A STUDY OF THE DIETARY CIRCUMSTANCES
OF THREE BLACK AREAS IN DURBAN'S
PERI-URBAN BELT

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requirement for the Post-graduate Diploma
in Applied Social Sciences at the Centre
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INTRODUCTION.

In August 1976 the Centre for Applied Social Sciences commenced a "Diet and Health Survey" in the peri-urban region to the south of Durban on behalf of the Black Communities Programmes Ltd.

BCP had noted the lack of medical services in the Umbumbulu district and decided to establish a community health centre at Macayama within the old Mission Reserve. In view of the large capital outlay that such a project would entail, it was decided to approach CASS to first undertake a feasibility study.

Such was the immediate purpose of the study. Included however was the aim to collect as much information as possible that could be of use to medical personnel and to social scientists with an interest in social change, urbanization and household structure.

An interim report entitled "The Feasibility of a Black Community Health Centre proposed for a site at Macayama" was published in October 1976. The report was based on some of the data collected at one of the three areas surveyed. The contents of the Interim Report were: population and household patterns, incidence of disease amongst various age groups, household nutrition and daily dietary patterns, the frequency of consumption of a number of food items, knowledge of the health-nutrition link, information on the use of medical facilities and attitudes to the proposed location of the health centre.

The present author was given the opportunity in 1980 of using all the raw data collected for the purpose of fulfilling a dissertation requirement. The problem of formulating a framework for analysis immediately presented itself.

The initial hope was to undertake a nutrient analysis since information on the quantities of foods consumed had been collected. This would have provided us with a reasonably valid and reliable index of the nutritional status of the three communities and

with data that would have been comparable with a similar study undertaken in Guguletu township and with any other quantitative studies we could locate. Consultation with dieticians and medical personnel at the Pietermaritzburg campus and the Medical School in Durban persuaded us against even attempting to begin this arduous task which would have involved lengthy and complex coding and the writing of a special computer programme, for reasons which will be discussed later in the report. However, this initial disheartening experience did lead to a more intensive examination of dietary methodology than was initially intended.

The problem that then arose was one of trying to formulate testable hypotheses *ex post facto*. The review of the theoretical and empirical literature served to illustrate the paucity of material on nutrition which had a social scientific bent, and which was in any way comparable in type to the data we had at our disposal. The hypotheses we did formulate have their basis in low level empirical generalizations rather than any strictly formulated body of theory.

CHAPTER ONE

DIETARY METHODOLOGY - A GENERAL DISCUSSION

The WHO Report of the expert Committee on Medical Assessment of
Nutritional Status lists the following as being the necessary
information for an assessment of nutritional status: agricul=
tural data and food balance sheets; socio-economic data on
marketing, distribution and storage; cultural-anthropological
data on food consumption patterns; dietary surveys on food con=
sumption and special studies on food; health statistics; anthro=
pometric studies; clinical nutritional surveys; biochemical
studies on the levels of nutrients and medical information on
prevalent disease patterns. (1)   Dietery surveys, such as the
present one, are therefore but one method amongst several which
serve to assess nutritional status.   A complete review of dietary
methodology will not be given in this chapter - for this, the reader
is referred to the excellent article by Marr.   Instead some of
the more important issues will be presented and one method - the
dietary history method - outlined.

The major problem in conducting a dietary survey is that of de=
ciding upon the unit of measurement and analysis - the indivi=
dual's consumption or, for example, that of a household.   Marr
(2) and most dieticians appear to take an unfavourable view of
family surveys since 'family surveys, though easier to conduct,
cannot identify below - or above - optimal intakes of indivi=
duals or show associations between diet and disease in the in=
dividual'.

Family or household surveys were popular in the first half of
the twentieth century since this unit was the easiest to study,
and had the advantage of frequently being the economic unit as
well as the dietary unit.   Pike and Brown (3) in writing on
family surveys define household consumption as an estimate of
the total amount of food consumed by the entire household for
a fixed period of time, usually one week.   The ..../

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1. cited in Pike and Brown   26
2. Marr, 1971, p 106
3. Pike and Brown, p 937

The alternative to the family or household as the unit of measurement, is the individual and in individual dietary sur= veys, each individual's intake is distinguished.

Yet another important point where there is a lack of consen= sus in dietary methodology concerns the distinction between the necessity of measuring current intake and of assessing food habits over a longer period. Widdowson (1) in supporting the latter position states that 'the aim of all dietary surveys, whether made on individuals or groups, is to discover what the persons under investigation are in the habit of eating. Their diets must be those to chich they are accustomed and which they freely choose'. Wilson[2] argues that since the effect of food intake on the body is cumulative and not necessarily immediate, nutrition surveys should combine biochemical, clinical and die= tary analysis for a better overall assessment of nutritional status. The remainder of this chapter is devoted to a closer examination of methods of obtaining information on usual die= tary intake since this is more in line with the abilities and interests of the sociologist making a study of nutrition. We do not therefor consider precise weighing methods, weighed in= ventory methods etc. However they have been used in studies such as that by Jones in Swaziland.

Burke developed the Diet History method in 1947 to estimate the USUAL OR AVERAGE dietary intake of individuals over a period of time, and it has become the most commonly used (frequently in modified form) means of evaluation.

The method has a three-part structure (3)
a. overall eating pattern with a 24 hour recall of foods ac= tually eaten covering the complete day. Quantities are recorded in household measures;
b. the cross-check which consists of a detailed list of foods about which are asked questions concerning usage, preferences and purchasing. This clarifies information received through (a);

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1. quoted, Marr 1971, p 108.
2. Wilson C in Bauwen E (ed).
3. following Marr 1971, p 119-121.

The following methods are used to determine household consump=
tion: a. A FOOD ACCOUNT - a list of all food purchased over
several weeks; b. A FOOD LIST - in essence, a recall of the
quantity consumed by the household during the previous week;
c. A FOOD RECORD - a weighed inventory at the beginning and
the end of the week, and a daily record, by weight, of food
brought into the home during the week; and d. A WEIGHED HOUSE=
HOLD CONSUMPTION - the daily weighing of prepared food. House=
hold surveys using these methods will yield information on eco=
nomic consumption (the monetary value of food entering the home)
and physiological consumption (actual food eaten). Family die=
tary survey results are usually presented in the form of PER
CAPITA consumption. This is done by averaging the quantities
and computing the mean consumption per person, or by using a
formula to take into account the family age and sex composition
and the number of meals eaten in and out of the dwelling place
(such as those devised by Francois (1970) and Cresta (1970)).

Several sources, including Marr, have pointed out that the
individuals actual intake cannot be assessed in this manner.
Marr quotes extensively on this inadequacy: for example,
Cathcart and Murray (1930/31) - ' ... the indiscriminate and
uncritical use of family coefficients is frought with danger' (1);
and Wait and Roberts (1932) - ' ... the caloric standards in com=
mon use .... are largely hypothetical.'(2) Distribution of food
within the household, a matter of great sociological interest
since this is likely to be influenced by social considerations,
thus cannot be assessed by the family dietary survey method.

Marr however, does allow that the family survey has value in
' ... drawing attention to sections of the community which may
merit closer investigation, for example, by the use of the in=
dividual dietary survey' (3). The household survey would then
seem to assist in the overall assessment of the nutritional sta=
tus of a society by providing mainly qualitative information.

<div style="text-align: right">The ..../</div>

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1. quoted in Marr 1971, p 107.
2. quoted in Marr 1971, p 107.
3. Marr 1971, p 107.

c. a menu recorded for three days by the subject.

While it is possible to quantify the data obtained by converting the household measure or food model estimations into uniform terms of weight and then into nutrients through the use of tables of food composition, Burke maintains that results presented on such a manner give an unjustified impression of the accuracy of the data.

One of the drawbacks of the dietary history method, and of any recall method, is clearly that of possible respondent memory failure and this affects the validity of the study. Campbell and Dodds (1) found that women were better than men at recalling their food intake, and that younger people were better than older subjects. They estimate that as much as 35 percent of the calo= rie intake for older men may be omitted. It is for this reason then that Burke stresses the important rôle of the cross check within the diet history method (2).

A further problem associated with the method is that it is limited to respondents with clearly defined eating habits, making it un= suitable for use on several types of groups of people.

Hartog et al (3) have found that the diet history method makes heavy demands on the interviewers' skill, and that training is essential. However the demands on respondents are corresponding= ly lessened and the co-operation rate is higher in comparison with other methods.

It has been found in several instances (Becker et al 1960; Young et al 1952b; Hartog et al 1965) (4) that the dietary history method, in comparison with other methods of nutritional assessment, usually overestimates food intakes and probably also overestimates frequency of consumption and the sizes of food portions. The in= formation obtained on quantities is therefore highly suspect.

With ..../

1. cited in Marr 1971, p 133.

2. in Marr 1971, p 119.

3. in Marr 1971, p 122

4. cited in Marr 1971, pp

With regard to the validity of the dietary history method we
may agree with Marr's statement that ' ... absolute validity is
not achieved and that there is a loss of accuracy at each stage
of dietary assessment as it is modified in order to make the pro=
cess of evaluation more acceptable to a wider population' (1).
While the precise weighing method is taken as the ideal standard
for validity of measurement it must be remembered that the strin=
gent requirements of this method affect the behaviour of the re=
spondent and make it suitable for only a small segment of the po=
pulation.

Another important issue in dietary studies concerns variation in
intake.   To what extent can a single recall for example be used
to illustrate a much longer period of time? Marr quotes evidence
to show that with the dietary history method repeated at 2 yearly
intervals gives very similar results.   In recorded studies with=
in - and between - person variation becomes an important issue
since these variations will determine the length of time for which
it is necessary to record food intakes.

By this stage it should be apparent that dietary surveys involve
much time and effort.   What short-cuts are available for epide=
miological studies? Marr refers to a number of methods, many
involving frequency of consumption check-lists.   The overall im=
pression of the results of such methods is that they are quali=
tative rather than quantitative.   Abramson et al (1963) who de=
vised one such method, are quite clear about its' limitations -
it can detect differences between the usual diets of groups of
subjects, indicating whether they are similar but cannot detect
the nature of the differences in terms of nutrients (2).

In conclusion, it may be said that the undertaking of a dietary
survey involves the researcher in a number of decisions.   Once
the unit of analysis has been decided upon, it remains to weigh
up the degree of validity of the chosen method of investigation
against factors such as interviewer skill, suitability of the
method for the population under study and the effects of intru=
sion on respondents' lives.   And this ..../

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1.   Marr 1971, p 138.
2.   cited in Marr 1971, p 151.

And this decision rests on a point that has so far remained im=
plicit in the discussion, namely the objectives of the dietary
study.   Young (1965) sees the existence of clearly defined ob=
jectives as one of the most important points since it is the ob=
jective of the study that will determine the appropriate method
of data collection, processing and interpretation (1).

The assessemnt of the validity of a method must therefore re=
main to some degree a relative matter dependent on the objectives
of the study.

1.   In Marr 1971, bl 108-9.

CHAPTER TWO

SURVEY METHODOLOGY

In this chapter we undertake an exposition and critical review
of the methodology used in the study with particular emphasis
on the dietary methodology.

The standard cross-sectional once-only survey method was used to
elicit the information required on all espects of the study.

SAMPLING

As has already been noted in the Interim Report (1), the small
scope and budget of the study militated against the use of pro=
bability sampling.   Any sampling design that requires the con=
struction of a complete sampling frame listing all sampling units
is very difficult to construct in a situation where the popula=
tion of interest is located in a rural area.   This problem was
further exacerbated by the fact that it was difficult to define
precisely the total population of interest in the study (2).

Instead, three areas of variable distance from the proposed site
for the health centre were selected since it was for the health
centre were selected since it was felt that accessibility would
prove to be an important factor in an individual's decision
whether to use the facility or not, and hence in the feasibility
of the project.   In this sence then, our sample may be said to
resemble a stratified sample.   Other factors affecting the choice
of the three areas finally selected were differences in settlement
pattern and ease of access by fieldworkers.   The three areas se=
lected were Adam's Mission, Tholeni and singqungquma.   At Adam's
a 10 percent systematic sample was drawn from 470 lots giving a
sample size of 47.   Only one household per lot was selected for
study.   At Tholeni and singqungquma, simple enumeration was un=
dertaken and 35 and 34 cases respectively were obtained from each
area.   The overall sample size was then 116 cases.

