demands seeing and listening skills of audience to make the maximum utilization of the media.

Each of these three types of mass media has its specific and common purposes. Similarly they have their merits and demerits. Details of each type of media are discussed under the following sub-sections.

8.4.1 Printed Written Media

In this sub-section you will be learning about written media. The purpose of print media or any other media is to present a 'Message' to an audience. The more receptive the learners to message, the greater the possibility of action. A message presented clearly, accurately and in an attractive manner stands a better chance of getting through to the learner. Authors using concrete examples from the learners experiences will improve chances of the message being understood and acted on.

The printed word is used in all extension education programmes. Sometimes the value of it is questioned due to high illiteracy among the adult learners of nutrition and health education. However, its role can be improved by using number of illustrations to supplement the written word. The print media can be used to supplement other communication methods rather than singly. For example, relevant handouts can be prepared to distribute at the end of or during lecture and food demonstration.

You may be aware of few printed media if not all. Can you just mention a few printed media in the space provided below?

- 1)
- 2)
- 3)
- 4)
- 5)

You can either supplement your list or correct it by looking at the list of printed media given here.

List of Printed Media

- | | |
|---------------------|-----------------|
| 1) Newspapers | 2) Leaflets |
| 3) Circular letters | 4) News letters |
| 5) Folders | 6) Banners |
| 7) Wall newspapers | 8) Calenders |
| 9) Bulletins | 10) News story. |

Are you aware of the basic differences among the above mentioned types of printed media? If you are aware, go through the following pages to refresh your mind. If you are not aware please get to know them as you read this unit Here some of the common print media utilized for educational communication are discussed. They are leaflet, circular letter, folder, banner, and calender. If you are interested in learning about the print media other than the ones discussed here, look at the reference cited or go to other reference and learn more about the print media.

A) Leaflet

A leaflet is usually a single sheet of printed "matter, sometimes folded. It gives you accurate or specific information on a particular topic. It is suitable to provide information about the method of preparation of different nutritious recipes and symptoms, treatment of various nutritious deficiency diseases, etc. An illustration of a simple leaflet is presented in Figure 8.1

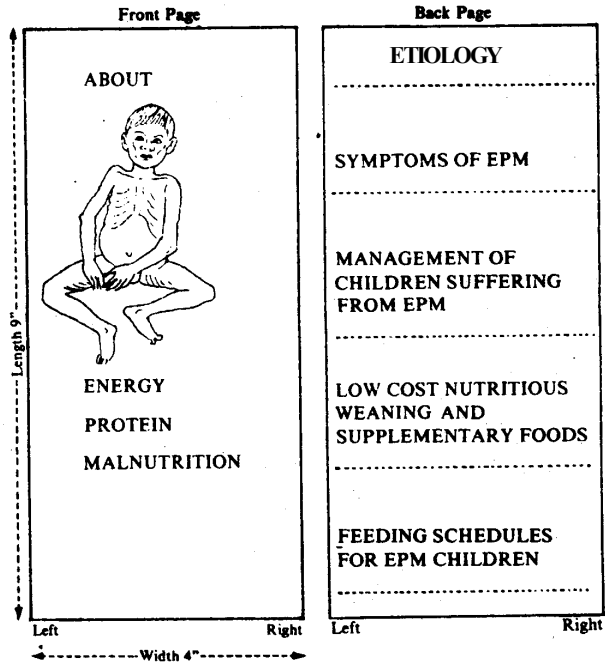


Fig. 8.1 : Leaflet

B) *Circular Letter*

Ocular letter circulates the message, in the form of a letter, among the intended group of receivers. Hence the name circular letter was designated to this medium. Circular letter has an intimate, personal approach to the message receivers. Receiving a letter is an important event in the life of any person. Using the letter form is an effective method to convey information of common interest to a large number of people at one time. There are two types of circular letters—*announcement* and *subject matter*.

An *announcement letter* announces about an event to take place. It is suitable to announce future events, for example a child’s immunization campaign in a particular village. For example, it can be used for giving details about different types of vaccines. *Subject matter* letter is designed to bring about change in behaviour by way of presenting the information in personalised form.

A model circular letter is given in Figure 8.2

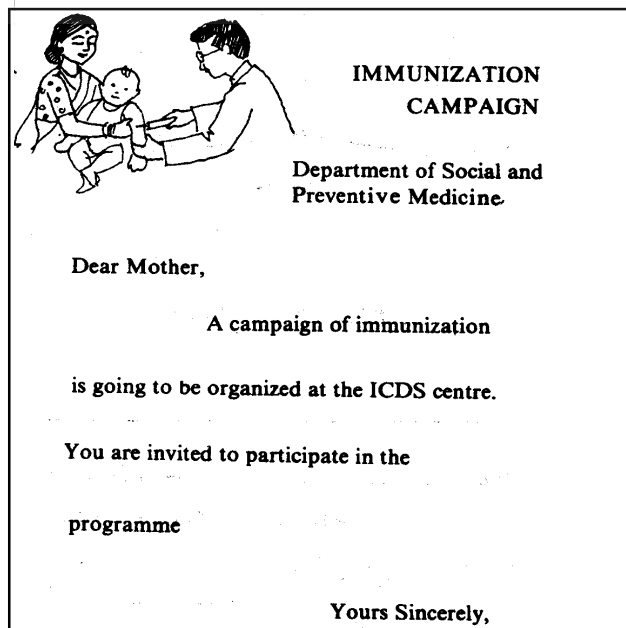


Fig. 8.2 : Circular letter (announcement)

C) *Folders*

It is a single piece of paper folded once or twice. When opened, material is presented in sequence. Make sure this sequence appears in the finished folder, if not, the reader may get confused.

Folders are normally printed on thick paper. They may be made more attractive by using photographs; line drawings and various colours of inks and paper. A four-inch by eight-inch folder is quite attractive. A width-to-length ratio 1:1 1/2 (one and a half) may be more suitable when paper size permits, without waste. However, there are no set rules for size. The basic consideration is that publication size fits the paper stock, thus eliminating excessive trimming. Folders are economical. For example, a folder can be prepared to educate the mother about the importance of supplementary diet to children or about vitamin A deficiency disease. Types of folder are displayed in Figures 8.3(a) and 8.3(b).

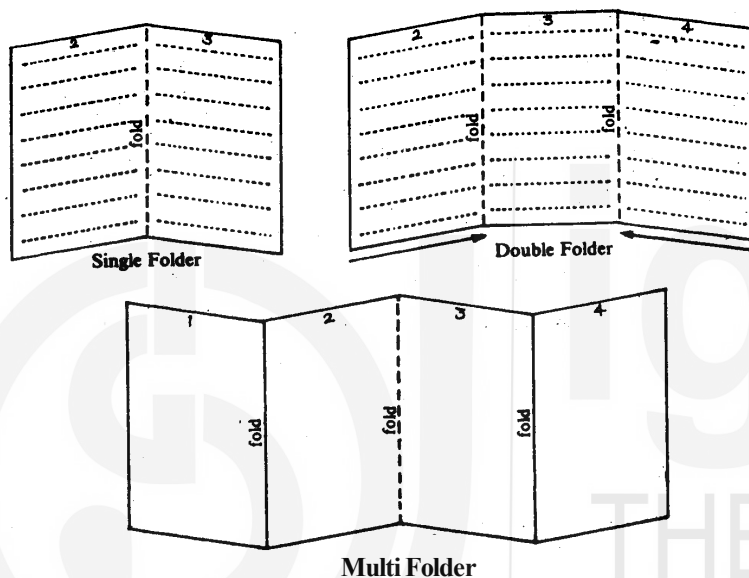


Fig. 8.3(a) : Types of Folder

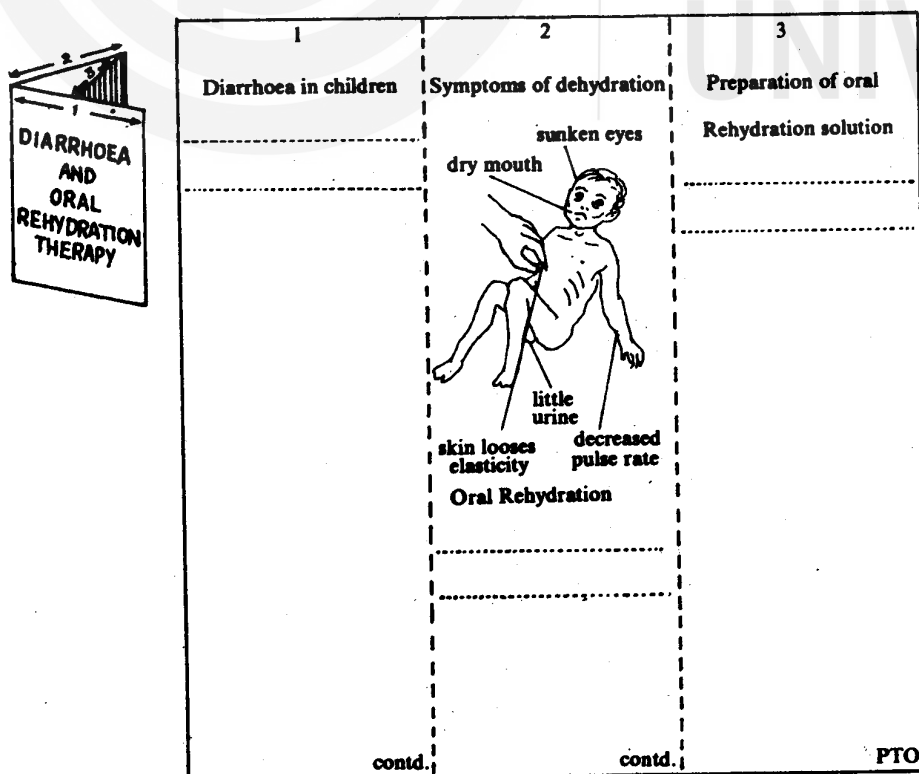


Fig. 8.3(b) : Folder on diarrhoea and oral rehydration therapy

D) *Banner*

Banner is an ancient and a well-known information visual in India. You need only to walk down a busy street in urban areas, to find banners flying, advertising everything from sports meets to sweetmeat shops. Nutrition and health educators seldom use them. Banners are rather costly and require considerable time and skill. As with all other information materials, they must be attractive with a brief, clearly presented message. Height and length of a banner should be of pleasing proportions, approximately 1:4. Firmly affixed pictures increase “attention-getting” qualities of banners.

Unless durable cloth and water proof paints are used, wind and rain may destroy the banner or smudge its message. A banner may be erected by attaching it to bamboo poles, or telephone or electric poles. Banners are also atop buildings and over shop entrances. This helps to get protection from vehicular transport. Illustrations of sample banners are presented in Figure 8.4 (a & b).

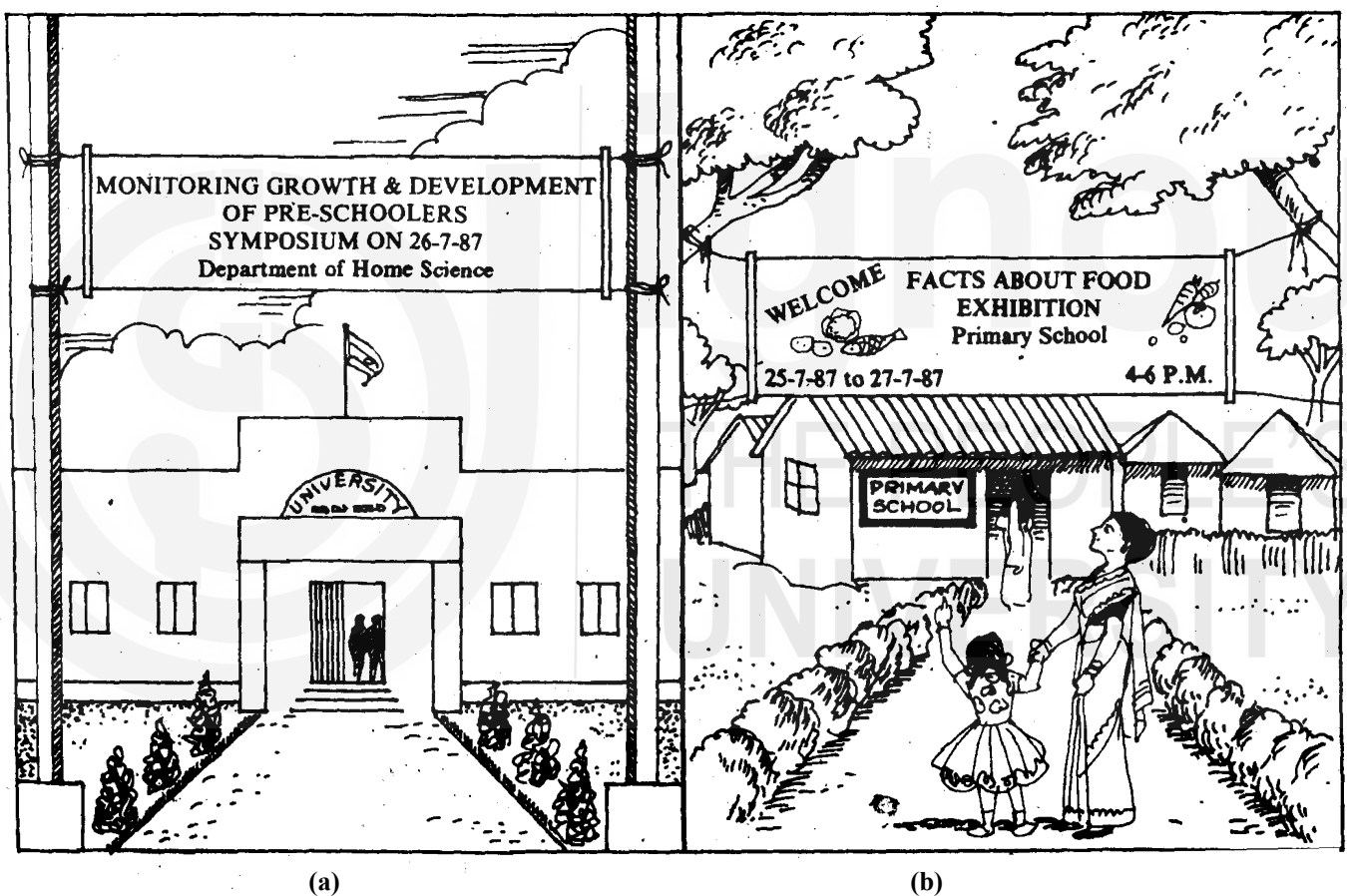


Fig. 8.4 (a & b) : Banners

E) *Calender*

Calender are tuely distributed in most countries of the world as an advertising tool. They can be utilized for nutrition and health education. For example, it can be used to give messages related to ‘infant feeding’ or information about the immunization schedule during the first year of child’s life.

Such calenders are very useful. A unique advantage of calenders, when hung in schools, homes and offices, is that they are constant, year round reminders of educational messages shown. Model calender is given in Figure 8.5 for the learners to have an idea about educational calender which serves dual purposes. Calender are an economical educational device. For example, a six-page 15 x 20 inch calender costs approximately Rs. 3/- each when a large number is printed.

