

Nutrition-related Attitudes and Health Practices of Elderly Women Living  
Alone

by

Mary Jane Gauthier

A thesis  
presented to the University of Manitoba  
in partial fulfillment of the  
requirements for the degree of  
Master of Science  
in  
Foods and Nutrition

Winnipeg, Manitoba

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ELDERLY WOMEN LIVING ALONE

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MARY JANE GAUTHIER

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## ABSTRACT

This study was undertaken to develop reliable and valid instruments that measure the nutrition-related attitudes and health practices of elderly women living alone. These instruments would be used in a larger study of the factors that affect the nutritional status of this target group. A major part of this study was to determine what constituted nutrition-related attitudes and health practices. Four attitude factors, Social-Adventuresome, Qualitative-Pleasurable, Healthful-Nutritious, Frugal-Utilitarian, and Health-Apprehension were selected from the literature and the researcher devised two factors called 'Traditional' and 'Nutrition and Aging.' The statements within each factor were adapted from existing instruments or devised by the researcher. The Likert scale was used. A practices questionnaire, based on the literature and focus group discussions included the following categories of practices: 1) therapeutic use of foods 2) food avoidance 3) use of food supplements 4) drug use including vitamin/mineral supplements and 5) eating patterns. In order to relate attitudes and practices to an independent variable to be used in the future study, the concept of social participation was developed. Other questions to measure health were also included.

After pretesting the instruments were administered to 24 elderly women living alone from the Lion's Manor, a church group and a Senior Centre. The practices questionnaire was administered twice. There were

22 completed interviews. The validity of the practices questionnaire was assessed for content validity by three independent judges from differing fields of study including the field of Foods and Nutrition. The final version of the questionnaire was assessed as showing content validity. The reliability of the practices instrument was determined by using the test-retest method. Both a statistical procedure and a logical evaluation were used to make an assessment of reliability. A reliability coefficient of 0.700 or greater was chosen as an indicator of an acceptable reliability level. The analysis of the closed-ended questions showed that nine questions had perfect or near perfect reliability coefficients and 21 questions had a reliability coefficient of 0.700 or greater. All questions with coefficients of less than 0.700 were examined for sources of error. The following sources of error were found 1) contingency question 2) wording 3) change 4) uncertainty 5) difficulty 6) coding error 7) other.

Five open-ended questions were selected for an examination of frequencies to reveal patterns, since reliability coefficients were inappropriate. This led to refinement of these questions to closed ended questions. A comparison of scores was done for the questions measuring 'social participation'. A difference in scores of 10 or more between test 1 and test 2 helped determine problem questions. A difference of 10 or greater identified problem questions. Most problem questions occurred for the indicator of 'reciprocity'.

The validity of the attitude statements was determined by factor analysis. The original 70 statements and seven factors were reduced to 30 statements that clustered around five attitude factors. The factor

statements in conjunction with the factor loadings and scores were examined to interpret the results and to provide a factor name. These factors were named General Nutrition-Related Attitudes, Cost-Quality, Nutrition-Pleasure, Food Preparation-Practicality, and Health-Apprehension. Factor 1 had ten statements; the remaining factors had five statements. The statements in Factor 1 seemed to reflect a wide range of attitudes toward food and nutrition. The statements within the five factors were logically related and consistent with the findings in the literature, thus confirming validity. All attitude statements had a Pearson's correlation coefficient of about 0.500 or greater and all the correlations were strong. The examination of the instruments for validity and reliability showed that the instruments were valid and that they had an acceptable level of reliability.

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## CONTENTS

ABSTRACT . . . . .	iv
ACKNOWLEDGEMENTS . . . . .	v
<u>Chapter</u>	<u>page</u>
I. INTRODUCTION . . . . .	1
II. REVIEW OF LITERATURE . . . . .	3
The Target Population . . . . .	3
Nutritional Practices of the Elderly . . . . .	4
Eating Patterns . . . . .	4
Use of Health Foods and Supplements . . . . .	8
Nutritional Adequacy as Assessed by Dietary Intake . . . . .	15
Health Status . . . . .	20
Drugs and the Elderly . . . . .	24
SUMMARY . . . . .	27
III. IN SEARCH OF IDEAS . . . . .	30
Perspectives in the Study of Attitudes . . . . .	31
Nutrition Related Attitudes held by the Elderly and Elderly Women . . . . .	37
Nutritional Knowledge and Beliefs of Elderly People . . . . .	39
Knowledge, Attitudes and Beliefs . . . . .	41
Food- the Social Component . . . . .	46
Social Network . . . . .	49
Network Size . . . . .	51
Strength of Ties . . . . .	52
Reciprocity . . . . .	52
Social Participation . . . . .	54
Report of Focus Groups . . . . .	55
Eating Patterns . . . . .	57
The Social Component . . . . .	58
Specific Health Behaviours . . . . .	58
Attitudes . . . . .	61
Suggested Avenues for Research . . . . .	61
PURPOSE OF STUDY: OBJECTIVES AND HYPOTHESES . . . . .	62
Purpose . . . . .	62
Objectives . . . . .	62
IV. QUESTIONNAIRE DEVELOPMENT . . . . .	63
Questionnaire Construction . . . . .	64
Guidelines . . . . .	66

The Pre-test . . . . .	67
Question Format . . . . .	68
Considerations in Survey Research . . . . .	71
Open vs Closed Form . . . . .	71
The Don't Know Response . . . . .	72
The Middle Alternative . . . . .	72
Order Effects . . . . .	73
Validity and Reliability . . . . .	73
Validity . . . . .	74
Content Validity . . . . .	74
Construct Validity . . . . .	76
Reliability . . . . .	77
Measurement Error . . . . .	79
Non Random Error . . . . .	80
The Relationship Between Reliability and Validity . . . . .	80
V.    METHODOLOGY . . . . .	82
General Theoretical Framework and Assumptions . . . . .	82
Methodology . . . . .	83
Focus Groups . . . . .	83
Questionnaires . . . . .	83
Sample . . . . .	84
Pre-Test . . . . .	85
Interviewing . . . . .	85
Validity . . . . .	86
Reliability . . . . .	87
Concepts and Definitions . . . . .	88
Rationale . . . . .	89
Nutrition Related Attitudes . . . . .	90
VI.   ANALYSIS AND DISCUSSION . . . . .	94
Content Validity for the Practices Questionnaire . . . . .	95
Reliability of Closed-Ended Questions for "Practices" Questionnaire . . . . .	97
Analysis of Questions to Determine Sources of Random Error . . . . .	102
Comparison of Scores . . . . .	110
Validity Assessment of Open-ended Questions . . . . .	115
Conclusion for Reliability Estimates for Closed Questions . . . . .	121
Analysis of the Validity of the Attitude Instrument . . . . .	122
Factor Scores . . . . .	132
Interpretation of Scores . . . . .	135
Discussion . . . . .	136
General Statement of Validity of Attitude Instrument . . . . .	138
Reliability Estimates of Attitude Statements . . . . .	140
Discussion . . . . .	147
VII.  SUGGESTIONS AND RECOMMENDATIONS . . . . .	148
Key Considerations for Interviewing . . . . .	148
Recommendations for Practices Questionnaire . . . . .	150
Recommendations for Attitude Statements . . . . .	154

Implications of Study . . . . .	155
REFERENCES . . . . .	157
 <u>Appendix</u>	
	<u>page</u>
A. LETTER OF CONSENT . . . . .	163
B. LETTERS OF CORRESPONDENCE . . . . .	166
C. CONCEPTS, INDICATORS AND OPERATIONALIZATION . . . . .	171
D. SCORING . . . . .	174
E. PRACTICES QUESTIONNAIRE . . . . .	176
F. ATTITUDE FACTORS AND STATEMENTS TO MEASURE FACTORS . . . . .	206
G. ATTITUDE QUESTIONNAIRE . . . . .	207

## LIST OF TABLES

<u>Table</u>	<u>page</u>
1. Description of Sample . . . . .	95
2. Reliability Coefficients of Questions and Number of Respondents for Time 1, Time 2 and Both Times . . . . .	98
3. Variables Categorized According to Reliability Coefficients . . . . .	99
4. Categorization of Questions With Reliability Coefficients Less than 0.700 . . . . .	107
5. Sources of Error and Questions Affected by Source of Error . . . . .	110
6. Activities Scores . . . . .	111
7. Friendship Scores . . . . .	112
8. Reciprocity Scores . . . . .	113
9. Social Support Scores . . . . .	114
10. Frequencies of Answers for Losing Weight for Test 1 and 2 . . . . .	116
11. Frequencies of Answers to Question on Foods Avoided to Prevent Indigestion for Tests 1 and 2 . . . . .	117
12. Frequencies of Answers for Foods to Alleviate Constipation for Tests 1 and 2 . . . . .	118
13. Frequencies of Answers for Foods Used to Prevent Constipation for Tests 1 and 2 . . . . .	119
14. Frequencies of Answers for Vitamin and Mineral Supplements for Tests 1 and 2 . . . . .	120
15. Frequencies of Answers for Conditions for which Supplements were taken for Tests 1 and 2 . . . . .	121
16. Factors Identified and Their Variance . . . . .	123
17. Sorted Rotated Factor Loadings (Pattern) . . . . .	124
18. FACTOR 1: GENERAL NUTRITION-RELATED ATTITUDES . . . . .	128

19.	FACTOR 2: COST-QUALITY . . . . .	129
20.	FACTOR 3: NUTRITION-PLEASURE . . . . .	129
21.	FACTOR 4: FOOD PREPARATION-PRACTICALITY . . . . .	130
22.	FACTOR 5: HEALTH-APPREHENSION . . . . .	130
23.	Comparison of Factor Names and Percentage of Variance Explained . . . . .	132
24.	Scores for Attitude Factors Generated by Factor Analysis . . .	133
25.	Factor 1 Statement Scores and Total Scores for Each Respondent . . . . .	141
26.	Factor 2 Statement Scores and Total Scores for Each Respondent . . . . .	142
27.	Factor 3 Statement Scores and Total Scores for Each Respondent . . . . .	143
28.	Factor 4 Statement Scores and Total Scores for Each Respondent . . . . .	144
29.	Factor 5 Statement Scores and Total Scores for Each Respondent . . . . .	145
30.	Item to Total Correlation for Each Factor for All Respondents . . . . .	146
31.	Scoring for Social Participation Measures . . . . .	174
32.	Scoring for Health Measures . . . . .	175

LIST OF FIGURES

<u>Figure</u>	<u>page</u>
1. Attitude and Behaviour Model from Ajzen and Fishbein, 1980 . . .	44
2. Cross tabulation of frequencies of responses at both time 1 and 2 for ANACINO (Q 55) . . . . .	109
3. Absolute values of correlations in sorted and shaded form . . .	125
4. Plot of scores for five factors using factor loadings . . . .	134

## Chapter I

### INTRODUCTION

This thesis was undertaken as preliminary work toward a larger study and is therefore unique. The purpose of this study was to develop reliable and valid instruments that measure the nutrition-related attitudes and health practices of elderly women living alone. The instruments would be used in a larger study of the factors that impinge upon the nutritional health of this population.

The emphasis lies in developing a reliable and valid instrument but the groundwork of determining what constitutes nutrition-related attitudes and health practices had to first be done. Also consideration had to be given to the future study in which factors affecting nutritional status would be addressed.

The course of the research began with a review of the literature on elderly women (Chapter 2) and then a search for ideas on how to approach the topic of nutrition-related attitudes and health practices (Chapter 3). Once the groundwork was laid an investigation of questionnaire construction and survey research was undertaken, along with an investigation of reliability and validity (Chapter 4).

The final chapters are devoted to the methodology, which encompassed the development and testing of the questionnaires (Chapter 5), analysis and discussion of the results of reliability and validity testing

(Chapter 6) and finally implications of the study and recommendations for the questionnaires (Chapter 7).

The exploratory nature of this thesis also makes it unique in that many of the ideas and concepts had to be developed and defined. What began with uncertainty and vagueness became a process of turning something abstract into something concrete. into something concrete.

Chapter II  
REVIEW OF LITERATURE

2.1 THE TARGET POPULATION

Elderly women living alone constitute a large and growing sector of our population and therefore are a group worthy of study. At present 62% of Canadians 75 years and older are women and the proportion of women increases with increasing age. Not only is Canadian society growing older but the aged population itself is growing older, as increasing numbers of people are living well past 65. Another observable trend is the increasing population of elderly women. This increase is seen in the fact that in 1901 elderly women represented 48.8% of persons 65 and older and by 1981 elderly women represented 57.2%. A projection for the year 2001 is that six in every ten aged Canadians will be women (National Council of Welfare, 1984).

Elderly men and elderly women differ in two respects, in marital and economic status. Six in every ten elderly women are single, whereas three in every four aged men are married; however the proportion of never married and divorced persons are similar for both sexes (Health and Welfare, Canada, 1984). The percentage of widows (49% of all aged women) outweighs that of widowers (14%) and with increasing age the proportion of widowed women increases. Unmarried women far outnumber men because most women marry men older than themselves, most women outlive



their husbands and there are fewer eligible men available, since most elderly men are married. Widowers also tend to marry women younger than themselves (Achley, 1981).