Probability ..../

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1. Stopforth, 1976, p 2.
2. This point has also been mentioned in the Interim Report, p 5.

Probability sampling is generally seen as being superior to non= probability sampling but it would make more sense to allow the aims of the study at hand to be the decisive factor in the choice of a sampling design. In this instance there was no interest in trying to generalize much beyond the specific sample that we had drawn. Furthermore prior knowledge of social and other condi= tions in areas such as the one in which the study was conducted permitted the assumption that there would be little variation within each of the three areas. Therefore, in this particular instnace, the advantages of low cost and relative ease outweighed the ability to generalize that probability sampling offers. How= ever, fieldworkers could have been instructed to spread their in= terviewing within each area as widely as possible so as to obtain a range of distances within each area. Fieldworkers could have estimated the distance of the homestead from say a Major road and thereby provided us with another useful variable. A quota sample with education or income as the criterion would also have been a desirable type of design but more difficult to achieve in the rural area than a township.

FIELDWORK

Two fieldworkers, one male and one female, were employed to con= duct the interviews. While neither was trained as a dietician, they were briefed prior to entering the field by the organizer of the project.

The target respondent or sampling element was the wife or per= son responsible for the preparation of food within the house= hold and in most cases this person was reached. If this per= son was not available the fieldworkers were permitted to inter= view any responsible adult in the household. In all cases this fortunately was a female person.

THE QUESTIONNAIRE

The fieldworkers administered a two-part questionnaire to the respondents once only. A copy of the schedule forms Appendix A Section One deals solely with household data (in the main, our independent variables) - size, composition, employment, etc.

Section Two ....../

Section Two focuses on general meal patterns and their content
for weekdays and weekends since, on the basis of previous re=
search a clear difference in meal content was anticipated;
this section also elicited information on meal participants and
quantities consumed in terms of common household measures.
Section Three dealt with attitudes to the proposed clinic, the
prevalence and type of disease found in the area and the re=
spondent's knowledge of the health-nutrition principle.   Fi=
nally, respondents were asked about the frequency with which a
number of food items was consumed using a frequency of consump=
tion checklist.

THE DIETARY METHOD

The overall dietary methodology may best be characterized as a
modified version of Burke's Dietary History Method.   The major
modification was that the unit of analysis was the household
rather than the individual although a single individual was in=
terviewed to obtain the information.   The respondents were
asked questions about what was usually consumed at the meal
periods at which any member of the household was present, as
well as the estimated quantity per person.   They were also
asked about the food consumption of those members of the house=
hold who ate meals outside of the household (1).   The twenty-
four hour recall of foods actually eaten was omitted as well as
the three day menu that is usually recorded by the subjects them=
selves.   This latter part of the method is considered by Burke
to be the least valuable.   A version of the 'cross-check' was
included in the form of a frequency of consumption check list
of 102 items.   Our experience with this part of the method
confirms Burke's view that it is an important part of the over=
all method and aids in giving a representative picture of ave=
rage intake.

Any assessment of the suitability of the dietary technique
chosen depends to a large extent on the objectives of the study.
The stated aim was to acquire a knowledge of the general meal
patterns - 'an overview for medical personnel concerning the
nutritional standards of their future patients' (2).
In this respect........./

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1.   This information has not been analyzed.

2.   Stopforth, 1976, p 3.

In this respect then the modified Burke dietary history method
appears to have been an appropriate choice since it is clearly
a technique designed to elicit the usual dietary intake over a
period of time.   However, this objective appears to clash with
the initial desire, which has already been mentioned in the In=
troduction, to undertake a nutrient analysis since the dietary
history method cannot elicit information with the degree of pre=
cision that is required to make a nutrient analysis a worthwhile
and justifiable undertaking.

At this point it is apposite to make mention of the attempts at
quantification.   One of main objectives was to assess the nu=
tritional status of the population.   This was the major motivation
behind the attempt to quantify the data and to undertake a nutrient
analysis since by doing so it would have been possible to compare
calorie and vitamin consumption rates with the Recommended Daily
Allowances thereby providing prospective health workers with a
fairly precise knowledge of where deficiencies were located and
thereby a firm basis for focusing their curative and preventative
measures.   We would furthermore have been able to compare on a
quantitative basis our results with the Guguletu and Swaziland
studies in particular.   In the hope that a nutrient analysis
would be feasible, data on estimated quantities per person of
all foods consumed at meal periods were collected.   Consulta=
tion with experts in this field (1) persuaded us against coding
and reporting our findings.   The general feeling was that since
we did not have precise information on quantities consumed, it
would not be worth the effort to code the data and prepare a
special computer programme for the analysis.   We had collected
the quantitative information in terms of common household mea=
sures - cups, spoons, slices, etc.   Nutrient analysis requires
the conversion of such measurements into weights before an es=
timation of the nutrient value is possible.   In many instances
we did not know whether the date collected referred to the cooked
or rqw amount of food.   Multiple responses would also have proved
problematic in a quantitative analysis.

<div align="right">Our unit ..../</div>

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1. These include a dietician in the Dept of Home Economics,
    University of Natal, Pietermaritzburg; a dietician at King
    Edward Hospital, Durban and medical staff at the Medical
    School, Durban.

Our unit of analysis was the hosuehold although the informa=
tion was elicited from one member of the household.   It has
been noted in the previous chapter that the use of the family
as the unit of measurement precludes the possibility of a meaning=
ful nutrient analysis.   This was echoed by the dietician consulted
at the University of Natal in Pietermaritzburg.   Whether or not
the choice of the household rather than the individual as the unit
of analysis was apporpriate, depends to some extent on the per=
spective one adapts.   Sociologically, the household was the ap=
propriate unit of measurement since data had been collected on
other variables at this level of analysis.   Medical practitioners
may well have preferred the individual as the unit of analysis in
order to be able to identify persons with above or below optimal
intakes, and vulnerable groups such as weaned children or lac=
tating mothers.

In most other respects the modified Burke's dietary history method
is well suited to the population under study.   It will be recalled
from the discussion in the previous chapter that the technique can
only be successfully used on respondents with well defined dietary
patterns.   A review of the literature and prior research expe=
rience permitted this assumption to be made.   For similar rea=
sons, memory failure was not a great problem and the frequency
of consumption list provided a useful check.   The modified ver=
sion adopted did not require that the respondents keep written
records or weigh food which would have demanded a very high de=
gree of co-operation and a great deal of effort on the part of
the respondents given the generally low level of educational at=
tainment of Blacks in South Africa.   One disadvantage of the
method was that it demanded a high degree of skill on the part
of the interviewer.

OPERATIONALIZATION

The fieldworkers were instructed to visit HOUSEHOLDS to obtain
the necessary information.   A household was defuced as ' ...
those who share the same physical space for the purposes of
eating, sleeping and taking rest and leisure, growing up, child=
weaning and procreation' (1).   For the fieldworkers it was more
simply defined as all those people who eat together.

Nutritional ...../

1. Laslett P, 1972 as quoted in Stopforth 1976, p 5.

NUTRITIONAL STATUS was operationalized in the form of a simple
scale - the Nutrition or NUT scale.   The scale was constructed
from selected items in Question 9 of the schedule - the frequency
of consumption record.   The following food items and their spe=
cified consumption rates, which in our opinion constituted a
'balanced' diet, were selected for incorporation in the scale:
chicken, beef, fresh milk, pumpkin and imfino - daily or 5 or
6 times per week; oranges, bananas, cheese and fish - daily to
as little as once or twice per week; beans eggs and maas - daily
to 3 or 4 times a week.   In retrospect it would have been wise
to make provision for some form of carbohydrate and fat intake,
and possibly to have consulted experts on the matter.   Keyter's
method of assessing the adequacy of the diet of his sample came
to our attention too late to be replicated (1).   Respondent's
answers received a score of 1 for an item eaten 3 times a week
or less frequently and a score of 2 for items eaten between 5
and 7 times per week.   The validity of the scale is open to
question.   To some extent it depends on the validity of the
frequency of consumption record which was vulnerable to memory
failure and the ability of the respondent to estimate the gene=
ral frequency with which a side range of food items were consumed.
Possible flaws in the definition of what constituted a balanced
diet have already been noted.   Finally, with a simple summated
rating scale such as this, it is not possible to know where
shortfalls occur.

It was decided for purposes of comparison that the definition of
STAPLE DIET used in the Interim Report should be used.   Besides,
the present writer could not locate an alternative operationali=
zation of the term although it is widely used in the literature.
A food item constituted a staple item of the diet if it was con=
sumed daily or 5 or 6 times a week by at least 85 percent of
the cases.   The definition thus incorporates both breadth of
application and a high level of consumption.

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1. Keyter 1961, p 41.   The rating used in this study does not
    differ greatly from Keyter's rating.

CODING AND DATA QUALITY

While the coding of the household and attitudinal information
was a relatively straightforward matter the coding of meal
periods, couteur and food item frequency of consumption was
a lengthy and laborious process. A simple binary method was
used.

It was at this stage of the research process that flaws in data
quality became apparent. For example, on Question 2 sugar and
milk were infrequently mentioned as being consumed in hot beve=
rages; margarine was frequently not mentioned and the type of
bread consumed not recorded. The frequency of consumption
check-list however assisted in the clarification of most pro=
blems of this nature and the creation of a more accurate view
of the dietary pattern. A further problem encountered was
that of multiple responses on certain types of items to the
question 'What is usually eaten at meal period x?' A coding
convention of recording the first response only was established.

Porblems such as those noted above would also have been con=
siderable drawbacks in a nutrient analysis and would have un=
dermined the validity of the attempt.

CHAPTER THREE

BACKGROUND TO THE STUDY OF NUTRITION

In this chapter we undertake a very brief review of the social
scientific study of nutrition. We then take a closer look at
nutrition in South Africa and the general circumstances of the
areas in which the present study was conducted. Our hypotheses
are identified as well.

Den Hartog and Bornstein-Johansson, in their article 'Social
Science, Food and Nutrition', remind nutritionists that 'man
does not think of his food in terms of calories and nutrients'.
(1) Instead, the definition of what is and what is not food,
it's distribution and mode of consumption are established by
social convention. Cohen argues that ' ... patterns in the
consumption of food are almost always governed by cultural sym=
bols and .... the ways in which food is distributed and consumed
reflect a society's dominant modes of social relationships and
groupings, especially those pertaining to kinship ties'. (2)
Cohen also mentions the reflection of relations of social dis=
tance and proximity and authority in the social treatment of
food. We may say then that the consumption and distribution
of food is an aspect of rule governed behaviour.

The relation between the social sciences and nutrition is rela=
tively recent dating back to the 1930's when the serious study
of diet from a social scientific point of view began. The science
of nutrition had earlier beginnings in the early ninteenth century
but only tentative and imprecise links with the social science
perspective were made by people such as Malthus, Owen, Booth,
Marx and Engels.

It appears to have been anthropologists, from Malinowski onwards
who had an early social scientific interest in food and dietary
patterns. Initially this interest focused on descriptive folk=
loric accounts of customs, preferences and taboos then broadening
to examine food in relation to society. In the late ..../

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1. Den Hartog and Bornstein Johansson in Pitt D C (ed) 19, p 100.

2. Cohen International Encyclopedia of the Social Sciences vol 7.

In the late 1930's social scientists became interested in the
practical application of the social sciences to food and nu=
trition problems.   The work of Audrey Richards, LAND, LABOUR
AND DIET IN NOTHERN RHODESIA was one of the first co-operative
efforts between a social scientist and a nutritionist, Widdowson.
Since World War II such co-operation has increased.   It has been
the attempts at implementing dietary changes in the developing
areas which have forced a closer examination of the rôle of socio=
cultural factors in nutrition.   As just one example we can men=
tion the effect of the change from subsistence farming to cash-
cropping on diets.   Kraut and Cremer (1) found with reference
to Kenya that the improvement in the general standard of living
brought about by the cash income, did not coincide with an im=
provement in nutritional status since the additional income was
directed to other needs such as clothing, bicycles and radios,
rather than to additional foodstuffs.   Social scientists have
also examined the effect of urbanization, transport, family and
social change on dietary practises.