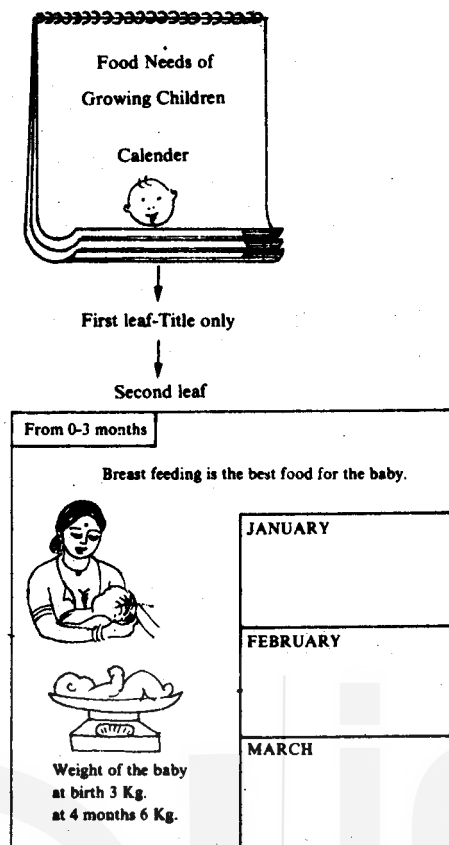


Fig. 8.5 : Calender

8.4.2 Spoken Media

You might remember learning earlier that spoken media means oral communication using language. We will be learning about one versatile spoken medium namely 'Radio' in this sub-section.

Radio is the friend of the masses. As everybody knows, it is a familiar item in one's 'life and a very good information channel. It is a mass media of communication and can reach a large number at any given time.

Every radio station, in our country, is broadcasting several varieties of useful programmes in different languages to categories of people with different objectives. Often extension and subject matter experts are asked to conduct programmes in the fields of Home Science, Health, Agriculture, Animal Husbandry, etc. for different types of community people. While some programmes appear very interesting and suitable to the group concerned, certain others are felt dull and drab. While the defects may be related to script writing or talking of listening, good script writing mainly contributes to the success of the programme.

Nature of the Medium

The radio belongs to me spoken media. The medium is transient and fleeting and its impression is quick and faint. It is a one-way communication. Therefore, message has to be simple and clear so that people can understand it and act if need be.

Preparation of script for Radio

Have you participated in any radio programme earlier? Can you think of a few guidelines to be observed for preparing the script? List down the guidelines.

- 1)
- 2)

- 3)
- 4)
- 5)

If you cannot do this, read on and be sure of script writing. The first step in script writing is:

a) *Collecting the required material- For doing this:*

- determine the purpose first and state objectives in a clear manner,
- know the nature of listeners to be informed,
- decide an interesting method of presentation,
- collect all the possible relevant material,
- select authentic material and arrange it in order,
- be sure to include supporting and illustrative facts.

After collecting the material move on to writing the script. Few tips for writing the script are given below.

b) *Writing the material- The tips include:*

- prefer to use local information and experiences of the target audience in the selected topic,
- divide the material into different parts for easy understanding, be direct and personal,
- keep listeners view point and help them to release the importance of the programme,
- avoid academic style.

After writing the material we discuss the third step in script writing.

c) *Analysis of the existing educational programmes broadcast through radio*

The basic problem which has prevented a wide scale utilization of radio is the absence of visuals for the learners. But, the programmes can still be made interesting and useful if the extension experts are creative in disseminating the messages of nutrition and health. We, must mainly keep the following criteria in mind:

- appropriate time of broadcasting (to most of the relevant listeners).
- interesting style of presentation-dialogue, persuasive, etc.
- purposive outlook.
- repeat message at different point of time.
- feedback to be obtained about a programme through letters. Discussion in the next programme session and modification of future programmes.

With regard to the radio as an effective medium of the educational programmes, it enhances the creative aspect of the listener, provided the communicator is sensitive to the potential of the medium and the programme is well made.

Advantages and Limitations of Radio

Each medium of instruction has its own advantages and limitation. Are you aware of any advantages and limitations of radio? If so, do this mental exercise and supplement your existing information with the information given in Box 8.1.

Advantages	Limitations
<ul style="list-style-type: none"> • Radio is relatively cheap. • Maintenance of radio is easy. • Some good programmes are available in the areas such as nutrition and health. • It reaches illiterate and literate audiences. • It can build enthusiasm and maintain interest. 	<ul style="list-style-type: none"> • Time assigned for educational programmes is short • No scope for immediate feedback. • All listeners cannot be involved in the preparation of broadcasting. • Entertainment programmes compete with the educational programmes. • Limited coordination between the transmitting authority and receiving ends like classroom. Free times of the non formal groups are not in tune with the broadcasting timings of related programmes.

8.3.3 Audio-Visuals

Audio-visual media which are centrally controlled are discussed here. Film and television are under this category where programmes presented are not under our control.

A) Film

Film undoubtedly, is the 'most fascinating medium of this country. The films are of different types. They are 8 mm, 16 mm, super 8 which are used for educational purpose. The cost of film production is very high and the cost of each film print is also relatively high. 16 mm film projectors are a bit costly for a small institution to own and maintain. Each one costs about Rs. 10,000. However, its impact over the viewers is effective due to its audio visual effects together unlike in radio. The film compels greater attention and impresses the mind more than the non-projected aids. It is the most popular having the widest appeal among all classes of people irrespective of age. A good film can increase factual knowledge and teaching skill, develop favourable attitudes and can even change opinions.

The educational films are not produced in sufficient quantity in the country. The most difficult part in the use of this popular medium is that the viewers, particularly, the nonformal low-income group think it is an entertainment. Carry over effect of the film is rather slow. Hence the film projection should be accompanied with a discussion. Discussion is to be conducted with the audience before and after showing the film, about seeing is already known of the subject of the film, what might be expected from seeing the film and what was actually seen in the film? In a training/ educational situation, a film should always be built into the session and not shown separately on other occasions.

Can you think of advantages and limitations of using films as a means of communication. If you can, list them and tally your responses with the advantages/ limitations of films listed in Box 8.2 .

Box 8.2 : Advantages/Limitations of Film

Advantage	Limitations
<ul style="list-style-type: none"> • Enable the instructor to recreate events, actions, places and time. • Provide real experience which can be shared by the instructor and the learner, • Overcome physical limitations, elements of time, size of the object and distance. • Compel attention because of the illuminated screen in semi-darkness. • Provide common experiences and continuity of action for learning experiences. 	<ul style="list-style-type: none"> • Higher cost of the film projector. • Non-availability of electricity in the required places and appropriate timings. • Technical skill handling a projector. • Scarcity of appropriate films for specific purposes. • Difficulty in transporting and maintaining projector and films.

Using Films (Process): Some points to observe while using film are presented here for its effective utilisation. The points are discussed under three headings—preparation, presentation and follow-up.

a) *Preparation*

- See that the projector is in working order.
- Preview the film.
- Note the key points, important sequences, technical and difficult words.

b) *Presentation*

- Prepare the audience by telling the title of the film and briefing about the theme.
- Put some questions and get the response which may lead the audience to the theme.
- Show the film.
- When necessary, stop showing at any particular point. Ask questions, elicit comments, then continue the film.

c) *Follow-up*

- After the show, encourage audience discussion.
- If necessary, show the film again.
- Clarify any misconception.
- Let the film show lead to further learning of the subject through some related assignments.

B) Television

Television also became another fascinating medium in this country. However, the cost of each T.V. set may not be considered too high for its utility spread over years. It started as an instructional programme for only farmers under the label “Krishi Darshan” in Delhi from 26th January, 1961. Later it got spread to other subjects like health, nutrition etc. Now, regional centres are also available to give programmes: The T.V. antennas springing on top of the houses are an indication of the growing modernisation of society. In an educational set up, cost of it may not be felt for its longest utility. The nutrition and health communication through T.V. is gaining momentum in the recent past. It’s impact over the viewers seem to be more beneficial than that of other projected aids. This might be due to repeated exposure of a specific message through television unlike in other projected aids. Like in radio, it is hoped to get allotment of a specific time slot everyday for nutrition and health communication in T.V., then variety of modes of presentations can be tried for effective nutrition and health communication.

Have you realised merits and limitations of television in the context of educational communication. If so, supplement your ideas with the following by carefully reading the material given here.

Merits and Limitations of Television

Merits :

Television is the most important mass medium not only because of its vast coverage but also because of the largest visual impact. It has established itself as an effective medium of information transfer. It has got its unique potential to communicate to the two most important sense organs. It is also meeting the challenge of quick transfer of changing concepts in nutrition, health etc.

Limitations:

T.V. sets are being manufactured by a large number of companies in India. By and large they are expensive (ranging from Rs. 2,000 to about Rs. 14,600) for a common man to possess. The software of the programme transmitted by the T.V. authorities may be considered of moderate quality. Maintenance of the set certainly poses lot of problems. Like radio there is added problem of coordination of the programmes being transmitted with the leisure times of the different non-formal and formal groups of audience. Feedback is also not yet built into the T.V. communication.

UNIT 9 PRESENTATION OF SELECTED COMMUNICATION MEDIA

Structure

- 9.1 Introduction
- 9.2 Methods of Presentation of Selected Communication Media
 - 9.2.1 Lecture
 - 9.2.2 Group discussion
 - 9.2.3 Demonstration
 - 9.2.4 Role-play
 - 9.2.5 Discussion—Decision
 - 9.2.6 Inquiry—Discovery
- 9.3 Planning and Preparation of Scripts for Software
 - 9.3.1 Radio
 - 9.3.2 Television

9.1 INTRODUCTION

Effective communication skills can be achieved through three different efforts. First, you must know the principles and process and the cues for effective use of communication methods. Secondly, you must visually perceive the actual process of different communication methods. Then only you will be in a position to use some of the methods yourself. Thirdly, you must make an attempt to use them. If these trials continue in many occasions, you can gain perfection in using different communication methods.

We have learnt the principles underlying some selected communication methods suitable for nutrition and health education and their merits and limitations in the previous two units. Now in this unit we will be exposed to certain cues for effective presentation and to actual presentation of the selected communication methods. Further, we will be provided an opportunity to use them in certain nutrition/health educational situations. We will also get a chance to develop software for radio and television.

Objectives

After studying this unit, you will be able to:

- discuss how to communicate through lecture, group discussion, demonstration, role-play, discussion-decision and inquiry-discovery methods of communication.
- plan and prepare the script for radio and television.

9.2 METHODS OF PRESENTATION OF SELECTED COMMUNICATION MEDIA

Lecture, group discussion, demonstration, role-play etc. are some of the methods of presentation of communication media. Initially we will be talking about the cues for effective presentation of certain selected communication methods. Then we will also get a chance to use these methods on a topic of our choice. We begin our study with lecture method.

9.2.1 Lecture

It is used to *stimulate the “learners and to introduce., review and summarise* a topic. The major *cues* to remember while using lecture method include:

- create an informal atmosphere-involving learners by questioning. asking for their opinions, ideas etc. related to the theme introduced.
- don't read long passages. Be confident and talk 'to' but not 'at' people.
- during the talk observe your audience carefully to get the feedback.
- include visuals during lecture.
- conclude the lecture with questions for learner involvement

A plan on how to present a Lecture is given here.

9.2.2 Group Discussion

This method is used to *get learner's input, stimulate individuals thinking, provide fast manner of attacking problems and to pool ideas from different individuals* in a short period of time. It is ideal for problem solving. The important cues to conduct an effective group discussion are:

- 1) Define the problem clearly to the group
- 2) If the group is large, divide the group into smaller ones to facilitate everyone's participation in the discussion
- 3) Appoint a Chairman for each group
- 4) Guide each group to arrive at all the possible solutions
- 5) Analyse each solution in terms of its merits and demerits
- 6) Let the Chairman report about the solutions discussed
- 7) Discuss and arrive at the most feasible and flexible solution to the problem.

How to conduct a group discussion? A plan on how to conduct group discussion is presented here for your reference.

Guidelines for effective conduct or group discussion

Topic: How to combat Malnutrition in Children?

Objective: To help learners identify the problems related to malnutrition and to know the cure for and prevention of malnutrition.

Process: Prepare a chart of three food groups (as indicated in Figure 9.1) with pictures. Show learners the chart and ask them to identify what their children eat daily. Help them to realise what foods children eat or do not eat under each food group.

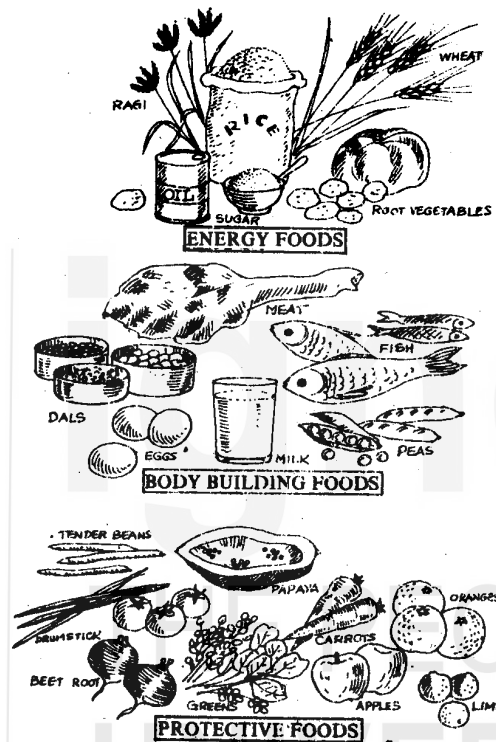


Fig. 9.1 : Three food groups

Next show to the children one by one pictures of different types of malnutrition and ask them to identify the symptoms of the conditions. One example is indicated here—marasmus (PEM).



(Photo Courtesy : National Institute of Nutrition, Hyderabad)

- | | |
|---|--|
| <p>1) <i>Marasmus (protein energy malnutrition)</i></p> <ul style="list-style-type: none"> • Very much underweight • Very thin • Hungry look (observe the eyes) • Potbelly • Face of an old man (wrinkled appearance) | <p>2) Night Blindness (Vitamin A Deficiency)</p> <ul style="list-style-type: none"> • Cannot see in the dark • White of the eye loses its sheen and begins to wrinkle • Cornea becomes dry and dull |
| <p>3) Anaemia (Iron Deficiency)</p> <ul style="list-style-type: none"> • Pale and transparent skin • Pale insides of eyelids • Pale gums • Shiny smooth tongue • Pale finger nails • Weakness and fatigue • Swollen face and feet • Rapid heart beat • Shortness of breath • Feel like eating mud, dirt, etc. | <p>4) <i>Angular Stomatitis (Vitamin B deficiency)</i></p> <ul style="list-style-type: none"> • Sores or cracks at the corners of the mouth • Skin dry and cracked |

At the end of all presentations, conduct a discussion with the following questions:

- What is the local name for each of the diseases described?
- What are the causes of each one of the diseases according to the people in your area?
- What are the practices of people either in curing or in preventing each of the diseases?

Then, make a comparison of the actual food intake either children with the required intake either to cure or prevent different types of malnutrition. You can bring home to them the importance of quality and quantity in food intake. For example:

- | | |
|--|--|
| <p>1) In the case of marasmus</p> | <p>— eat energy rich foods in sufficient quantity.</p> |
| <p>2) In the case of night blindness</p> | <p>— eat dark green leafy vegetables, yellow or red coloured vegetables milk and eggs.</p> |

- | | | | |
|----|-----------------------------------|---|--|
| 3) | In the case of anaemia | — | eat ragi, green leafy vegetables (drumstick leaves) jaggery, fish. |
| 4) | In the case of angular stomatitis | — | eat unpolished rice, fermented foods, whole grains and cereals. |

You, the instructor can help the learners understand that they can combat malnutrition by feeding their children different foods which they can easily get in their village.

