

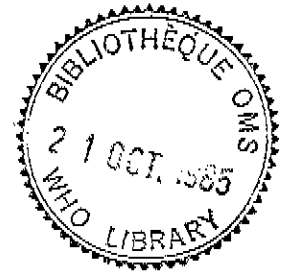
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**WHO RESEARCH PROGRAMME ON FACTORS AFFECTING INFANT
AND YOUNG CHILD FEEDING AND REARING**



**ANTHROPOLOGICAL METHODOLOGIES FOR ASSESSING HOUSEHOLD ORGANIZATION
AND STRUCTURE**



WORLD HEALTH ORGANIZATION

1076



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PREFACE

As part of the WHO/UNICEF Joint Nutrition Support Programme, a WHO global programme of research and research policy promotion is being developed. The focus of the programme is the identification, description and measurement of factors determining the rearing and feeding of infants and young children. The research is predicated on the growing realisation that malnutrition is not simply, or only, a food supply problem, but can also be a function of more complex biosocial and behavioural determinants affecting child feeding and rearing and which are likely to influence the health and wellbeing of young children. The overall objectives of the programme are:

- to contribute to the long-term development of health and nutrition programmes aimed at JNSP countries, by promoting and supporting both technically and financially, the development of national research into the biosocial, ecological and economic factors influencing the manner in which infants and young children are cared for and fed, and how diseases affecting them are perceived and managed;
- to promote and support the establishment of multi-disciplinary operational research groups within national health and nutrition programmes, and, through the experience of the JNSP funded projects, demonstrate the effectiveness of such research in health development and programme policies.

In order to assist national investigators and research teams in the identification of themes that might be relevant to their research activities, a series of bibliographic reviews and reprints are being published. These will cover a broad range of infant and young child feeding and rearing issues. They will be periodically updated and made available to national JNSP programme staff and to any other interested groups who are considering research in these related areas.

This article on "Anthropological Methodologies for Assessing Household Organization and Structure" by Drs Gretel and Pertti Pelto* was originally published in "Methods for the Evaluation of the Impact of Food and Nutrition Programmes" (Report of a Workshop on the Evaluation of Food and Nutrition Programmes, sponsored by the United Nations University on behalf of the United Nations ACC Sub-committee on Nutrition, held at the Massachusetts Institute of Technology, Cambridge, Massachusetts, USA, in September 1981), Editors: David E. Sahn, Richard Lockwood and Nevin S. Scrimshaw, Food and Nutrition Bulletin, Supplement 8, 1984, pp 204-225.

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I. INTRODUCTION

The impact or effects of food programmes on the nutritional and health status of individuals is mediated, both positively and negatively, by a series of characteristics of households. For example, sanitary practices regarding food preparation and storage in the home are well recognized as factors that affect morbidity examined in relation to food intake. Since the household, in most societies, is a primary setting for the acquisition, preparation, distribution, and consumption of food, it is apparent that household composition and organization should be regarded as an intervening or confounding condition affecting the impact of nutrition and health interventions. At the same time, it should also be recognized that household characteristics can, themselves, be strongly affected by food and nutrition programmes. For example, food programmes may change the schedule of work activities and food preparation within households. Thus, in the analysis of any supplementary feeding programme one can approach the matter of household organization and composition from two perspectives:

- (1) as an intervening or confounding variable that has to be taken into account in assessing the impact of the programme on nutritional status; and
- (2) from a sociological perspective, as a dependent variable (or set of variables) that is affected by the programme directly.

In practically all human societies, the household is a primary economic and social unit. It can be defined as the "smallest coherent social unit of people who reside together and maintain collective organization of food procurement and use, as well as other joint activities". Until quite recent times, the household, in many societies, was the primary unit of production as well as consumption. Industrialization, urbanization, and the impact of these processes in rural communities is bringing about rapid changes in the production/consumption relationship in households. Nonetheless, the household remains a fundamental social unit in all societies. It is also important to note that inter-household networks can have a major impact on the organization of food procurement and food use, and these, too, should be taken into account in the assessment of household variables.

II. THE BASIC HOUSEHOLD INTERVIEW

The usual method for collecting data on households is the Basic Household Interview, or Household Survey. This method, which is based on a face-to-face interview using pre-established questions, can be used to collect a great variety of data. Typically, it is conducted with the female household head when a major focus of the interview is on food and nutrition-related variables. Often, however, it is necessary to collect economic and other data from males in the household, usually the male household head. Thus, the basic household interview may be administered in several parts to different individuals.

Full-scale data-gathering on all aspects of household structure and composition would be a time consuming and costly operation. Most evaluation projects will be able to select certain portions of these research procedures, based on specific hypotheses about the effects of food programmes in particular areas and districts. Also, preliminary ethnographic reconnaissance in selected communities can often identify key features of households for research emphasis.

The types of variables that are likely to be of greatest importance to the evaluation, and that should be included in the Basic Household Interview, can be summarized under the following headings:

- (1) Household Composition
- (2) Material Resources and Conditions
- (3) Beliefs and Attitudes Related to Food, Nutrition, and Health
- (4) Household Organization

Within these broad categories, there is latitude for collecting a wide range of information. However, it is to be strongly recommended that some questions from each of these domains or headings be included in the interviews. To the extent possible, selectivity should be exercised with respect to the degree of elaboration of questions within each of the headings, rather than through the complete elimination of any one general category.

In most cases it will be useful for evaluations of projects to collect data at more than one level of intensity, drawing a fairly large sample of households for general assessment, and selecting special sub-samples within the general sample for intensive examination of special features. For example, the following strategy might be used in a situation where ethnographic reconnaissance has tentatively identified important changes in women's work allocations, with strong effects of "household type" as an intervening variable.