In the South African context, race becomes a saturated variable
with South African population differing with respect to income,
occupation, educational level, degree of urbanization and other
factors.   We can therefore expect the groups to also differ
with respect to diet, health and illness patterns.   The highly
urbanized White population has an intake of nutrients comparable
with that of Europeans and Americans.   In most cases the re=
commended allowance targets are reached if not over-reached (2).
It is also highly likely that in this race group we should be
able to observe the operation of Engel's law, namely that the
proportion of a consumer's budget spent on food tends to decline
as the consumer's income increases after reaching a critical
threshhold (3).   It has not been possible to locate evidence
however.

It is a ..../

1.   quoted in Pitt, p 104-5

2.   Neser SAMJ 18/12/1965

3.   Engel E, International Encyclopedia of the Sosial Sciences, Vol 7.

It is a sociological commonplace that urbanization brings about
a wide range of changes in social behaviour.   It has been demon=
strated that urbanization has brought about changes in dietary
practises.   Canosa (1) presents evidence for this regarding the
immigration of Southern Europeans to Northern Europe.   Paedia=
tricians found themselves faced with new kinds of pathologies -
tuberculosis, diarrhoea, respiratory diseases, anaemia, iron de=
ficiencies and parasitic infections.   The new food patterns were
found to be one factor at work.

Den Hartog and Bernstein-Johansson (2) list the following factors
as being of importance in the changing of dietary patterns of ur=
banizing peoples: i. all foods in town must be bought; ii.
there is an inadequate supply of traditional commodities and
iii. insufficient time for lengthy food preparation (staple items
in less developed countries are usually maize products which re=
quire several hours preparation).   In short, the urbanizing in=
dividual has to create a new dietary culture (3) with few quide=
lines and certainly without a modern knowledge of nutrition.
Instead in many cases, the migrant is guided by new conceptions
of social status and prestige, the pressures of advertising (es=
pecially influential in changing infant feeding practises) and
the availability and attractiveness of a wide range of new foods.
Taste, convenience and prestige become important factors in de=
termining new food habits in a situation where rapid social change
is occuring and where traditional controls on social behaviour are
being unfastened.   In many instances such changes are accompanied
by a lowering of the nutritional status of the population.

In South Africa, despite the application of influx control mea=
sures, Blacks are in the process of urbanizing.   While histori=
cal material on the traditional diet of Black peoples in South
Africa is scarce, the staple item appears to have been maize sup=
plemented by vegetables and animal protein in the form of insects
but little animal flesh.   One of the first dietary surveys in
South Africa was conducted in the Reserve areas in 1952 when the
migrant labour system was already in operation.

1. in Walcher et al 1976.

2. in Pitt D C (ed).

3. Foster 19   , p 62.

Urbanization has led to an increase in the consumption of re=
fined foods which have become a prestige item as in many other
cultures, saturated fats and sugar.   A semi-westernized diet
has been adopted with food being consumed at three meal periods
instead of two and the staple high bulk carbohydrate item being
retained and supplemented with an increased intake of meat, su=
gar-rich products and manufactured bread.   In the rural areas
also diets have not escaped modification although the two meal
pattern is retained in most circumstances.   Maize remains a
staple item and manufactured bread is added to the diet.   The
intake of meat remains irregular but there has been an increase
in the intake of foods such as sweetened condensed milk, sugar
and refined products in general.

Whether or not the new urban diet is superior to the rural diet
remains a matter of debate.   Manning et al (1) report contradic=
tory evidence with Lubbe, who undertook research on rural and ur=
ban Venda males arguing that the urban diet was superior to the
rural diet and Smith, who conducted research amongst the Zulu
in the Valley of Thousand Hills, to the contrary.   Jones found
in her study of Swazi nutrition that diets in Mbabane were better
than those in the rural areas (2).   Slome (3) and Kark (4) have
characterized the diets of rural people living in Pholela as in=
adequate and deficient in meat, milk, green vegetables and fruit.
Walker (5) mentions several deleterious effects of urbanization:
reduced Vitamin B intake due to consumption of refined maizes
and white bread; this together with increased alcohol consump=
tion has contributed to an increase in alcoholic pellagra; the
reduced intake of minerals and salts now that 'wild greens' are
not easily available; reduced iron intake as the use of the tra=
ditional iron pot has declined.   It is clear in view of the con=
tradictory nature of the findings that the factors determining
the quality of diets have not been isolated and that further in=
vestigation is required.

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1.   Manning et al SAMJ 13/3/1974, p 485-6.
2.   Jones 1963.
3.   in Kark and Stewart 1962, p 274 ff.
4.   in Kark and Stewart 1962, p 24.
5.   Walker SAMJ 17/10/1966, p 816.

At this point we pause to present our areas of interest and hypotheses in the present study before examining the study locale in some detail. A major concern was to collect de= scriptive information on dietary patterns that would be of use to medical practitioners and that would provide us with data that could be compared with other studies that had been undertaken. We selected as one of our dependent variables, the nutritional status of the community as measured by the NUT scale which has been discussed in the chapter on Survey Method= ology. The socio-economic status of the household was selected as one independent variable as we hypothesized that the higher the SES, the higher the NUT score would be. The size of the household was also selected as an independent variable since we wanted to examine whether Jones (1) finding that the smaller Swazi homesteads were less efficient units of production than the larger ones, held in our case. We therefore hypothesized that the larger the household, the higher the NUT score. Final= ly location was selected for testing and we anticipated finding that the 'more urban' the area, the more varied the diet would be. A further dependent variable was the Nutrition-Health principle which we wished to correlate with the age and occupation of the respondent, the overall NUT score and child care practises.

The present dietary study was undertaken in three Black peri-urban areas lying within the Umbumbulu magisterial district - Adam's Mission, Tholeni and Singqungquma. In what follows we report on the data collected on the socio-economic conditions, child care practises and nutrition knowledge from the respondents in the form of simple frequencies and descriptive statistics.

Three possible household sizes were collected in section one of the questionnaire - weekday, weekend and maximum household size. The weekend size includes commuters and the maximum household size accomodates longer term migrant workers and children at boarding schools. Table I gives the mean household sizes for the tree areas and the overall area (2). For the ..../

1. Jones 1963, p 18,54.
2. Tables in Appendix C.

For the whole area, the range of weekday household sizes was 14
with a standard deviation of 3,1.   It would generally have been
expected that the household size of Tholeni, the more rural of
the three areas and having a more traditional settlement pattern,
would have emerged as the largest but to the contrary, Tholeni
had the lowest mean values for all three household sizes.   How=
ever this information does support Stopforth's hypothesis that
household sizes amongst African population in the perio-urban
areas is increasing (1).   The information also accords with the
findings of research undertaken in Botha's Hill (2) 1972/73 when
a mean household size (type of size not specified) of 8,89 was
found.

A much-simplified classificatory scheme was used to deal with
the detailed raw data collected on household structure.   In
this report we shall briefly report on the age-sex structure
of the households for the overall area.   Table 2 gives a per=
centage breakdown in age and sex categories for the total num=
ber of INDIVIDUALS in the sample.   The mean number of males
above the age of 18 per household was computed at 2 and for fe=
males in the same age category, the mean was slightly higher at
2,3.   All households at which interviews were conducted had fe=
male members in this age group but 5 households (4,3 percent)
has no males in this category present, possibly indicating a
measure of structural 'distortion' (3) due to the migrant la=
bout system or simply a natural higher proportion of women (due
to longevity or the birth rate).   In the under 18 to 5 year
bracket we again find more females than males in the households,
the respective means being 2,1 and 1,9 per household.   The mean
number of infants and children under the age of five of both
sexes per household was 1,7, lower than anticipated but possibly
indicating a lowered birth rate.

For the area as a whole we found that, as expected, the very great
majority of households (82 percent) were headed by a male.   Ta=
ble 3 gives the percentages for the three areas.   It is interes=
ting to note that percentage of female heads in Adams is almost
twice as great as for Tholeni and three times as great as for
Singqungquma.

1.   Interim Report 1976, p 6;   Stopforth and Mack 1975.
2.   Stopforth and Mack 1975, p 39.
3.   I am indebted to Ms C Cross for the use of this term.

Table 4 shows the residence of the head of the household during
the week.   Tholeni, the more distantly located of the three
areas, has the lowest proportion of resident heads.

A dependency ratio was calculated for each household by dividing
the total number of earners by the household size.   The mean de=
pendency ratio for the area taken as a whole was computed as 4,9
dependents per earner with a standard deviation of 2,3.   Table 5
shows the percentage of households with low (1 - 5) and high (6 -
9) dependency ratios by area.   Tholeni, the more distant area
emerges with the biggest proportion of households having a high
dependency ratio, more that double the proportion of Adam's Mission
cases, despite having a lower mean household size.   One possible
explanation could be the unfavourable location of Tholeni which
could be a factor detering women in the area from engaging in wage=
employment.   However we are not in a position to make more than
tentative suggestions until further research is undertaken.   It
is also highly probable that a factor such as modernization could
explain the above situation.

Table 6 shows the percentage distribution of the occupation of
the head of the household across three crude categories of em=
ployment - 'professional' (teachers, clerks, laboratory assis=
tants);   semi-skilled (drivers, machine operators) and unskilled
(labourers and domestic workers).   The results are not unexpected.
Tholeni supplies the highest proportion of unskilled workers and
Adams the highest proportion of 'professionals'.   This may be
accounted for by the fact that Adams has long been an educational
centre for Black people in Natal.   Similarly the distribution in
table 7 is also not unusual.

We had also collected detailed information on the occupations of
all household members which for ease of analysis we recoded into
the three occupational categories noted above and calculated as
ratios to the total number of earners in the household.   Only
21 'professionals' (15 percent) were encountered in the sample
and 31 semi-skilled persons (22,6 percent).   The 62 percent ba=
lance fell into the unskilled category.   Tholeni had the highest
proportion of unskilled workers and the lowest of 'professionals'.
In Adam's Mission the situation was reversed.

Unfortunately ..../

Unfortunately no information on attained educational level was
recorded during the interviews.   In the third section of the
questionnaire we elicited information on child-care practises
that may be of interest to medical practitioners.   We asked the
respondents (who were all female) at what age children began to
eat adult food i e were weaned.   Table 8 gives a breakdown for
the three areas.   On the whole children are weaned between the
ages of 6 months and 2 years with only a very small percentage
(1,7 percent) being weaned before the age of six months.   Den
Hartog and Bornstein-Johansson (1), amongst others, note that
a common reason for infant malnutrition, especially in urbanizing
areas, is the increasing tendency to replace breastfeeding with
artificial feeding at too early an age.   They have found that
prolonged breastfeeding is common in the lower income groups in
the rural areas of developing countries but declines in practise
in a modernizing-urbanizing situation because i.   many mothers
work;   ii.   breastfeeding required privacy;   iii.   the widespread
availability of milk substitutes and iv.   failure of location (2).
Our results are therefore surprising since in Tholeni, the area
with an outwardly more traditional settlement pattern, infants
are weaned sooner than in Adam's Mission (3).   Singqungquma
occupies a position between Adams and Tholeni.   Further research
is required to explain this situation but education is one possi=
ble answer.   Prior to cutting teeth a slight majority of infants
(57 percent) consume milk powder products manufactured for infants
but 36 percent continue to be breast-fed.   Once teeth appear 43
percent are still consuming manufactured milk powder products but
25 percent now consume porridge and 12 percent mashed foods such
as boiled potatoes, pumpkin and samp.   Pronutro and Purity foods
are infrequently consumed and were not mentioned as a first re=
sponse.   Table 9 and 10 give a breakdown of the responses for
the three areas.   It is interesting to note that the consumption
of milk-powder products is lowest in Adam's Mission and highest
in Tholeni.   We are in ..../

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1.   in Pitt D C (ed), p 111-113.
2.   Jelliffe (1965) cited in Pitt D C (ed), p 112.
3.   This finding also contradicts Kark's experience of Black
     women's breast-feeding practises - Durban mothers breast-
     feeding decreased more repidly than did that of Pholela
     mothers.   (Kark and Stewart 1962, p 138).