The children's diet, necessarily should contain:

- dark green leafy vegetables and fruits
- milk and milk products
- fresh foods and pulses
- seasonal vegetables
- sugars and oils
- cereals and millets

You were just introduced to one way of conducting a group discussion. Depending on the topic and audience you can accordingly plan your group discussion. Practice will make you perfect How to practice the method? Lets consider.

Practising the method: Observe the video or actual presentation of a group discussion and try to acquire the skill in group discussion. Later you can make an attempt either to participate in a group discussion or to conduct a group discussion or both on any relevant topic.

This is a method used to show a *process to do something step-by-step so that one can learn new skills and how to do something by oneself*. Each step of a demonstration is accompanied by an explanation of what is being done how and why? In this way, learners gets an opportunity to see how something is done before they actually try it out by themselves. Some cues for better presentation of a demonstration are given here. They are:

- plan well and practice well
- present a topic or method which meets the needs of the learners yet at the same time is simple, enough to be clearly understood
- base the demonstration on a practice or method which is correct and effective
- use locally available materials and equipment
- involve the learners in the preparation and presentation. Telling the learners in advance about the demonstration gives them a chance to be prepared enough to participate. They can also help by bringing the needed materials from home. Give everyone a chance to practise
- look at the audience while you work
- be clear and simple with easy-to-follow instructions so that learners can repeat the method they are being shown
- introduce a new method which is an improvement over the currently used method and encourage the learners to try the new method by themselves

- allow time for questions and answers, following the actual demonstration.

Geared with the cues can you now conduct a demonstration independently. For, your reference few guidelines for conducting an effective demonstration are given in the following section. Read them carefully and try practicing them.

Guidelines for conducting an effective demonstration

Topic: Preparation of weaning food. *Objective:*

- 1) To demonstrate a simple method of preparing a weaning food.
- 2) To provide learners with a picture recipe of weaning food prepared during the demonstration.

Time : 30 minutes *Materials needed:*

- Paper
- Felt pens
- Stencil of design for recipe card
- Fruits or vegetables
- Water for washing food
- Soap and clean towel for washing hands
- Knife or peeler
- Fork or 'spoon for mashing
- Clean serving bowl
- Clean spoons for tasting

Preparation:

- Inform the learners in advance about the demonstration
- Select the recipe you wish to use for the demonstration
- Have ready a fruit or vegetable for preparing the weaning food and the equipment you will need.
- Prepare the recipe cards. (This can also serve as a learner activity following the demonstration). Be sure you have adequate supply of paper and pens for the entire class.

Procedure/Method (for preparing 'papaya puree') :

- 1) Explain to the learners what the weaning food is, which type you will prepare, and what utensils are needed.
- 2) Carefully wash your hands with soap and water. Caution the learners that it is important to wash the hands ~fore touching food.
- 3) Wash the fruit under clean water and ask the students why this is necessary.
- 4) Peel the fruit and cut it into small pieces (if necessary, cook it in a small amount of water just until soft). Explain why this is important. .
- 5) Mash the food in a bowl with a fork or spoon and ask the students why this is done. Put the food into a clean container and let the learners taste the recipe scooping with clean spoons.

Practising the Method:

- Observe an actual demonstration or video cassette or screen the film presentation of a good demonstration.
- Make an effort to learn the skill in conducting demonstration by observing the method repeatedly.
- Try to give a demonstration on any topic of your choice in nutrition, to a group of learners.

9.2.4 Role Play

It is a spontaneous dramatization which is not rehearsed and sentences are composed on the spot. It is an activity where people act out real life situations. Some may also pretend to be persons with certain problems.

What is the purposes for which role play can be used?

Role Play can be used to develop:

- *Social awareness:* opportunities to look at habits, customs, attitudes and traditions and how they influence nutrition and health practices.
- *Practical skills:* Trying out new techniques and ways of doing things.
- *Social skills:* Study human relations, problems and group behaviour and gain insight into one's own behaviour
- *Teaching skills:* Practice in communicating new ideas and skills to others.

The important cues to remember to facilitate role play include:

- 1) Describe the characters and roles (briefing session.)
- 2) Select role play participants
- 3) Let the audience identify themselves with a characters and. compare their feelings , and actions with those of the character portrayed
- 4) Give a few minutes to set stage and discuss roles
- 5) Encourage participants to feel free and act the 'role of the person they wish to portray
- 6) Have a discussion (after the role play)

A plan on how to conduct a role play is presented here for your reference.

Guidelines to Conducting a Role Play

Topic: Night Blindness

Objective: To help the learners identify the symptoms of Night Blindness

Duration: Approximately 30 minutes.

Roles/Characters

Child 1, is suffering from' night blindness

Child 2, is normal and plays the role of a sibling Health worker

Mother

Father

Materials: Table, chair, lamp etc.

Presentation

Child 1: bumps into chair and table when the lamp is turned off.

Child 2: run to the parents to explain the event. The parents observe the child with the lamp on and off. They sense a problem and go together to the health worker who identifies the problem and explains what night blindness is and how to prevent it

Questions

- What is night blindness?
- What are its symptoms?
- How can we prevent night blindness?
- What should we do if someone we know has symptoms of night blindness?

It would be worthwhile if you can start a collection of role plays. If you so desire each time a role play is made, make a note of:

- the topic or subject of the role play
- the learning objectives of the role play
- the different roles needed
- any materials, visual teaching aids needed
- how the role play was presented
- how long the role-play lasted
- questions concerning the role play which can be used for group discussions, follow-up to the role play or for review
- Comments and suggestions for improving the role play.

Note this information for each role play witnessed on either filing cards or in a diary with index tabs for easy reference.

Practising the method:

- Get a chance to see actual enactment of a role play or a presentation of a role play through video cassette or film.
- Observe the method of presentation and try to learn the skill.
- Make an attempt to participate in a role play enacted by a group on a specific topic in health or nutrition to a non-formal audience.

9.2.5 Discussion-Decision

It is aimed to *stimulate/motivate* the learners to *change* their *undesirable attitude and behaviour*. The essential cues to consider while using the Discussion-Decision method are:

- 1) Create an informal atmosphere by involving learners in discussing about the topic
- 2) Allow the learners to think on their own
- 3) Don't suggest solutions

- 4) Let the learner herself/himself decide on the feasible solution.

Simple guidelines for effective presentation of Discussion-Decision method are given here.

Guidelines for effective presentation of discussion—decision method

- 1) Select a group of mothers who are in need of nutrition and health education.
- 2) Arrange a few scenes — the facilitator discussing and recognising the nutritional problems of the selected group.
- 3) Organize few scenes— Identifying the feasible solutions to the recognised problems.
- 4) Arrange a scene—Deciding on an appropriate solution to the problems identified.
- 5) A concluding scene-Motivating the group particularly the key women to practise the solution chosen.

Thus, a series of scenes need to be arranged to gain perfection and confidence.

Practising the Method

- 1) Get exposed to actual or video cassette presentation of the method “Discussion decision”.
- 2) Observe critically the method of presentation and try to learn the skill.
- 3) Make an effort to practise the method in a similar situation with a group of mothers. You will gain confidence in using the method only after repeated use.

9.2.6 Inquiry-Discovery

It is aimed to provide opportunities for the learners to learn by their own acts and observations. It is a behaviour change-oriented method. Some clues for conducting inquiry-discovery method effectively include:

- 1) Instructor must be highly skilled to create a favourable environment for the learners to think.
- 2) Correct inquiry is to be made to identify the problems of the target group.
- 3) Discovery of the appropriate solution to the problem must be made through exploration.
- 4) Instructor must act as constant guide at every stage to the learners.

A step-by step account of how to conduct inquiry-discovery method is presented here? Read carefully.

- 1) Select a group of mothers who need nutrition and health education
- 2) Arrange a few scenes-Instructor making an inquiry of the nutritional/ health problems of the selected group
- 3) Organize a few scenes-Discovering the possible and appropriate solutions for the identified problems
- 4) Enact a scene showing the selection of a feasible solution out of many
- 5) Enact a final scene showing the practise of the accepted solution by the learner(s) and field support provided by you the instructor.

Likewise a series of scenes' need to be arranged to gain confidence and perfection.

Practising the Method

- 1) Follow the method of presentation carefully and try to learn the skill.
- 2) Make an attempt to use the method similarly with a different group of mothers (in your area).
- 3) Try to make repeated attempts to become skilled in using the method.

9.3 PLANNING AND PREPARATION OF SOFTWARE FOR MASS MEDIA

If educational communication through mass media needs to be effective, involvement of concerned educators is very essential. Hence, the role of community educators in designing and developing software for radio and television has been recognised. In this context, there is a need to educate ourselves with certain attributes of a good educational radio and T.V. programme.

9.3.1 Radio

Throughout the world, educational radio programmes have become popular and in certain countries it has worked wonders. Educational broadcasting has been used for enrichment purposes for non-formal education for open school and open university systems. Cues to develop a good radio programmes include:

- 1) Since sound is the only means, it has to be supported with posters, slides, discussions, etc.
- 2) Listening skill can be improved by adopting attention-drawing and interest sustaining techniques.
- 3) Sound being the only medium, it has to be enriched by variety and reality in music and sound effects.
- 4) Suitable script should be developed by generating interest and curiosity throughout.
- 5) Scripts are to be properly handled by the producer in producing programmes.
- 6) It should have emotional appeal, power to stimulate the imagination to bring the distant word to the listeners.

You can think of producing better programmes by following the cues given above. However, producing good programmes is just not enough. Having an alert interested community is also essential. How to improve radio listening behaviour of the community is discussed in the following section.

Techniques to improve Radio listening behaviour among the Community

- 1) Analyses the radio listening behaviour
- 2) If the target audience do not have the habit of listening to nutrition and health education programme find out the reason and try to advise accordingly.
- 3) Help them to be aware of the kind and timings of programmes.
- 4) Try to listen to the A.I.R, programme along with a selected group/audience (3 or 4 times) and help them to get the message and discuss the advantages of the same.
- 5) Announce to the learners about the importance of A.I.R. programmes to be broadcast.
- 6) Conduct discussions on the same topics quoting the ideas broadcasted.

If the above stated acts are conducted for a period of time, good radio listening behaviour will be established in the selected groups. These selected groups may spread this habit of listening to radio, to others. Thus, the radio listening behaviour can be encouraged among the community.

A good script is also very essential for a good radio programme. Writing radio script is an art. It requires a lot of imagination, creativity and resourcesfulness on the part of the writer. For writing a good script simple guidelines are given here. Hope they would assist you in script writing.

Guidelines for Radio Writing: “Writing to be heard”

- 1) Script must be written in the right language for the listener.
- 2) It must be written, by taking into account the listener’s background, education and interest. Writer must think about the structure and vocabulary carefully.
- 3) The words used are not read by the listener—they are listened to. So the words must appeal to the EAR but not to the EYE.
- 4) Writing for the ear is quite different from writing for the eye. Too many facts and figures cannot be given. It must be developed logically. There is a need to *repeat*, *expand* and *reinforce*. The language must be simple and informal particularly for the non-formal audience. The listener’s attention must be held using *SPOKEN LANGUAGE*, otherwise he switches off mentally.
- 5) The writer must take the listener to be his personal friend. He must:
 - talk to the listener and not at him
 - hear in his mind all the tones of voice that will communicate the script
 - visualise the listener
 - read the script aloud to himself and ask
 ”What do I sound like”?
 “What do I mean”?

Writing of scripts free from all errors-thematic as well as linguistic-is very important for success of the job. It is both desirable, as well as, practicable to train the learner to write scripts, for educational radio. In order to write suitable script, besides content knowledge, the writer should have knowledge about techniques for attracting attention and creative expression and proficiency in language and presentation styles.

A sample radio script in nutrition is given in Annexure 1 at the end of the unit. Read it carefully. This will give you an idea of how a script is worked out

Educational television, generally, denotes any television used for education of the community. It is capable of creating interest and motivation in both adults and children in related topics. It also facilitates training of the teacher through observation of good teachers in action and imitates various aspects 'of teaching and teaching skills.

Television gives a visual image of the message and uses a language that transcends all barriers of natural speech. Script is one of the factors responsible for success or failure of television.

An exploratory study conducted by the Ministry of Education in collaboration with the Educational Technology Cell, Orissa, and Doordarshan Kendra, Cuttak; suggested the following recommendations from a production and utilisation point of view-

- 1) A team of producer, educationists, instructors and learners is essential for planning, production and use of educational T.V. programmes.
- 2) The working group should concretise the approach for commonality of interest and needs of the group and develop Objective for television and select the appropriate .areas for the use of television.
- 3) Since the use of television Will make considerable demands on the resources and ingenuity of instructors, there is a need to make provision for T.V. in the community centres and the instructors may be exposed to good programmes for a reasonable period.
- 4) Learners are more receptive and better responsive to the educational T.V. programmes than to the instructors lectures.

How to write T.V. script? Is it different than writing for radio? Read guidelines for writing T.V. script given in the following section and find out for yourself.

Guidelines for writing T.V. Script

- 1) The script must be simple, direct and personal.
- 2) It must be written with a full knowledge and involvement of programme visuals.
- 3) The presenter's style and personality should be taken into account.
- 4) It must stress and recapitulate its salient points.
- 5) It should involve and address the audience directly.
- 6) It should have variety of pace and. rhythm in the middle of the programme.
- 7) It should not attempt to say too much in the time available.
- 8) It should suggest the suitable visuals, sound effects etc. along with the commentary.
- 9) It should end with a simple resume of the programme's main points possibly with a different visuals presentation.

The T.V. script writer must be in a position to visualise the sequence of the programme and modify his draft repeatedly to suit the audience and put across his ideas clearly and meaningfully. He should keep in mind the objectives, clientele, its profile, content etc., on one hand and the limitations of time, space and resources of the studio and personnel on the other. The T.V. script writer should, therefore, be skillful, creative, imaginative and resourceful.

Techniques to improve T.V. viewing behaviour among the community

The following tips will be hardly in improving T.V. viewing behaviour among the community:

- 1) Make sure that T.V. is available at the community centre.
- 2) Make inquiry of all the T.V. educational programmes related to nutrition and health.
- 3) Help the learners to be aware of those programmes and inform them about the programmes a day before.
- 4) Initially try to see the relevant and important educational programme along with the selected audience and clarify the message to them.
- 5) Motivate the learners to practise the ideas presented.

How to write educational script for Television?

Simple guidelines to this effect are presented below:

- 1) Observe carefully a few good programmes related to health in the Television. For instance, short T.V. film on 'Immunization of Children' by UNICEF 'Right Age for girl's Marriage', etc.
- 2) See the T.V. films mentioned, again and again and note the (on tent, language and presentation style.
- 3) Make an attempt to prepare an innovative T.V. script for another topic in nutrition or health for a selected audience and modify the same keeping the profile of audience in view.

With a view to ensure improvement of programmes, a constant feedback and evaluation service is essential. For improving programmes, quick, simple, effective and on-the-spot methods of evaluation are useful.

UNIT 10 NON-MACHINE MEDIA: PLANNING AND PREPARATION

Structure

10.1 Introduction

10.2 Teaching Aids

- 10.2.1 Classification of Teaching Aids
- 10.2.2 Role of Teaching Aids
- 10.2.3 Planning for Non-machine Operated Devices
- 10.2.4 Principles of Preparation of the Media
- 10.2.5 Cues for Making Effective Teaching Aids
- 10.2.6 Cues for Effective Presentation
- 10.2.7 Evaluation of the Media

10.3 Non-machine Media

- 10.3.1 Poster
- 10.3.2 Charts
- 10.3.3 Hash Cards
- 10.3.4 Flannel Graph
- 10.3.5 Pictures
- 10.3.6 Models

10.1 INTRODUCTION

You have learnt about a set of communication methods suited to nutrition and health education. Methods can be made effective in communicating the messages with the help of teaching aids. This unit, presents a variety of teaching aids, their classification, principles and points to be considered while preparing and presenting them.