General sample: 480 households (basic survey data on each household: composition, MSL, ethnicity, nutrition status)

Special sample: stratified, 100 households (50 nuclear; 50 extended, multi-generation)

Additional data: four randomly allocated "spot check" observations of task performance. Focus on female tasks, plus interviews of reproductive history of female household head.

A. Types of Households

In different social systems, the "cultural norms" of marital residence result in different household types. Differences in household composition within and between communities can have very important consequences for food programmes and their evaluation, so effective data gathering requires careful consideration of variations in household composition. In some instances the isolation of households as distinct units will be made more difficult because they are embedded within larger kinship or family groups. However, the following types of households are generally recognized, within anthropology, as common social units:

(1) Nuclear family household

This type, common in many parts of the world, consists of a married pair (husband and wife) and their dependent, unmarried offspring. With urbanization, this type is becoming increasingly common in parts of the world where other household types have been the norm. A variation of nuclear households is the addition of a single adult, especially the widowed parent of husband or wife, or an unmarried adult sibling of the husband or wife (in many areas marriage may not be clearly formalized, so the category "nuclear family" will include male-female pairs in consensual unions).

(2) Extended family household

This type consists of two or more married pairs, of different generations. The most common form is that of an older married couple, plus their married sons with spouses and children. Less often such an extended family household is "matrifocal", with inclusion of married daughters plus their husbands and children.

In those parts of the world where, in earlier decades, large extended families were considered the cultural norm, the forces of modernization have tended

toward reduction of these large families into smaller units (nuclear family households). Nevertheless, there are exceptions where large extended families are still prevalent.

(3) Joint family household

This type consists of two married pairs of the same generation, such as two brothers and their wives (or, less commonly, two sisters and their husbands) plus offspring.

(4) Matrifocal household

This household type is composed of female head-of-family, her children, possibly other kin, but no resident spouse. Such households are common in many urban areas, as well as in rural regions where extensive labour migration has removed the males from regular permanent residence (Note: such households should not be considered as "aberrant" or "temporary" as they may be the most numerous type, and the predominance of these has now persisted for generations in some regions).

(5) Polygynous household

This type is composed of a male plus two or more wives, and their children. In many societies the separate wives maintain separate hearths and cooking activities. However, the patterns may be variable, and the separate sub-units (women plus their children) are generally interdependent in the sense that control and maintenance of food-getting resources is generally in the hands of the male head (father-husband).

- (6) Other types of households are also found, but tend to be unusual both numerically and in their socio-economic significance. However, in urban areas, households of unrelated adults are becoming more common.

B. The Significance of Household Type

There is a considerable body of evidence that differences in household type affect a number of variables that have to be assessed in evaluating programme impact, including fertility, nutritional status of children, and maternal behaviour. First of all, differences in household type are likely to be associated with differences in the ratio of adult males to females. In societies where there is fairly clear differentiation of male and female tasks, differences in adult sex ratios can have important consequences for household functioning. Differences in the ratio of adults to children may have a large impact on the quality of child care, on child training practices, and on intrahousehold food distribution. When additional adults are "dependents", the effect of their greater nutrient requirements compared to children's may have negative consequences for nutritional status, especially of children. On the other hand, when the presence of more adults creates a condition of greater economic flexibility for the household, the effect may be positive.

These issues are significant for evaluating the impact of feeding programmes because most communities have several types of households, so that this is usually an important source of intra-community variation that must be taken into account in sampling design. Many urban communities have high percentages of nuclear households, and matrifocal households are also common. In rural areas, there are likely to be extended, joint, and nuclear households. In societies where polygynous households are common, there will be relatively small frequencies of households with three, four, or more wives, compared to households with only two wives or with nuclear families.

B. Who is a Member of the Household? The Problem of Non-Resident Members

For many people in the world today, household membership is no longer a stable, unchanging condition. Both men and women are periodically absent from their home communities following seasonal labour opportunities. Adolescent children may be gone for long periods of time, while remaining significantly tied to the household. In recording household composition, it is very important to elicit data on non-resident household members. One technique for collecting information on total household composition, while maintaining the separation between currently resident and non-resident members, is to elicit the data in stages, as follows:

- (1) "First, I'd like to ask you some questions about the people who live in the household right now, who are living here today ..."
- (2) "Is there anyone else who lives here some of the time but is away now?"
- (3) "Is there anyone else who regularly contributes to the household, or who gets food or other things for the household, but who doesn't live here anymore?"

Decisions about how to handle these data for analytic purposes will, of necessity, vary from one cultural setting to another. It may be useful to establish one or more variables that specify the "degree of stability" of household composition as a distinct variable, which differentiates households within a community or region.

C. Material Resources

During the basic household interview, a second main category of questioning is the eliciting of data on material resources. In most parts of the world, households range from "low" to "high" in possession of and access to economic resources. Some households are equipped with many technological items, including motor vehicles, heating and cooking equipment, bicycles, television sets, etc. Other households in the same community will appear to have "practically nothing", while the majority of households will have technological and other resources falling in between the two extremes. Differential distribution of resources, especially in non-socialist countries, is generally found even in communities that appear at first glance to be "all alike in poverty".

Differences among households in economic resources are generally related to dietary patterns and nutritional status. Often the presence of economic resources indicates a general capability of a household to satisfy the wants and needs of the members. At the same time, the presence of greater numbers of material possessions also can be simply a reflection of time - older households have had time to accumulate more than younger households. Of course, inheritance and other factors (including health and good fortune) also play a role in differential material resources.