Poverty is more common among elderly women than men, and unattached women face a higher risk of poverty than unattached men. Poverty stands out as largely a women's problem and this is not unexpected since the unattached elderly are overrepresented in the poverty range and most of the unattached elderly are women (Dulude, 1978). Factors of being a homemaker, having low paying jobs, sporadic employment, lack of coverage from private pension plans, the fact that few pension plans have survivor benefits and inadequacies in the Canada Pension Plan are some of the reasons why elderly women are poor (Dulude, 1978).

The majority of elderly women (58%) do not live in their own families and a sizeable group of aged women (32%) live alone. The proportion of elderly women living alone are projected to rise at a faster pace than that of men. A growing number of elderly who are widowed, unmarried or divorced prefer to live on their own rather than live with a friend, relative or in an institution (Health and Welfare Canada, 1984).

## 2.2 NUTRITIONAL PRACTICES OF THE ELDERLY

### 2.2.1 Eating Patterns

The nutritional practices of the elderly can be studied from numerous perspectives. Since there is so much heterogeneity in an elderly population, the findings of one study may contradict those of another. Contradictions may become apparent because of sampling procedures. For

example, sampling may be done according to educational and socio-economic level, by ethnic background, by locality or simply by age.

Some of the approaches taken in determining nutritional practices are to look at eating patterns, to look for changes in eating patterns, and to study the use of health foods and supplements. An area related to nutritional practices would be the use of medication and the effect of drug use on nutritional intake and metabolism.

The following discussion will focus on eating patterns, changes in eating patterns, the ethnic preservation of food patterns and the use of supplements and health foods.

Kim et al. (1984) studied seasonal changes related to food choice practices of 104 independent living elderly in a small northern Ohio community resort. The group was described as healthy, alert, mobile, mostly professional people on limited but adequate retirement incomes. The sample included mostly females.

The study indicated that three meals per day were typical for 88% of the respondents in the winter and 85% in the summer. Breakfast played an important role in the eating pattern and an evening meal was reported as typical (Kim et al., 1984). Slightly more respondents ate breakfast and lunch in the summer than in the winter months. Consumption of dairy products in both seasons was higher among those wearing dentures. Other studies (Todhunter, 1974; Hendel, 1968 in Kim et al., 1984) indicated that about 75% of the elderly ate three meals per day and only a small percentage consumed one meal per day (2%) or two meals per day (10-14%).

In the study of Kim et al. (1984) most of the respondents consumed their meals at home. The small percentage who ate some of their meals away from home did so more in the summer months than in the winter months. The respondents who frequently went out to eat tended to be above the low income category. Food preparation and meal times were reported as being a pleasurable and social event.

In the study by Kim et al. (1984) snacking was related to loneliness as a major reason as well as to habit, hunger and something to do. Clancey (1975) found a correlation between snack food consumption and television viewing and both fat and calorie intake. The percentage of calories represented by snack foods in the 24-hour recall of 41 elderly women and 6 elderly men who lived in a small city in upstate New York, correlated positively with the number of hours of television watched daily. There is some indication that snack foods are replacing more nutritious foods in the diet (Clancey, 1975). It is interesting to note that in this sample more than 50% of the subjects reported that they never ate potato chips, soda, cupcakes, pretzels, beer or popcorn.

A study in Canada of food use and perceived food meanings of the elderly by Krondl et al. (1982) found that tea, whole wheat bread, eggs and coffee were the most frequently used foods. Overall use of some foods from each of the food groups was found. Hard cheese was used more frequently than fluid milk. The participants in this study were between 65-77 years of age, single, free-living, subjectively healthy and of British descent. It was found that health-related factors of greater physical activity, increased effort to maintain health, and higher subjective health rating were associated with greater variety of food

use. The active elderly tended to use a greater number of foods than the less active elderly. The main characteristic that influenced food habits was assumed to be activity rather than chronological age. A study by Clark and Wakefield, (1975), showed an association between food changes in younger independent women and decreased mobility. These food changes tended to go in the direction of fewer items and less variety. Both these studies appear to show a relationship between activity levels and food habits.

A report on an experimental program the 'Seniors Wellbeing Activation Team' (SWAT), stated that nutrition problems facing the elderly had less to do with poor nutrition, i.e. not eating the right foods, but with how much or how little food was eaten and in what pattern (Anon., 1985). Many older women living alone had little appetite when it came to cooking for one, despite the fact that they had sophisticated cooking skills.

The ethnic variable is very much present in our society and among the elderly this may have a bearing on nutritional practices. A statistic of interest, the index of ethnic diversity, shows Winnipeg to have the highest ethnic diversity of any city in Canada (Alder and Brusegard, 1980). Rux (1981) expresses the idea that food is psychologically important as being symbolic of aspects of culture. Each ethnic group brings its own language, religion and food. While each cultural group has become acculturated to Western industrial society, immigrant food-style has remained essentially the same and food plays a central role in affirming cultural heritage. Women's traditional role as preparer of food is important to their sense of participation in the maintenance and

continuation of culture. By staying in and working in their cultural context the elderly immigrant may be protected from cultural discrimination. Events in the lives of the elderly, such as illness or institutionalization may bring an experience of shock when the food patterns are that of the dominant culture. Rux suggests that comparative research of culturally congruent and incongruent diets be made especially in the case of nursing homes.

The importance of obtaining culturally congruent foods is emphasized by Newman and Ludman (1984) who investigated food habits of two Chinese populations, one in China and one in the United States. When populations were addressed by age and sex, overall similarities between the food used in China compared to that of Chinese Americans in New York City were more striking than their differences. It was noted that the consumption of soup as the beverage of choice at meals, followed by tea, was culturally preserved by the American Chinese sample. Regardless of age, sex or occupation, the main meal varied little between Chinese in America and Chinese in China. Nearly 60% of the Chinese had special foods to be served to the elderly and more than half were composed of animal or high protein foods. The types of foods bought for the elderly were meat, eggs and other protein foods such as soy milk, bean curd and other bean and seed items.

### 2.2.2 Use of Health Foods and Supplements

The use of health foods and vitamin/mineral supplements by the elderly has drawn the attention of nutritionists. The purchase of these products is considered to be unrelated to need and to represent an exploita-

tion of a vulnerable group. Olson (1965) expressed the view that food faddism exists because food has an emotional rather than intellectual value to the average person. Food faddist promoters capitalize on this fact by appealing to the emotional drives of their believers rather than to their intellects. Olson states that two kinds of faddism exists, the first being individual and the second being collective. Individual faddism stems from acute or chronic psychological aberration. In the second category are the cults or groups who adopt 'innumerable' food fallacies and who should be considered psychologically exploited rather than psychiatrically ill. These are very strong statements.

The psychotic aspect of food faddism was investigated by Jalso et al. (1965) who conducted a study to determine if an association exists between food faddist beliefs and practices and characteristics of age, socio-economic level, educational level and personality rigidity. Two questionnaires to obtain demographic data and to test both nutritional opinions and practices were completed by 340 subjects who were members of various community organizations, including senior citizens' groups. A subsample of 101 subjects who scored highest and lowest on the nutritional opinions questionnaire were selected for further interviews for the purpose of obtaining additional demographic data, specific food beliefs and practices, to identify sources of information and to obtain information on personality rigidity.

The nutritional opinion questionnaire was composed of thirty statements. Areas of food and nutrition in which misconceptions were currently prevalent were identified as: (1) special health foods (2) self-prescribed vitamins (3) diet as related to health (4) diet adjust-

ments (5) sources of information non-advertising (6) refined and processed foods (7) sources of information advertising and (8) chemicals, soil depletion and fertilizers. Those subjects whose scores on the questionnaire were lowest (38-59) and highest (90-77) were classified as faddist and non faddist respectively. According to the frequency distribution for education, age, income and scores on the Rehfishch test, age was inversely related to sound nutritional beliefs and practices; faddists were older and had lower incomes. Non faddists were more highly educated than the faddists. While faddists were distributed throughout the educational range, faddists had received substantially less nutrition education than the non faddists. Nutritional supplements and health foods were used to a greater extent by the faddists than by the non faddists and in most cases were self-prescribed. The use of vitamins by 73.6% of the faddists and by 58% of the non faddists indicated how widespread vitamin use really was.

Le Bovit (1957) conducted a food consumption survey of 283 old age survivors and disability householders of one or two persons in New York. Thirty percent of the sample were women living alone. Over one third of the sample (37%) were taking vitamins and nearly all vitamin preparations contained several vitamins. Some of the subjects taking vitamins had a diet classified as good, some may have been taking vitamins on prescription, while others had diets classified as fair or poor. Few were wise in their selection of supplementation. For example, the vitamin preparations either contained only some of the nutrients in which their diets were short or contained vitamins that were already in adequate supply in their diets but none of the nutrients that were low in their diets.

In a study conducted by Garry et al. (1982) 61% of the women were routinely ingesting one or more vitamin or mineral supplements. Among those ingesting a daily multi-vitamin preparation (including men and women) 95% were also taking one or more additional vitamins and or mineral supplements. Ascorbic acid was the vitamin consumed most even though 90% of the sample received at least 90% of the United States Recommended Dietary Allowance (RDA) from their diets. Ascorbic acid was followed in popularity by vitamin E with almost half of the women using this vitamin. Usage of vitamin E was found to be extremely high and estimated among women users to be 21 times the RDA.

The sample studied by Garry and co-workers showed great variation in supplementation from one nutrient to another. Folic acid was consumed in lowest amounts and ascorbic acid and vitamin E in highest amounts. Median supplementation intake ranged from a high of more than 1800% of the RDA for vitamin E to less than 20% of the RDA for phosphorus.

Grotkowski and Sims (1978) found that the purchase of health foods and supplements was positively related to socio-economic status in a sample of 64 persons over 62 years of age. Seventy-seven percent were women. Commonly purchased health food items were multi-vitamin/mineral supplements, vitamin E ascorbic acid, wheat germ and honey. Reasons underlying the purchase of health food products were to provide more energy, make one healthier, prevent colds and to treat or prevent arthritis. The purchase of multivitamin supplements was related to the belief that these products could prevent colds. These researchers also reported that nutritional knowledge was inversely related to the belief that foods and supplements can be used as medicine or that vitamin/mineral supplements are necessary.



In a study undertaken by Caliendo and Smith ( 1981) on the dietary status of participants in the Title 111-C Meal Program in Maryland, they found that almost half the sample of 169 persons (46%) took vitamin and or mineral supplements. Eighty one percent of the sample were female. The types of vitamin used were multi-vitamin, vitamin E, ascorbic acid and vitamin B complex. The 'other' category included such preparations as Geritol, calcium, potassium, niacin, cod liver oil, wheat germ, lecithin, iron, bone meal, and Shaklee products.

A study in Windsor, Ontario, on the diets of senior citizens (119 females and 33 males) by Kennedy and Leach (1981) showed that 51 subjects were taking vitamins of some kind. Those that took supplements did not have significantly improved nutritional status since they were taking large supplements of single inappropriate vitamins such as vitamin C and vitamin E or they were taking vitamins when their diets were lacking minerals.

When looking at the use of health foods and supplements a definition of what constitutes health food use and what constitutes health foods becomes crucial. A study by Yung et al. (1984) investigated the prevalence, characteristics and economic impact of health food use among senior citizens in the five boroughs of New York City. The sample consisted of 354 senior citizens 60 years of age and older and 256 subjects were female. Depending upon the definition of health food users, different results were obtained. The first and broadest definition considered anyone who had ever shopped in a health food store a health food user (HFU-1). The second definition used criteria of frequency and money and considered a health food user to be one who

shopped in a health food store at least once a month and who spent at least \$4.00 per trip (HFU-11).

There was a positive correlation between education and health food use and the correlation was more pronounced with the HFU-11 group. Whether the person lived near a health food store appeared to influence health food use but the relationship disappeared when applied to the second HFU-11 definition. Health food users by the first definition reported that their main reason for using health foods was because it was good for them or because of the health-giving qualities of health foods. Members of the HFU-11 group were more likely to use health foods for therapeutic reasons. The answer to how many elderly in the sample used health foods depends on the definition of health food user. Using the broadest definition, the percentage is 38.7% but by using the second definition the percentage drops to 10.7% which does not differ significantly from the 8% of people of younger age groups found by Yankelovich, Shelley and White in 1979 as reported by Yung et al. (1984).

The answer to the question of whether the elderly in the survey were spending their money unwisely appears to be no. When the amount of money spent in health food stores was expressed in terms of the total amount spent on food, the average was less than 5 cents out of every dollar.

The question of what constitutes health foods arises. Under the label of health foods are items such as molasses, honey, and wheat germ to mention a few. These products considered to be 'health foods' by some researchers, can be bought in stores other than health food stores.

In the study of Yung et al. (1984) a large number of non-health food users (by both definitions) reported that they often bought items labelled as health foods but did not purchase them in health food stores. The more committed health food users (HFU-11 group) bought more sugar-free and salt-free items in health food stores and were doing so probably for therapeutic reasons. The finding of this study negates the idea of food faddism or faddist exploitation of the elderly and suggests that the elderly are concerned about eating a more 'natural and unprocessed' diet and that when income permits, they will shop at health food stores to obtain the products that are more readily available in such stores.