Planning, making and using teaching aids (non-machine type) can be an exciting experience both for the teacher and the learner. Development of easy-to-make teaching aids can be entrusted to the interested individuals involved in the process of nutrition teaching-learning. Learning better nutrition goes beyond gain in knowledge to actually adopting desirable nutrition and health practices. Learners must be provided with opportunities to learn both information and skills which they can apply in their daily lives. The teaching aids presented 'in this unit can stimulate the learners to practise nutrition and health concepts to a great extent.

The human mind is made to think and explore. It grows stronger with practice. But it becomes lazy and dull when limited to clearly defined tasks

Objectives

After studying this unit, you will be able to:

- classify teaching aids-non-machine, machine-operated;
- list different non-machine devices appropriate for nutrition and health education;

- discuss the general principles and points to remember while preparing, presenting and evaluating non-machine operated aids;
- plan and make the following non-machine media effectively-pictures, flannel graph, poster, flip chart, flash card;
- evaluate the efficacy of the prepared media, and.
- use the prepared media in certain nutrition/health teaching learning situations.

10.2 TEACHING AIDS

You have learnt about methods of communication in the preceding two units. Now you will be learning about some aids/devices which facilitate better communication. The educational media in its total form consist of a variety of materials. In trying to make teaching effective, one must not depend only on the spoken word to convey meaning, but must utilise various teaching materials. *Materials used to reinforce the spoken word in teaching, which contribute to better learning by the learners, can be termed as “teaching aids”.* In order to be effective, nutrition and health teaching learning must be behaviour specific, practical and applicable to real life. Teaching aids can be used to encourage both teachers and students to take an active part in making nutrition education interesting, fun and exciting. Teaching aids can provide opportunities for teachers to use imagination and creativity to help students learn the skills they need to improve nutrition and health among themselves, their families and their communities. Making and using teaching aids can help learners to observe, explore and understand nutrition concepts and encourage in applying these to their everyday lives. Teaching aids can bring nutrition and health teaching-learning to life.

The first step in teaching is to attract and hold the attention of the people. Sight and hearing are the major senses involved to attract attention and to increase learning. The aids which involve these two senses are effective. However, there is a need to take realistic and commonsense approach to classify these and see their respective utility to different situations.

10.2.1 Classification of Teaching Aids

The educational media (teaching aids) can be broadly divided into two types based on their operation. They are *non-machine operated* and *machine operated* media/devices.

The educational media which do not require a machine to operate are designated as *non-machine, operated media*. A few examples of these are posters, charts, pictures, flash cards, flannel, models, etc. The media which require a machine to operate are designated as *machine operated media*. These are film projector, tape recorder, radio, television etc. Such devices are familiar to many.

The *non-machine operated* devices are further divided into two types based on the mode of preparation.- The *commercially available* material and *teacher-learner made* material (made with the involvement of local resources for a specific, classroom purpose). Let us talk about these devices in detail.

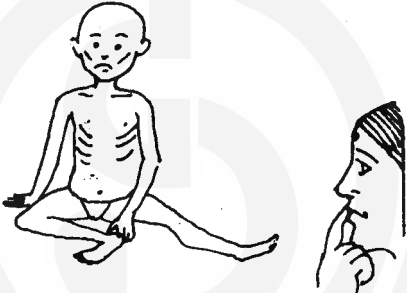
A) Commercial Available Materials

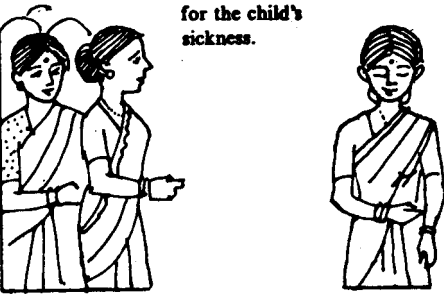
The commercially available material of the non-machine type are produced within any state in the local language. In the preparation of such material, the participation required is that of one or two “others of any cadre, artists and commercial people, but, not necessarily the classroom teacher” or the learner. The utilization possibility of such commercially prepared material can be reasonably widespread over the state. They are of low cost in case of simple posters and medium cost in case of simple charts or models.


The material which is planned and prepared by the teacher and the learners for the classroom purpose is termed as teacher-learner made material. Very often the teacher decides what is to be given -in the charts or the map and he also tests the material by teaching with the help of the aids. The examples of such material are posters, flash cards, bulletin boards, pictures, etc. This kind of material requires motivated teachers to find time to produce educational material using the local environment to a maximum extent These materials also may not cost much and at best they suit class room teaching. These materials can be prepared innovatively, using mostly the inexpensive and locally available materials such as bamboo, broomsticks, seeds, string, egg shells, used blades, match-boxes, old gunny bags, cut out pictures, etc.



10.2.2 Role of Teaching Aids

The role of teaching aids in the instruction is to make learning real, practical and fun through seeing, hearing, discovering and doing. Teaching aids which encourage learners to experience things for themselves through observing, exploring, understanding and applying make learning more meaningful useful and and adventurous. They can really bring classroom learning to life.

<p>Observation</p>  <p>Why is that this child has become so thin? Why is he small for his age? Why is he so— irritable and apathetic? Why doesn't he actively play?</p>	<p>Learners must be encouraged to look at things closely and to ask probing questions about what they see and hear.</p>
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<p>Exploration</p>  <p>Here is the child's mother. Let us find out the reasons for the child's sickness.</p>	<p>Teachers and learners must participate in experiences and activities for learning and discovering together</p>
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<p>Understanding</p>  <p>Yes now I understand from what the mother has said that the child subsisted only on breast feeding for a very long period, the inadequate food intake has resulted in poor growth and development.</p>	<p>Learners must be helped in learning how to analyse situation and problems and guided in working together to find suitable solutions.</p>
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<p>APPLICATION</p> <ul style="list-style-type: none"> ● I shall pick healthy children of different age groups to make the mother understand how rapid children grow. ● I shall use food specimens to explain the amount of food needed by the child and thus help the mother to feed the child properly. ● I shall use charts to explain functions of foods   <p>— Instead of just trying to talk to her about the child's problem</p>	<p>Learners must be given opportunities and encouragement to practise new skills and to put new behaviours into action.</p>
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10.2.3 Planning for Non-machine Operated Devices

Non-machine operated devices in general, must have the following characteristics from the view point of learners appeal and interest:

- Please the senses
- Be accurate
- Be understandable
- Convey up-to-date ideas
- Be simple in design
- Fascinate, intrigue and stimulate action.

If you plan the aids keeping the above mentioned tips/cues in mind, the impact can be very effective. Such planning increases chances for success or reduces the chances of failure in the use of the aids. The best aid is always the actual object, however, any non-machine operated aid can be used in place of the actual object when the latter is difficult to get.

10.2.4 Principles of Preparation of the Media

After selecting the aid, you must consider the following “ABC” principles for preparing the best possible aid:

Attractiveness-The aid should be attractively presented. Useful ‘attention getters’ are colour, movement in the objects, size (any thing large relative to surroundings), shape (simple, asymmetrical, and irregular). All these aspects in illustrations increase attention.

Brevity-The message should be brief and readable in a short time.

Clarity -Message should be clear. The layout should be surrounded with sufficient space for words and illustrations.

After considering the above principles, the following steps in action need to be taken:

- Decide on the actual message to be delivered.
- Choose the code for communicating the message, words, pictures, diagrams and other symbols.
- Select the most suitable design out of several rough drafts, for the aid.
- List the necessary materials required for preparing the aid and obtain them.
- Observe proper sequence when more than one visual or visual sets are used and finally prepare the aids.

10.2.5 Cues for Making Effective Teaching Aids

Read the cues given below. They are handy tips to remember while preparing teaching aid. Whenever possible:

- *Make your own* teaching aids, using *low-cost* local materials.
 - Use and build in *skills learners already have*.
 - Try not to make the aids for the learners, but rather *involve them* in making.
- Figure 10.1 (a).



Fig. 10.1 (a) : Teacher showing the children how to make a poster on food and health

- Look for the ways to use *real objects* instead of just drawing things (Figure 10.1 b).

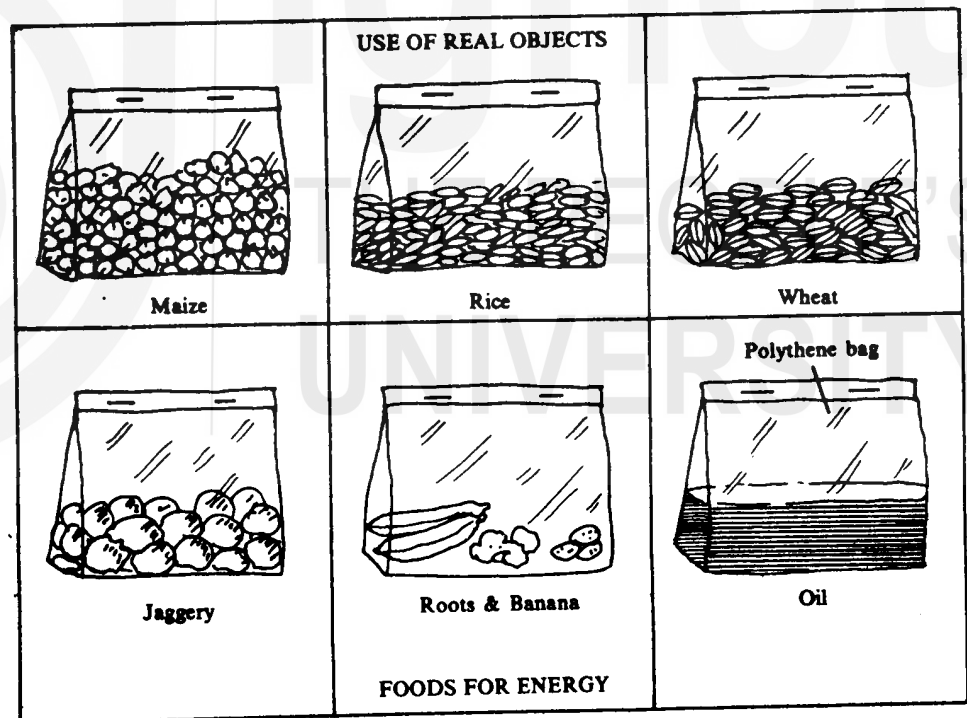
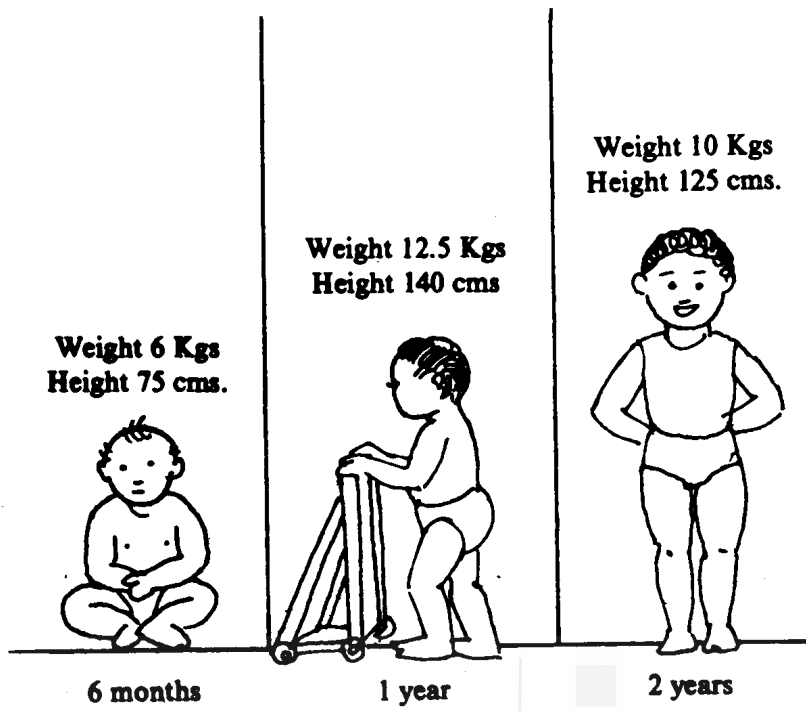


Fig. 10.1(b) : Using real foods to teach functions of foods

- Make the aids as *natural and life-like* as you can, especially when detail is not important (Figure 10.1 c).



Life size models of children made of card board to teach Physical Growth and Growth monitoring of children.

Fig. 10.1(C) : Natural and life-like figures

- Use the aids that call for seeing as well as doing (Figure 10.1 d).

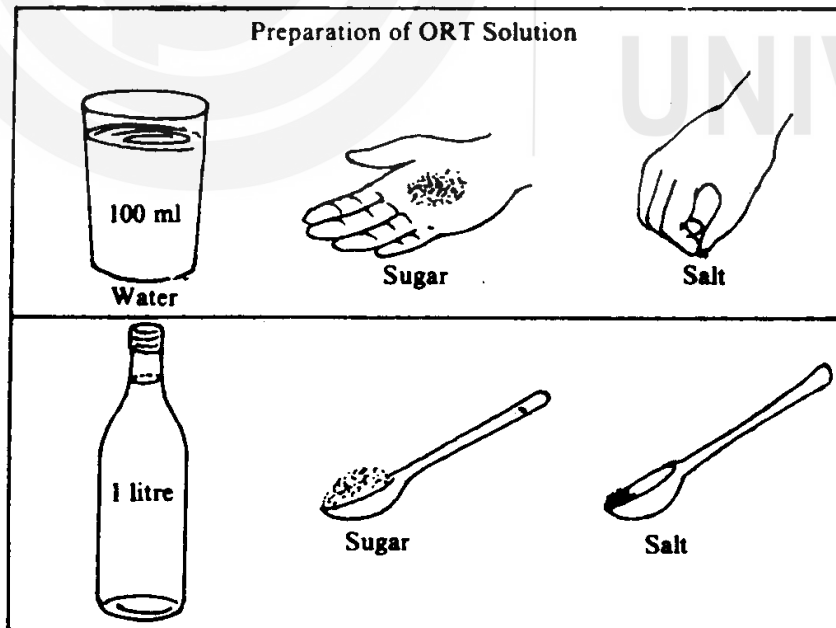


Fig. 10.1 (d) : Aid that calls for seeing and doing

- Make them as fascinating or fun giving as possible, especially for children (Figure 10.1e)

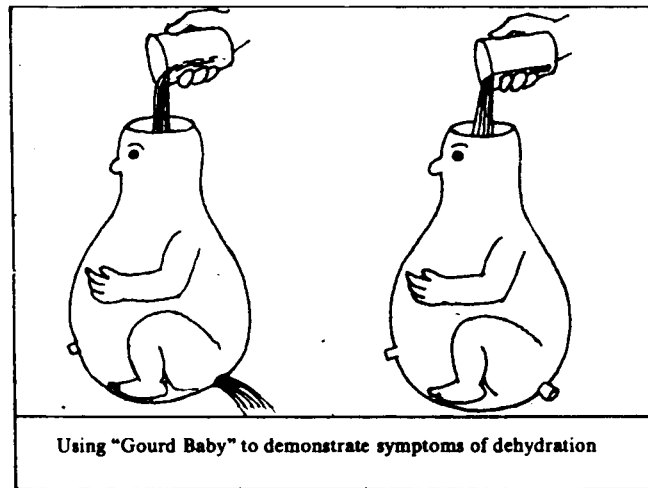
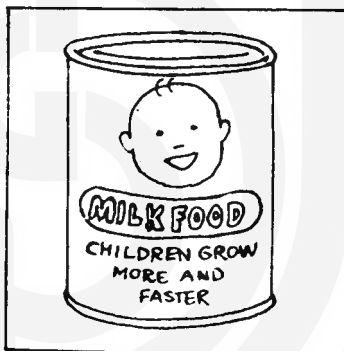