We are in the unfortunate position of not having collected in=
formation on infant-food preparation and of not having yet ana=
lyzed the data collected on the incidence and type of disease
prevalent amongst infants but it is generally known that unedu=
cated and uninformed mothers frequently prepare milk powder pro=
ducts incorrectly and that bottle-feeding introduces an increased
chance of infection, especially of the gastro-enteritis/diarrhoea
type.   Whether or not the incidence of infant diseases at Adam's
Mission is lower remains open to further examination.   However
the area as a whole could benefit from a nutrition education pro=
gramme focused on infant-care.

Twe questions were asked of respondents to evaluate their grasp
of the nutrition-health principle.   Answers were assessed by the
coder and allocated to one of three categories i. a positive
recognition of the principle - indicated by mention of certain
food substances; ii. an intermediate response - vague responses
and iii negative response - no recognition of the principle as
indicated by phrases such as 'weak blood', 'constipation', etc.
The results are presented in Tables 11 and 12 and are not en=
couraging.   For the area taken as a whole only 25 percent of
respondents positively recognized the principle while 59 percent
gave responses that indicated no understanding.   However the
results are more encouraging for Adams Mission that for the other
two areas.   It should be brought to light at this point that
there is a substantial difference between the distribution of
responses recorded in the Interim Report (1) (which it will be
remembered was based on 34 of the Adams Mission cases) and the
distribution for the Adams cases recorded in tables 11 and 12.
In all likelihood this reflectsa lack of inter-coder reliability.

In conclusion the reader is referred to Figure 1 in which the
major characteristics of each area are drawn together in com=
parative summary form.

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1.   Stopforth 1976, p 20-21.

FIGURE I

CHARACTERISTICS \ AREA	THOLENI	SINGQUNGQUMA	ADAMS MISSION
HOUSEHOLD SIZE	Smallest Mean WD = 7,1 Max = 7,9	Intermediate Mean WD = 7,8 Max = 8,1	Highest Mean WD = 8,4 Max = 9,2
SEX OF HEAD	Intermediate 86% male	Highest 91% male	lowest 72% male
OCCUPATION OF HEAD	Largest unskilled = 82,9% Intermediate semi = 17,1% No Professionals	Intermediate unskilled = 76,5% Highest semi = 23,5% No professionals	lowest unskilled = 71,7% lowest semi = 11% Only Professionals = 17,4%
LOCATION OF HEAD'S EMPLOYMENT	Lowest urban = 77,8% Highest rural = 22,2% None township	Highest urban = 97% None rural lowest township = 3,2%	Intermediate urban = 80% Intermediate rural = 16,6% Highest township = 3,3%
AGE OF RESIDENCE OF HEAD	Lowest proportion at home = 74,3%	Highest proportion at house = 27%	Intermediate proportion at house = 80,9%
DEPENDENCY RATIO	Highest proportion high = 57%	Intermediate proportion high = 27%	Lowest proportion high = 25%
WEANING PRACTISES	Weans earliest 69% at 6mths	Intermediate 63% at 6mths	Weans latest 47% at 6mths
FOOD PRIOR TO TEETH	Lowest breast feeding = 27% Highest milk pwdr = 74%	Intermediate breast feeding = 41% Intermediate milk pwdr = 59%	Highest breast feeding = 44% Lowest milk pwdr = 48%
FOOD POST-TEETH	Highest milk pwdr = 59%	Intermediate milk pwdr = 47%	Lowest milk pwdr =
NUTRITION-HEALTH KNOWLEDGE	Lowest positive knowledge = 11%	Intermediate positive knowledge = 13%	Highest positive knowledge = 47%
GENERAL	Most distantly located of the area Traditional settlement pattern	Recently settled area	Old established area Educational centre Medical missionary appointed = 1892

CHAPTER FOUR

MEAL PATTERNS AND DIETARIES

In this chapter we report on the findings with regard to meal patterns and dietaries for the sample as a whole.

MEAL PATTERNS

Oudkerk (1) has noted a difference between the meal patterns of urban and rural Africans - the former following a Western weekly cycle with a distinct weekday-weekend difference and with daily intake spread over three meal periods; the latter having two meals a day. Jones (2) makes a similar point re= garding the Swazi people.

In the construction of the questions on household eating pat= terns, provision was made for seven possible consumption periods. Data on meal participants were also collected but has not been analyzed.

Table 8 shows the percentage distribution of households (but NOT individuals) in which food is consumed at the particular periods indicated on weekdays and weekends (3). A higher percentage of households appear to consume more food at all the meal periods during the week than over the weekend. This is possibly due to workers rising early and scholars arriving home at midday or thereafter. During the week, the morning meal is frequented almost solely by unemployed women while the afternoon meal period finds many children present.

FREQUENCY OF CONSUMPTION

The complete list of frequency of consumption findings has been reproduced as Appendix B so that readers may examine it in de= tail. Commentary however, will be restricted to selected food categories.

Burke ..../

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1. Oudkerk A C F 1965, p 1148
2. Jones S, 1963, p 79-80
3. Data collected for Saturday were taken as representative
   for the weekend as a whole.

Burke (1) noted that the frequency of consumption check-list
formed a vital component of the dietary history method, and
from the experience on this study we would agree.   Using the
check list, it was possible to fill in many gaps on reported
meal content and hence to obtain a more accurate knowledge of
dietaries.

As expected (2) it was found that MEALIE MEAL forms a staple
item consumed in 98 persent of households on a daily basis.
Other high bulk carbohydrates consumed frequently in most
households are SAMP (in 83 percent of households at least 3
days a week) and RICE (60 percent of households at a rate of
at least once or twice a week).   Very similar results were
found in a study of Guguletu township (3) in which the poor
nutritive value of maize meal was commented upon.   Walker (4)
has also noted that maize meal forms the staple food both in
rural and urban areas.

Bought BREAD was consumed in 93 percent of households every
day and homemade bread less frequently - in only 60 percent
of households once or twice a week.   We can also note at
this point that both mealie meal and bread are consumed in
large quantities and in all likelihood are the major sources
of energy.

POTATOES, ONIONS AND TOMATOES are the most frequently consumed
of vegetables, the last two being present in almost every type
of stew that is made.   Oudkerk and Manning et al (5) report
similar findings as does Keyter (6) except with respect to
onions which he claims are unpopular amongst the urban African
workers who constituted his sample.   He also reports that
AMADUMBE were found to be very popular amongst the Zulu workers
but our findings do not agree.

It is reported ......

1. Burke 1947 cited - Marr 1971, p 119.
2. Jones 1963, p 123;   Oudkerk 1965, p 1149,   Keyter 1961, p 9.
3. Manning et al 1974, p 491.
4. Walker 1966, p 815
5. Oudkerk, 1965;   Manning et al 1974.
6. Keyter 1961, p 17.

It is reported in the Guguletu study (1) that potatoes are not
a natural food for traditional Africans but are amongst the
first items to be added to the diet under conditions of migrancy.
This would appear to be substantiated by the findings of the
present study.   CABBAGE is the most popular of the green vege=
tables and is consumed in 74 percent of the households, three
or four days a week.   SPINACH is considerably less popular
with 34 percent of respondents reporting that it was never con=
sumed in the household.   Instead, IMFINE is consumed at least
once a week by three quarters of all households.   This may be
very encouraging as Manning et al (2) report that it contributes
very valuable protein when used as a dietery supplement.   In
Guguletu it was only found in one instance.   The semi-rural
location of the three areas under study probably explains the
higher consumption and it would be interesting to compare the
consumption rate with that in a Durban township.   The above
findings would seem to indicate that vegetable consumption,
particularly of green vegetables, is higher than commonly as=
sumed.   This point has also been made in the Interim Report
(3) and the Valley Trust Study (4).   However, it should be
borne in mind that cooking methods could destroy much of the
nutritive value, especially of the greens.   Although we did
not collect data on methods of food preparation, we have found
that vegetables are used most frequently as the base for a stew
which requires long cooking.   The tendency amongst Africans to
overcook has been noted by Keyter (5) amongst others.   This is
an area on which a nutrition education programme could usefully
focus.

DRIED BEANS are consumed at least once a week by 91 percent of
all households and by 66 percent, three or four days a week,
information that was not clearly brought to light by the ques=
tions on usual consumption.   From our information it would
appear that beans are most frequently consumed in the form of
a pulse-based stew with phuthu or samp and we can only hope
that such a combination will have the same beneficial protein-
complimenting effect that the traditional dish of samp and
beans has (1).   DRIED PEAS ..../

1. Manning et al, 1974, p 491   2. Manning et al, 1974, p 492
3. Stopforth, 1976, p 19   4. Stopforth and Mack, 1975, p 64,
70 5. Keyter, 1961, p 21; Kark and Stewart, 1962, p 279

DRIED PEAS and LENTILS do not enjoy the same popularity as beans. BAKED BEANS must form a convenient meal for some households since they do not require the long cooking time of beans. Thirty six percent of households consume them at least once a week.

Unexpected results were found when the frequency of consumption of FRUIT was examined. BANANAS are the most popular fruit con= sumed by 92 percent of households at least once a week. Coas= tal Natal is of course a banana-growing area and it is highly probable that they are picked wild. They also are a very fil= ling fruit which may further account for their popularity. ORANGES, an important source of vitamins, were reported to be consumed by 78 percent of households at least once a week. On the whole fresh fruit was found to be consumed more frequently than the stereotype of African diets would have us believe.

BEEF was found to be consumed by 78 percent of all households at least once a week but only 28 percent consumed it three or four times a week. All other types of meat were consumed less frequently - CHICKEN by 64 percent of households once or twice a week; TRIPE by 59 percent and AFFAL by 44 percent. MUTTON, PORK and GOAT were very infrequently consumed. SAUSAGES, a favourite weekend breakfast item were found to be consumed by 44 percent of the households fortnightly and TRIMMED MEAT, pro= bably some form of corned beef, more frequently - by 35 percent of the households at least once or twice a week. In Guguletu (2) it was found that well-to-do families ate meat twice a day and that many medium income families consumed it at least once a day. Lowest-income families consumed meat at the weekend and once or twice during the week. Oudkerk (3) reports that beef was consumed once daily in his Pretoria sample and Van der Merwe and Fellingham (4) report that beef was eaten at least once a day by the majority of their urban Venda respondents but infrequently by their rural counterparts. Keyter ....../

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1. Manning et al, 1971
2. Manning et al, 1974, p 492
3. Oudkerk, 1965, p 1149
4. Van der Merwe and Fellingham, 1971

Keyter (1) has remarked that meat has become an urban staple
and can be used as an indication of urbanization. This ac=
cords with Jones (2) finding that the peri-urban area she stu=
died outside Mbabane had a lower consumption of beef than the
urban areas - almost two and a half times lower, and higher
than in the rural areas she studied. However, in the study of
the Valley Trust (3) it was found that meat was consumed sig=
nificantly less frequently in 1972/73 than in 1958 despite the
large scale social changes that had taken place (4). Other
factors are probably at play.

As we had anticipated, the consumption of FRESH MILK was low
with as many as 58 percent of households never consuming it and
only 16 percent consuming it on a daily basis. Oudkerk (5) and
Manning et al (6) however found that it was a popular item a=
mongst their respective urban samples. It is possible that
difficulties in transporting fresh milk to and in the more dis=
tant peri-urban regions could account for this observed diffe=
rence. SWEETENED CONDENSED MILK was consumed daily in 37 per=
cent of households and at least every two days - 68 percent.
In Guguletu (7) it was found to be especially popular amongst
the low-income households and in Pretoria (8) it was consumed
by 61 percent daily - a higher frequency than in the present
study. Furthermore, in the Bothas Hill area the frequency of
consumption had declined while that of fresh milk had increased.
Hence, the findings must remain ambiguous until we examine the
issue in more detail, noting especially local conditions. The
frequency of consumption check-list reveals that the consumption
of milk beverages is higher than reported in the general pattern
of meals. However we do not have information on the composi=
tion of these beverages and it is possible that the increased
consumption of milk may be offset to some extent by the increased
intake - sugar.