At this point it seems necessary to make some clarification between educational level and nutritional knowledge and to comment on socio-economic status. While it is a commonly held belief that people of low income and low education are vulnerable to health food buffs' propaganda, a number of studies suggest that the more highly educated elderly purchase health food products or use vitamin/mineral products to a great extent. Being educated however, does not necessarily mean being nutritionally knowledgeable. According to Jalso et al.(1965), food faddists were distributed throughout the educational range but had very little nutrition education. Grotkowski and Sims (1978), have indicated that nutritional knowledge is very much related to nutritional beliefs and attitudes and the more nutritionally knowledgeable a person is the less likely that person will hold faddist beliefs. Socio-economic status can determine the option of buying or not buying supplements and health foods. Grotkowski and Sims (1978) suggested that since one-third of the

health food users used these products 'just to be safe.' This indicates the availability of adequate money to purchase such items. The sample studied by Garry and co-workers, (1982) were assumed to be more highly educated and of higher socio-economic status than most elderly. The use of supplements was prevalent in this sample of elderly people.

It seems likely that education alone is not a good predictor of vitamin and mineral supplement or health food usage, but that nutritional knowledge, beliefs and attitudes are. Socio-economic status can only indicate whether there is indeed an option with regards to purchasing or not purchasing these items.

### 2.3 NUTRITIONAL ADEQUACY AS ASSESSED BY DIETARY INTAKE

An assessment of nutritional status based on dietary intake may be misleading in the case of elderly persons. There is little information on the nutrient requirements of the elderly. Existing knowledge of nutritional requirements has been extrapolated from diet recall studies and primarily from younger adults. Factors of physiological changes associated with aging, use of medication and chronic and acute conditions, may all have a bearing on the nutritional requirements of the elderly. The lack of nutritional guidelines for the elderly simply reflects a lack of data on which recommendations can be based.

Interpretation and comparison of survey results that measure the nutrient intake of an elderly population are confounded by differences in many factors (Anon, 1983). One of these factors is differences in socio-economic status of survey populations--some may be of low educa-

tion and income and some may be of higher education and income. Another factor is the variety of methodologies used in collection of dietary information --food use frequency, dietary recall, weighed intake, food consumption patterns. There is also inconsistency of standards used for interpretation of data. The definition of what is a poor, fair or adequate diet may differ in different studies. Often too, inadequate information on the nutrient content of certain foods makes analysis difficult.

The Nutrition Canada Survey found that intakes of people 65 years of age and older were inadequate for females in vitamin A (32%), thiamine (15%), calcium (20%), and in iron (8%)(Health and Welfare, Canada, 1973)

In a study in Windsor, Ontario, of 119 women and 13 men, Kennedy and Leach (1981) reported marginal intakes of vitamin A, calcium and iron. Consumption of food from the milk and milk products group were below the recommended levels at a time when fruits and vegetables were abundant and at economical prices and in the location of a prominent fruit and vegetable growing area. Females living alone in senior citizen housing were at greater nutritional risk than the other female participants. Lower intakes of most food groups accounted for the poor nutritional status. The researchers concluded that low energy intakes made it difficult for the seniors to meet their nutrient requirements assuming that their needs have not altered with age.

The Recommended Nutrient Intake (RNI) for Canadians and the American Recommended Daily Allowances (RDA) are set to cover 97.5% of the population (Health and Welfare, Canada, 1983; Garry et al., 1982). This means

that average intakes of population groups ingesting required amounts of nutrients will average less than the estimated requirements. Garry et al., (1982) noted that dietary intakes that fail to meet 75, 67 or even 50% of the RDA for a particular nutrient does not mean that these individuals are at risk for developing a nutritional deficiency. However it is felt that the risk increases substantially if one quarter of the population has a dietary intake less than 50% of the RDA for a particular nutrient. It is also realized that information gathered from food recalls tend to underestimate intake.

The study of Garry and et al.(1982) assessed dietary and supplemental intakes from three-day food records of 270 free-living, middle income, healthy elderly living in Albuquerque, NM. In this study inadequate levels of intake were determined if one-fourth of the population consumed 75% of the RDA or less and an 'increased risk' of deficiency was defined when one-fourth of the population consumed dietary intakes less than 50% of the RDA. Accordingly the diets of the sample were assessed as being adequate for mean levels of calories, thiamin, riboflavin and iron. Protein, vitamin A, ascorbic acid and niacin were consumed in amounts well over the RDA. The mean value for vitamin E intake was greater than two-thirds of the RDA but more than one-quarter of the population reported values less than 50% of the RDA.

The dietary nutrients judged to be inadequate were B6, B12, D, E, folic acid and zinc. The median vitamin D intake for women was 40% of the RDA. Calcium was found to be inadequate in the female population, possibly due to poor consumption of dairy products. The supplemental intake of calcium was used by few of the subjects (26% male and female).

Half of the women taking supplemental calcium were still receiving less than 100% of the RDA. The inadequacy of vitamin B12, vitamin B6 and vitamin E was not judged to be cause of concern. It was surprising to find that zinc intakes were inadequate since animal protein is a good source of zinc and animal protein comprised 70% of total protein intake.

Fosmire et al. (1984) in a study of dietary zinc intakes and zinc status of an elderly rural population in Pennsylvania found that 57% of the population consumed less than two-thirds of the RDA. Among the women 66% had intakes less than two-thirds of the RDA. Despite the low zinc intakes the population appeared to be in generally good zinc status by criteria of hair and plasma zinc concentrations.

Fry et al. (1965) evaluated intakes of ten nutrients and calories for thirty-two active healthy women aged 65 to 85 years of age. Iron, calcium and vitamin A were consumed at less satisfactory levels, but in general the diets provided more than two thirds of the allowances. Calcium and riboflavin showed higher intake for women over seventy and may have been due to the habitual use of milk in this small sample. The mean intake of most nutrients tended to decrease with age. A decreased energy consumption with age was also noted by Garry et al. (1982).

LeBovit (1965) reported that age was directly related to the nutritional quality of the diet. Her sample of 283 Rochester households was predominantly a low-income group with a low educational level and thirty percent consisted of women living alone. Diets of younger households (under seventy-five years) met allowances more frequently than those of older households (over seventy-five).

Two nutrients in shortest supply were calcium and ascorbic acid. Diets were classified as good (meeting allowances in full), fair (meeting at least two thirds of the allowances) and poor (less than two thirds). It was found that when the fair and poor diets were analyzed, nutrient shortages were multiple much more often than single. Among the one-woman households 24% had poor diets which was better than the figure of 35% for the one-man household. Food limitations most related to poor diets were those due to attempts at weight control and poor appetite. A lack of interest in eating was a much more serious problem for those living alone than for those living with another person.

An assessment of nutritional adequacy of elderly persons in urban, suburban and rural areas was undertaken by Norton and Wozny (1984), using data from the first Health and Nutritional Examination Survey. Results indicated that elderly members of lower income families had a lower intake of calories, protein, calcium, iron, vitamin A and vitamin C than members of higher income families. The less educated elderly exhibited significantly lower intakes across all nutrients and calories than the more educated elderly. Elderly women had significantly lower intakes of protein, calcium and iron than elderly men. The caloric and nutrient intakes of elderly people living in suburban areas had significantly higher intakes than both the rural and urban areas. It was suggested that since suburban areas have higher proportions of better educated and higher income elderly, that education and income are the most significant predictors of dietary adequacy. They concluded that the focus should be on locating the poorest and least educated elderly.



Grotkowski and Sims (1978), found that the mean intakes of kilocalories and calcium were below the allowances for women. The nutrients which were low for the largest number of subjects (men and women) were calcium and vitamin A. Individual caloric intakes were below the allowances for over 40% of the respondents. Krondl et al. (1980), stated that mean caloric intakes were above the RNI but that 42% of the women did not achieve this level. Vitamin A showed great variation especially among women. One third of the women had less than the recommended intakes of thiamine, but vitamin C was well in excess of the RNI. Elderly women showed higher nutrient/energy ratios than men for all nutrients except fat. The researchers concluded that the overall nutrient intake indicated the apparent ability of women in particular to satisfy their nutrient requirements in spite of low energy intakes. The study by Kennedy and Leach (1981), found that women living alone in senior citizen housing had significantly lower intakes of energy, thiamin, and vitamin C than women who lived alone in private homes or apartments or women who were married and living with their spouses. These differences could not be explained on the basis of income or age and it was suggested that psychological factors such as loneliness may be involved.

#### 2.4 HEALTH STATUS

Health status is a broad term and in this context will refer to both physical health and to functional ability. The extreme variability in the health status of elderly people shows that poor health is not necessarily associated with aging (Achley, 1980). The health of the age group 65 to 74 differs from that of the 75 and older group. Generally health

declines do not become precipitous until after age 75 and biological declines do not become marked until after age 75 (Achley, 1980). Chappell et al. (1986), however, suggest that for women a trichotomy of less than 75 years, 75-84 years and 85 years and older would reveal important differences.

As a group the elderly are more often afflicted with chronic conditions than people of younger age groups. Although elderly persons tend to suffer more from chronic than from acute illnesses, these illnesses are not necessarily the cause of mortality nor do they necessarily translate into functional disability (Chappell et al., 1986). While most elderly people have some functional disability, only a minority seem to have functioning problems with activities of daily living such as eating, personal mobility and toileting. Women tend to have more days per year of restricted activity, more days of disability, more doctor's visits, higher health care expenditures and higher rates of institutionalization than men. Women seem to report more symptoms and disability than men (Chappell et al., 1986). Among the chronic conditions arthritis, rheumatism and heart conditions produce the most disability among older people (Achley, 1980).

Widowhood significantly increases the probability of illness and death as do divorce and separation. Retirement has little influence on either mental or physical health (Achley, 1980). Health problems have not been shown to affect the nutrient content of the diet of elderly persons (LeBovit, 1965; Kim et al., 1984) yet other studies report that foods are avoided for various health reasons (Krondl et al., 1982; Krondl and Coleman, 1987; Roe, 1984).

There is little correlation between objectively evaluated health and elderly adults' self-rating of their health (Wolinsky et al., 1984). The inconsistency between subjective and objective health assessment may be due to acceptance of infirmities due to age and to the ameliorating effects of treatment (Krondl and Coleman, 1987, Krondl et al., 1982). The declines in health with increasing age are not evident in attitudinal and subjective measures of health as one might expect (Chappell et al., 1986).

Wolinsky and co-workers (1984), examined the interrelationships among seven measures of health status and the underlying dimensions they represent. The seven health status measures were: perceived health, mental orientation, Activities of Daily Living (ADL), Instrumental Activities of Daily Living (IADL), perceived sensory functions, nutritional risk and mental health. The items were scaled so that high values indicated good health and low values poor health. The ADL scale consisted of five items related to dressing, feeding, bathing, toileting and grooming. The IADL consisted of items such as telephoning, grocery shopping and meal preparation. Perceived sensory functions were measured by a scale that measured food intake, prescribed dietary restrictions, discomfort associated with food intake and dietary changes.

These health status measures loaded on two factors, one called the global dimension and the other called the functional dimension. The global dimension was so called because the items that load on it were self perceptions. The functional dimension assessed whether the individual was capable of performing routine activities. The global dimension represented individuals' perceptions of their well being and it is

noted that these perceptions may be inconsistent with more objective evaluations. Because the correlation between subjective health and objective health was so small, the researchers concluded that sampling validity necessitates measuring both the global and functional dimensions of health status. Since the perceived health status and ADL measures have the highest loadings, these should be used. The perceived health status however, may be a better indicator of health among the elderly than the clinical indicators (Linn and Linn, 1984).

The health status of the elderly based on their perceptions of health and on more objective measures indicate that the elderly are for the most part, healthy, mobile and mentally alert. Mental impairment due to physical disease, such as Alzheimers disease or to psychiatric conditions affect a small percentage of the elderly (Chappell et al., 1986). For many people , aging is not accompanied by serious illness or disability, even though about 86% of the older population has one or more chronic conditions (Achley,1980). Institutionalization of the elderly is not necessarily related to impairment since about half the institutionalized elderly are ambulatory and continent. Breakdown in the family support systems appears to be the primary cause for institutionalization. Those elderly who are institutionalized tend to not have a spouse and to live alone (Achley, 1980).

## 2.5 DRUGS AND THE ELDERLY

Drug use, drug and nutrient interactions and drug complications as they affect the elderly comprise an area that cannot be discussed in great detail for the purpose of this review of the literature. The following section however, will highlight some of the pertinent issues involved.

While drug side effects and drug-nutrient interactions can occur in people at any age, they pose a major problem for the elderly who are major users of prescription and over the counter (OTC) drugs. Eveason, director of research at the Pharmaceutical Manufacture's Association of Canada states that Canadians aged 65 and over take three times the number of prescription drugs used by those under 65 (Anon, 1986). The elderly may be at increased risk of complications from drug therapy because they often have multiple medical problems requiring multiple drugs and because of physiological changes which affect the drug's action in the body. Despite their high consumption rate, the elderly appear to be less well informed than their younger counterparts about when and how to take drugs, and about the possible adverse side effects. The elderly are more likely to mix prescription drugs with OTC drugs or alcohol and tend to share prescription drugs with elderly friends. One study of 244 people over 60 years of age reported that the most commonly used drugs were analgesics, cardiovascular drugs, vitamins, antacids and antianxiety agents. OTC drugs accounted for 40% of total medications used (Roe, 1984). A common kind of drug abuse by the elderly may be underdose, for example, taking less than the prescribed amount or prematurely terminating the prescription (Roe, 1984).