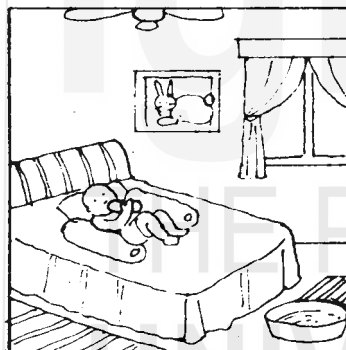
Fig. 10.1 (e) : Fascinating aids for children

- Use teaching aids that help learners to think things through and discover solutions for themselves (Figure 10.1f)

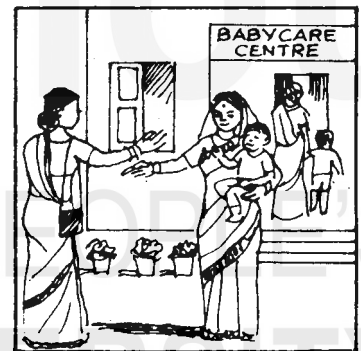
Why is breast feeding declining ? because



(i) Babies fed in tinned food look chubby



(ii) Mothers in the elite groups bottle feed their babies



(iii) Mothers working outside the home are increasing in numbers

- Use your imagination and encourage learners of thinking 10.1 (g)

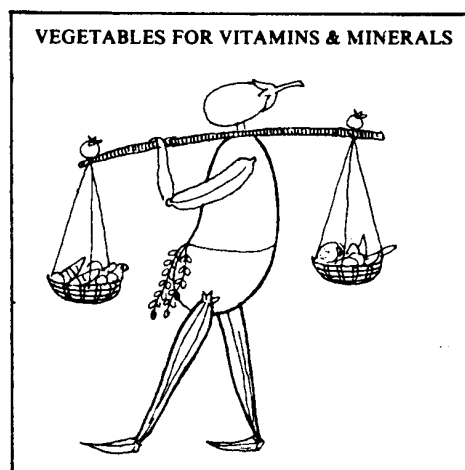


Fig. 10.1 (g) : Imaginative aid

- Keep the aids relatively simple, so that community workers can make their own (Figure 10.1 h).



Fig. 10.1 (h) : Simple aids

- Encourage appropriate teaching aids.

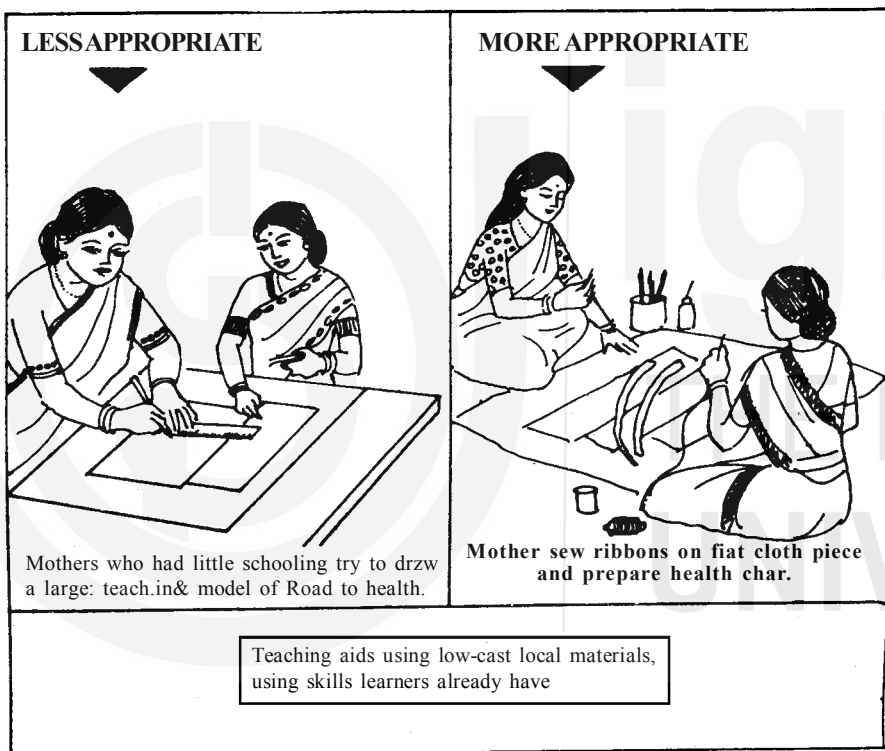


Fig. 10.1 (i) : Appropriate teaching aid

Once the teaching aids are prepared, the right way of presenting these should be known. Given below are few simple cues which would help in effective presentation.

10.2.6 Cues for Effective Presentation

Before starting the presentation ensure the following :

- Arrange the area properly.
- Arrange the prepared aids assuring good visibility.
- Test all the aids to be used.
- Rehearse the presentation including narration.
- Introduce the topic to the learners.

- Adjust the speed of delivery depending on rate of audience understanding.
- Keep the narration simple, to the point and brief.
- Summarize the message showing visuals in sequence.

10.2.7 Evaluation of the Media

Evaluation is an integral part of any teaching-learning process. One must plan for evaluation in advance. Certain direct/indirect points are to be kept in view to plan evaluation for assessing the effectiveness of teaching aids. These are:

1) *Indirect*

- Note the reactions of audience-facial expressions, conversation, etc.
- Observe any voluntary participation by learners, request for clarification, additional information, etc.

2) *Direct*

- Test the understanding of the audience through oral questions.
- Obtain opinions through questionnaire.
- Undertake follow-up studies and observe results.

3) *Checking for effectiveness of the aid*

Sample questions which can be used by you, are provided to check the efficacy of the aid are given below :

- Is the material suitable to the audience?
- Does it serve the purpose?
- Is it used appropriately?
- Is there provision for audience participation?
- Is the message conveyed effectively? You can devise many such questions.

If the aid is not going to provide answers to the best of your satisfaction, there is a need to improve the aid to make it perfect.

We have completed learning the general principles of preparation and presentation of non-machine operated teaching aids. In the next section, we will learn in detail about a few common effective aids of the non-machine media.

10.3 NON-MACHINE MEDIA

Non-machine media are the most versatile aids to make the nutrition and health education effective. They can be easily planned prepared and used in nutrition and health teaching learning situations. Now you will be learning in detail about certain selected non-machine media and further you will be provided an opportunity to plan and prepare some of these selected non-machine media

We begin our study by discussing posters.

10.3.1 Poster

As you know, poster is designed to make a public announcement of a special idea. It usually includes an illustration with brief caption. An-example of a poster is given in Figure 10.2 (a).



Fig. 10.2 (a) : Poster

Have you seen a poster anywhere? Sure enough you would have seen a number of posters on your way to work. What does a poster do? What are the purposes for which a poster is displayed? Mention them in the space provided below.

- 1)
- 2)
- 3)

What is the purpose of a poster? The poster is designed to:

- 1) Catch the attention of the passer by.
- 2) Impress on him a fact or an idea.
- 3) Stimulate him to support an idea.
- 4) Make him seek more information and to move him to action.

What are the points one must consider while preparing a poster? Read the points listed below.

Points to consider while making a poster

- 1) Decide who the audience is.
- 2) Select a size large enough to be (conveniently seen- 22" x 28"; 28" x 44", etc.)
- 3) Promote one single idea.
- 4) Provide only timely message.
- 5) See that the caption is brief.
- 6) Make a rough draft of the poster.

Remember a poster is only an aid. Poster cannot be used alone. It supports local demonstrations, exhibits or activities. Place posters where people pass or gather. Follow it up with other devices such as meetings, demonstrations, films, etc.

Learning to prepare a poster

Poster is a useful way to transmit a nutrition message. Let us learn how to make it.

- 1) Select a topic relevant to the poster.
 - 2) Make the message of the poster apparent immediately and write it using the stencil or by any means.
 - 2) Draw the diagram as per the design (Figure 10.2 b).
- (1) TOPIC : NUTRITION FOR HEALTHY EYES

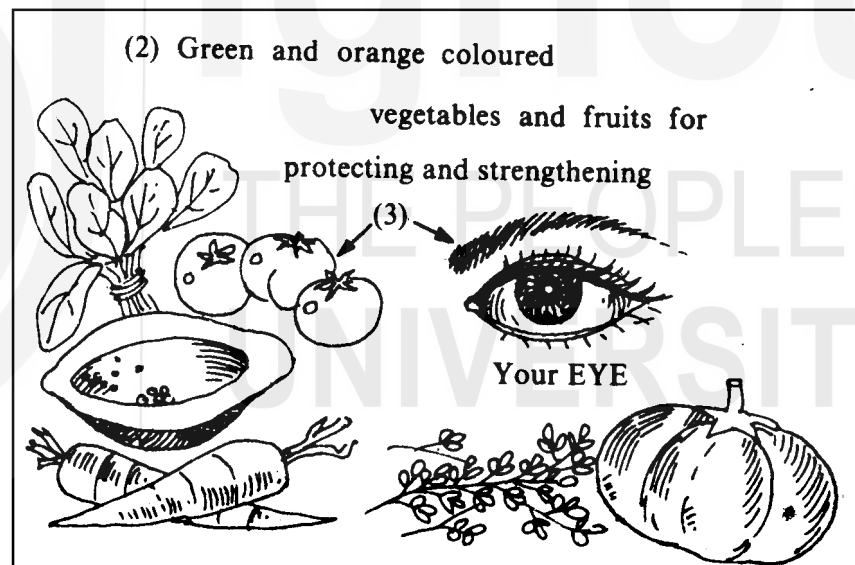


Fig. 10.2 (b) : Preparation of a poster

10.3.2 Charts

You must have seen a number of charts. Are they similar or different in the message presentation from that of a poster? Charts are pictures of relationships and changes. They are- graphic and pictorial representations used to tabulate a large mass of information or show a progression. They are visual symbols summarising or comparing or performing other helpful services in explaining subject matter. Charts are often referred to as symbolised visuals.

What is the purpose of a Chart?

Charts can communicate difficult, often dull subject matter in interesting and effective ways. They also make facts and figures clear and interesting. They show or compare changes, size and placement of parts. Thus, charts help to develop an idea and to improve the understanding of the topic.

What are the different types or charts?

While there are innumerable varieties of charts, some charts in common use are:

- 1) *Bar Chart* — This chart is the most common type, you must have seen it in some book or the other. It is made of a series of bars along a measured scale. They are used to compare quantities at different times or under different circumstances. A bar Chart is illustrated in Figure 10.3a.

CALORIE INADEQUACY AMONG DIFFERENT SOCIO-ECONOMIC GROUPS IN ANDHRA PRADESH

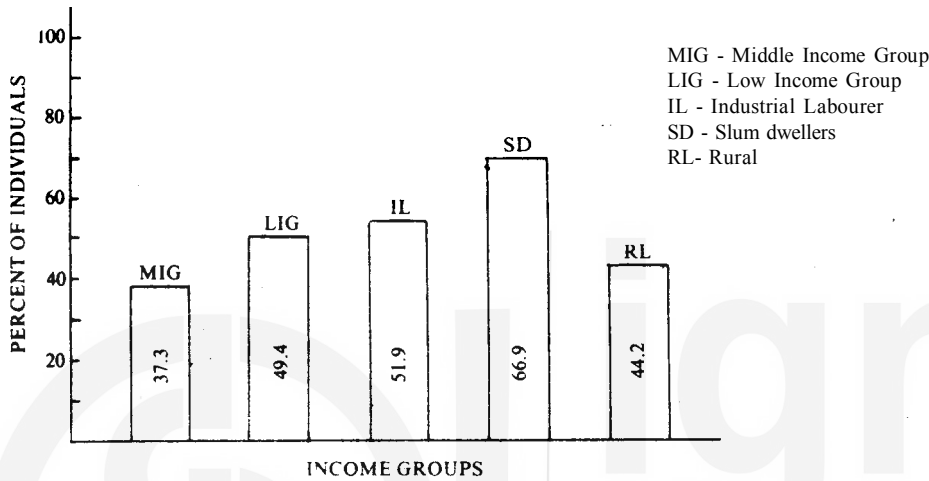


Fig. 10.3 (a) : Bar Chart

- 2) *Pie Chart* - It is in the shape of a circle and used to show how several parts make up the Whole. Pie charts are used to show percentages, proportions, etc. You must have learnt about this in your school. See Figure 10.3 b which is a pie chart illustrating the expenditure on different foods on a percentage basis among families of the low income group.

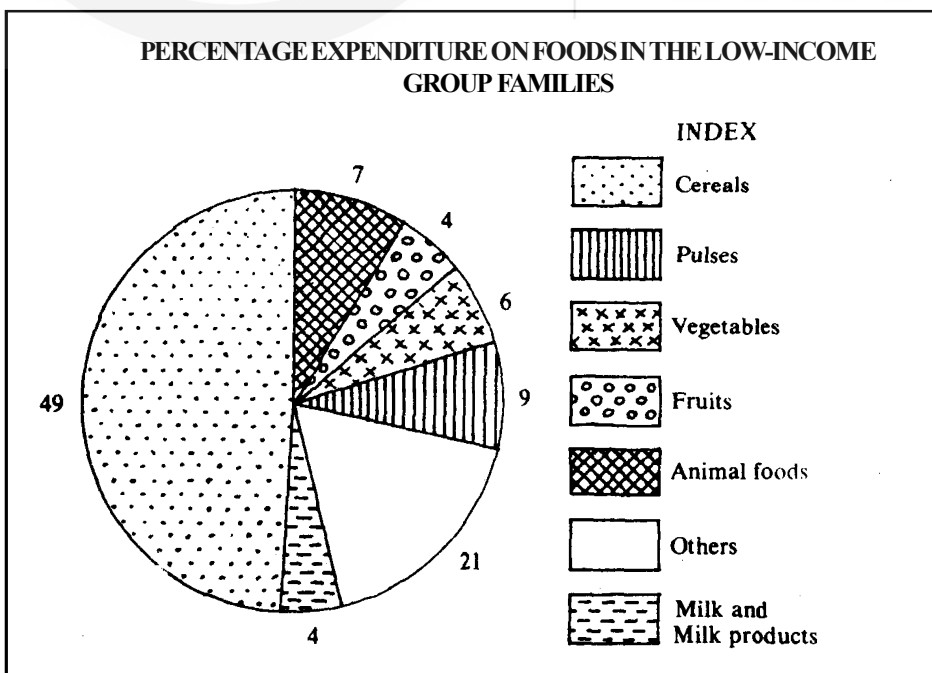


Fig. : 10.3 (b) : Pie Chart

- 3) *Tabular chart* - It is used to bring together in compact form a mass of related data. Figure 10.3(c) presents a tabular chart.

CHANGING PATTERN OF FOOD GRAIN CONSUMPTION				
YEAR	GRAMS PER DAY			
	RICE	WHEAT	COARSE GAINS	PULSES
1951-53	161	62	131	61
1961-63	197	81	116	64
1971-73	187	116	103	46
1977-79	189	124	101	44

- 4) *Tree chart* - It is used for showing development or growth of a scheme or programme or an intimation, etc. The origin of the programme represented as the trunk of a tree. The various developments are represented as branches of a tree. Figure 10.3(d) represents a tree chart.