1. Keyter, 1961, p 14
2. Jones, 1963, p 123-4
3. Stopforth and Mack, 1975, p 64
4. Stopforth and Mack, 1975, p 99ff
5. Oudkerk, 1965, p 1149
6. Manning et al, p 492
7. Manning et al, p 492
8. Oudkerk, 1965, p 1149

SUGAR comsumption was as high as we had expected to find in societies influenced by the presence of a western cash econo= my. Our finds accord with those conducted by others in both urban and rural areas, although, depending again on local cir= cumstances such as access to trading stores, sugar consumption is probably higher in urban than in rural areas (1).

MEAL CONTENT

In this section we use the information gathered by Questions 2.1 and 2a, b and c to present a qualitative view of meal con= tent and use the frequency of consumption check list to add de= tail to the picture.

Weekday Meals

Very few households have people who consume food at the VERY EARLY MORNING meal period. All who do, take tea or coffee but more probably tea. We can infer that this is consumed with milk of some kind and with one and a half to two teaspoons of sugar. In only one instance was it reported that a solid - bread - was consumed. This may have been taken dry or with margarine since the latter is taken by 87 percent of households at least every two days. The Guguletu study (2) reports simi= lar findings but provides us with additional information on food consumed outside of the home later in the day by people who be= gin the day with such a poor meal.

Most workers however appear to eat at the EARLY MORNING PERIOD since 60 percent of respondents reported this as a consumption period. Of these households, tea or coffee is consumed in 91 percent and bread in 70 percent which again compares favourably with the Guguletu study. A greater variety of foods are con= sumed at this period than at the previous period - porridge, eggs and leftovers by 10 percent of households and samp or phuthu in 8 percent.

All households ..../

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1. Walker et al SAMJ 15/5/1971 report that rural Blacks con= sume an average 65 - 75 g pd; urban Blacks 55 - 85 g pd.
2. Manning et al, p 489

All households consume at the MORNING MEAL period with main=
ly unemployed womenfolk and aged members of the household par=
ticipating. Tea and bread appear as staple items once again
but porridge is consumed in 66 percent of households. Milk
or maas and sugar may be added. Leftovers from the previous
night's meal are consumed in 10 percent of households and eggs
in 9 percent. The general character of the meal is one with
a high bulk and carbohydrate content that is characteristic of
African diets both urban and rural. In the study of rural and
urban Venda males, the quantities of mealie meal porridge were
found to be as high as 3 883 and 1 390 grammes per person, per
day. (1)

Some variation enters the diet at the midday meal in the house=
hold and we used 16 categories of food items in order to encom=
pass the range. High starch foods again rank high with Samp,
Phuthu or Rice consumed in 61 percent of the households, bread
in 39 percent and porridge in 13 percent. This is supplemen=
ted with the ubiquitous stew-meat,fish, root-vegetable, green-
vegetable or pulse-based. Forty-two percent of households con=
sumed a green-vegetable based stew (usually cabbage and 37 per=
cent a root-vegetable based stew (usually potato). Tomatoes,
onions, oil and salt are essential ingredients in all types of
stews and curry powder is frequently added. Tea is also con=
sumed at this meal.

The AFTERNOON MEAL period is frequented by women and children,
especially scholars. Samp or phuthu was consumed in 75 per=
cent of households and bread to a lesser extent probably be=
cause the scholars would seem to consume bread at their midday
meal break (2). Both types of stews found at the midday meal
period make an appearance again.

Working members, especially men, join the household for the
EVENING MEAL and it is at this period that households appear
to consume meat (32 percent) rather than at any other period.

It is generally ..../

1. Van der Merwe and Fellingham (1971)
2. By inspection only

It is generally taken in the form of a stew and accompanied
by samp, mealie meal or rice in 99 percent of cases.   Other
types of stews are also consumed - cabbage stews in 40 per=
cent and potato stews in 37 percent of households.

Weekend Meal Content (1)

While fewer households make use of the EARLY MORNING meal
period on the weekend than on weekdays, the range of foods
eaten is greater.   While tea and bread are staple food items
porridge (29 percent) and eggs (14 percent) are consumed by a
greater proportion of households than during the week.   Meat
makes its weekend appearance in the form of sausages being con=
sumed by 29 percent of households;   likewise for fish stew.

At the MORNING MEAL tea, bread and porridge remain at their
weekday rates but eggs appear to be more widely consumed - in
35 percent of households as opposed to only 9 percent during
the week.   The consumption of samp appears to increase slightly
at this meal period over the weekend.   Sausages and cakes while
not widely consumed, do feature in household consumption at this
period.

There is a slight increase in the consumption of samp, phuthu
and rice at the MIDDAY meal period accompanied by a drop in
bread consumption from 39 percent to 25 percent of households.
The consumption of meat-based stews increases very significantly
from 4 percent of households on a weekday to 39 percent on the
Saturday.   Stews of other types decline.   In 12 percent of the
households meat in a form other than a stew (probably roasting)
is consumed while it did not feature during the week.   There
is no increase in the consumption of fish.

For the AFTERNOON MEAL, bread and samp are widely consumed as
during the week (29 and 66 percent respectively).   Both fish
and meat stews show an increase - 13 vs 6 percent and 2 vs 46
percent respectively.   Meat prepared ..../

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1.   Only data for Saturdays were coded and analyzed but we
     are satisfied that it is representative for the full week=
     end.   Information on religion was not collected, another
     reason for not analyzing the Sunday data separately.

Meat prepared in alternative forms is consumed in 6 percent of households and would appear to be accompanied by separately cooked vegetables - green vegetables in 8 percent of households and root vegetables in 4 percent of households.

For the EVENING MEAL samp remains a staple item at its weekday frequency and there is an increase in the percentage of house= holds consuming meat stew at this weekend meal period - from 32 to 42 percent.   Meat and vegetables appear as for the week= end afternoon meal in 10 percent of the households.

Although only Saturday meal content has been used, we can de= tect a clear difference in weekday and weekend diets as we had anticipated.   The major differences are the greatly increased consumption of meat and the wider range of food items present in the diet.   These results coincide with those of Oudkerk [1] who found meat and vegetable consumption to increase over week= ends and Manning et al [2] who found that fresh vegetables are considered a luxury by urbanized Africans and that the poorest of families manage to consume meat over the weekend [3].   These findings would indicate that meat and vegetables constitute pres= tige items in Black dietaries and possibly that they are associa= ted with the presence of high status household members over the weekend.   This latter point would require further investigation.

THE STAPLE DIET

At this point it may be useful to summarize the data collected into a staple diet.   A food item has been defined as a staple if it is consumed by at least 85% of households on a daily basis or at least every second day of the week.

Food Item	% Households consuming at stipulated frequency
Mealie meal	99
Salt	98
Sugar	98

Bought bread ..../

---

1. Oudkerk, 1965, p 1148,1150   2. Manning et al, 1974, p 492
3. Stopforth and Mack 1975 report similar findings in Botha's Hill, p 75

Food Item (cont)	% Households consuming at stipulated frequency	
Bought bread	97	(colour unknown)
Curry Powder	91	
Tea	89	
Onions	87	
Tomatoes	87	
Margarine	87	
Potatoes	86	

This staple diet accords with that recorded in the Interim Report (1) which it will be recalled was based solely on the Adam's Mission cases, and with the basic pattern found by all other studies consulted.

CHAPTER FIVE

ANALYSIS

In this chapter we examine the relationship between the de=
pendent variables, nutritional status and knowledge of the
food-health link principle, and the independent variables in
an attempt to explain the variation in the former.

It should be mentioned at this point that no statistically
significant results were found and that the analysis that
follows is based on an examination of the tables.

Scores on the NUT scale ranged from 8 to 91 out of a possible
100.   The modal category was 33 and the mean score computed
at 38.   Looking at each area separately, Adam's Mission
showed the greatest amount of variationwith scores ranging
from 8 to 91.   The mean NUT score was computed at 42.   The
range for Tholeni and singqungquma was identical but with the
lowest Tholeni score being double that of Singqungquma indi=
cating a higher lower threshhold.   The respective ranges in
scores were 16 to 66 and 8 to 58;   the respective means were
calculated at 36 and 33.   The raw NUT distribution was dicho=
tonized at the median to give a low and high NUT score to fa=
cilitate the analysis of tables.   Overall there were more
cases with a low score than a high score (54 percent as op=
posed to 46 percent).

In considering the relationship between nutritional status and
the major independent variable location, we find our expec=
tations receiving support (Table 13).   Amongst the low scores,
a higher percentage was achieved by the Tholeni cases than the
Adam's cases (36 vs 31 percent) and conversely, a higher pro=
portion of the High scores was scored in Adams than in Tholeni
(51 vs 25 percent).   The difference between the two areas is
more marked with respect to the higher than the lower thresh=
hold of nutritional status.   Singqungquma occupies an inter=
mediate position but tending more to similarity with Tholeni.

Moving now to consider the relationship between household size
and nutritional status (Table 14), it will be remembered that
we hypothesized that larger households would score more highly
on the NUT scale.   Once again for ease of analysis, household
sizes were dichotomized at the median into small (up to 8 mem=
bers) and large (9 members or more).   The table shows a very
small degree of support for the hypothesis with 48 percent of
large households obtaining high scores and only 45 percent of
small households doing so.   When location is controlled for,
the hypothesis receives strongest support in Tholeni, which of
all three areas had the smallest mean household size.   Fifty
percent of the large households had high scores while only 33
percent of the small households did.   As many as 31 percent
of all high scores were achieved in the larger households while
only 18 percent of low scores were.   The hypothesis receives
no support in the case of Adams Mission (table 14.3) where 59
percent of the large households receive high scores but 58 per=
cent of small households do as well.   In the case of Singqungquma
the hypothesis is reversed as 75 percent of the large households
have low scores while only 55 percent of the small households do.

It would be expected that households with a low dependency ratio
would score more highly on the nutritional status scale than would
high dependency ratio households.   Taking the sample as a whole,
our hypothesis finds a very small degree of support.   Households
with a low dependency ratio have more cases with a high score
that do households with a high dependency ratio (47 percent vs
43 percent) (Table 15).   When location is controlled for, the
relationship disappears in the Tholeni cases where sixty-two per=
cent of the high scores occur in high-dependency households.
In Adams Mission and Singqungquma the hypothesis receives some
support, more strongly so in the latter instance.

It had been anticipated that those cases where the head of the
household was involved in a better paid, higher status job
would score more highly on the NUT scale.   This was substan=
tiated for the area as a whole.   Of the cases classified as
'professional', 75 percent achieved a high score whereas of
those cases classified as 'unskilled' only 44 percent did.
The 'semi-skilled' ..../

The 'semi-skilled' category shared similar results to the 'unskilled' category. The percentage point difference within the 'professional' and 'unskilled' categories was 50 and 13 respectively indicating that other factors are involved in the determination of nutritional status. Amongst the Tholeni and Singqungquma cases however the hypothesis receives no support. In the former case, more unskilled that 'semi-skilled' workers receive higher scores (38 vs 33 percent); in the latter case no relationship is evident. It is only in Adam's Mission that the relationship is clearly supported with 75 percent of 'pro= fessionals', 60 percent of 'semi-skilled' cases and 53 percent of unskilled cases receiving high scores.

Not unexpectedly, 78 percent of the cases where the head of the household had a job located in a rural area achieved only a low score as opposed to the 57 percent of urban-located cases (Table 17). In all three areas the hypothesis is supported.

Households whose head resided at home during the week were evenly distributed over the scale but amongst those households whose head was not resident during the week, 71 percent had a low NUT score and only 29 percent a high score. This could be explained by the possible irregularity of remittances to the household from the head.

When the relationship between nutritional status and the 'profes= sional' to total number of earners ratio is examined it is found that more of the households with a high ratio have a high score than do households with a low ratio (60 vs 55 percent). The cell frequencies are too small to permit meaningful commentary in a location by location discussion.