Food-drug interactions refer to either a drug induced impairment of the absorption and/or utilization of nutrients, or to an alteration of the effect of the drug by foods (Hartshorn, 1977). Foods can slow or impair absorption of drugs from the intestine or alternatively adsorption of drugs may occur onto dietary fiber components. Drugs may also form a complex with certain food components. Nutrients in food as well as non-nutrient components of food can affect the rate and pathway of drug metabolism.

While foods ingested may affect drug absorption, utilization and metabolism, drugs can also affect nutritional status (Roe, 1984). Nutritional effects are secondary to changes in food intake, to malabsorption, mineral loss or to antinutrient properties of the drug. Drugs can lead to mineral depletion by causing renal hyperexcretion or loss via the gastrointestinal tract. Oral diuretics can cause hypercalciuria and transient potassium depletion (Anon, 1986; Roe, 1984).

Drug nutrient incompatibilities can also occur with specific foods or alcoholic beverages. The most commonly known reactions are tyramine reactions in patients receiving monoamine oxidase inhibitors, alcohol and disulfiram (Antabuse) reactions, hypoglycemic agents and alcohol reactions and flush reactions with a variety of drugs and alcohol.

In the elderly it is noted that the most clinically significant drug-induced nutritional deficiencies occur in individuals who have both marginal diets and chronic diseases that result in nutrient depletion (Roe, 1984). Responses to certain drugs change with aging and this is particularly true for drugs that cause mineral depletion. However mineral depletion in the elderly is multifactorial.

Among the over-the-counter drugs that may promote deficiencies are antacids, aspirins and laxatives. Antacid abuse is not uncommon because of the frequency of gastrointestinal tract symptoms, gastric side effects of other drugs, or postprandial dyspnea in association with congestive heart failure. The adverse nutritional side effects of antacids include phosphate depletion which can contribute to osteomalacia, the risk of sodium overload from high ingestion of sodium bicarbonate and folate depletion due to concurrent intake of antacid with folic acid (Roe, 1984).

A concurrent intake of a thiazide diuretic and a laxative can have an additive effect in causing excessive potassium loss and chronic intake of laxatives can have adverse nutritional effects. Malabsorption syndromes, hypokalemia and steatorrhea can occur as a result of laxative abuse. If the laxative contains mercury, phosphorus depletion from bones may result (Anon, 1986). Mineral oil can cause malabsorption of the fat-soluble vitamins A, D and K.

Aspirin, the primary drug used for treating arthritis can cause iron deficiency anemia by inducing blood loss from the gastrointestinal tract. Some studies indicate that aspirin may increase the rate of folic acid loss in the urine and chronic aspirin users may need additional vitamin C (Roe, 1984).

Alcohol consumption, aside from its well known detrimental effects can interact with drugs producing exaggerated responses. Even if not combined with drugs, alcohol in excess impairs mental alertness, judgement, physical co-ordination and reaction time and increases the risk of falls and accidents.

Certain community based programs to educate the elderly on correct drug use, show a recognition that a widespread drug misuse problem exists among Canadian elderly. A 'medication passport' was developed and promoted for use by the elderly at the Sandy Hill Health Center in Ottawa, 1982, and the Senior Citizen's Provincial Council in Saskatchewan produced a booklet on medication use by the elderly in 1984. A report by the U.S. Food and Drug Administration, 1982 stated that health professionals must be involved in the education process and that patients as well as health professionals need information about prescription drugs (Anon, 1986).

#### 2.5.1 SUMMARY

A look at the nutritional practices of the elderly suggests that generally they have an eating pattern of three meals a day. For elderly women living alone, however, eating patterns may be quite altered. The elderly are known to be television viewers and this practice has been correlated with snacking. Changes in eating patterns have been correlated with declining health and or mobility. Activity levels were found to have a bearing on the variety of foods eaten.

As a group, the elderly and elderly women are likely to purchase health foods and supplements but often the choice is unrelated to need. The prevalence of certain health practices may stem from certain beliefs and attitudes which may or may not be related to educational level. Nutritional knowledge and not necessarily level of education may be the key variable. The assumption that the elderly are exploited by health food promoters is debatable. The use of so called health foods may also



be interpreted as expressing positive nutritional attitudes. In the final analysis, the high economic status among the elderly provides a choice in nutritional practices regarding health foods and supplements.

The conclusions that can be drawn from the literature are that generally nutrient intake decreases with age, that heterogeneity in intake is evident and that although socio-economic factors can be good predictors of nutritional adequacy, these are not the only factors involved. It is suggested that psychological factors also contribute to poor intake as a result of loss of appetite or interest in food. Generally the elderly appear to have adequate diets but women living alone may be at risk for nutritional deficiency of some nutrients, particularly calcium, vitamin A and iron. An assessment of the nutritional status of an elderly population made on the basis of dietary intake has its limitations. One of these limitations is that it is not certain what the nutritional requirements of the elderly actually are. The great variability in the elderly population in terms of health alone make dietary recommendations very difficult.

Health status refers to physical, mental and functional health. Elderly people show extreme variability in health status, but as a group they are more often afflicted with chronic conditions than people of other age groups but these conditions do not necessarily translate into functional disability. Health declines become more precipitous after age 75 but for women a trichotomy of age groupings may reveal greater differences in health. Women are greater users of the health care system and are likely to report symptoms more often than men.

There is little correlation between the elderly's perceptions of their own health and objective clinical measures of health. The acceptance of infirmities with age and the ameliorating effects of treatment may account for the discrepancy. It is suggested that a measure of health should include both the functional and perceptual dimension. Only a small percentage of the elderly are afflicted by psychiatric or organic disease that cause mental impairment. Institutionalization of the elderly may be related to a breakdown in support systems and occurs more among the elderly who live alone than among those who do not.

Chapter III  
IN SEARCH OF IDEAS

The purpose of this study is to develop a valid and reliable instrument to measure the nutrition-related attitudes and health practices of elderly women living alone. The instrument would be used in a larger study of the factors that impinge on the nutritional status of this target group. Since the ultimate purpose of the instrument would be a future study, the instrument must reflect those factors that could affect nutritional status. Very much part of developing a valid instrument is trying to determine what is being measured. In this case the instrument has to measure nutritional attitudes and health practices. The researcher then had to begin by searching for ideas. This search led to an investigation of attitudes and the study of nutrition-related attitudes and health practices. The intended goal was to synthesize the findings and then to construct the instrument. The final step involved assessing the instrument for validity and reliability. This chapter, then, is devoted to both the search for ideas and the synthesis of ideas that would ultimately be used in a questionnaire.

### 3.1 PERSPECTIVES IN THE STUDY OF ATTITUDES

The development of instruments to measure nutrition-related attitudes and health practices necessitates an investigation into the concepts of attitude as described in the literature as well as an investigation of attitude research as pertains to the elderly and to nutrition. A place to begin is the investigation of the approaches used in the study of attitudes in the field of nutrition.

Attitudes are considered to be an important link between nutritional knowledge and application, but the problem of defining and measuring attitudes has complicated the understanding of the influence of attitudes on food habits. A lack of a clear definition that can be made operational and the scarcity of valid, reliable attitude measurements have been identified as two main concerns in the application of attitude research to improvement in food consumption (Foley et al., 1979).

The study of attitudes cannot be divorced from its implications to behaviour, since the study of attitudes may be useful to nutritionists in ascertaining food preferences and food behaviour in various cultural settings, in predicting success of nutrition education efforts and in avoiding making 'poor attitudes' a scapegoat for unsuccessful nutrition education programs (Foley et al., 1979). The study of attitudes is always undertaken with the implied relevance it has to behaviour change; it is in other words an indirect study of behaviour, both in the understanding of it and achieving modification of it.

The multidimensional character of the word attitude has been reviewed by Foley et al. (1979). The study of attitude has ranged from measuring

various indicators of attitude such as food preferences, overt food behaviour, willingness or ability to change, agreement among family members, and as complexity of meanings. These categories do not preclude other definitional ones that may be constructed.

Food is both a cultural and a social object. As a cultural object, knowledge, beliefs and customs are shared and transmitted by members of society. As a social object behaviour surrounding food is often shared by others (Steelman, 1976). A particular culture (i.e. American culture) will include subcultures. The term subculture has been defined as '----- a pattern that is in significant respects distinctive but that has important continuities with a host or dominant culture'. Since attitudes and values vary by subculture, it can be concluded that these will be related to food habits which also vary by subcultures (Steelman, 1976). Values are related to attitudes and are sometimes confused with attitudes and beliefs. Values, however are broader and more abstract goals that an individual may have, and they lack a specific object or reference point (Deaux and Wrightsman, 1984). Bravery, beauty and freedom are values, and as such they serve as abstract standards for decision making through which an individual may develop specific attitudes and beliefs (Rokeach, 1973).

In a study by Steelman (1976), attitudes toward food were examined as indicators of subcultural value systems. Attitude statements developed by the researcher were categorized into six indices, labelled: Propensity to Change, Convenience, Frugality, Health, Social Status, and Sociability Aspects. The objective was to relate these attitudes to American value systems labelled: Progress, Expressive,

Efficiency-Practicality, Activity-Work, Science, Achievement-Success and External Conformity.

The attitude index, Propensity to Change, implies acceptance of change and the belief that change is good. The attitude index Convenience implies a tendency toward immediate interests, adaptability and satisfaction. A person's attitude toward convenience in food preparation is an indicator of what kinds of changes she is willing to make. The attitude called Frugality was related to the value of Efficiency and Practicality. The attitude index of Health was related to the values Activity-Work, whereby an individual when healthy is capable of maximum output. It was also related to the value of Science whereby maximum Health benefits can be attained by scientific application. The attitude index of Social Status is related to the values of Achievement-Success and External Conformity. The attitude index, Sociability Aspect, recognizes that social interaction often takes place in the presence of food and the value placed upon social relationships centering around food gives an indication of the amount of emphasis placed on food preparation and services.

An instrument of 97 belief statements was developed by Axelson and Penfield (1983a), to assess attitudes that related food and nutrition to food use, convenience, health, social status, aesthetic-sensory perceptions and quality. The statements were adapted from Steelman's ten statements which pertain to single-person households, with additional statements suggested by a committee of food science graduates. The Likert-type scale was used. Four salient attitude factors emerged from the study and these were labelled social-adventuresome, frugal-utilitarian, qualitative-pleasurable and nutritious-healthy.

The attitude factor, social-adventuresome emphasizes food as a vehicle of social interaction and is a combination of Steelman's attitude factors of sociability, concern for social status and propensity for change. A qualitative-pleasurable attitude emphasizes food as a source of enjoyment, both in preparation and in consumption, where eating is conceived as a pleasurable daily experience. The frugal-utilitarian attitude emphasizes food as a necessity to sustain life. A fourth attitude factor, nutritious-healthy, emphasizes food as a source of nutrients which are important in maintaining health. Similar attitudes have been labelled by other researchers as 'concern for health', 'nutrition', 'nutrition and health apprehension' and 'nutrition/health' (Axelson and Penfield, 1983a).

A commonly used indicator of attitudes toward food is food preferences. Studies to determine preferences utilize like-dislike rating scales, such as a nine-point hedonic scale, or a 'willingness to eat' index (for children), the food anchorage test, or a true-false response (Foley et al., 1979). The latter has potential use in personality research, since the number of food dislikes can be associated with negative personality characteristics manifested as feeding problems, neurotic behaviour and other symptoms.

Another approach to studying attitudes is studying overt behaviour, assuming that feeling toward food can be acknowledged only when expressed in observable behaviour. The behavioral emphasis in the study of attitudes recognizes a behaviour-attitude discrepancy and the problems inherent in measuring feelings as opposed to behaviour. For example, a person attempting to lose weight but who follows a weight-

inducing eating pattern, expresses attitudes that are not valid indicators of behaviour. Within a framework that assumes that actual food habits indicate attitudes, researchers have used food records, food recalls and food frequency lists to study food behaviour (Foley, et al., 1979).

The emphasis on food behaviour may be somewhat theoretical since few studies have examined the relationship between overt food behaviour and attitudes.

Another approach toward attitude measurement is based on a definition of attitude as either flexibility or rigidity to change (Foley et al., 1979). Rehfisch developed the Rehfisch personality rigidity test in which behaviour was viewed as a continuum ranging from rigidity to flexibility (Foley et al., 1979). Jalso et al. (1965), used the test designed by Rehfisch to investigate the relationship between food faddist beliefs, food practices and personality rigidity.

Yet another approach to the study of attitudes toward food is the multidimensional connotative meaning of food. The need for determining the social and psychological meanings of foods for different groups of people has been of interest to nutritionists and behavioral scientists (Fewster et al., 1973). The connotative meaning of a word or concept refers to all the ideas, feelings and attitudes that are associated with the word or concept, in contrast to the denotative meaning which is the explicit dictionary meaning.