D. Measuring Resources: material style of life

There are a number of ways to measure differential resources of households within a community. One of the most effective, and often less difficult than outright questions about income or total wealth, is to develop a scale of material possessions of "material style of life", by identifying lists of principal items that are significant in the local region (the relevant items will differ, of course, from one region to another). In order to rank households from "high" to "low" in material possessions, one needs only a sample of relevant material goods that vary in frequency across the sample of households. Here is an example of a set of eight material items that effectively distinguished among households in a rural community in Mexico:

| <u>Item</u> | <u>Frequency (in 57 households)</u> |
|----------------------------------|-------------------------------------|
| Iron (electric or non-electric) | 53 |
| Radio | 53 |
| Bed | 36 |
| Cooking facilities off the floor | 21 |
| Sewing machine | 14 |
| Wardrobe | 14 |
| Stove | 9 |
| Television | 7 |

For this particular Mexican community one finds that the wealthier households (in local terms) have television sets and commercially purchased stoves, as well as the entire list of more common items. At the very poor end of the scale we find persons who perhaps have a non-electric iron and not even a bed or a radio. If we arrange households in their rank order of material style of life, and the items in their order of frequency, the pattern will look something like this:

| <u>Household Type</u> | <u>Iron</u> | <u>Radio</u> | <u>Bed</u> | <u>Cooking</u> | <u>Sewing</u> | <u>Wardrobe</u> | <u>Stove</u> | <u>TV</u> |
|-----------------------|-------------|--------------|------------|----------------|---------------|-----------------|--------------|-----------|
| Poorest | no | no | no | no | no | no | no | no |
| Next poorest | yes | no | no | no | no | no | no | no |
| Next | yes | yes | no | no | no | no | no | no |
| Next | yes | yes | yes | no | no | no | no | no |
| Next | yes | yes | yes | yes | no | no | no | no |
| . | | | | | | | | |
| . | | | | | | | | |
| Richest | yes | yes | yes | yes | yes | yes | yes | yes |

Each step or category (from poorest to richest) can be assigned a numerical value, to create a single quantitative expression of material well-being that can be used as a variable in statistical analysis.

E. Animals Owned by Household

For the same community in rural Mexico, the researchers found that possession of animals as economic resources represented a somewhat different "wealth rating" (DeWalt, 1979)¹. Therefore, the approximate value of animals owned by each household was developed as a second scale of economic resources.

Annual cash income is often used as a measure of material style of life in developed countries. Cash income is often a direct reflection of occupational status in technologically advanced societies, so this measure serves not only as an indication of material resources, but also as an indirect indicator of educational attainments. However, in most developing nations (and many parts of developed nations) information on cash income may be extremely difficult to obtain from individual households, and it may not be a meaningful measure of socio-economic status. Therefore, several other measures of economic resources have been devised. A number of indices of wealth and economic status have proved useful in various regions and nations.

¹ DeWalt, Billie R. Modernisation in a Mexican Ejido, Cambridge University Press, 1979.

F. Wealth Rating by Key Informants

In most communities the more well-informed local residents are knowledgeable about people's relative economic status to a high degree. Therefore, a key informant can often rank order all or most of the households or families in the community in terms of relative wealth status. For larger communities it may be necessary to obtain ratings from several individuals, in separate sub-communities, with cross-checks at points of overlap.

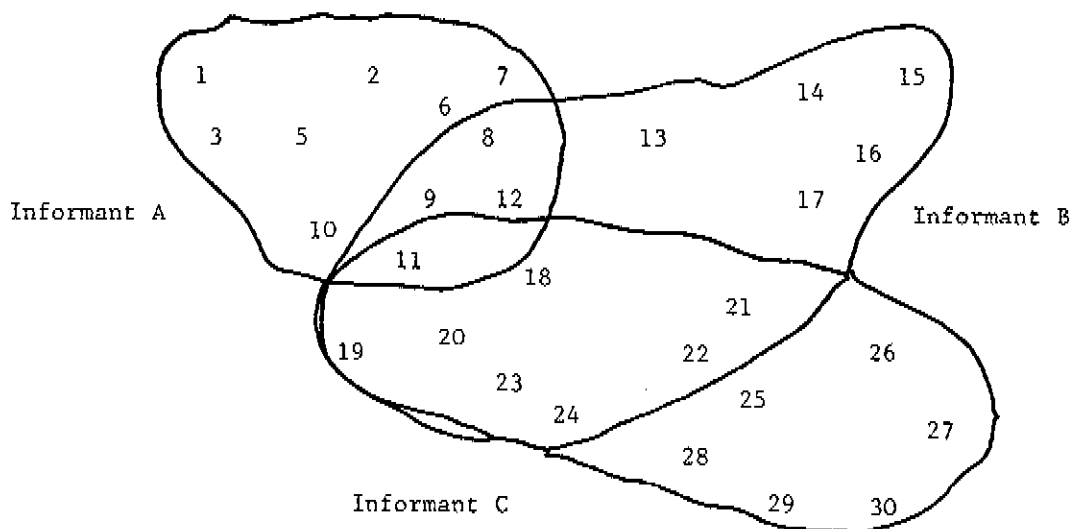
Procedure

- (1) Write the name of each household on a separate card or slip of paper.
- (2) Explain procedure to key informant, explaining that you need to be able to identify the range of wealth differences among the community sample.
- (3) Caution the key informant that ratings should be made on material wealth, rather than on "general status", "caste membership", or some other ranking of social status. (Also caution key informant that the procedure is entirely confidential, and should not be discussed with other people in the community).
- (4) Present the cards (or slips of paper) to key informant (usually this will be one of the locally hired research assistants) and ask that person to identify "the wealthiest people" for placement at one end of the spectrum; e.g. "put all the rich people (households) here at the left side of the table". "Now sort out these in the middle into as many different groups as you wish".