The hypothesis that households with a better occupational struc= ture will obtain higher scores holds good in the case of the 'semi-skilled' ratio. Table 20 shows that 64 percent of the low ratio households obtained low scores while 53 percent of the high ratio households obtained high scores. A similar position holds for the unskilled-ratio.

Thus for ..../

Thus for each area the following obtaines: Tholeni emerged
with an intermediate mean NUT score which nevertheless was
very low.   While it had the smallest of mean household sizes
(7,1 for weekdays), those households that were large had the
higher NUT scores.   Our hypothesis regarding household size
and nutritional status received strongest support in Tholeni.
However, it was in Tholeni that the relationship between de=
pendency ratio and nutritional status disappeared, as did the
relationship between the occupation of the head of the house=
hold and nutritional status.   What held was the relationship
between nutritional status and location of employment - of
all three areas, Tholeni had the lowest proportion of urban-
employed heads and the highest proportion of heads who lived
away from home during the week.

In Singqungquma, the lowest mean score was achieved and the
hypothesis concerning the dependency ratio receives strongest
support in Singqungquma where 27 percent of the households had
a high dependency ratio.   Although Singqungquma had the highest
proportion of heads in urban-located employemnt and resident
at home during the week, the hypothesis concerning the rela=
tionship between urban-employment and nutritional status re=
ceives support, indicating that other factors are at play in
the determination of the law mean score for the area as a whole.

Adam's Mission received the highest mean NUT score.   The
clearest relationship to emerge in Adam's is that between nu=
tritional status and head's occupation since Adams showed the
full range of occupational categories.   Household size and de=
pendency ratio appear to have little impact on nutritional sta=
tus.

In summary, all three areas showed a relationship in the expected
direction between urban-located employment and nutritional sta=
tus.   The distinguishing feature of Adams Mission is that it
was the only area in which there were heads of households in=
volved in 'professional' occupations and this may in part ac=
count for the higher overal mean NUT score.   NO ..../

No explanation regarding the other two areas is immediately
forthcoming and it must be concluded that the answer lies in
a variable or variables on which information was not collected -
education or modernization for example.

The relationship between knowledge of the food-health principle
and a number of independent variables will be examined for the
area as a whole only.   Once again the fact that education was
not examined constitutes a regrettable omission.

It had been anticipated that the younger respondents would have
a better knowledge of the food-health principle than older res=
pondents because of their likely greater exposure to educational
influences.   The results however are ambiquous - while 32 per=
cent of women over fifty have a positive knowledge of the prin=
ciple (and only 22 percent of women under fifty do), 61 percent
of the older women have a 'negative' knowledge while only 57
percent of the younger women do.   (Table 22).   We refrain from
examining the respondent's occupation since this variable showed
little variation and many women were classified as housewives
giving little indication of their educational qualifications
and/or their earning ability and performance.

The relationship between nutritional status and knowledge of
the food-health principle (taken as an independent variable)
is clear - 55 percent of all positive answers received high
scores while only 45 of negative answers did (Table 23). We
may therefore tentatively assume that at least some respon=
dents are putting their knowledge into practise.

We hypothesized that respondents with a better knowledge of
the food-health principle would wean their childran at a later
age but no relationship appears to hold (Table 24).

Ther appear to be few quidelines that can be offered to the
prospective health-care worker with regard to the educability
of the female population of the three areas on the basis of
our analysis.

CONCLUSION

While the substantive results of the study may be considered
to be disappointing in that neither was an explanation of the
variation found nor was it possible to supply firm guide-lines
to prospective medical personnel, the experience of the project
brought to light a number of important points that can be borne
in mind when undertaking a dietary survey:

i.   clarity of objectives at the outset and congruence be=
        tween objectives and techniques

ii.   the importance of a cost-effectiveness analysis - will
        the results be worth the effort?

iii.   the possible beneficial results of co-operation with
        medical personnel most particularly on the issue of
        the degree of precision required in the results for
        them to be of any use.

APPENDIX A: QUESTIONNAIRE

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STRICTLY CONFIDENTIAL

$\boxed{18}$

CENTRE FOR APPLIED SOCIAL SCIENCES
University of Natal
Durban

D I E T   A N D   H E A L T H   S U R V E Y

Feasibility Study for the Proposed
Community Health Centre at Macayama

General Area	Location of Homestead
ADAMS MISSION	18

Visit	Date	Outcome
1st	24. 8. 76	SUCCESSFUL
2nd		
3rd		
4th		
5th		

SECTION 1.   HOUSEHOLD COMPOSITION

1.   "Who eats at this 'house' every day?"

(This includes all people who are usually coresident throughout the week and at week-ends - related adults and children as well as unrelated 'lodging' adults and children).

Instruction: Target respondent is person usually responsible for house-keeping duties; but any responsible member of the household will suffice as a respondent if the housewife refuses an interview or if she (he) is infirm or too old.

Identify respondent as EGO and record members of the co-resident domestic unit by the kin relationship to ego in the column provided opposite. Preferred order of recording household composition: descending through senior spouses, then their dependent children, then less senior spouses and their dependent children, etc.

2.   "Who usually eats at this 'house' only at week-ends (Saturday and Sunday) and during holidays?"

3.   "Who always comes to this 'house' when they have holidays and eats here?"

   (Not dependents)

4.   "Are there any people (e.g. parents, children, brothers, sisters, etc.) who live elsewhere but are supported regularly (with money) by members of this 'household'?"

General: Place of Work = Area, e.g., Isipingo, Durban, etc.

Questions 2, 3 and 4 above require the same general conventions as question 1 above.

No.	Household Composition	Sex M or F	Age	Children at School [X]	Brief Description of Occupation	Place of Work	Meals at School/Work [X]
1.1	EGO W	F	69	—	@ Home	—	—
2	D, S	M	24	—	@ Home	—	—
3	D, D	F	19		"	—	—
2.					NONE		
3.1	D₁	F	45	—	Assist. Matron	Dbn	×
2	D₂	F	32	—	Nurse	Botha's Hill	×
3	D₃	F	21	—	Teacher	Winburg	×
4	D, D	F	13	×	—	Inanda	×

FOR OFFICE USE ONLY

CDU (WD)	3	Max. CDU	7	Total Dependency R	1,3
CDU (WE)	3	CDU Dependency R		No. CFU (in CDU)	0

no breadwinner

SECTION 2.   PATTERN OF MEALS

1.   Record General Pattern of Meals (this includes all occasions of eating and drinking.

Time of Day	Week-day Meals		Week-end Meals	
	Brief description of meal taken by various household members	Very Important : Record members of the household taking meal	Saturday	Sunday
Very Early Morning				
Early Morning				
Morning	Porridge + Bread, Eggs, Margerine Tea/Coffee	IN (Egg); 1, 5, D, b;	Sausages Bread Tea/Coffee	
Midday Hours	Tomato + Cheese - Sandwiches : with tea / Coffee	SAME AS Above	SAME AS SUCH WEEK-DAYS.	Bread Cheese Tomatoes margerine Tea/Coffee
Afternoon				
Evening	Panthbe / Samp Cabbage Curry	SAME AS Above	Samp & Beef-Curry	Rice Vegetables Chicken OR Beef Curry
Night				

2 (a)   Record General Pattern of Menus for the Various Meals Appearing on Schedule 1 of this Section.
(Write in morning meal, evening meal, early morning tea, etc.)

Morning	EQ	MIDDAY Hours	EQ	EVENING	EQ		EQ		EQ
Porridge	3 cups	Bread	3/4 loaf	Fritter	6 cups				
Bread	3/4 loaf	Cheese	2 slices pp	Cabbage	1/2				
Eggs	4	Tomatoes	2	Potatoes	4				
Tea/Coffee	1 t/s pp	Tea/Coffee	1 t/s pp	Tomatoes	2				
Margerine	1 sp pp	Margerine	1 sp pp	Onion	1/2				
Sugar	3 t/s pp			oil	4 cups				

47.

EQ = Estimated Quantities: Use common household measures. Where estimate is quantity per person (e.g. 2 spoons of sugar) record the measure and write pp. (e.g. 2 spoons pp.).

2 (b)   Record General Pattern of Menus for the Various Meals Appearing on Schedule 1 of this Section.
        (Write in morning meal, evening meal, early morning tea, etc.).

MORNING	EQ	MIDDAY HOURS	EQ	EVENING	EQ		EQ		EQ
Bread	¾ loaf	Bread	¾ loaf	Soup & Beans	@250g @2 cups				
Tea/Coffee	1 t/sp pp	Tea/Coffee	1 t/sp pp	Beef	70c				
Sausages	500g	Cheese	2 slices pp	Potatoes	4				
Margarine	1 sp pp	Margarine	1 sp pp	Onion	½				
Sugar	3 t/sp pp	Sugar	3 t/sp pp	Tomatoes	2				
Milk	250ml	Tomatoes	2	Oil	¼ cup				
		Full Milk	250ml						

EQ = Estimated Quantities. Use common household measures. Where estimate is quantity per person (e.g. 2 spoons of sugar) record the measure and write pp. (e.g. 2 spoons pp.).

48.

2 (c)   Record General Pattern of Menus for the Various Meals Appearing on Schedule 1 of this Section.
(Write in morning meal, evening meal, early morning tea, etc.).

MIDDAY Heavs	EQ	EVENING	EQ		EQ		EQ		EQ
Bread	3/4 loaf	Rice	1 kg						
Cheese	2 slices pp	Chicken	1						
Margarine	1 t/p pp	or Beef Curry	R1.00						
Tomatoes	2	Potatoes	5						
Fish paste	1 sp. pp	Tomatoes	2						
Sugar	3 t/sp pp	Onion	1/2						
Fresh Milk	75 ml	Oil	1/2 cup						
Tea/Coffee	1 t/sp pp	Veg. e.g.							
		① Carrot	2/3						
		② Cabbage	1/4 piece						
		③ Pumpkin	1/4 piece						
		④ Green Bean	200 g						

EQ = Estimated Quantities.   Use common household measures.   Where estimate is quantity per person (e.g. 2 spoons of sugar) record the measure and write pp. (e.g. 2 spoons pp.).

49.

3. "Of the adults who sleep at home every night and have meals away from home during the day, e.g. at work, do they ..."

Adults	Buy Food	Take Food	Free Meal	What do they usually eat
1.				
2.		*NONE*		
3.				

4. "What food do children take to school/or what food do they buy when they are at school?"

Take ☒		*NONE*
Buy ☒		

5. "If any children get meals at the school, what do they usually get to eat?"

NONE

6.a. "How much pocket money do children usually get (e.g. to buy food at school)?" Write amount per day, week, etc.

NONE

b. "What do they buy with pocket money that they get?"

NONE

7. BABIES: "When (at what age) do children start eating the same food as adults?" (I.E., participate in adult meals).

TWO YEARS (2)

8. BABIES: "What foods do babies eat?"

1. Before they have any teeth (say six months)?

Milk powder — KLIM or LACTOGEN

2. After they get some teeth (say after six months)?

milk, purity, pumpkin, mashed potatoes

SECTION 3.   MEDICAL SERVICES AND HEALTH

1.   Where do the people who live in this area usually go if they are sick
     enough to see a doctor?
     First response: _K. E. H. (Dbn)_
     Second response: _Isipingo_

2.   How do they usually get to
     First destination: _Bus or Taxi_
     Second destination: _Buses or Taxi_

3.   The last time somebody from this 'household' was sick enough to see a
     doctor where did they go?
     King Edward Hosp. (Dbn)

4.   How did they get there?
     Private Car (Hired)

     Now it is known that there is going to be a "CLINIC" with a doctor at
     MACAYAMA – right next to the church on top of the hill near the road.....

5.   Do you think that people will be able to get there quite easily?
     They will easily go there.

6.   How will they get there?
     By Buses

7.a. When the "clinic" is built at Macayama will they have a lot of people
     going there? (Record full response).
     A lot of people will use the "clinic" more
     especially, there are many new family units that
     have come into this area.

7.b.Who won't go there?