Fewster et al. (1973), designed a valid and reliable instrument to measure the connotative meaning of food in which the perceptions of



economics, food values, convenience, communication behaviour, health needs, health apprehensions, aesthetic-sensory symbolism and age-group differences were studied. The semantic differential scales of Osgood et al. (1957), were used. Each scale consisted of a pair of polar adjectives, separated by seven blank spaces. The data collected from the semantic differential scale provided information on both the direction (positive, negative, neutral) and intensity of the meanings associated with food. The populations in the study were selected on the basis of a single criterion of income. The results of the study indicated that populations differed in the meaning of different food concepts. The connotations held by low-income homemakers differed from those in the higher income level.

The above approach was also used by Krondl et al. (1982), who studied the interrelationships between food use and the influences of perceived food meanings in a group of 194 people aged 65-77 years and living alone. Instead of using the semantic differential scale, questions about health belief, taste, price, convenience, and prestige were asked.

The literature makes apparent the fact that the concept of attitude may be viewed from numerous perspectives. When one is merely reporting the attitudes held by any group of people, it is not apparent just how these attitudes are defined or how they are measured, hence the need to specify how they are defined and measured.

### 3.2 NUTRITION RELATED ATTITUDES HELD BY THE ELDERLY AND ELDERLY WOMEN

The following discussion of attitudes is based on the measurement of attitudes from attitude indices and perceived food meanings. Very little is written on the topic of elderly women per se, but the findings can apply to elderly women, and also to some extent to elderly women living alone, since the studies included a large proportion of elderly or/and elderly single women.

The study of Axelson and Penfield (1983a), to identify food and nutrition related attitudes of elderly persons living alone, identified the attitude indices of social-adventuresome, frugal-utilitarian, qualitative-pleasurable, and nutritious-healthful. These attitude indices were derived from 97 belief statements. The 66 respondents were predominantly female (90.9%) and widowed (77.3%). The attitude scores of 75% of the respondents indicated agreement with the social adventuresome attitude but only 14% of the respondents indicated agreement with the frugal-utilitarian attitude. The index frugal-utilitarian does not appear to characterize the attitude of many elderly people. The majority (83%) agreed with the nutritious-healthful index. Fifty percent agreed with the qualitative-pleasurable attitude while the other half disagreed. There was a significant association with the attitude factors of social-adventuresome and qualitative-pleasurable but no other associations among the other attitude factors emerged.

While the age of the respondent was not associated with education or income or any of the four attitude factors, the association between education and income was significant and both were significantly associated with one or more attitude factors. The more highly educated the

respondent, the more strongly the respondent held the social-adventuresome attitude and the less strongly held the frugal-utilitarian attitude. Respondents with higher incomes held the nutritious-healthful attitude more strongly.

None of these attitude indices correlated with age, and since these attitude factors have been observed among other population groups, it was felt that segmenting a population by chronological age rather than by needs is not the best approach to the development of a nutrition education program. The idea that elderly persons have food and food and nutrition related attitudes that are different from those of younger people is not supported by the study of Axelson and Penfield (1983).

In the study by Krondl et al. (1982) on food use and perceived food meanings of the elderly, fourteen marker foods were assessed in terms of food meanings. These marker foods represented sources of nutrients reported to be at risk for older persons, sources of fibre or commonly used but nutrient poor foods. It was found that the association between health belief and use of individual foods was stronger than that of the perceptions of convenience, price and prestige. Prices affected practices in a haphazard manner and may have affected only the purchase of particular foods. There may be a weak association between the perception of convenience and food use. The perception of price and taste may have to be considered simultaneously with the convenience aspect. Taste perception however, was the strongest motive in determining food use by older persons. The obvious conclusion is that nutritious foods must have acceptable flavor before they will be consumed. The researchers concluded that perceived food meanings, particularly health beliefs and taste are important tools for persuasive promotion methods.

### 3.3 NUTRITIONAL KNOWLEDGE AND BELIEFS OF ELDERLY PEOPLE

The literature indicates that the nutritional knowledge of elderly people is generally low and that there may be a discrepancy between beliefs about food and food practices.

Contrary to the findings of Jalso et al.(1965), that nutritional beliefs are highly related to nutritional practices, Roundtree and Tinklin (1975), found that food beliefs may not be related directly to food practices.

A survey was conducted by Roundtree and Tinklin (1975) to examine the food beliefs and practices of 104 senior citizens, and to determine whether living in a specially built modern high rise apartment complex for seniors might affect the food beliefs and practices of selected senior citizens as compared to non-residents. Although significant differences were found in beliefs of the two groups, the general findings were that nutritional knowledge of these senior citizens was low, and that food beliefs were not directly related to food practices. Although 40% believed that frozen orange juice has less nutritive value than fresh orange juice, 72% used the frozen form, and although 60% believed that whole-grain cereals are always more nutritious than enriched white flour products, only 9% used pre-baked whole grain bread or rolls daily. Canned vegetables were believed to have less nutritious value than cooked fresh vegetables by 58% of the respondents but 77% used canned vegetables.

A ten-question nutrition knowledge test adapted from previous research, given to 169 elderly subjects in the Title 111-C Meal Program

resulted in low scores--the mean number of correct responses was 5.8 (SD  $\pm 0.14$ ), (Caliendo and Smith, 1981). There was a noted misconception that healthy adults need dietary supplementation. Another belief held was that starches in the form of bread and potatoes should be eliminated from the diet if one is attempting to lose weight. The overall questionnaire contained a section on food likes and dislikes. The most frequently named 'good for you' food was also the food most frequently disliked i.e., vegetables. Most foods termed 'bad foods' were dessert type foods and snack foods.

A questionnaire was designed by Thurston and Kerr (1983), to assess the nutritional knowledge of elderly persons, particularly those able to plan and prepare their own meals. The purposive sample of 101 non-institutionalized seniors were from three large urban centres and two towns in Alberta including a few living in rural farm areas. A mean score of 55% indicated a relatively low level of nutritional knowledge. Females and seniors who had a grade 12 or higher level of education had a higher level of nutritional knowledge. Fewer persons over 80 years of age were represented in the top group of scores on the questionnaire. Items on the questionnaire which produced statistics below the norm were assumed to represent areas of nutritional content where knowledge was required. Content areas where nutritional educators should focus were identified as food fads, misconceptions, 'health' foods, common concerns, problems and diet therapy.

The mean score on the nutritional knowledge instrument used by Grotkowski and Sims (1978), indicated a fairly low level of nutritional knowledge, with the distribution of scores being clearly on the low end

of the scale ( 84% replying correctly to fewer than 55% of the questions). Nutritional knowledge of 64 persons (77% women), was assessed by an instrument containing twenty-five true-false and multiple choice items adapted from the research of Eppright et al., (1970); Wang, (1971); Harrison et al., (1969); and Dwyer et al., (1970). The major source of nutritional information was obtained from television, physicians, magazines and cookbooks. Television as a source of nutritional knowledge, despite its popularity, showed no association between nutritional knowledge and attitudes. Cookbooks and magazine articles, however, were positively related to nutritional knowledge and were information sources.

The need for additional accurate nutrition knowledge and for motivation and assistance in applying such knowledge has been identified. A major responsibility of the health care professional is to ensure that seniors have access to reliable and appropriate health, food and nutrition information. (Roundtree and Tinklin, 1975; Krondl et al., 1982; Caliendo and Smith, 1981; Lee et al., 1987).

#### 3.4 KNOWLEDGE, ATTITUDES AND BELIEFS

It is generally agreed that the concept of attitude can be conceptualized as the amount of affect for or against some object (Fishbein and Ajzen, 1975) and it has been suggested that attitude should be measured by a procedure which locates the subject on a bipolar affective or evaluative dimension vis-a-vis a given object. There is widespread agreement that affect is the most essential part of attitude (Fishbein and Ajzen, 1975, Sims, 1981). Affect refers to a person's feelings

toward and evaluation of some object, person, issue or event and thus refers to a person's favorable or unfavorable evaluation (Fishbein and Ajzen, 1975).

Beliefs on the other hand, refer to the information the person has about an object and beliefs link an object to some attribute. People may differ in their belief strength with respect to any object-attribute association.

According to Fishbein and Ajzen (1975) the concepts of attraction, value, sentiments, valence and utility can be included in the category of attitude since they imply bipolar evaluation. Concepts of opinion, knowledge, information and stereotype may be considered as beliefs held by an individual.

The totality of a person's beliefs serves as a base that determines the person's attitudes, intentions and behaviour according to the view of man as a rational being. Therefore a person's attitude toward an object is based on his or her beliefs about the object. According to this conceptual framework, a person's attitude toward some object is related to the set of his or her beliefs about the object, but not necessarily to any specific belief. Similarly, attitude toward an object is viewed as related to the person's intentions to perform a variety of behaviours with respect to that object ---it is a relation between attitude and a set of intentions, rather than to any specific intention with respect to an object.

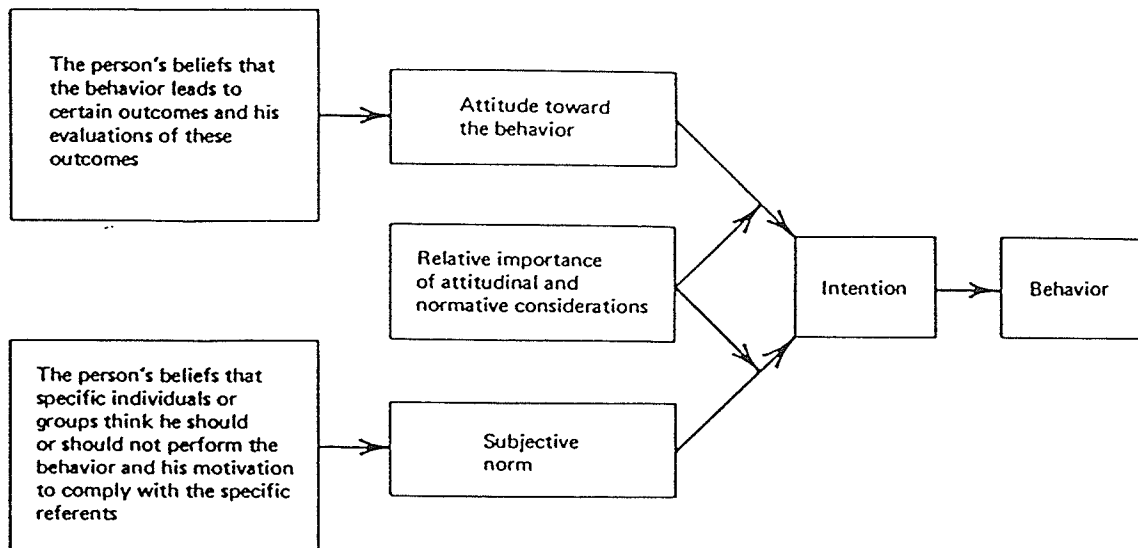
The theory of Fishbein and Ajzen (1975) who reviewed the attitude and behaviour literature, and whose research spans a period of twenty

years, suggests that attitude and behavioral entities consist of four elements: action, target at which the action is directed, the context in which the action is performed, and the time in which it is performed. When attitudinal and behavioral entities are identical in their elements there is correspondence between the two. Most attitudes are measured with reference to target and sometimes to target and action combined, but not to action, target, context and time. This may explain the low attitude-behaviour correlations (Wallack, 1981).

Ajzen and Fishbein (1980) write 'The findings concerning the relation between attitude and behaviour only appear to be inconsistent. A person's attitude has a consistently strong relation with his or her behaviour when it is directed at the same target and when it involves the same action' Fishbein and Ajzen contend that attitudes and behaviour are associated indirectly. The indirect link connecting attitudes and behaviour are behaviour intentions. The beliefs that one has and one's evaluation of the outcomes of actions, as well as social pressures to conform combine to create an attitude which underlies behaviour intentions. These intentions, when measured correctly, can and do predict behaviour. It is not warranted to go into any greater detail. However, the schematic diagram (Figure 1) illustrates the conceptual framework and also makes apparent why attitudes alone are not always good predictors of behaviour, yet are not inconsistent with behaviour.

The literature concerning nutrition related attitudes and behaviour must be scrutinized for the conceptualization of attitude. For example, Axelson and Penfield (1983), in a study to identify food and nutrition related attitudes of elderly persons living alone, utilized the concept





Note: Arrows indicate the direction of influence.

Figure 1: Attitude and Behaviour Model from Ajzen and Fishbein, 1980

that 'attitudes are a relatively enduring organization of beliefs around an object or situation predisposing one to respond in some preferential manner'. This concept of attitude does not differentiate between beliefs and attitude but rather uses the concept of belief to define attitudes, in contrast to that of Fishbein and Ajzen who make a clear distinction between the two.

Jalso et al. (1965), hypothesized that nutritional beliefs are highly related to nutritional practices but it is not clear from the study what distinction if any, is made between beliefs and attitudes.

Grotkowski and Sims (1978) found that nutritional knowledge was highly correlated with the 'nutrition is important' attitude and negatively related to 'misconceptions about weight-reducing diets' and the belief that food and supplements can be used as medicine. Obviously a distinction has been made between beliefs and knowledge by the researchers. In the scheme of Fishbein and Ajzen (1975), knowledge is included in the concept of belief.