COMPONENTS OF THE INTEGRATED CHILD DEVELOPMENT SERVICES (I CDS) SCHEME

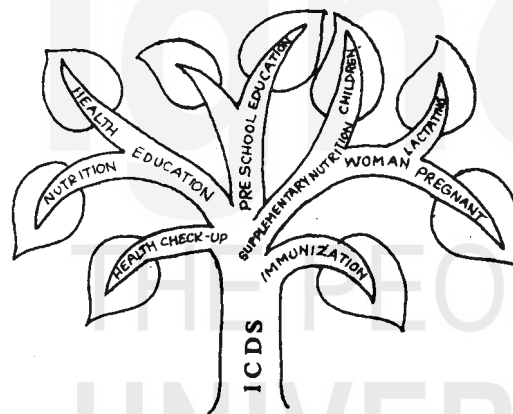


Fig. 10.3 (d) : Tree Chart

- 5) *Flow chart* - It shows organization or structure of departments, institutions, a process, etc. The relationship are shown through arrows; as can be seen in Figure 10.3(e).

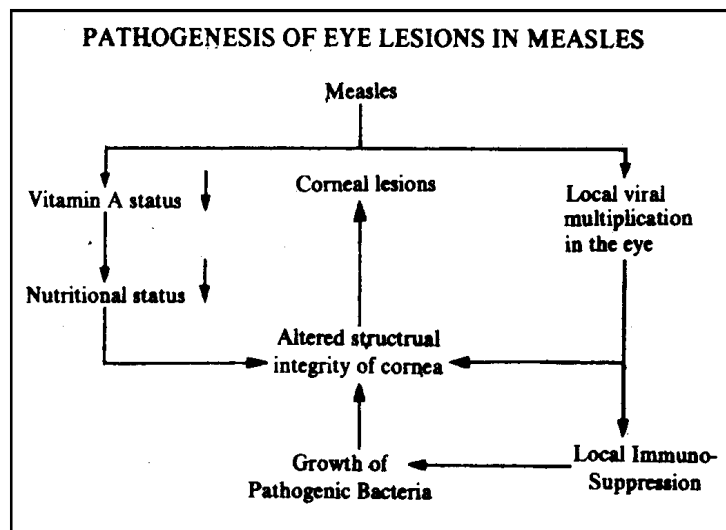


Fig. 10.3 (e) : Flow Chart

- 6) *Pictorial chart* - It gives the viewer a vivid picture and creates a rapid association with the use of graphic messages like cartoons, illustrations, etc. Each visual symbol indicates quantities also. Figure 10.3 (f) represents a pictorial chart

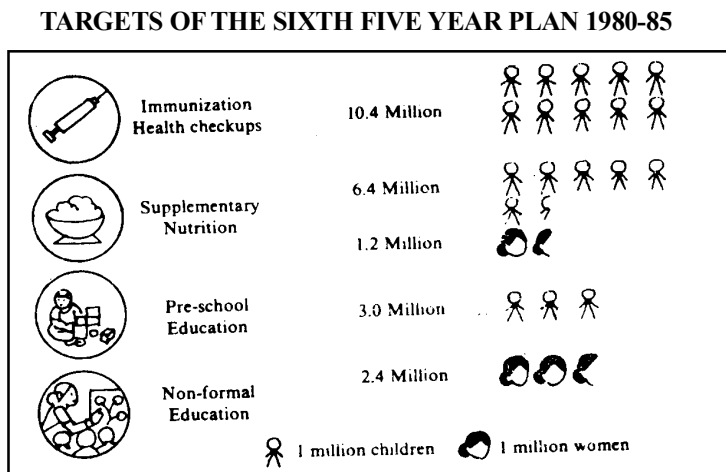


Fig. 10.3(f): Pictorial chart

- 7) *Pull chart* - It consists of written messages on a large sheet. Messages are hidden by strips of thick paper held in position. The messages can be shown to the viewer as and when needed one after another, by pulling out the concealing strips as indicated in Figure 10.3 (g). This method provides suspense to the viewer.

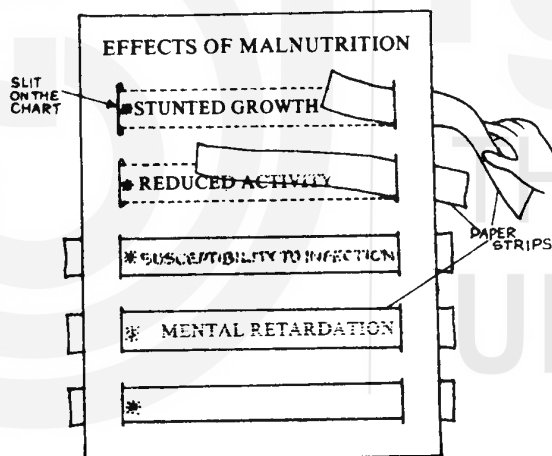


Fig 10.3(g) : Pull chart

- 8) *Flip chart*- It carries a series of ideas arranged sequentially (Figure 10.3 h). Individual charts are tacked or fixed to some support and, as the lesson progresses, the charts are flipped one by one by the teacher. This kind of chart exposes the audience to segments of the subject, in sequence, and holds attention remarkably well.

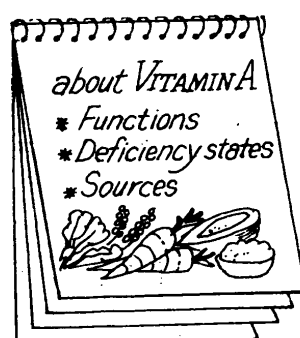


Fig. 10.3(h) : Flip chart

- 9) *Over-lay chart* - It consists of a number of sheets which can be placed one over the other conveniently. On each individual sheet a part of the whole picture is drawn. This enables the viewer to see not only the different parts, but also how they appear when one is placed over the other. After the final over-lay is placed, it shows the whole picture. As you can see in Figure 10.3(i) this type of presentation is dramatic and effective.

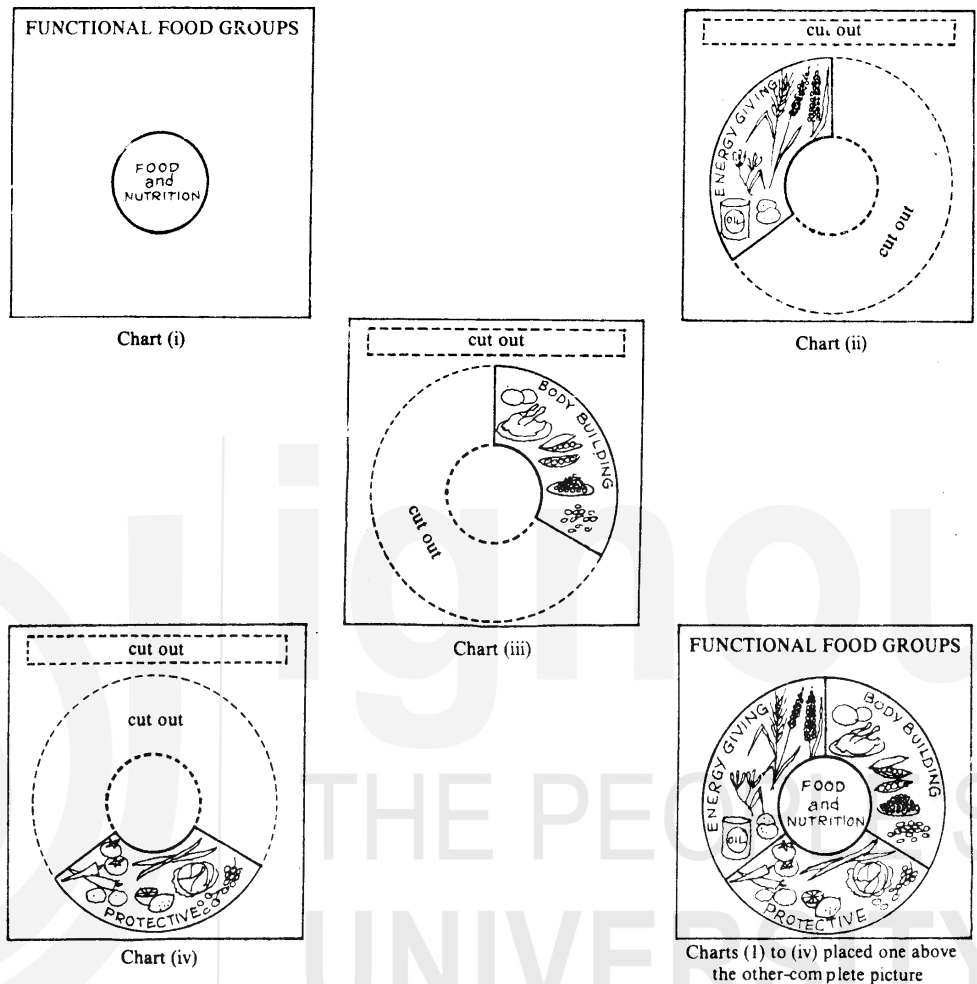


Fig. 10.3(i) : Over-day chart

What points to consider while preparing chart”

While’ preparing charts remember the following points:

- 1) Keep them simple by developing only one idea and including important details.
- 2) Make as few comparisons as possible.
- 3) Allow plenty of space by using large sheets or boards.
- 4) Maintain logical order in presentation-from large to small or small to large.
- 5) Use good proportions.
- 6) Use symbols, words or colours to explain the chart.
- 7) Give titles with key words and ensure they are readable.
- 8) Select size of the letters in as 1/2" and 2 1/2" for .8" x 10 1/2" and 30" x 40" charts, respectively.
- 9) Use words to emphasize certain parts of the diagrams; but they must be kept to the minimum.

Now using these points, let us learn how to make charts. Here you will be given specific experience in making one. type of chart - flip chart.

How to make a FLIP CHART?

Follow the steps given below and learn by doing.

- 1) Select a topic that is relevant and important to either nutrition or health.
- 2) Make a list of the different points that are needed to teach the selected topic.
- 3) Write an interesting story or description about the topic which includes all the points that need to be told.
- 4) Divide the story or description into short and logical sequence.
- 5) Decide which drawings, pictures or illustrations would be appropriate to visually describe each sequence of the description. Prepare each illustration and make sure it matches the designated sentence or phrase.
- 6) Test the materials on a group of learners before preparing the actual flip chart to make certain that the message of the materials is easily understood.
- 7) Following the test, revise the materials and test out again if necessary.
- 8) Cut heavy paper or pieces of cardboard to the desired size for the flip chart. Glue the illustration on one side of a card, the talking points on the other (Figure 10.4)
- 9) Number of sheets can range from 8 to 12. Simple flip chart can have only two sheets.

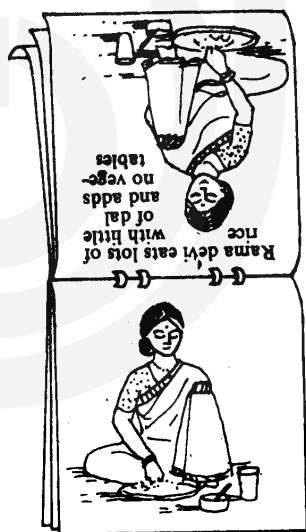


Fig. 10.4 : Flip chart story that goes with each picture on the previous chart

Next, let us learn how to assemble the illustrations?

How to assemble the illustrations?

First let us talk about what

materials we would require.

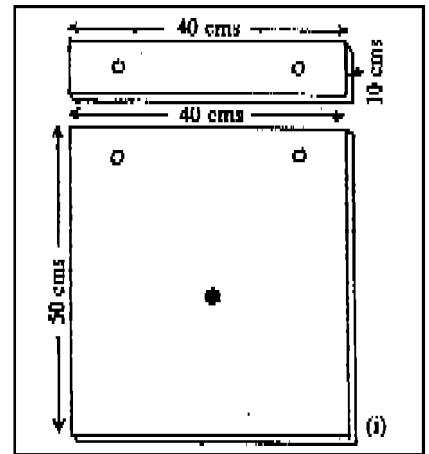
Materials

- piece of plywood (40 x 50 cms)
- 1 long strip of playwood (40 x 40 cms)
- 2 bolts and 2 wing nuts.
- prepared illustrations fixed on pieces of cardboard.

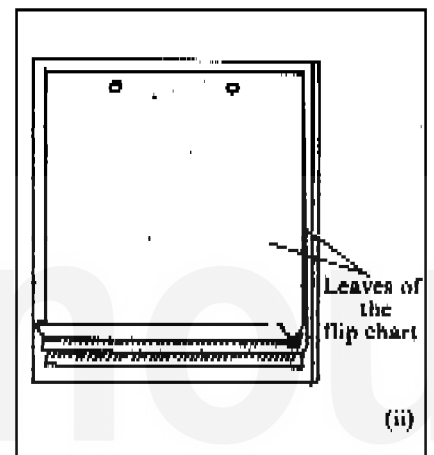
Now let's learn how to make the flip chart.

Method:

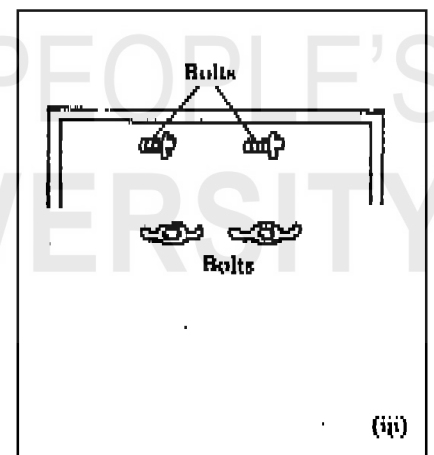
- 1) Drill two holes at the top of the plywood board approximately 13 cm from each end. Drill two matching holders in the wooden strip.



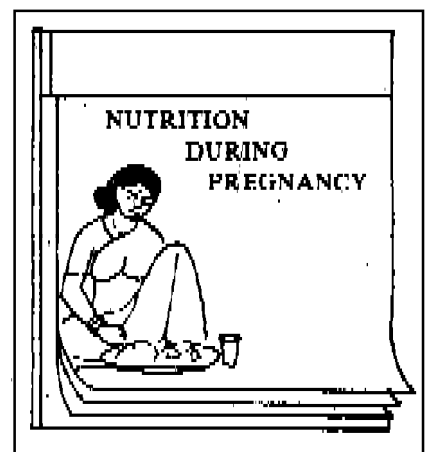
- 2) Place a sheet of paper slightly below the top of the plywood board and centre it. Gently punch a hole through the paper that corresponds to the holes in the board. Punch holes similarly in all the sheets to be used.



- 3) Place bolts through the back of the board and slip the punched sheets over the bolts. Place the wooden strip over the sheets and insert the bolts through the holes in the strip as indicated in the margin illustration.



- 4) Secure firmly with wingnuts.



While Using the nlp chart remember the following Point :

- 1) One sheet should be shown at a time.
- 2) Illustrations should always face the learners, with the written message facing the instructor.
- 3) If the instructor is explaining, learner can be asked to flip the chart (encourage learners involvement in the presentation).

10.3.3 Flash Cards

As you may be aware, flash cards are brief visual messages on poster board cards, flashed before the audience to emphasize important point in a presentation. An example of a flash card is given in Figure 10.5.