In some instances it is possible to "fine tune" the rank order by asking for the differences among individual households within each of the groups. Usually, however, informants will tend to identify four or five categories into which all the households are assigned. In many instances these groupings by relative wealth will not be recognized as different types or "classes" in local terms.

- (5) Carry out the same procedure separately with two or three key informants. If each of them is able to rank-order the entire sample, then one can compute their agreements and disagreements in the ranking of individuals.

If the community is so large that each key informant can rank only a subsection of the entire sample, then it will be necessary to "interdigitate" the separate sub-samples by comparing people's ratings on the "overlap households" that received ratings by more than one informant. The diagram illustrates such a procedure, where each number is a household.



In many instances it will be useful to have multiple measurements of economic status by using several methods. Pilot testing in the research communities will make clear which measures of economic status will be the most useful and convenient.

G. Other Aspects of Material Resources

In addition to assessment of wealth, the basic household interview should cover other aspects of material resources related to food and nutrition. Resources for food preparation and preservation can be very significant intervening variables affecting the impact of a nutrition intervention programme. Among the important resources, special attention should be given to collecting information on food preparation and consumption technology, including cooking equipment, fuel, plates, utensils, etc. In some settings, food stores as well as storage facilities should be assessed. Other significant variables related to material resources that are relevant in many parts of the world include distance to various resources, including distances to fields, stores, markets, water sources, cash-earning opportunities, as well as access to transportation.

In the analysis of programme impact the items in the "material resources" section of the basic household interview can be treated as individual variables. However, many of them can be combined, using simple scale construction techniques, into composite measures. Thus, it can be useful to create variables such as:

- (1) Material style of life
- (2) Adequacy of food preparation equipment
- (3) Degree of food reserves

H. Beliefs and Attitudes about Food and Nutrition

In addition to the collection of data on actual food intake, the evaluation effort requires information on beliefs and attitudes about food in order to assess the impact of the programme on recipients. Because humans eat food, not nutrients as such, and because they imbue food with a host of symbolic meanings - from ideas about the healthfulness of particular foods to its value as an expression of religious feeling - programme evaluations need to assess "food ideologies" as potentially important intervening or confounding variables. Data about beliefs and values related to food, together with information on actual dietary intake and behaviour related to food acquisition, preparation and consumption, are very important for understanding and interpreting the results from clinical, anthropometric, and other types of nutritional status data. Local beliefs about the relationship of food to health maintenance and illness management may be particularly important in their effects on the selection and utilization of food, including food provided by the programme under evaluation.

Some aspects of the cultural significance of food can be ascertained through ethnographic research, rather than collected from every household in the survey. For example, the cultural practice of preparing feasts for events in the religious calendar and the specification of types of festival foods is a descriptive task for ethnography. On the other hand, some aspects of food beliefs and attitudes should be collected as part of the general survey. Of special interest in this respect are questions related to the particular programme being evaluated. For example, evaluation of programmes directed to pregnant women and young child feeding should collect information at the household level on beliefs and practices related to food use in pregnancy, lactation, and early childhood. The rationale for collecting those types of data from all households in the sample is that beliefs and attitudes can vary widely, even within apparently homogeneous communities. Thus, intra-community differences in beliefs may account for significant differences in programme impact from one household to another.

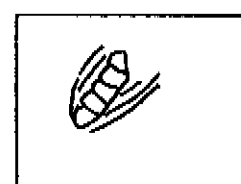
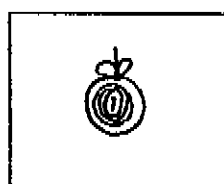
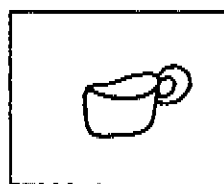
Since the content of questions about beliefs and attitudes should be culturally-specific, to a large extent they have to be designed after the initial ethnographic work. This is particularly true when fixed-choice or precoded items are to be used. For example, in those many areas where the legacy of humoral medicine appears in the form of concerns about the hot and cold qualities of foods, medicines, and diseases, questions about safe foods and practices in relation to this system would be important. However, preliminary ethnographic work is necessary to determine the presence or general significance of this type of belief system in the community.

I. Measuring Beliefs

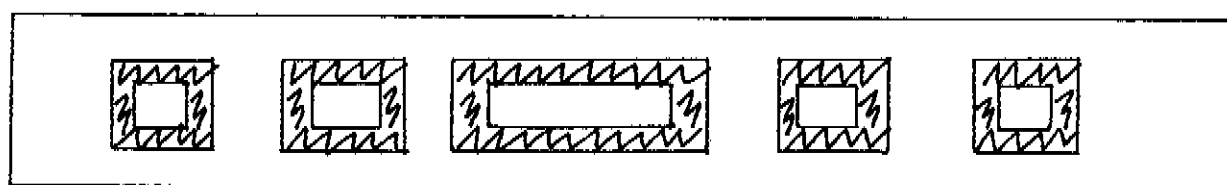
Recognizing that there are often major disparities between what people say they believe (their verbal responses) and their actions, it is nonetheless very useful to elicit stated beliefs. Social scientists have developed a number of methods to collect this type of data. One of the most useful for food-related beliefs is based on a scaling technique, which requires individuals to rank or rate items (foods) in terms of a series of dimensions (e.g. a three-point, five-point, or seven-point scale). By using pictures and a board on which they can be physically placed, it is possible to use this technique with non-literate respondents. Variations of the technique have been used in many groups around the world, including populations with little exposure to written or even pictorial representation.