A possible distinction can be made between knowledge and belief if the measurement of knowledge measures the extent to which the subject adheres to currently accepted substantiated information, and beliefs reflect both opinions (what a person thinks is true) and knowledge (what is currently accepted and/or substantiated as true). What we consider knowledge reflects our beliefs, but this knowledge is constantly being updated, and present knowledge may later be considered wrong or inaccurate. Such modifications will then classify what was once knowledge, as misconceptions but the acceptance of misconceptions as being true,

remain beliefs. In this sense nutritional knowledge can be measured by questionnaires which test how well the subjects' answers match up with current information. A person's beliefs can be measured by finding out what his or her opinions are about some object, issue etc. This distinction places knowledge under belief but conceptualizes it as a specific aspect of belief. In this sense knowledge falls under the category of belief and is in accordance to the model of Fishbein and Ajzen (1975).

### 3.5 FOOD- THE SOCIAL COMPONENT

Social isolation has often been cited as a factor contributing to poor diets, lack of interest in food and poor appetite. Davidson et al. (1962), reported that the diets of the 'isolated' aged were much poorer than the diets of socially gregarious persons. In the study of Clancey (1975), those persons who had higher social participation scores, reported significantly higher intakes of several nutrients and the pattern of eating regularly in the evening after dinner was significantly more prominent among people who did not live alone. The study of Grotkowski and Sims (1978) indicated that the quality of diet improved when the meal was shared by others, rather than when eaten alone. The more kilocalories consumed with others, the higher were iron, niacin, ascorbic acid, thiamin and protein intakes. The study by Garry et al. (1982), did not find any dietary differences between those individuals who ate alone most of the time versus those who ate with someone most of the time. The study was unusual in the sense that this was a five-year study involving the voluntary participation of 270 healthy individuals

who were not on prescription medication and whose mean educational and income levels exceeded the averages for elderly Americans.

The finding of no dietary differences between the diets of people living alone versus those that did not live alone seems to be at variance with a number of other studies which show the opposite results of poorer diets for those eating alone. However living alone and social isolation are two different things and it could very well be that isolation, not single living is a crucial factor affecting dietary intake.

The socially isolated older man or woman is particularly vulnerable to illness, accidents, malnutrition and loneliness (Achley, 1981). Achley writes that isolation can be used as a defense mechanism in an attempt to preserve independence. Achley also reports that a study of people who refused a personal interview concluded that a sizeable number of older women tried to restrict their interaction with others in order to avoid a negative reaction to the unrealistic self they presented. Coleman and Krondl (1981) refer to the difficulty in obtaining the participation of elderly women in health surveys.

While isolation is seen to impinge upon the older person's ability to maintain health and well-being, it must also be recognized that there are lifestyles followed by the 'never-married' older people who have tended to be lifelong isolates and who view their isolation as normal. These people are not especially lonely in old age. Such older people living alone have developed the autonomy and self-reliance necessary for survival and they are spared the grief of seeing spouses, friends or relatives die (Achley, 1981).

By age 70 the majority of women are widows and the situation of being a widow may have different meaning and require different adaptations which vary with socio-economic status. One of the more common patterns that has emerged is the companionship of widows (Achley, 1981), and this phenomenon leads one to expect that elderly women living alone may not be a socially isolated group for the most part.

A number of researchers emphasize that it is important to the well-being of the elderly to maintain a pattern of socialization (Axelson and Penfield, 1983a; Krondl et al., 1982; Grotkowski and Sims, 1978; Israel, 1985; Minkler, 1981). To this end, information 'related to interesting and appetizing foods could serve to encourage social nutrition.' Although half of the respondents in the study by Grotkowski and Sims (1978) lived alone, many reported eating out in restaurants or at a friend's home and having friends over for a meal. When guests are present the elderly are likely to serve those foods they eat themselves; prestige value is not considered (LeBovitz, 1964). This may indicate that the social aspect of food has far more value than the prestige value.

Nutrition related attitudes held by elderly women emphasize the social, pleasurable and healthful aspects of food. While the economic situation of most elderly women may necessitate economy in food patterns, their attitude towards food does not appear to be dominated by frugality. The diversity of an elderly population is expressed in variances as to the degree in which certain attitudes are held. It was on this basis that Axelson and Penfield (1983) proposed that educators could develop a number of messages reflecting different food and nutrition related attitudes.

### 3.6 SOCIAL NETWORK

Socialization among the elderly has nutritional and health implications. Socialization will be examined from the perspective of social network analysis. Social support and social network are interrelated, but the social network analysis is a broader approach that encompasses social support. Network analysis allows relationships to be delineated and analysed for the presence of social support as well as other factors.

The focus on network will emphasize those properties which provide social support and which have a positive influence on health. While social network is a term that can be defined, social support is a concept that is difficult to operationalize.

In the understanding of health behaviour and health status a broader social network approach can be advantageous. By analysing social networks social interactions can be delineated (Israel, 1985). Since not all relationships are supportive, network analysis can help determine those characteristics or conditions when interactions are supportive and it allows for the examination of other network characteristics as well. Health interventions often utilize the network approach at the community, group or individual level, i.e. community development, family therapy, self-help groups.

Social network has been defined by Mitchell (1977 in Gottlieb, 1985), as 'a specific set of linkages among a defined set of persons, with the additional property that the characteristics of these linkages as a whole be used to interpret the social behaviour of the person involved.

Social networks can be categorized along three dimensions, that is according to structural characteristics, functional characteristics and interactional characteristics. Structural characteristics refer to the links in the overall network, that is size and density. Functional characteristics refer to the functions provided by the network which includes affective, instrumental and cognitive support, maintenance of social identity and social outreach (access to social contacts and roles). Size and density are also included in the study of networks from the functional aspect. Interactional characteristics refer to the intensity of relationships, the meanings persons in the network give the relationships and reciprocity, among others.

The social network characteristics that have relevance to elderly people in general are size, strength of ties (intensity), reciprocity (Minkler, 1981), and affective support (Israel, 1985). Intensity, reciprocity and affective support are significantly related to well-being (Israel, 1985). Intensity refers to emotional closeness between a person and network members, often operationalized by the presence of a confidante. Reciprocity refers to the extent that support functions are both given and received. Affective support refers to the provision of moral support, caring and love.

It is the quality (interactional characteristics of meaning, intensity and mutual sharing) and not the quantity (size, frequency of interactions) of social relationships that is most associated with physical and psychological well-being. However, other characteristics such as size (number of contacts), density (extent members know each other), instrumental support (tangible aid and services) and cognitive support

(information, knowledge and advice) are also related to well-being but the findings are inconsistent. However, Israel, (1985) points out that the significance of the 'quantity' characteristics are quite variable because they must be understood within the context of the needs and situation of a given individual and network. For example, at one time an individual recovering from an injury may require greater network size to obtain instrumental support such as contacting associates or providing transportation. Similarly, a recently divorced person may require a small dense network initially (for affective support) but later may require a larger more loosely knit network with weaker ties which can provide information and access to new social contacts. Therefore the relevant characteristics of a network must be assessed within the context of situation and needs.

The network characteristics that will be addressed with regards to the elderly are size, strength of ties (intensity) and reciprocity. These of course are only some of the properties of social networks, but they stand out because of their relevance to the elderly. Related to these properties is the concept of social participation which also will be discussed.

### 3.6.1 Network Size

The network size of the elderly has been shown to be smaller than those of their younger counterparts (Minkler, 1981). Loss of friends and family through death increases with advancing years. Regardless of the strength of ties, the number of social contacts a person has may have a bearing on that individual's ability to cope with stress



(Minkler, 1981). Size alone is one aspect of network that should be considered. Social and environmental factors such as transportation, crime, and low income also mitigate against sociability among older people (Minkler, 1981). Any approach involving network intervention would have to consider not only the size of the social network but the context in which it exists.

### 3.6.2 Strength of Ties

The strength of ties is another significant aspect to consider. Lowenthal and Haven (1968) found that the elderly who did not have many social contacts were in good health and did not suffer from low morale. However, the accessibility to at least one social intimate in the face of widowhood, bereavement or retirement was associated with positive health status and morale. In a study of social interaction and life satisfaction by Conner et al. (1979), it was concluded that it was the quality not quantity of social interaction that is crucial to life adaptations in the later years. The authors suggest that the quality of the interactional experience provides an understanding of adjustment to aging.

### 3.6.3 Reciprocity

Reciprocity is a third aspect of social network with special relevance to the elderly. This concept refers to the mutuality of exchanges between people, involving as well the opportunities of offering help of various kinds rather than just receiving help. Theoretically reciprocity has been linked to exchange theory which posits that social

interactions are motivated by a desire to maximize rewards (money, property, advice, information, love) and minimize costs. What is being exchanged in human interactions is the reciprocal flow of valued behaviour between the participants (Israel, 1985). The element of reciprocity may be conducive to having a sense of control and this may be conducive to health (Minkler, 1981). In fact the environmentally or socially induced loss of control may explain the psychological and physical problems of the aged (Minkler, 1981). Likewise Palmore and Luikart (1972) state that participation in social networks may offset decremental life changes by providing a sense of personal efficacy.

A study by Langer and Rodin (1976, in Gottlieb, 1985) was conducted among nursing home residents to determine whether patients who were given more responsibility and control would exhibit better physical and mental health than those in a more dependency-producing environment. Two groups of residents were selected and matched for socioeconomic level and for physical and psychological health status. Members of both groups were given a plant. The treatment group was told that the plant was theirs to take care of and how it fared depended on the care they gave it. They were also told that they were competent people who should be making more decisions for themselves. The control group members were given a plant but were told that the staff would take care of it, just as the staff would continue to care for them, since they were in a home to receive service and care. A noticeable difference was found between the two groups within several weeks. The 'responsibility enhanced' group showed significant improvement on a variety of measures of physical and mental well-being and also showed an increase in activity

level. More dramatic was the finding eighteen months later that the 'enhanced group' had a mortality rate only half that of the control group (15% vs 30%).

Studies examining social networks have tended to examine social contact and perceived support from others and have often overlooked the element of reciprocity (Minkler, 1981). Studies examining a sense of supportive exchange and health status are in their infancy but these studies and future studies will supplement the focus on social network (Minkler, 1981).

#### 3.6.4 Social Participation

Related to the topic of social network is social participation. A study was conducted by Graney (1975), to determine the relationship between happiness and social participation. A four-year longitudinal study of 60 healthy elderly women living alone was undertaken. To measure happiness, the Affect Balance Scale was used. Social participation was measured by asking nine questions. Three questions concerned media use, three concerned voluntary participation, and three questions concerned interpersonal interactions. The same questions were asked four years later. The findings indicated that happiness is positively related to social participation in old age. Increases in activities were often related to happiness and declines in activities related to unhappiness. Face to face interactions were present in the activities most highly associated with happiness. Of the activities related to happiness, changes in activity over time appeared to be more highly correlated to happiness in the oldest age category. The inference drawn

is that happiness among the most elderly is more sensitive to activity increments and decrements than happiness among others. A possible explanation is that as people age the most vigorous, demanding and costly activities are replaced by activities that are more easily maintained. Those activities that remain in extreme old age are difficult or impossible to replace and become more dearly held sources of satisfaction than they would be at a younger age.

### 3.7 REPORT OF FOCUS GROUPS

The last section in this chapter is a subjective report on the focus group interviews that were conducted with groups of elderly women. Focus groups are informal discussion groups designed to elicit responses that are spontaneous, with as little influence as possible from the researcher. Focus groups are in this sense, unstructured but the group leader serves the role of focusing discussion. The purpose of focus groups is to obtain ideas. They serve an exploratory purpose, in providing leads to areas for research. Reading the literature and actually talking to small groups of women are part of the search for ideas.

Three formal focus groups were conducted. Two informal groups were conducted by the student for practice. By formal is meant that the groups were arranged through the established administrative channels of the Age and Opportunity Centre of Winnipeg and the Lion's Manor. They were held at the Fred Douglas Lodge Day Care, the Selkirk Avenue Senior Center and at the Lion's Manor, all in the central area of Winnipeg.

The focus groups were intended to explore such topics as eating patterns, kinds of foods eaten, kinds of foods rejected, the social component of nutrition, how living alone affects eating, and health practices such as weight control behaviour, drug use and the use of vitamin/mineral supplements and special food supplements.

The overall impression received by the focus group leader was that there is indeed a diversity of attitudes and behaviour toward food and a range of opinions on the topics addressed. It was also interesting to find that each focus group itself was different. One group conducted at the Selkirk Avenue Senior Centre was a Ukrainian group, quite independent, mobile and active. The Day Care group from the Fred Douglas Lodge was of mixed ethnic background, but largely Ukrainian, and less independent and mobile. The group at the Lion's Manor was assessed as being the least mobile of the three and again was of mixed ethnic background. These impressions however, are only generalizations, since in each group there were exceptions. For example, the Fred Douglas Day Care group had a ninety year old who was mobile and active. The ages of the participants did not seem to be a good indicator of physical well-being since some women aged 65-75 seemed to have more health problems than a woman aged eighty-three or even ninety-four, the oldest in all the groups. A wide range of opinions was heard and therefore generalizations are difficult to make.

### 3.7.1 Eating Patterns

A discussion on eating patterns revealed a variety of patterns. In many cases three meals a day were eaten. Sometimes lunch was emphasized as the main meal, sometimes supper. Some women ate only two meals a day and a few ate very little because there was no appetite and no interest in food. Usually a full-course meal was emphasized as being necessary once a day. Breakfasts ranged from a well-balanced meal, an egg, toast and orange juice to just coffee and a cigarette. One woman had four to five small meals a day.