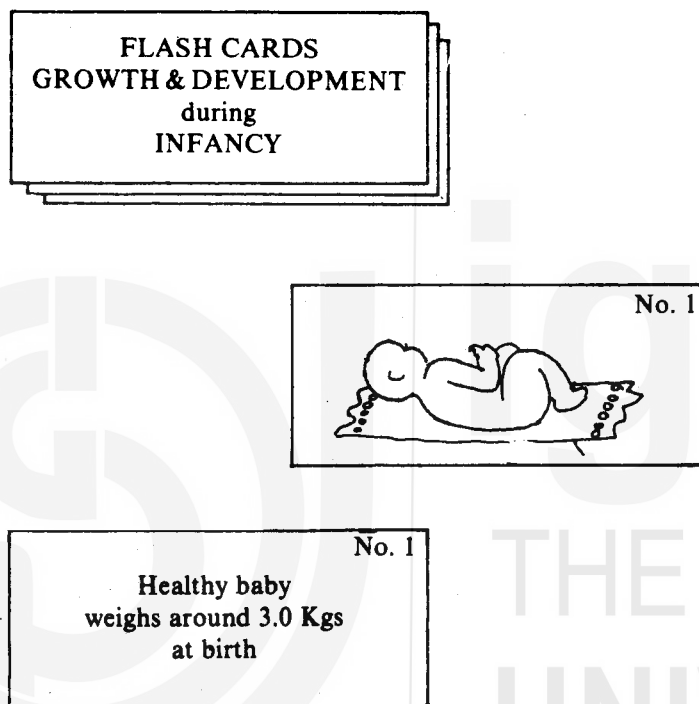


Fig 10.5 : Flash cards

You would easily be interested in learning how to make flash cards. Given below are handy guidelines. Read them carefully and attempt making one.

Guidelines for Preparation

A simple flash card may be prepared by writing, printing or drawing on a plain sheet of cardboard. Plain thick wrapping paper, discarded cardboard, etc. also make good flash card material.

Structure

The flash cards and the pictures therein should be large enough for a group of 30 to 50 to see (size is 22" × 28" mm 11" × 14" for large and small groups respectively). Use colour to make it attractive. The wording should be brief. The lettering should be large enough for the group to read. The number of cards should be 10 to 12 in a set (optimum).

Now you will be provided an experience to make a set of flash cards along with the model. Look at the model "Flash card given in Figure 10.5. Study it carefully. Surely, you would have got a good idea of how the different pictures according to the story are prepared which constitute a set of flash cards on one topic. Now, read on to learn how to make flash cards.

How to make a set of FLASH CARDS.

- 1) Select a relevant topic in health or nutrition.
- 2) Make a list of the different points that are to be conveyed about the topic.
- 3) Write an interesting story or description about the topic.
- 4) Divide up the story or description into short and logical sequence.
- 5) Select cut out pictures or drawings suited to each part of the message. Prepare (paint or draw or fix pictures) each card as per the plan.
- 6) Write the talking point of a visual at the back of the previous card.
- 7) Test the material on a group of learners to check whether it is understood correctly by them.
- 8) Revise the material following the results of a test on the cards.

It is not only important to know how to make flash cards but also important to know how to use them. The next section provides information regarding this.

How to use the Flash Cards?

- 1) Stick the cards in their proper order.
- 2) Hold the cards with one hand, chest high, against the body if the cards are small. If they are large, they may be placed on an easel. Display the cards so that people can see them clearly.
- 3) Flash the card in time with commentary related to the description.
- 4) Expose the card long enough for comprehension.
- 5) Glance at talking points at the back of the previous card as you comment about the card exposed.
- 6) Slip the front card to the back of the set to change the card as you illustrate a new point.
- 7) After the commentary is completed, display all the cards on a bulletin board or pass them on to interested audience.

Points to Remember during your presentation:

- Limit the size of the audience to below 30.
- Know the message on each card very well.
- Use simple words and local expressions while commenting.

10.3.4 Flannel Graph

Have you seen flannel board any time? Look at Figure 10.6(a). It depicts a flannel board. Flannel board, also known as felt board, consists of a still' backing covered with felt material on one side. Flannel graph is any graphic material presented on a flannel board.

Flannel graph works on the principle that one piece of rough textured cloth will adhere or stick to another. The cloth backed objects flannel graphs, therefore stick to the cloth of the vertical surface and stay there until removed.

The backing material may be wall board massonite, plywood, softwood, heavy card board, etc. Rough textured materials that may be used include cotton,

flannel, khadi or fell. When flannel graphs are backed with rough textured cloth or sand paper, as indicated in Figure 10.6(a) they adhere to the flannel board.

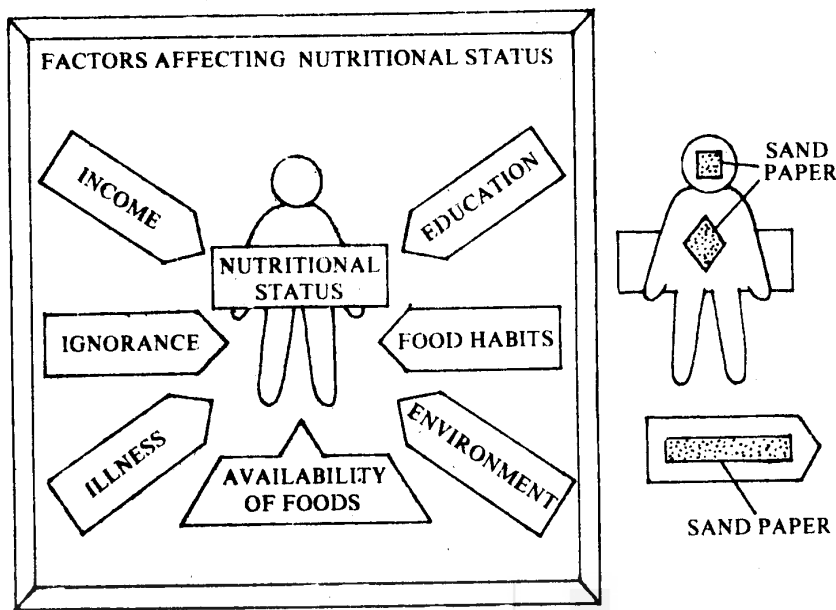


Fig. 10.6(a) : Flannel board

What are the different types of flannel board?

A flannel board may be fixed, folded, roll-up or a combination of these. For any of these, the flannel graphs can be made photos, illustrations, lettered material, drawing etc. Rough textured material can be used for the backs of these parts.

What are the advantages of flannel board?

- Flannel graph has the capacity to build-up the story step-by-step.
- It can create suspense.
- One can place interesting pieces on the board and keep the audience wondering how the story will end.

Now let us learn how to make a flannel board/graph.

Guidelines for Preparation and Presentation of flannel board

The very first step in making flannel graph is to prepare the flannel board. Let us learn how to do it.

- 1) Take a frame with a firm surface made of any board like plywood, fibre board, Massonite etc. of 30" x 40" or of any suitable size.
- 2) Tightly stretch a dark coloured background flannel or cloth (khadi) and fasten securely to the board with drawing pins. Now the flannel board is ready for use. The different stages of preparing flannel board are illustrated in Figure 10.6(b).

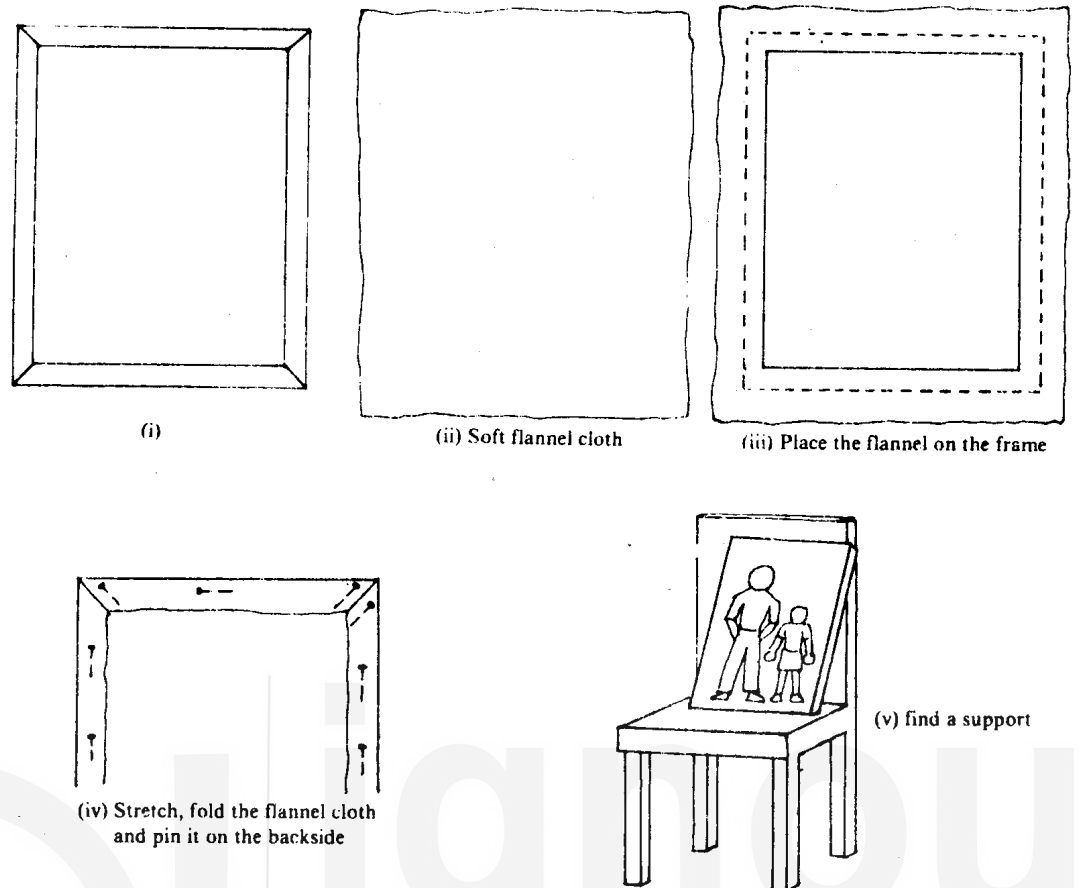


Fig 10.6(b) : Preparation of flannel board

Next, we move on to make the flannel graph. Figure 10.6(c) illustrates preparation of flannel graph.

- 1) Think of an idea or sequence of idea.
- 2) Prepare the designs suited to the theme suited. Trace these on the material you are going to use. (Figure 10.6c)
- 3) Cut-out the figures. Decorate them with paints, coloured pens etc. (Figure 10.6c)
- 4) Be sure to store the figures carefully so that can be used again and again.

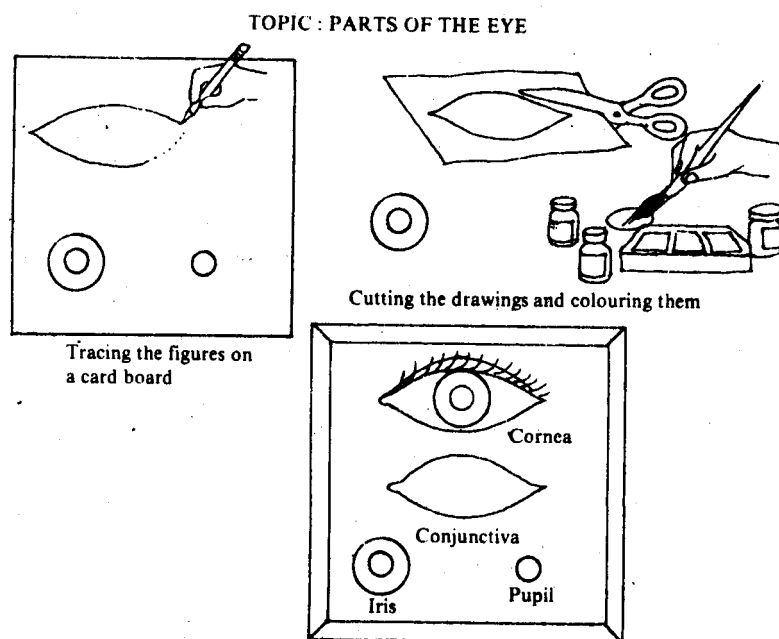


Fig. 10.6(c) : Preparation of flannel graph

Cuse for making effective flannel graph

- 1) Keep the theme simple.
- 2) Use bold and clean illustration and letters.
- 3) Use arrows, cartoons, etc. to add interest.
- 4) Before actual use, tilt the board back slightly so the flannel graphs will not topple down.

After preparation of flannel graph, we should also know how to present it. Given below are handy guidelines for presentation. 'During presentation remember to:

- 1) Apply a flannel graph on the board with a slight downward movement and firm pressure to avoid the material sliding off the surface.
- 2) Arrange each part in the order it will be shown to the group.
- 3) Number these parts on the back and store in folders.
- 4) Keep flannel graphs away from a draft of wind to avoid the pieces being blown off.

10.3.5 Pictures

All of you are familiar with pictures which are commonly used in our teaching. Pictures are one of the most versatile and effective visual aids. A common saying "one picture is worth a thousand words" indicates the value of pictures in teaching. But this is true only if the picture says what you want it to say—to the people you are trying to reach.

There are different varieties of pictures, like black and white, photographic, coloured, hand drawn, printed, etc.

What is the purpose of pictures?

Pictures can be used to:

- create interest

- introduce subjects
- illustrate specific steps in problems
- build wholesome attitudes
- develop appreciation
- test knowledge of the learner
- review units of subject matter.

What are the advantages of picture?

- The picture
- speak an universal language
 - attract or compel attention
 - are easy to prepare or obtain
 - are easily understood and appreciated.

What are the characteristics of an effective picture?

Any picture should be:

- authentic in giving message.
- simple in composition.
- able to represent relative size of items to give a correct image to the audience.
- able to show realistic action.
- artistic to be attractive. but at the same time natural and informative.
- free from blemishes. spots, scratches etc. and should have good mechanical quality.

From our discussion above you would have got a clear idea about pictures and their utility. In the next sub-section we will learn how to prepare and present pictures.

Guidelines for preparation and presentation of ideas through pictures

Learning to make or take pictures is essential because it helps in making many other aids like poster, chart, flannel graph, flash cards, etc. Being able to make and use pictures effectively is one of the most valuable skills a community worker can learn. Given below are simple guidelines on how to prepare pictures:

- 1) Obtain fresh photographs or draw illustrations or collect pictures from newspapers, journals and magazines.
- 2) Mount pictures to increase effectiveness and attractiveness and to protect them.
- 3) Give pictures necessary captions, label and file them.

Now let us look at different ways of presenting ideas through pictures

- Drawing may confuse people sometimes. Pictures can mean different things to people as can be seen from Figure 10.7(a). Showing real thing is better than a drawing.

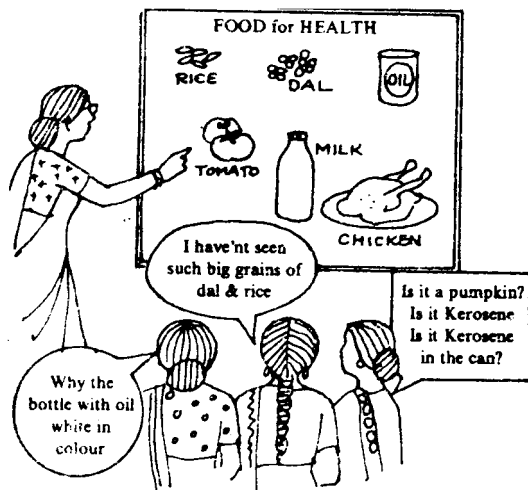


Fig. 10.7(a) : Presenting idea through pictures

Almost anyone can learn to draw-what it takes is care and practice. Figure 10.7(c) presents different ways of learning drawing.