There maybe Small people who won't go there, As a result of religious beliefs. But they'll very few

8. What sicknesses do (INSERT FROM BELOW) usually get in this area?

Children Under 5 Years	Boys and Girls (up to 16 years)	Adults and Older Children
measles		High Blood Pressure
? Diarrhia	Bilharzia	

9. Which (adults and older children) in this household have been sick at any time since WINTER last year (1975).

People	See Sec.1	Name or Type of Sickness	Where Received Medical Attention (if any)	Indicate Which of these People Still Sick
Infants and Children (Under 5 years)			NONE	
Boys and Girls (Under 16 years)			NONE	
Adults and Older Children	Ego-W's	Diabetic, High Blood Pressure	? Clairwood Hosp (Dbn)	W - Ego

10. Did anybody in this household have to stop work (loss of income) since last winter (1975) because they were sick?

Who? (See Sec.1): _____

NONE

11. In what ways can food affect the health of babies and young children?

I believe that a child that is not properly fed will have ill health of some sort.

12. In what ways can food cause <u>ill health</u> (sickness) in babies and young children?

There are so many ways in which food can affect (cause) ill health, eg. a lack of vitamins results in weak blood and other illnesses

13. Have any children died in this household during the last year (roughly since the end of winter 1975)?

Record number and age (at birth; six months; two years; etc.)

NONE

9.   CHECK LIST OF FOODS   18

Household Consumption Code (CC)

Daily use	1
Between 6-5 days per week	2
Between 4-3 days per week	3
Between 2-1 days per week	4
About once every two weeks	5
At least once a month	6
Very infrequently	7
Never	8

Food Item	CC	Quantity in Common Household Measures	Source of Ingredients Store (S) / Home (H)	Notes
Mealie Meal	1	12,5 kg	S	
Samp	4	12,5 kg	S	
Mealie Rice				
Rice	2	12,5 kg	S	
Bread Bought W or B	1	1 loaf	S. (B)	
Bread Made	7	1 loaf	H	
Breakfast Cereals	4	1 pkts	S	
Oats				
Bread Flour	7	12,5 kg	S	
Self-raising Flour				
Cakes	4	1 doz	H	
Biscuits	4	4 doz	H	

Food Item	CC	Quantity in Common Household Measures	Source of Ingredients Store (S) / Home (H)	Notes
~~Rusks~~ CRISP ?				
"Pasta"				
Green Mealies	3	3 p.p.	H	when in season
Sorghum				
~~Mahewu~~				
Potatoes	2	8 pa day	H	
Sweet Potatoes	7	1 doz	S	
~~Amadumbe~~				
Dried Beans	3	80 litres p. season	H	
Dried Peas	7	20^c pkt	S	
Lentils	4	30^c per pkt	S	
~~Peanuts~~				
Peanut Butter	3	1 bottle	S	
Onions	1	4 p day	H	
Tomatoes	2	6 per day	H	
Carrots	2	8 per day	H	
Cabbage	3	1 per day	H	
Pumpkin	3	½ pa day	H	when in season

Food Item	CC	Quantity in Common Household Measures	Source of Ingredients Store (S) / Home (H)	Notes
Squash	4	2 p^{er} week	H & S	
Beetroot	2	6 per day	H	
Spinach	2	1 bunch per day	H	
Imfino	3	1 bunch p/day	H	when in season
Green Peas .	4	2,5 kg	S	
Green Beans	3	1 bunch p day	H	
Green Peppers				
Other Fresh Vegetables.	2	1 bunch	H	pumpkin leaves when in season
Baked Beans (tins)	7	1 tin	S	
Tinned Vegetables				
Oranges	2	1 bag	S	
Naartjies				
Bananas	2	1 doz p day	H	
Avocado Pears	6	6 p. day	S & H	when in season
Paw-paw	7	2 p. day	S & H	when in season
Pineapple	6	1 per day	S	
Deciduous Fruit: Apples Peaches, Pears, etc.	4	½ doz	S .	
Tinned Fruit	4	2 tins p. week	S	

Food Item	CC	Quantity in Common Household Measures	Source of Ingredients Store (S) / Home (H)	Notes
Beef - Brisket				
Beef - Other Cuts	3	@ R100 /day	8.	
Mutton	3	R1,00 p day	S	
~~Pork~~				
~~Goat~~				
Chicken	4	1 chicken	H	they have chicken fowls at home
Sausage	3	@ R,06	S	
~~Tripe~~				
~~Offal (Intestines)~~				
~~Lungs~~				
~~Vienna Sausage~~				
Polony	4	@ 1kg per day	S	
Tinned Meat	5	1 tin	S	
~~Fresh Fish~~				
Tinned Pilchards	5	2 tins per day	S	for children only
Fish Paste	2	1 bottle	S	
Marmite	2	1 bottle	S	
Eggs	1	1 doz	H	

Food Item	CC	Quantity in Common Household Measures	Source of Ingredients Store (S) / Home (H)	Notes
Fresh Milk	1	1 litre per day	S	
Amasi	4	3 litres per day	H	
Buttermilk				
Milk Powder	4	1 k	S	
Sweetened Condensed Milk	4	1 tin	S	
Tinned Cream	2	1 tin P, day	S	
Steri-milk				
Cheese	1	@ 50ᶜ	S	
Ice Cream	2	12ᶜ	S	
Sugar	1	250 kg	S	
Syrup				
Honey				
Jam and Marmalade	2	400 s	S	
Jelly	4	@ 9ᶜ each	S	
Chocolate	6	@ 35ᶜ	S	
Sweets and Chewing Gum	6	@ 30ᶜ per pkt	S	
Butter				
Lard (Bacon Fat)				

Food Item	CC	Quantity in Common Household Measures	Source of Ingredients Store (S) / Home (H)	Notes
Dripping	2	500 g	S	
Sheep Fat				
Chicken Fat				
Cooking Oil				
Sunflower Seed Oil	1	1 bottle	S.	
Margarine	1	250 kg	S	
Tea	1	500 g	S	
Coffee	1	500 g	S.	
Minerals	2	1 litre per day	S	
Milk Beverages e.g. Milo cocoa	1	250 g	S	
Salt	1	500 g	S	
Pepper	2	1 bottle	S	
Curry Powder	2	250 g	S	
Vinegar	4	$\frac{7}{8}$ litre	S	
Tartaric Acid	4	1 (small) pkt @ 5c	S	
Baking Powder	4	b - 300 g	S	
Flavouring	4	1 bottle @ 38c each	S	
Yeast	7	@ 5c per pkt	S	

Food Item	CC	Quantity in Common Household Measures	Source of Ingredients Store (S) / Home (H)	Notes
General Groceries				
Custard electric stove	1	@ 500g	S	
Patent Cures and Leaf/Root Remedies	b	8 ml	S.	cough mixture Dispin
Alcohol - only if forthcoming				
	CC	Quantity in Common Household Measures	Source of Ingredients Store (S) / Home (H)	Notes

APPENDIX B: FREQUENCY OF
CONSUMPTION OF 102 ITEMS

Food Item	Daily	5-6 days per week	3-4 days per week	1-2 days per week
Mealie meal	114	1		1
Samp	4	37	55	17
Mealie rice	1	11	17	26
Rice	3	4	10	53
Bought food	108	4	2	1
Made bread	1	6	22	40
Breakfast cereals	1	0	1	1
Oats	3	2	0	1
Bread flour	0	8	15	41
S.R. flour	0	1	1	21
Cakes	0	6	3	14
Biscuits	0	6	14	38
Rusks	0	0	1	1
Pasta	0	1	0	5
Green mealies	1	12	5	24
Sorghum	0	1	1	2
Mahewu	5	7	4	15
Potatoes	57	43	7	8
Sweet potatoes	0	5	12	30
Amadumbe	0	4	17	24
Dried beans	2	28	47	28

Fortnightly	At least x 1 per month	Very infrequently	Never
0	0	0	0
0	0	0	3
11	4	2	44
36	7	1	2
1	0	0	0
14	13	7	13
1	0	0	112
1	1	1	107
22	11	5	14
17	19	10	47
13	16	17	47
18	16	18	6
1	0	2	111
1	2	3	104
3	2	67	2
2	5	8	97
21	14	3	47
0	0	0	1
29	19	13	8
34	24	12	1
6	3	0	2

Food Item	Daily	5-6 days per week	3-4 days per week	1-2 days per week
Dried peas	0	2	1	3
Lentils	0	0	0	3
Peanuts	1	0	0	21
Peanut butter	4	16	15	23
Onions	51	50	12	2
Tomatoes	48	53	9	4
Carrots	1	8	10	13
Cabbage	2	43	41	28
Pumpkin	1	13	8	31
Squash	0	2	1	4
Beetroot	1	3	6	14
Spinach	0	6	1	23
Imfino	1	22	29	35
Green peas	0	0	4	12
Green beans	0	1	5	15
Green peppers	8	30	20	18
Other vegetables	0	8	1	5
Baked beans	0	2	8	32
Tinned vegetables	0	2	3	16
Oranges	4	23	32	31
Naartjies	0	5	1	10
Bananas	5	23	20	47

Fortnightly	At least x 1 per month	Very infrequently	Never
4	1	4	101
0	1	1	111
25	15	13	41
15	8	11	24
1	0	0	0
1	0	0	1
10	10	14	50
1	1	0	0
30	17	8	8
2	1	3	103
10	10	10	62
21	12	9	39
9	15	4	1
8	10	7	75
18	13	10	54
9	7	2	22
2	0	2	98
18	10	13	33
21	11	9	54
18	5	3	0
9	12	19	60
11	5	4	1

Food Item	Daily	5-6 days per week	3-4 days per week	1-2 days per week
Avocado pears	0	8	3	12
Paw paw	0	6	5	11
Pineapple	0	2	2	20
Deci. fruit	0	7	15	45
Tinned fruit	0	4	6	25
Brisket	0	3	0	6
Beef other	1	11	21	57
Mutton	0	3	4	15 ·
Pork	0	0	3	13
Goat	1	0	0	0
Chicken	0	3	8	63
Sausage	0	4	4	20
Tripe	1	5	18	44
Offal	1	5	17	28
Lungs	0	1	1	7
Viennas	0	0	0	1
Polony	0	2	2	9
Tinned meat	0	2	1	38
Fresh fish	0	2	2	3
Pilchards	1	15	45	31
Fish paste	1	3	0	7
Marmite	1	2	0	2

Fortnightly	At least x 1 per month	Very Infrequently	Never
23	25	30	15
17	23	19	35
20	34	20	18
21	12	16	0
18	22	17	24
7	5	1	94
14	8	3	1
12	11	13	58
11	11	9	70
2	0	96	17
31	8	2	1
23	23	20	22
23	9	7	9
21	8	6	30
9	0	5	93
1	3	9	102
13	13	20	8
30	12	9	24
2	6	5	96
10	9	2	3
4	2	6	93
0	0	7	110

Food Item	Daily	5-6 days per week	3-4 days per week	1-2 days per week
Eggs	8	8	30	33
Fresh milk	19	8	7	10
Maas	2	16	14	35
Buttermilk	0	0	0	0
Milk powder	16	20	11	10
Sw. Condensed milk	42	21	4	11
Tinned cream	2	4	1	6
Ster. milk	10	8	9	3
Cheese	1	1	3	10
Ice cream	2	13	2	21
Sugar	112	2	0	0
Syrup	1	2	0	1
Honey	0	0	1	2
Jam	14	34	24	12
Jelly	1	3	5	16
Chocolate	1	2	0	8
Sweets	2	28	15	25
Butter	7	10	12	12
Lard	2	3	3	4
Dripping	2	4	1	12
Sheep fat	0	1	0	2

Fortnightly	At least x 1 per month	Very Infrequently	Never
12	14	5	6
0	2	2	67
23	11	10	4
0	0	0	115
3	3	3	49
3	4	3	27
17	29	14	42
5	7	1	72
16	15	14	55
27	15	18	17
0	0	0	1
2	1	3	105
1	3	5	103
7	6	5	13
15	31	22	22
4	10	15	75
20	9	10	6
8	6	1	59
1	0	1	101
3	3	6	85
0	1	0	112