The kinds of foods eaten emphasized fruits and vegetables, soups, and meat. Fish seemed to emerge as a favorite but expensive item. Meat was emphasized but usually in small amounts. One lady felt she was mostly vegetarian but needed to eat meat in small portions. Steaming as a method of food preparation was mentioned several times as well as avoidance of fat foods. Generally tea and coffee were beverages of choice and milk not as important. However, with regards to milk, there was a range of responses. One woman drank milk because she had osteoporosis; others liked milk and most couldn't be bothered---they would rather drink something else. Buttermilk was frequently mentioned as being liked. Some drank whole milk, most drank 2% and a few drank skim milk. One woman diluted milk with water. Soft drinks were not considered important and convenience foods were used with discretion. Desserts on a whole were not emphasized.

When foods were rejected, the reasons were because of an aversion toward the food, or because the food disagreed with them. High blood

pressure was given as the reason for not eating fatty foods, as well as indigestion or 'just not feeling good'.

### 3.7.2 The Social Component

The social component of nutrition is evident from the discussions. One woman received a full dinner two days a week by attending Day Care, otherwise she would not eat much at home. The statement 'You eat more when you get out' or the statements 'Spend a lot of time with other people' and 'Eat good, sleep good and get out' indicate how important socializing is to elderly women, particularly those who live alone. A number of women talked about cooking for sons or for family, about having cooked all their lives, and enjoying this activity. Some women loved to cook and loved to eat but had to admit cooking for one brought changes to their eating habits. Living alone seemed to have an effect on the eating habits of a number of women. The following expressions are suggestive of how living alone affects eating. One woman said 'I don't feel like cooking'; another said 'I'm a talker yet there is no one to talk to' and yet another said 'You have to get eating over with'. On the other extreme is the feeling that 'I can eat better now, have more time to myself, do what I want, when I want'.

### 3.7.3 Specific Health Behaviours

Specific health behaviours such as mineral, vitamin and food supplement usage was discussed. A wide range of attitudes emerged--from the attitude that these products were all junk, to endorsing a variety of them for particular reasons for use, on a regular basis. Some were in

the middle range. One woman had used vitamins sporadically and then quit. Most of the women were indifferent in that they thought vitamins and minerals were okay, could do a person some good, but couldn't be bothered to take them. The supplements cited were cod liver oil in liquid form, garlic pills, vitamin C and a B vitamin, as well as multiple vitamins with iron. In a number of cases vitamin supplementation was on the doctor's advice. In several cases, the choice was the woman's own, based on her beliefs about the supplement. A ninety year old woman claimed that by taking cod liver oil regularly, she was feeling fine and now able to walk without a cane and without pain. Two women were on calcium supplementation under the doctor's advice for osteoporotic problems. Word of mouth played a role in using these products for some women. None of the women was taking 'special foods' or supplements but it became clear that a number of the women used food in a therapeutic way.

Nearly all the women interviewed were on prescription drugs, and usually more than one. One woman stated that she was taking 28 different drugs; another woman that she was taking five. The most common reason given was for high blood pressure and arthritis. An unexpected finding was that a number of women were taking aspirins (coated) as a preventative measure against strokes and heart attacks. Aspirins or similar products were also taken as a sleeping aid. The belief that aspirins were 'good for everthing' was expressed by one woman (aged 83) who took three aspirins every morning and every night.

The fact that aspirins were used to help in sleep highlighted the fact that several women had difficulty in falling asleep. Hot milk and



brandy were cited as facilitating sleep. It is suspected that brandy or alcohol may be used regularly by some women to help them sleep.

Concern about weight was a real concern for many of the women talked to. Usually it was a concern about how to lose weight rather than to gain it. The doctor was mentioned as a motivating factor in losing weight and more than once anxiety was expressed about what the doctor would say if the person did not lose. No one used any weight reduction method other than eating less and cutting out certain foods. These foods usually meant bread and potatoes. Eating less was seen as the key to weight loss; no one had apparently tried weight reduction drugs and no one was on a strict diet. In some way, the women seemed to say that they accepted their condition but didn't really like it. The fear of health consequences--'I'm on the borderline for high blood pressure--so I have to lose weight'---seemed to be the main motivating factor in weight control. On a number of occasions, eating bread and potatoes rather than bread or potatoes was given as a way to gain weight.

The topic of laxative use was discussed and it was found that some women never had problems, while others had problems with constipation. The use of roughage, drinking certain fruit juices and the use of laxatives on a regular basis was elicited. The use of bran and flaxseeds was followed by some to aid elimination. Others used purgatives either on a regular or on a sporadic basis.

It was interesting to find that the Ukrainian ladies had a number of remedies for a cold. One woman claimed that the doctor's drugs never did her any good, so she resorted to her own. Colds were the one

ailment that was home-treated and to a lesser extent arthritis. Home remedies ranged from hot milk with various ingredients, to stronger potions of lemon juice, black pepper and garlic.

#### 3.7.4 Attitudes

These focus group discussions allowed certain attitudes to surface. One thing that came out clearly is that food is evaluated more for quality (taste and freshness) than for price. At the same time price was mentioned and some foods were considered too expensive to buy. Yet when making a choice it was quality rather than price that the women looked for. To them quality meant it must taste good and be fresh. Canned foods were evaluated as being inferior to fresh foods. The healthful aspect or nutrition came out strongly--they tried to eat foods that were good for them, or which would make them better able to cope with chronic disease. Certain foods may be attributed certain special qualities as well--such as lettuce being good for alleviating hair loss from cancer treatment. A number of women attended nutrition classes and were more conscious of their diets as a result of this. Other women expressed the belief that whatever they ate was good for them because they liked it.

#### 3.7.5 Suggested Avenues for Research

These focus groups suggest that the instrument being developed should address the use of OTC drugs particularly aspirins, the use of purgatives, the effects of drugs on nutrient intake or appetite, problems with sleeping, constipation, and indigestion. The use of vitamin/

mineral supplements and special foods is valid for study. Based on the discussions, weight control is a concern for many women, and a number of women resort to their own remedies for treating ailments or chronic conditions. Evidence of using foods therapeutically was found. Living alone and the opportunity for social contact were recognized as being an influence in the eating habits of the women. The instruments will pursue these areas.

### 3.8 PURPOSE OF STUDY: OBJECTIVES AND HYPOTHESES

#### 3.8.1 Purpose

The purpose of the study was to develop 'reliable and valid' instruments that measure nutrition-related health practices and attitudes of elderly women living alone.

The instruments are to be used in a larger study of the factors that impinge upon the nutritional health of this target group.

The development of the instruments, which entails reliability and validity testing, can be used to generate hypotheses for the larger study.

#### 3.8.2 Objectives

- 1). To develop instruments that measure the nutrition related health practices and attitudes of elderly women living alone.
- 2) To examine the instruments for validity and reliability.

## Chapter IV

### QUESTIONNAIRE DEVELOPMENT

The object of the research was to develop reliable and valid instruments to measure the nutrition related health practices and attitudes of elderly women living alone. This instrument would be used in a larger study of the factors that impinge on the nutritional status of this target population. Aside from the separate issues of reliability and validity is the issue of what constitutes nutrition related health practices and attitudes, how these will be conceptualized, what indicators will be chosen and how they will be operationalized but equally important is the theory that specifies the relationship between concepts and indicators. 'The auxiliary theory specifying the relationship between concepts and indicators is equally important to social research as the substantive theory linking concepts to one another' (Carmines and Zeller, 1979). The researcher, in this case has found that the auxiliary theory is missing! The review of the literature and the focus group discussions had the dual purpose of searching for an auxiliary theory that could be formulated into a hypothesis that would lay the groundwork for a study yet to come, and searching for concepts that would be relevant. This chapter addresses the end result of this search. The decisions made in formulating a theoretical base will be reported. The previous two chapters have provided the direction that will be taken. Other than a brief rationale based on the material from

the previous chapters, the following sections will provide the theory and concepts that were developed.

'Conceptualization is the process through which we specify precisely what we will mean when we use particular terms' (Babbie, 1979). Once the researcher decides on what the concepts are, these concepts may be subdivided into aspects or dimensions of the concept. The next step is to determine what indicators will be used ---the real and observable things that give evidence to the presence or absence of the concept one is studying. Moving downward from the abstract to the concrete, the next step is to decide how these indicators will be operationalized--that is how will they be measured. In survey development this translates into what questions will be asked and how they will be asked. The questions developed for each indicator should ultimately measure the concept because the indicators are the evidence that the concept exists.

#### 4.1 QUESTIONNAIRE CONSTRUCTION

There are no simple rules for questionnaire construction but there are generally accepted guidelines that can be followed. Before beginning questionnaire construction, one must look at the general purposes it is meant to serve. A well constructed questionnaire should a) meet the objectives of the research; b) obtain the most complete and accurate information possible and c) do this within the limits of available time and resources (Rossi et al., 1983).

Payne (1951) cautions that the researcher must first be wary of himself, that half the battle consists in putting the issue in a form we

can understand ourselves. We first need to define the issue precisely and for each question the researcher must ask who?, why?, when? and where?

Obtaining precise and accurate information is aimed at but impossible to guarantee. Respondents and interviewers will intervene--questions may be misunderstood, respondents may refuse to answer, they may reject the premises on which the questions are based, and numerous influences may affect the answers such as the tendency to give sociably acceptable answers, the attempt to disguise their ignorance on the issue, and the influence of prestige to name a few (Payne, 1951; Rossi et al., 1983).

Time and cost constraints are always present but they have special importance to questionnaire design because they impose a limit on the number of questions the researcher can ask (Rossi et al., 1983). The length of the interview is predetermined by the constraint of cost and time. Sometimes 'quickie surveys' conducted at limited cost provide the most effective policy guidance (Rossi et al., 1983).

One is tempted to think that writing questions is a simple task. Stanley Payne's book 'The Art of Asking Questions' (1951), remains the best on the subject of writing questions. Yet the last chapter 'How's That Again?' gives a 'concise check list' of 100 considerations in writing questions! The following is an abbreviated version of general guidelines one must follow when writing a questionnaire. These guidelines help eliminate difficulties and take the burden off pre-testing which must still be done. Guidelines however, are not hard and fast rules. Further explanations and examples appear in Payne, 1951, Woodward and Chambers, 1983, and Babbie, 1979.

#### 4.1.1 Guidelines

1. Words should be simple, direct and familiar. Wording should be tailored to the respondents. Questions that aim at a grade six level of education need not be insulting to the more educated respondents.
2. Questions should be clear rather than vague. Vague questions produce vague answers, but questions can be so precise that no one can answer them.
3. Avoid double questions or questions that cover two or more issues at once.
4. Avoid double negatives in a question because such questions lead to confusion.
5. Avoid asking demanding questions as for example, rank ordering 25 factors in order of importance or questions that are difficult to answer.
6. Questions should be applicable. If the question does not apply, respondents can be asked to omit or skip it.
7. When a list of alternative answers is provided, the list should contain items that are mutually exclusive and exhaustive.
8. Objectionable questions should be avoided, yet may be necessary. Such questions should be placed late in the questionnaire, responses can be given in broad categories as in income categories or statements designed to soften the impact can precede the question. Trick questions should be avoided.
9. Avoid questions that are biased, leading or loaded.

10. Transition statements should be used when changing from one topic to another.

11. In a self-administered questionnaire maximize the white. A questionnaire with ample space even if lengthy will be less intimidating than a short but crowded questionnaire.

Payne (1951) also provides advice on loaded questions and choice of words in the questions.

#### 4.1.2 The Pre-test

Once the questionnaire is completed it must be subjected to the pre-test. The value of pre-testing depends firstly on the knowledge of the considerations that go into the original wording (Payne, 1951). One of the best ways to learn how to write a good questionnaire is to try to interview with a poor one (Rossi et al., 1983). The pre-test can bring out the flaws and weaknesses of the questionnaire. Signals of a problem with a question are given when many respondents answer 'Don't know' or when they keep asking the interviewer 'What do you mean' or when they say 'You already asked me that' or when the interviewer stumbles through a clumsily worded question.

A pre-test should elicit general impressions of the questionnaire as well as comments on the content and wording of individual questions (Woodward and Chambers, 1983). The pre-test should help determine whether all the words are understood, whether the questions are interpreted similarly by all respondents, whether each close-ended question has an answer that applies to each respondent, whether any aspect of the



questionnaire suggests bias on the part of the researcher and whether the length of time is appropriate (Woodward and Chambers, 1983, Rossi et al., 1983).

Pre-testing should be done with colleagues, people with substantive knowledge of the survey topic and lastly on a cross-section of potential respondents (Woodward and Chambers, 1983). The number of pre-test interviews can range from half a dozen to 100 cases but usually it takes no more than 12-25 cases to reveal the major difficulties in the questionnaire (Rossi et al., 1983). It is suggested that more than one interviewer be involved to gain the benefit of a variety of interviewer reactions and that each interviewer do at least three interviews to become accustomed to the questionnaire (Rossi et al., 1983).

#### 4.2 QUESTION FORMAT

Question format involves a variety of types that can ultimately be classified as either 'open' or 'closed' questions. Open questions can be called free-answer questions where the respondent provides spontaneous answers. Closed questions attempt to force answers into one or more categories. Open questions however, vary in the amount or direction they provide.