- Different styles of pictures. Figure 10.7(b).

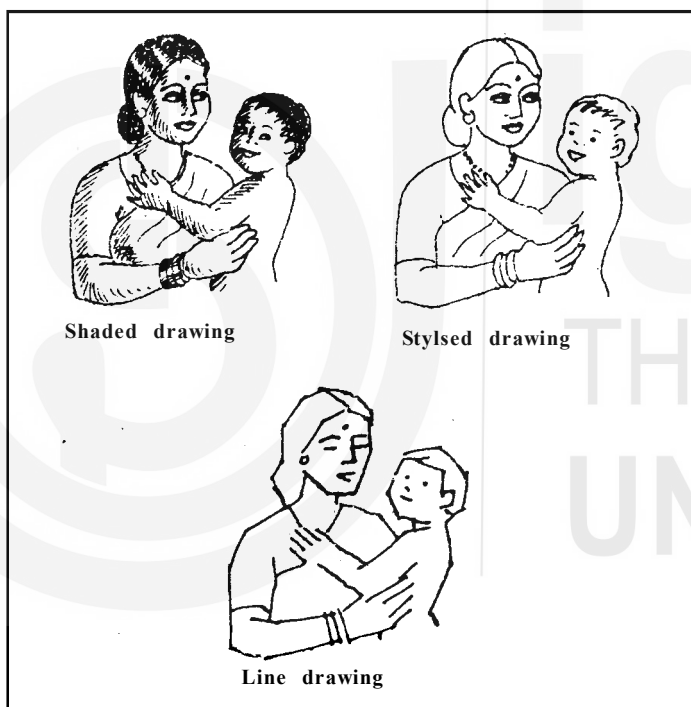
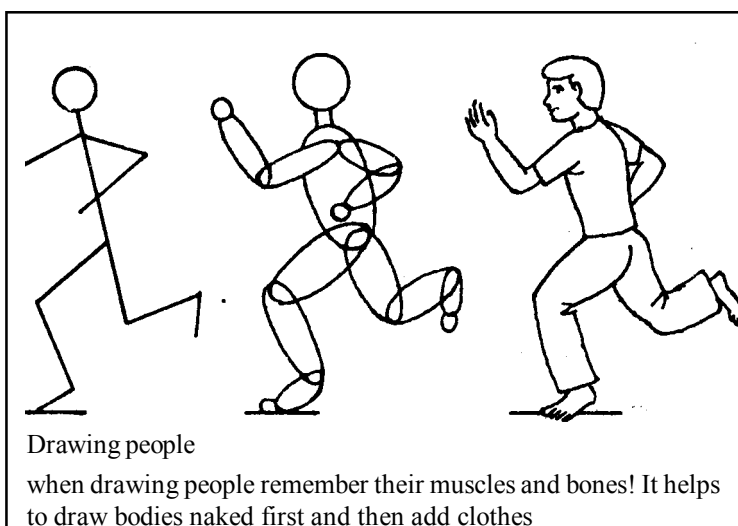
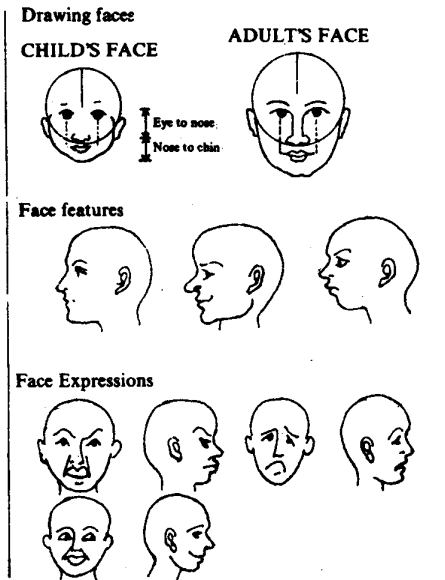


Fig. 10.7(b) : Different styles of picture





Proportions

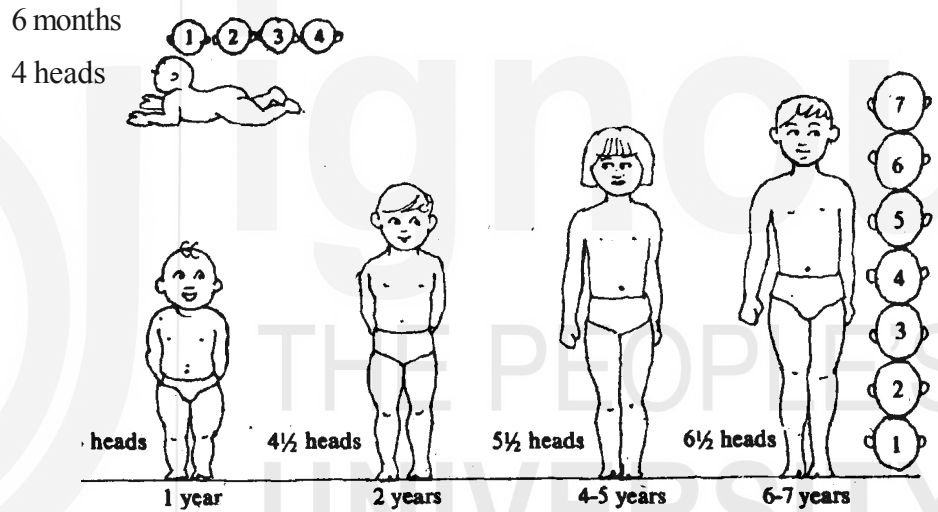


Fig. 10.7 (c) : Different ways of learning drawing

- Cartoons and drawings-how to draw them as realistically as possible and when to use them. Cartoon figures should not be used for illustration in which precise details are important (Figure 10.7d)
- Different ways of introducing a sense of humour. (Figure 10.7d)

When to use cartoons and when to make people look real



Cartoon here is meant for raising consciousness with reference to unequal access to food and resultant consequences

I

- Swollen moon face
- miserable
- stops growing
- colourless hair
- thin upper arms
- swolle hands and feet
- sores and peeling skin



Kwashiorkor - from not eating enough protein

Carefully done line drawing with correct physical proportions would be apt to such contexts

II

Fig. 10.7 (d) : (i & ii) Cartoons and drawings

Now from pictures, let us move on to 'photographs.

Photographs can be used for teaching in many ways:

- in pamphlets and books,
- on posters, flannel graphs etc.
- in the form of filmstrip/slide for projection.

If your programme can afford, you can take many photographs to use for health and nutrition education. But do you know how to take photographs: The next section present cues for getting better photographs. Lets understand them.

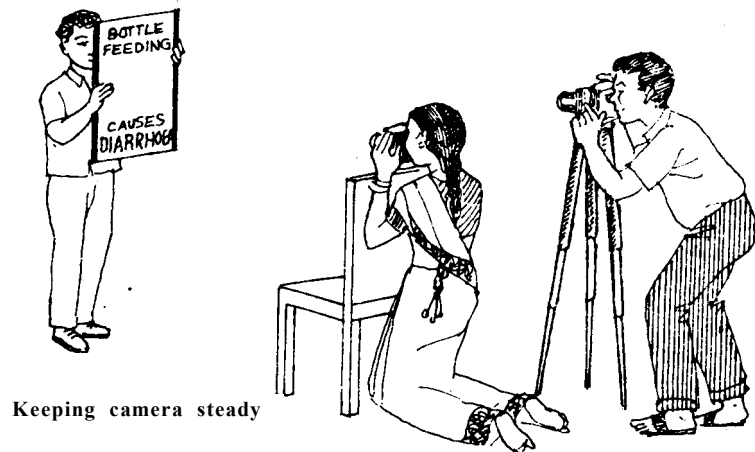
Cues to get better photoes

- 1) *Film speed:* Fast film gives less blurring but coarser quality. Slow film may give more blurring, 'but finer quality and better colour. It is better suited for enlargements. You can go for slow film which is more advantageous.

<p>Fast Film. Give less blurring but coarser quality (grain)</p>	<p>Use faster film (ASA rating above 200) such as Kodak Tri-x (AS A 400) fur black and white pnnts or Extrachrome AS.A4(0) for colour shades;</p> <p>When photographing ...</p> <ul style="list-style-type: none"> • indoors • when the light is poor • when the subject is moving fast 	}	<p>except when using flash chose-up</p>
<p>Slow Film: May give more blurring (if camera moves), but funer quality (less grain) and better colour better enlargements</p>	<p>Use slown film (ASA rating below 200) such as plus x (ASA 125) for black and white pritns or Kodachrome 64(ASA 64) for colour slides - when photographing</p> <ul style="list-style-type: none"> • in indirect sunlight • in a well lighted place • or when using flash close-up 	}	<p>when subject is still or moves slowly</p>

Fig. 10.8(a) : Film speed

- 2) *Keeping the camera steady*: Hold the camera as steady as you can for sharp pictures. (Figure 10.8b).



Keeping camera steady

Fig. 10.8(b) : Keeping camera steady

- 3) *Lighting*: Good lighting is important. Before clicking the shutter of your camera, always check to be sure the light falls well on the faces of people and on the details of whatever you are trying to photograph. Sunlight should not be too high as indicated in Figure 10.8c.

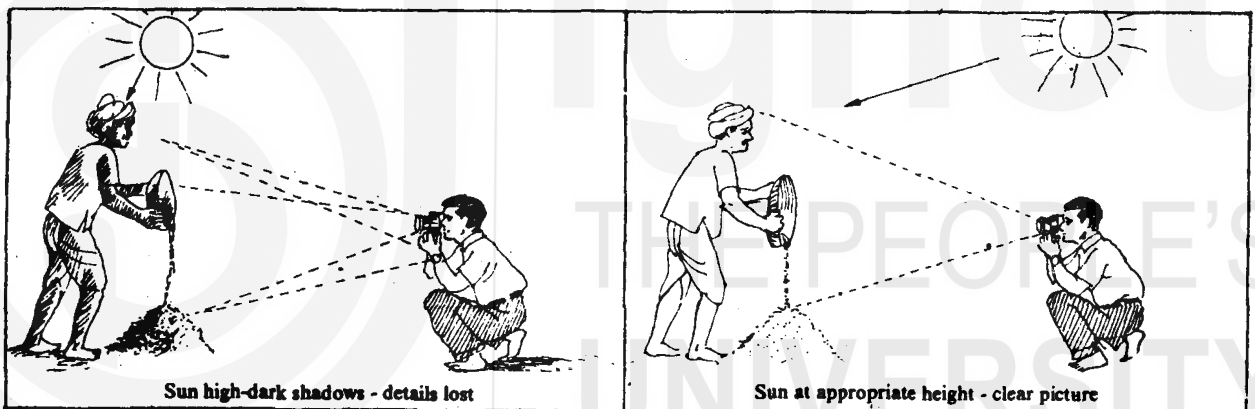


Fig. 10.8(c) : Ligthing during photography

Avoid shadows, by taking pictures on a cloudy day. (Figure 10.8d)

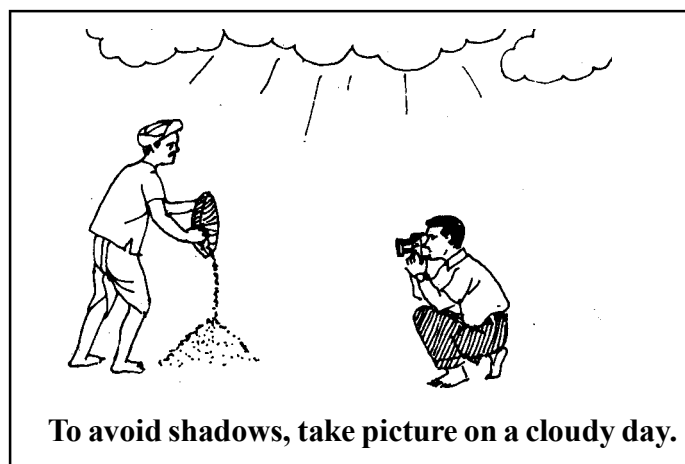


Fig. 10.8(d): Photography on a cloudy day

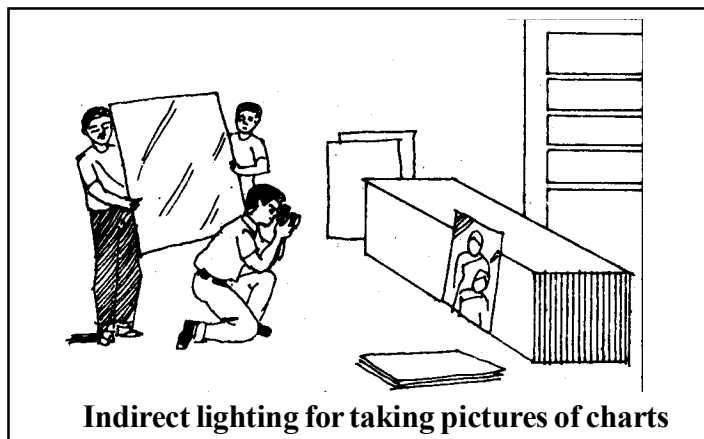


Fig. 10.8(e) : Indirect lighting

- 4) *Background*: It should-
- add meaning to the main idea,
 - add contrast to the main idea,
 - not detract from the main idea.

10.3.6 Models

Every one of us might have seen some model or the other in the science laboratory of our schools. For instance, models of human eye or brain. As you are aware, models are replicas of real objects and scaled representation of things. Like specimens and exhibits, these are also called as three-dimensional visuals. They may be smaller or larger than the life size things they represent. They are, generally, exact replicas to the things they represent.

What are the types of Models?

Several types of models are in use. Some of them are:

- 1) *Scale model*: It represents the external form and shape of original object and is prepared to scale-smaller or larger such as Taj Mahal, insect, heart etc.
- 2) *Cross-sectional model*: It reveals internal structure of real objects such as heart, eye, etc.
- 3) *Working model*: It shows operation of essential parts of real object for example, T.V., Telephone, etc.
- 4) *Simplified model*: It shows simple features of the external form of the real object without reproducing the original in precise proportion. They can be prepared out of clay, cardboard. etc. For example children's kitchen utensils set, relief map, etc.

What are the purposes of models?

Models can be made to depict:

- real objects which are either too large or too small,
- past or future.
- physical inaccessible objects like foods.
- unique reality such as working of human heart, ~ye, etc.,

- abstract constructions ‘like development of village.
- processes-for instance process of cooking following the principles.

Unlike the non-machine media learnt so far. use of models have both advantages and limitations. You will realise the same by reading through the points given in Box 10.1 and actual use of the models in the context text of nutrition and health education.

Box 10.1 : Advantages/Limitations of Models	
<p>Advantages</p> <ul style="list-style-type: none"> • Can be examined. handled and operated. • Can show how things look and operate. • Can show relationships. • Can simplify complex working • Can either enlarge small objects for a group or reduce large objects for easy manipulation. 	<p>Limitations</p> <ul style="list-style-type: none"> • Models made with clay, etc. are fragile • They cannot be carried from place to place easily. • They can be used only in small groups. • People may get a wrong impression about parts, process or mechanism. the actual size when small scale models are shown or improperly made.

How to prepare Models?

Models can be made of food, earth, metal, etc. It is always better to use local materials. Colour and ingenuity make them impressive. They should be labelled and brief details be given to make them self-explanatory.