To illustrate:

- (1) Present the respondent with a set of cards depicting the foods on which you want to get responses.



- (2) Present the respondent with a board, with clear slots or markings.



- (3) Suggest a dimension of value that you want to measure, e.g. "Here, at this end (right) are foods that are good for a sick baby. At this end (left) are foods that are bad for a sick baby. Here in the middle are foods that are neither good nor bad". (Pick up the card) "Can you tell me where you would place this food? Is it good to give a sick baby?, bad?, or neutral?" Continue with each of the relevant foods.

By the researcher's assigning numerical values to the slots, the answers can be represented quantitatively, so that comparisons can be made among foods and between individuals in relation to other variables, such as programme use. If the number of foods to be scored is kept small, it is possible to inquire about a number of dimensions, because respondents tend to find this rating task relatively interesting compared to answering typical interview questions.

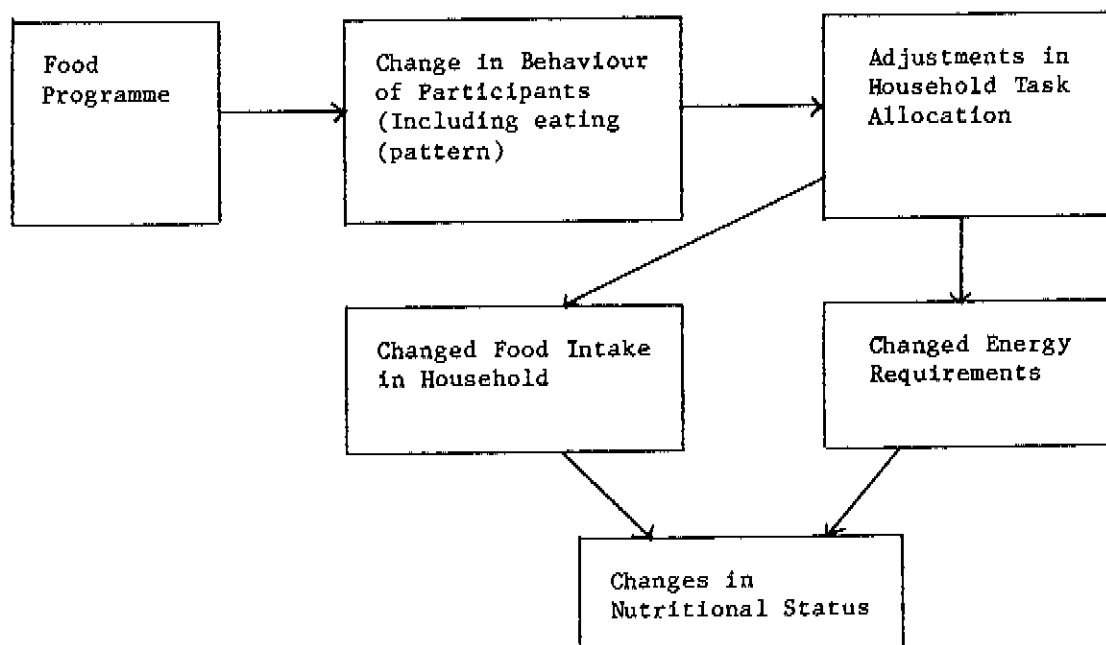
J. The Household as an Organization

Households can be regarded as small-scale organizations that have a large number of tasks to accomplish. Across cultures there are certain basic similarities in the composition of these tasks, although the extent to which other organizational units are also charged with responsibility for accomplishing them varies widely. For example, in industrialized societies responsibilities for food preparation are increasingly given over to commercial establishments as pre-prepared foods, restaurants and canteens assume a larger role in providing significant proportions of the individuals' food.

Between and within cultures there are also important differences in the way in which households, as organizations, arrange or allocate work. Differences in task allocation result from many factors, including household composition, the nature of available resources, cultural expectations, and a complex of individual physical and psychological characteristics. In turn, variations in task allocation or the organization of work can be expected to have significant consequences for health and nutritional status. Some households are more efficient, more active, and more capable of accomplishing tasks than others. Thus, variations in household management or organization can be regarded as one factor that helps to account for differential nutritional status within the same environment.

By extension, it can be argued that a food supplementation programme can bring about changes in nutritional status (or fail to bring about changes) because of its effects on household task allocation. The figure below illustrates this potential mechanism:

Figure 2



In agricultural communities where household task organization has been studied, it is common for adult females to work at least 10-12 hours per day or more. Also, in most communities children work a number of hours a day. Any change that requires alterations in the household work source is likely to shift tasks to other household members. Thus, food programmes that change male adult work patterns or encourage child school attendance can,

under some circumstances, increase women's workloads, even as they also increase food availability. On the other hand, increased food availability could change food preparation patterns, leading to changes in the total amount of time spent in food-related activities, in contrast to other types of domestic tasks.

From the foregoing discussion, it is apparent that data on household organization are important for assessing the impact of a food programme for several reasons:

- (1) Household organization may be a primary variable accounting for differences in nutrition status. Thus, it may be a powerful confounding variable that overwhelms or blunts the effects of a nutrition intervention.
- (2) Household organization may be a factor that affects the extent to which an intervention programme is utilized, hence it can be an important intervening or mediating variable.
- (3) A nutrition intervention may change the character of household organization in ways that either enhance the effect of the intervention or counter the effects of an intervention by affecting patterns of food intake and/or energy requirements.