Food Item	Daily	5-6 days per week	3-4 days per week	1-2 days per week
Chicken fat	1	3	0	2
Cooking oil	18	21	2	11
Sunflower oil	46	22	3	4
Margarine	61	40	6	2
Tea	97	7	2	3
Coffee	45	36	6	3
Minerals	1	12	8	52
Milk beverage	19	17	11	7
Salt	114	1	0	1
Pepper	3	6	6	3
Curry powder	65	40	5	4
Vinegar	1	5	9	24
Tartaric acid	4	8	11	10
Baking powder	1	4	21	51
Flavourings	1	1	1	4
Yeast	0	2	4	26

Fortnightly	At least x 1 per month	Very Infrequently	Never
0	2	1	107
4	1	0	59
2	0	0	39
2	1	2	2
2	1	2	2
0	1	3	22
15	7	15	6
4	0	4	54
0	0	0	0
1	0	0	97
1	0	0	1
10	8	5	54
9	2	5	67
23	5	2	9
3	1	2	103
22	16	9	36

APPENDIX C: TABLES

APPENDIX C

TABLE 1   Alternative Mean Household Sizes by Area

	Overall	Tholeni	Snqquuqquma	Adams Mission
Weekdays	7,8	7,1	7,8	8,4
Weekends	8,2	7,7	8,0	8,8
Maximum	8,5	7,9	8,1	9,2

TABLE 2   Percentage Distribution of Population by Age and Sex for Overall Area

Age - Sex Category	%
Males +18	24
Females +18	27
Males 5 - 18	16
Females 5 - 18	20
Infants -5	14
N = 955	100

TABLE 3   % Sex of Head of Household by area

	Overall	Tholeni	Singqungquma	Adams Mission
% Male	83	86	91	72
% Female	17	14	9	27

TABLE 4   % location of Head of Household's Residence during the week by area

	Overall	Tholeni	Singqungquma	Adams Mission
At Home	83,6	74,3	97,1	80,9
Away	15,5	22,9	2,9	19,1

TABLE 5   % level of Dependency Ratio by Area

	Overall	Tholeni	Singqungquma	Adams Mission
% low	64	43	74	75
% High	36	57	27	25

TABLE 6   % Type of Occupation of Head of Household by Area

	Overall	Tholeni	Singqungquma	Adams Mission
'Professional'	7	0	0	17
'Semi'-Skilled	17	17	24	11
Unskilled	76	83	76	72

TABLE 7   % location of Head's Place of Employment by Area

	Overall	Tholeni	Singqungquma	Adam's Mission
Urban [1)	86	78	97	80
Rural [2)	12	22	—	17
Township	3	—	3	3

1) Urban = Durban proper, Jacobs, 'Toti, Isipingo, Prospecton and all South Coast Towns
2) Rural   Umbumbulu, Adam's Mission

TABLE 8   % Weaning Period by Area

	Overall	Tholeni	Singqungquma	Adam's Mission
Under 6 mth	3	3	—	2
6 - 12 month	31	43	38	11
12 - 18 mths	27	23	25	33
18 - 24 tes	36	31	38	40
24 mths	13	—	—	13

72.

TABLE 9   % Distribution of Types of Food Consumed
Prior to obtaining Teeth

	Overall	Thdeui	Siugquuqquua	Adaui Mission
Breast	37	27	41	44
Fresh Milk	—	—	—	—
Milk Por Pod	60	74	59	48
Pronuno	—	—	—	—
Porridge	7	—	—	7
Purity	—	—	—	—
Mashed Food	—	—	—	—
Rudr Milk	2	—	—	2

TABLE 10

% Disrubuhou of Types of Food Cousumed

After Appearance of Teeth

	Overall	Thdeni	Suggungguna	Adanii Nicciou
Breast	10	6	16	9
FresC Milk	4			9
Milk Por Peps	46	59	47	33
Pronutro	6		6	
Porridge	15	27	16	33
Purity				
Mashed foods	13	9	16	13
Soung	2			2
Eggs	1			
Biscuits	1			
Custard	2	11		2

TABLE 11   % Distribution of Respondents Knowledge of the Food-Health Principle by Area

	Overall	Tholeni	Singquigquma	Adams Mission
Positive	23	11	13	44
Intermediate	16	6	25	18
Negative	61	83	63	38

TABLE 12   % Distribution of Respondents Knowledge of the Food-Health Principle by Area

	Overall	Tholeni	Singquigquma	Adams Mission
Positive	17	11	16	40
Intermediate	14	9	13	20
Negative	64	80	72	40

TABLE 13   % Distribution Location by NUT Scores

	Thleui	Singgunggunua	Adaui's Mission	
Low Scores	22 38.5 62.9	21 33.9 61.8	19 30.6 41.3	62 53.9
High Scores	13 24.5 37.1	13 24.5 38.2	27 50.9 58.7	53 46.1
	35 30.4	34 29.6	46 40.0	115 100

TABLE 14   % Distribution of Weekday Household Size by NUT Scores

	Small Households	Large Households	
Low Scores	40 64.5 54.8 .	22 35.5 52.4	62 53.9
High Scores	33 62.3 45.2	20 37.7 47.6	53 46.1
	73 63.5	42 36.5	115 100

TABLE 14.1   Thoteni - Household Size by Nut Score.

	Small Households	Large Households	
Low Score	18 81.8 66.7	4 18.2 50.0	22 62.9
High Score	9 69.2 33.3	4 30.8 50.0	13 37.1
	27 77.1	8 22.9	35 100

TABLE 14.2   Singquugquma - Household Size by NUT Score

	Small Households	Large Households	
Low Score	12 57.1 54.5	9 42.9 75.0	21 61.8
High Score	10 76.9 45.5	3 23.1 25.0	13 38.2
	22 64.7	12 35.3	34 100

TABLE 14.3   Adam's Mission - Household Size by NUT Score

	Small Households	Large Households	
Low Score	10 52.6 41.7	9 47.4 40.9	19 41.3
High Score	14 51.9 58.3	13 48.1 59.1	27 58.7
	24 52.2	22 47.8	46 100

TABLE 15   % Distribution of Dependency Ratios
by NUT Scores

	Low Dependency	High Dependency	
Low Score	39 62.9 53.4.	23 37.1 57.5	62 54.9
High Score	34 66.7 46.6	17 33.3 42.5	51 45.1
	73 64.6	40 35.4	113 100

TABLE 15.1   Tholeni – Dependency Ratio by NUT Score

	Low Ratio	High Ratio	
Low Score	10 45.5 66.7	12 54.5 60.0	22 62.9
High Score	5 38.5 33.3	8 61.5 40.0	13 37.1
	15 42.9	20 57.1	35 100

TABLE 15.2   Singqunggumma – Dependency Ratio by NUT Score

	Low Ratio	High Ratio	
Low Score	15 71.4 60.0	6 28.6 66.7	21 61.8
High Score	10 76.9 40.0	3 23.1 33.3	13 38.2
	25 73.5	9 26.5	34 100

TABLE 15.3   Adam's Mission – Dependency Ratio by NUT Score

	Low Ratio	High Ratio	
Low Score	14 73.7 42.4	5 26.3 45.5	19 43.2
High Score	19 76.0 57.6	6 24.0 54.5	25 56.8
	33 75.0	11 25.0	44 100

TABLE 16   % Distribution of Type of Occupation of Head

of House hold by NUT Score

	"Professional"	"Semi-Skilled"	Unskilled	
Low Scores	2 3.2 25.0	11 14.7 57.9	49 79.0 56.3	62 54.4
High Scores	6 11.5 75.0	8 15.4 42.1	38 73.1 43.7	52 45.6
	8 7.0	19 16.7	87 76.3	114 100

TABLE 16.1 Tholeni - Head's Occupation by NUT Score

	'Professional'	'Semi - Skilled'	Unskilled	
Low Score	— — —	4 18.2 66.7	18 81.8 62.1	22 62.9
High Score	— — —	2 15.4 33.3	11 84.6 37.9	13 37.1
	— —	6 16.1	29 82.9	35 100

TABLE 16.2 Singgungguma - Head's Occupation by NUT Score

	'Professional'	'Semi - Skilled'	Unskilled	
Low Score	— — —	5 23.8 62.5	16 76.2 61.5	21 61.8
High Score	— — —	3 23.1 37.5	10 76.9 38.5	13 38.2
	— —	8 23.5	26 76.5	34 100

TABLE 16.3 Adam's Mission - Head's Occupation by NUT Score

	'Professional'	'Semi - Skilled'	Unskilled	
Low Score	2 10.5 25.0	2 10.5 40.0	15 78.9 46.9	19 42.2
High Score	6 23.1 75.0	3 11.5 60.0	17 65.4 53.1	26 57.8
	8 17.8	5 11.1	32 71.1	45 100

TABLE 17   %Distribution of Location of Heads' Occupation

by NUT Scores

	Urban	Rural	Township	
Low Scores	38	7	1	46
	82.6	15.2	2.2	59.0
	56.7	77.8	50.0	
High Scores	29	2	1	32
	90.6	6.3	3.1	41.0
	43.3	22.2	50.0	
	67	9	2	78
	85.9	11.5	2.6	100

TABLE 17.1 Thalevi - Heads Location of Employment by NUT Score

	Urban	Rural	Township	
Low Score	8 66.7 57.1	4 33.3 100.0	–	12 66.7
High Score	9 100.0 42.9	–	–	9 33.3
	14 77.8	4 22.2	–	18 100

TABLE 17.2 Singgungguwa – Heads Location of Employment by NUT score

	Urban	Rural	Township	
Low Score	19 95.0 63.3	–	1 5.0 100.0	20 64.5
High Score	11 100.0 36.7	–	–	11 35.5
	30 96.8	–	1 3.2	31 100

TABLE 17.3 Adams Mission - Heads Location of Employment by NUT score

	Urban	Rural	Township	
Low Score	11 78.6 47.8	3 21.4 60.0	–	14 48.3
High Score	12 80.0 53.3	2 13.3 40.0	1 6.7 100.0	15 51.7
	23 74.3 49.3	5 17.2	1 3.4	29 100

TABLE 18   % Distribution of Head's Residence during the week by NUT Scores

	At home	Not at Home	
Low Score	49 79.0 50.5	12 19.4 70.6	62 539
High Score	48 90.6 49.5	5 9.4 29.4	53 46.1
	97 84.3	17 14.8	115 100

TABLE 19

Ratio of "Professionals" to Total Number of

Earners by NUT Score

	Low Ratio	High Ratio	Missing Values	
Low Score	5 55.6 45.5	4 44.4 40.0	9 42.9	53
High Score	6 50.0 54.5	6 50.0 60.0	12 57.1	41
	11 52.4	10 47.6	21 100	45

TABLE 20   Ratio of "Semi-Skilled" Workers to Total
               Number of Earners by NUT Score

	Low Ratio	High Ratio	Missing Values	
Low Score	9 52.9 64.3	8 47.1 47.1	45	17 54.8
High Score	5 35.7 35.7	9 64.3 52.9	39	14 45.2
	14 45.2	17 54.8	85	31 100

TABLE 21   Ratio of Unskilled Workers to Total Number
of Earners by NUT Score

	Low Ratio	High Ratio	Missing Values
Low Score	11 25.0 61.1	33 75.0 55.0	18 44 56.4
High Score	7 20.6 38.9	27 79.4 45.0	19 34 43.6.
	18 23.1	60 76.9	37 78 100

TABLE 22   Knowledge of the Food-Health Principle
by Age of Respondent

	Under 50	Over 50	
Positive	16 55.2 22.2	13 44.8 31.7	29 25.7
Inter-mediate	15 83.3 20.8	3 16.7 7.3	18 15.9
Negative	41 62.1 56.9	25 37.9 61.0	66 58.4
	72 63.7	41 36.3	113 100

TABLE 23

% Distribution of Nut Scores by Knowledge
of the Food-Health Principle

	Positive Knowledge	Intermediate	Negative	
Low Score	13 21.3 44.8	11 18.0 61.1	37 60.7 55.2	61 53.5
High Score	16 30.2 55.2	7 13.2 38.9.	30 56.6 44.8	53 46.5
	29 25.4	18 15.8	67 58.8	114 100

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