K. Task Allocation and Performance

Household organization is a highly complex and often subtle phenomenon, which makes it difficult to measure. A major component of organization involves the allocation and performance of tasks. Households vary in the numbers and types of tasks that are carried out, as well as in the efficiency and quality with which they are accomplished. Within any community there are households that appear to maintain high levels of activity in many spheres (economic, social) while other households engage in fewer activities. There are differences, as well, in task performance. Even within the most egalitarian of communities, there are recognized differences in quality of performance, as some individuals are acknowledged to be outstanding farmers, artisans, etc. While issues of quality are quite different to discern, some aspects of time use and types of activities can be measured as part of the basic household survey. More in-depth analysis requires specialized sub-samples.

L. Measuring Household Organization

Three basic methods can be used to measure time use and activities of household members:

- (1) direct observation
- (2) interviewing (including 24-hour recall of activities)
- (3) activity diaries

The selection of one method rather than another is based on a series of considerations, including resources available for the evaluation and the degree of precision required. But characteristics of the community also affect the decision. In some cultures, observers are readily tolerated, while detailed interviewing is regarded as tedious or impolite. In others, just the reverse situation may obtain. Before a final decision is made about which basic method to use, ethnographic work must be carried out.

From interviewing both men and women, an initial list of the types of tasks performed by households can be drawn up. This should include an assessment of what the interviewees regard as "typical" or "usual" (e.g. "women wash clothes once a week"). It may also be useful to elicit information on what people regard as desirable or ideal behaviour (e.g. "a good housewife whitewashes the house every six months"). These two assessments provide a background of the cultural expectations related to household organization.

Since all three methods - direct observation, repeated 24-hour recall of activities, and activity diaries - are relatively costly research activities, it is unlikely that they can be carried out on the full survey sample. Earlier we referred to the value of using sub-samples, selected from the full survey sample, for specialized data collection. With respect to household organization, the ideal sequence would be to collect and partially analyze household task performance data from a sub-sample before administering the basic household interview to the entire sample. Based on this work, a series of key questions can be incorporated into the general survey. The data collection activities outlined below are intended to be used with small sub-samples.

1. The Purpose of an Activity Record

Whatever method - observation, interview, or diary - is selected, the purpose of an activity record is to provide a body of data from which relevant behavioural categories can be coded. For example, it can be hypothesized that the presence of a food programme changes the amount of time spent in food preparation. The amount of time spent in food preparation can be calculated from the behavioural record. A comparison of households participating in the programme with households that do not then provides the conditions for testing the hypothesis. Similarly, time devoted to child care, income-generating activities or cleaning and household maintenance can be assessed and compared. For some activities, such as young child feeding, frequency (number of times per day) may be more significant than total time. For others the mere presence or absence of the task in the daily record may be important. The more complete the behavioural record, the greater is the flexibility to assess a range of organizational tasks in relation to nutritional status and programme participation.

2. Direct Observation with Timing of Activities

A complex, behavioural record can be obtained through direct observation, with timing of specific activities. Because the recording of activities, along with the time it takes to accomplish them, is a tiring task that cannot be maintained for long periods of time, a decision must be made about how to handle recording of the data. Two alternatives are:

- (1) to record activities on a schedule (e.g. 10 minutes every half-hour for three hours, followed by a two-hour break);
- (2) to record fully a pre-determined set of specific activities regardless of how long it takes (e.g. detailed recording of meal preparation and all activities related to infant feeding).

In either case, the procedure begins with the selection of a sub-sample of households to be observed. Observations by one field researcher require a minimum of one day per household, although some researchers recommend two days of observation, as the first is somewhat distorted simply by the presence of the observer. At the second visit, activities are more likely to be closer to normal routines. If the first alternative above is selected, pre-prepared data sheets should be set up in terms of the timing units. When the second method is selected, the observational tasks can be made easier if sub-categories of an activity are pre-recorded on data sheets, based on preliminary observations and interviews.

3. Random Short-term Observation

When day-long observation is not feasible, some researchers have had good success with systems of random "spot checks" of individual households.

Procedure:

- (1) Identify sample of households for observation. (Size of sample, as in other procedures, depends on number of researchers available, in relation to other data-gathering procedures).

- (2) Prepare lists of activity categories, plus specific descriptions, for pre-coding the observations.
- (3) Select suitable time slots, e.g. "every half hour from 7 a.m. to 7 p.m."
- (4) For each day, select households from the sample for each field worker.
- (5) For each selected household, select a random time slot. (Note: in this method, both household to be observed and time slot are randomly allocated).
- (6) Researcher goes to household at allotted time slot and records all current activities during that half hour. He or she also interviews to find out probable activities of household members not immediately present at the household.
- (7) Researcher also writes description of additional useful information, including specific questions about food or other topics. Note: some other questions and observations can be related to these short-term observations.
- (8) This random system should extend across a number of weeks, and it would be most useful if the observations cross cut the major seasons of the year.
- (9) Ideally, the short-term observation method, spread across a number of households, should continue until each household has been observed at a number of different times of the day.

The output of this method produces a "group profile" of time spent in various activities. Also, different activity patterns by sex and age are produced. However, differences among households are not revealed by this method.

In order to use the short-term observation method to gain data on individual households, the method can be revised as follows:

- (1) Steps (1) to (3) above can be retained.
- (2) Prepare a list of time slots for each household - perhaps there are sufficient resources for four observations on each household, at 8 a.m., 11 a.m., 3 p.m. and 6 p.m. Each household is to have these four observations.
- (3) For each day of field work, select randomly from the households and time slots (100 households x 4 = 400 possibilities). If the team has four researchers, each day will involve the selection of four of the 400 possible observations.

After the individual time slots are selected, they are discarded. Thus, the time slot sampling is "random without replacement". Once the slip for household No. 3 at 11 a.m. has been selected, it is not to be repeated.

Some comments about the short-term observation method of data gathering are:

- (1) The spot checks do not provide data concerning the total time spans of particular activities.
- (2) The data are best conceptualized as frequencies of particular activities by persons in households.
- (3) The results from two different households might look like this:

Household A

Household B

9 a.m. Mother: preparing food,
household maintenance
and tending child

Father: agricultural work

16 yr daughter: household
maintenance

11 yr son: agricultural work,
tending animals

8 yr daughter: agricultural
work, tending animals

Mother: preparing food,
household maintenance

Father: leisure

16 yr son: leisure (social)

14 yr daughter: handicraft

11 a.m. Mother: household maintenance,
tending child

Father: eating

Children: eating

Mother: eating

Father: leisure (social)

Children: selling handicraft

3 p.m. Mother: preparing food,
child care

Daughters: same

Father: agricultural work

Son: agricultural work,
tending animals

Mother: eating, leisure (social)

Father: agricultural work

Son: leisure

Daughter: handicrafts

6 p.m. Mother: household maintenance

Father: repair equipment

16 yr daughter: child care

11 yr son: leisure (social)

8 yr daughter: leisure (social)

Mother: leisure (social)

Father: getting firewood

Son: leisure

Daughter: food preparation

Adult leisure/eating
(raw score)

2

8

Mother leisure/eating

0

3

In this (hypothetical) example it should be clear that Household A has a higher "work ratio", or conversely, Household B has a higher "leisure ratio". In both there are three adults (age 16 and over), which yields a total of $4 \times 3 = 12$ observations. Thus, the "leisure score" of Household A is $2/12$ or 0.17, while the "leisure score" of

Household B is 8/12 or 0.67. The corresponding "mother's leisure score" is even more striking: 0.00 vs. 0.75. Experienced field workers have frequently observed these kinds of differences among households, although attempts to quantify them have rarely been made.

In the example above, only four observations were allocated to each household. Increased numbers of observations per household would make possible more fine-grained and "robust" analysis of inter-household variations. Also, relatively brief observations can be combined with short interviews and conversations concerning other activities, particularly those immediately preceding the observation. The method could also be targetted on mothers' behaviours in feeding and caring for infants. Such a focus would require a special sampling of households with 0 to one-year-old infants at the time of the survey.

4. Interviewing for Household Task Allocations

Interviewing methods are usually best structured as 24-hour recall with the female head of household, or some other household member. Ideally, one would wish that the respondent would be able to give approximate times of each activity. An alternative to "24-hour recall" is possible if all interviews are conducted in the evenings, asking respondents to recount all activities of the day just completed.

The sequence of events can be listed in time charts, with space for additional commentary. In some communities there are fairly regular time markers (e.g. church bells, radio news programmes, etc.) that help to preserve realistic time frames. Also, in some societies people maintain fairly clear notions of the hours of the day, perhaps in part because of interest in watches and clocks as technological prestige items.

Procedures

(a) Select sample of households

For relatively intensive analysis, a small sample of approximately 25 households will be sufficient. They should be either a random sub-sample, or a stratified sample that takes into account principal variations in the community studied - e.g. wage-labour households and agricultural households, or types of households.

(b) Select suitable interviewing interval

In general, one should avoid calling back to sample households "every seven days", as such sampling would not be representative of differences throughout the week. Hence, "every sixth day" or "every tenth day" would be more effective in representing the range of variation across the days of the week.

(c) Prepare protocol for systematic listing of activities by time slots for each member of the household

A series of related questions can be devised, including parallel 24-hour recall of food, household expenditures, or other periodic data.

Sampling protocol should also include rules for substitute call-backs if respondents are unavailable on the given days.

Interviews should be sufficiently structured in format so that comparable data are gathered by different field researchers in the community. Generalized interviewing on other topics, therefore, should only be added to the protocol after the structured time-activity data for each person has been recorded.

The greater the number of call-backs to each sampled household, the more valid and reliable will be the overall results. However, it should be noted that care in the

initial sample selection, plus rigorous control of the data-gathering procedures, contribute more to the strength of conclusions than does the total number of observations.

5. Keeping of Work and Activity Diaries

In an increasing number of communities and regions throughout the world there are sufficient levels of literacy that members of households can be asked to keep their own records of activities in "diaries". Such diary keeping by selected households is easier when the usual rounds are not highly complex for various household members.

If the diary method is attempted, field researchers should carefully assess their ethnographic data in order to establish categories and reasonably clear protocols for the households to follow. Short-term observations and spot interviews can be used to enhance data quality control.

The diary method permits the researchers to expand the total sample size without great additional personnel costs, though the regular monitoring and pick-up of the diaries can be more time-consuming than it appears at first glance. Collecting diary sheets at regular intervals, plus regular "de-briefing" and encouragement, can greatly increase the quality of the records.

Incomplete and poorly kept diaries can be examined statistically to estimate the effects of inadequate recording. Such quality control methods, through statistical analysis, can make possible the judicious use of relatively uneven diary records.

6. Specialized Observations: Mother-Child Interaction

Up to this point, we have focussed primarily on gathering data about all the people in a household. In some cases it may be more time-efficient to focus particularly on the mother and on mother-infant pairs. The key role of maternal performance and behaviour has been well documented in a number of studies. On the other hand, an evaluation study should never focus on maternal behaviour until after the ethnographic reconnaissance and related general data-gathering has given a fairly precise picture of the situation and roles of females in households. This will allow the concentration on maternal behaviour to be finely tuned to data on other aspects of household organization.

Interviews can produce useful information about differential behaviours of parents and children, but far more valid and reliable data can be obtained from direct observation.

Direct observation of mother-child interactions requires the presence of one or more observers in the same room with the mother-child dyad or else the use of video-tape cameras. Use of video-tape preserves a more accurate and complete set of raw data for analysis, but has the following disadvantages:

- (1) cost of equipment and personnel, plus logistic difficulties;
- (2) intrusiveness of equipment, which may cause change of behaviour of the mother (and other participants);
- (3) complexity of data analysis (and costs) because very large amounts of video-tape protocols must be viewed, reviewed, and coded into behavioural categories.

Whether one uses a video-tape recording or depends on an observer recording detailed notes, researchers must decide on the frequencies of observation, length of time of each unit of observation, and total numbers of such observations. Ideally one would like to have at least three to four separate observations, varying the time of day.

Mother-infant observation could, under some circumstances, be combined with data collection on other variables such as diet and food use. This combined data collection

process would be more feasible if the researchers worked as two-person teams, at least in the more intensive portions of observation.

We suggest the following pattern as a general research procedure, from which individual projects would deviate to varying degrees depending on available resources and the specific contexts of local conditions.

(a) The core set of observations

Each caretaker-infant dyad should be observed for a minimum of one hour in the morning and one hour in the afternoon or evening. Additional information should be added from interviews concerning the activities of the infant (sleep, number of feedings, other caretakers, etc.) during the time period between the two observations. The observations should each include a feeding episode, plus activities before and after, while the infant is awake.

(b) Sample

The sample population should be at least thirty caretaker-infant pairs, with the infants ranging in age from one month to six months. This sub-sample of observations should be part of a larger population on whom basic household characteristics, food use, and dietary information, and other data, are gathered. Thus, in some instances in which the larger (basic) sample consists of some 300 to 400 households, this special observational sample might consist of all the households with infants aged one to six months.

(c) Timeframes during the observations

For certain detailed information about mother-infant interaction, or caretaker-infant interaction, it is not possible to record "everything" for a full hour. For example, items such as "smiles at", "talks to", "looks at", "bounces and cuddles", etc., might be noted at specific intervals only.

(d) Categories of behaviour to be coded

The specific categories of behaviour to be observed will depend on specific hypotheses concerning relationships of nutritional factors (and food use) with specific behavioural features. The following categories are examples of coding that has been used by some researchers testing specific hypotheses (specifics of coding will vary from one community to another, because of social/cultural variations).

(e) Number of days of observation per household

Ideally one would like to have three or four days of observations, each consisting of the components described above. The three or four days of observation should be spread over a six-month period, in order to test for effects of maturation per infant, as well as effects of seasonal change. If, for example, caretaker's workloads differ considerably because of seasonal change, it would be valuable to have the multiple observations per household spread out over the major seasons.

(f) Data analysis (aggregating/organizing data for hypothesis-testing)

Some of the most important data from these observations will take quite a simple form, such as the following:

- (1) total duration of feeding times per infant
- (2) total time of holding the infant by caretaker (mother)

- (3) duration/total time of all positive, nurturant behaviour toward infant
- (4) activity level of infant (total number of different activities: ratio of active to inactive time)
- (5) number of different caretaker of infant
- (6) time left unattended
- (7) total time (or number of times) crying or fussing
- (8) number of times infant vocalizes (all types)
- (9) others

These behavioural variables can be grouped or clustered by means of factor analysis, cluster analysis, or other statistical methods into groups of related, co-occurring items. The clusters can then be examined in relation to nutritional variables and other data for correlations and other patterns suggested in the evaluation hypotheses.

IV. SOME GENERAL METHODOLOGICAL ISSUES CONCERNING THE HOUSEHOLD INTERVIEW

During the past decade a major change has occurred in ethnographic field work strategies. Both the general conditions of research and heightened concern with validity and reliability of household data have encouraged (sometimes necessitated) greater use of local community persons as researchers. In addition, heightened local community interest in various research-and-development projects has increased the needs for direct community participation in the planning and implementation of various projects, both theoretical and applied. In some instances, local community participation complicates research and evaluation efforts, particularly if local level factionalism and politics enter into research team recruitment and training. However, effective utilization of local expertise concerning cultural and social features can increase the quality and quantity of household data and thus facilitate more effective evaluations.

The basic household interviewers and careful monitoring of their work is essential. One effective training method is role playing, in which interviewers administer the schedule to each other, with critique provided by the project supervisor. Completed interviews should be reviewed in detail, especially during the early stages of data collection, but continuing throughout the data collection period. Among the important aspects to monitor is the correspondence between the answers respondents are giving to questions and the intent of questions.

In the basic household interview, missing data are very troublesome. Pretesting should eliminate those items that will not or cannot be answered by most respondents, so that for the most part, missing data in the final form of the interview schedule may be regarded as a problem of interviewer technique. Interviewers will need help to develop skills for probing and handling difficult questions.

There are several strategies that can be used to address the difficult problems of reliability and validity with household data of the types required here. Deliberate falsification of information occurs, particularly with socially sensitive areas. (Topics of sensitivity will vary from one cultural setting to another, so that these potentially difficult areas have to be discovered through ethnographic work). Generally, however, misinformation is the result of misinterpretation of the meaning of questions. The importance of ethnographic work, pretesting and discussing the results with local key informants, cannot be stressed too strongly as the major check on quality control for

socio-cultural data.

Another control for reliability is to use multiple indicators rather than relying on the response to a single item. When several items can be combined into a constructed variable (a scale or index), statistical procedures to test for scale reliability or coherence can be applied, providing a further check on data quality.