In the closed format questions may take the form of a two-way question. The two-way question is the opposite extreme of the open ended question as it forces answers into one or the other category. Two-way questions are acceptable when the choices are realistic and when we want to divide people into categories. Sometimes the alternative is stated

and sometimes it is implied. The alternative can be mild or harsh as for example---'good idea--bad idea' (mild) or ---'for--against' (harsh).

Where the issue splits into more than two parts --'blonde, brunette or redhead' or when gradations are asked for--'very tall, tall, average, short , very short'--the multiple choice question is called for. The multiple choice question is the most formal and has the advantage of bringing up responses that the open version could have missed. However, when a list of possible statements are to be selected, respondents show a tendency to choose the statements at the extreme ends, but favour the first statement more than the bottom statement (Payne, 1951). Another strong tendency respondents display is to make their answers conform to the choices before them (Shuman and Presser, 1981, Payne, 1951), but the fact that a small proportion do go out of their way to state another idea, must be taken as a minimum indication of its importance. These additional ideas can be added to a multiple choice item and used in another survey. Unless clear instructions are given some respondents will choose more than one answer and that could present a problem.

Each format has its own merits and demerits. The open format is uninfluenced, provides a wide variety of responses, stimulates free thought, solicits suggestions, elicits reasons, evaluates arguments, provides background for interpreting answers to other questions and can identify the most salient issues on a topic. The 'richness' of the free answer is acclaimed. Yet the open question presents many difficulties. In one sense this type of 'uninfluenced' question is most vulnerable to influence since the amount of information received is influenced by the interviewer's skills (Shuman and Presser, 1981). Then there are

different types of people--the talkative ones, the reticent ones and some who will say they 'don't know' when they have well-informed opinions (Payne, 1951). The free answer format tends to elicit what is uppermost in people's minds but often omits the obvious. Aside from the richness of response, the free answer question can generate much repetitious and irrelevant material (Schuman and Presser, 1981).

The closed ended question provides greater uniformity and is suited to many forms of statistical analysis. There is much less variability in interviewer performance (Rossi et al., 1983). Open questions take more time and cost more money (Rossi et al., 1983). There is much missing data in answers to open question that can be eliminated by the closed version and the closed form sometimes eliminates a large open category that may be due more to vagueness of response than to distinctiveness (Schuman and Presser, 1981). The open question can allow responses that an investigator does not anticipate, yet at the same time in some cases can subtly prevent responses that the investigator considers legitimate (Schuman and Presser, 1981).

To imply that any one type of question is the best type would be a disservice, since each type has its merits and demerits (Payne, 1951). The open type question is indispensable for exploratory studies in which the researcher's main purpose is to find the most salient aspects of a topic (Woodward and Chambers, 1983). Open questions can provide the material for the closed version. Open questions may be essential for obtaining the frame of reference of respondents and for wording alternatives appropriately, but once this is done there may be no compelling reason to keep the open form (Schuman and Presser, 1981).

### 4.3 CONSIDERATIONS IN SURVEY RESEARCH

While psychologists and social scientists may make contributions to survey research, theorizing in survey research will have to begin by formulating problems that arise more directly from its own data methods and ideas (Schuman and Presser, 1981). Schuman and Presser identified the important ways in which questions vary in form and investigated whether these variations have systematic effects that are detectable regardless of exact wording or subject matter. Their data came from over 200 experiments using 30 separate surveys. They used probability samples and the split-ballot design in which the total sample is divided into two or more subsamples, each of which is administered one form of the question. They used questionnaire items from major survey organizations. Variations of these questions were devised as part of the experiment. The following factors were studied for their effects on survey marginals: question form, the 'don't know' response, the middle alternative, balance and counter argument, acquiescence, tone of wording, and order effects. A brief review of their findings follows.

#### 4.3.1 Open vs Closed Form

Significant differences were found in marginal distributions between open and closed forms. It is not possible to draw definitive conclusions about when open-closed differences will occur or whether one form will always be more valid than another. Form differences will be minimized if investigators begin with open questions on large samples and then use the responses that reflect what people say and mean spontaneously to construct closed alternatives.

#### 4.3.2 The Don't Know Response

The 'don't know' (DK) category reflects a lack of knowledge or opinion about an issue. By providing a filter category (Don't Know, no opinion) one attempts to screen out respondents from substantive categories. The DK filters can substantially increase the proportion of respondents who give a DK response by 13-23%. Floaters is a term used to refer to persons who give a substantive response to an item on a standard form (DK is omitted but accepted if volunteered) and a DK response to a filtered version of the same item. The DK is not an important source of instability in item marginals, since once they are excluded from both forms, univariate proportions are usually unaffected by form.

#### 4.3.3 The Middle Alternative

By offering an explicit middle alternative in a forced choice attitude item, the proportion of respondents in that category increased in most cases by 10-20%. Intensity of opinion, belief or attitude seems to be a factor since form effects are greater among respondents reporting low intensity of feeling on an issue than among those reporting high intensity. The use of a middle alternative decreases the DK responses slightly but mostly draws from the polar positions. It is assumed that those giving a middle alternative (MA) answer do so as a way of saying DK. This may not be true, however. Although conclusions are tentative, it appears that DK and MA responses are not interchangeable and carry different meanings for respondents.

#### 4.3.4 Order Effects

Order effects constitute an important area of methodological research. Order effects can sometimes be large but are difficult to predict. Knowledge of how question order effects operate is scanty.

Order effects can occur within questions as well as between them. One type of order effect (part-part consistency effect) occurs when a respondent tries to make a response to a later item appear consistent to an earlier one. Sometimes there is a contrast effect. This effect can occur when a question moves from a specific to a general statement as for example questions about abortion in a specific case than about abortion in more general case. Moving from the specific to the general may increase the marginals between the two items.

Other order effects considered by Schuman and Presser were response order, question order, context and rapport effects.

#### 4.4 VALIDITY AND RELIABILITY

Validity and reliability are complicated and controversial concepts. Anyone developing an instrument must consider these two factors which are at the heart of survey research. Validity and reliability while difficult to establish must be present if an instrument has any worth. A valid instrument is one that measures what it purports to measure. A reliable instrument will produce consistent results upon repeated trials. These concepts are closely related to one another but the relationship is assymmetrical. One can have a reliable instrument that is not valid but one cannot have a valid instrument that is not reliable

(Carmines and Zeller, 1979). Validity and reliability are a matter of degree. Reliability is an empirical issue while validity is a more theoretically oriented issue because it inevitably raises the question 'valid for what purpose' These two ideas will be dealt with separately.

#### 4.4.1 Validity

Validity concerns the crucial relationship between concepts and indicators to determine whether the instrument measures what it is intended to measure (Bailey, 1978). Validity becomes complicated because there are several different types of validity. Face validity is also called content and logical validity. Criterion validity is also called pragmatic validity and is further subdivided into concurrent and predictive validity. There is also construct validity (Bailey, 1978). For our purposes we are concerned with content and construct validity. While some make a distinction between content and face validity, in this case they are considered to be the same.

#### 4.4.2 Content Validity

Content validity is easiest to explain but hardest to carry out. Ultimately it rests on sound reasoning and logic. Content validity concerns the representativeness or appropriateness of the items of the instrument and implies systematic coverage of those behaviours the instrument is to measure (Talmage and Rasher, 1981). In other words content validity depends on the extent that a measurement reflects a specific domain of content.

Content validity begins with the researcher. The researcher must search the literature carefully to determine how various authors have used the concept, but should also rely on his/her own observations and experiences and ask whether they yield any new facet to the concept. The next step is to list all the dimensions or strata thought to be appropriate for the conceptual definition. These strata can be further divided into substrata if necessary. Several items can be written to capture the shades of meaning associated with each stratum or substratum. It is suggested that no fewer than 7-10 items be used when constructing an attitude scale (Bohrnstedt, 1970). These scales can later be analysed to determine whether the items cluster together.

Content validity requires the judgement of evaluators and should include an evaluator who has expertise in the field of study (Talmage and Rasher, 1981). This stipulation is obvious in that an expert can evaluate the domain of content. The judges have to decide whether the indicators appear to be measuring what one has defined the concept to mean and whether the operational definition reflects what is intended by the conceptual definition.

There is no statistical criterion which can be used to determine whether or not one has properly sampled from the domain of content. Two problems associated with content validity in the social sciences is that it is impossible to specify the domain of concepts and there is no agreed upon criterion for determining the extent to which the measure has attained content validity (Bohrnstedt, 1970).



#### 4.4.3 Construct Validity

Because of the problems with content validity, some researchers prefer to use construct validity. Constructs are concepts that are composed of several dimensions or characteristics and may be difficult to observe directly or are possibly unobservable (Walizer and Wienir, 1978). Construct validity focuses on the extent to which a measure performs in accordance with theoretical expectations. Construct validity must be investigated whenever no criterion or universe of content is accepted as entirely adequate to define the quality to be measured. It is concerned with the extent to which a particular measure relates to other measures consistent with a theoretically derived hypothesis concerning these concepts (Walizer and Wienir, 1978).

Construct validity involves demonstrating three aspects. 1)--Demonstrating the relationship of various indicators to one another. Because the concept is multidimensional, each indicator used is a measure of some aspect of the concept, and as such they are all measuring the same concept. If they are not related there is the possibility that one or more of the indicators is not valid and does not tap the underlying idea of the same construct. It is possible to have constructs which by definition have dimensions which are not related and it is also possible to have a set of interrelated indicators all of which are assessing the wrong thing. 2)--Since the interrelatedness of indicators does not conclusively demonstrate that the indicators are valid, part of the development of the construct is the development of a set of interrelated propositions which make up a theory. When one of the variables in the hypothesis is the construct in question, construct

validity can be shown by showing that the hypothesized relationship exists. If it does, another aspect of construct validity has been established.

3)--Construct validity is shown if we can demonstrate that the measure separates phenomena as well as organizes them. For example, the theory of intelligence (construct) implies that intelligence is not related to sex. If a set of indicators for intelligence can be shown to be unrelated to sex, this helps validate the indicators (Walizer and Wienir, 1978).

#### 4.4.4 Reliability

Reliability concerns the extent to which an instrument yields the same results on repeated trials. Repeated measurements never exactly equal each other since unreliability is always present to some degree but results should be consistent. Put another way, a reliable instrument is one which is relatively free of measurement errors. The reliability coefficient ( $r$ ) is a mathematical estimate of the reliability of an instrument. This estimate varies between 1 and 0 with 1 indicating perfect reliability and 0 indicating no reliability. An  $r$  equal to or greater than .80 is usually indicative of reliability (Walizer and Wienir, 1978) but the acceptable level is dependent on the purpose of the instrument (Talmage and Rasher, 1981).

Reliability is determined by using a) alternate or parallel forms b) the split-half method and c) the test-retest method. In the first approach the researcher constructs two questionnaires, each using

different items but designed to measure the same concept. Both questionnaires are administered to the same group at the same sitting. In the split-half method the researcher constructs a single instrument containing twice as many items as needed, with half the items being repetitious. If the scores on the alternate forms correlate highly with each other and if the scores on the split-half forms correlate highly, the measurement is said to be reliable. The main difficulty with these two approaches is to arrive at truly parallel items.

Test-retest reliability is shown when the same instrument is given to the same respondents at different times and the answers on each test are consistent. The problem with repeated testing is that when inconsistent scores are obtained there is no way of telling whether the instruments are unreliable or whether true change has occurred. For this reason the repeated test should be given within a relatively short time span. Real change will underestimate reliability. On the other hand the short time span can contribute to a 'reactivity' effect where subjects become sensitised by the first questionnaire and change their responses to the second, leading to deflated reliability. Over estimation of reliability can occur due to memory effects, making responses more consistent than they really are. In the two-weeks to one-month interval, memory can be a strong factor that inflates reliability (Carmines and Zeller, 1979).

Stability reliability measures the consistency with which the instrument yields the same or similar results across time. The stability coefficient correlates the scores on one testing with scores on a second testing.

When examining the reliability of attitude items a measure called internal consistency is often used. Internal consistency examines the covariance among all the items simultaneously. Items are chosen which correlate highest with a total test score based on the summation of these same items. One selects the items which have the highest correlations with the total score (Bohrnstedt, 1970).

Reliability is increased only slightly by adding items indefinitely. Usually not more than 15 items in a single score would be used. The assumption made is that a single dimension underlies the items. As the number of items increases the assumption becomes less tenable (Bohrnstedt, 1970).

#### 4.4.5 Measurement Error

Random error refers to all those chance factors that confound the measurement of any phenomenon. The effects of random error are always unpredictable or unsystematic. Indicators always contain random error to a greater or lesser extent since the process of measurement introduces random error (Carmines and Zeller, 1979). The amount of random error is inversely related to the degree of reliability of the measuring instrument.

Sources of random error can occur from the beginning of a study to its completion. Choosing an irrelevant research topic, the construction of ambiguous concepts and a poor definition of the concepts lead to loss of content validity. Poorly worded items in the measuring instrument lead to unreliability of responses. In the data-gathering situation

uncontrolled extraneous factors in the environment, uncontrolled personal factors in the respondent and aspects of the relationship between researcher and respondent can contribute to random error. Coding and data-transferring and finally misinterpretation of data during data analysis are sources of random error (Bailey, 1978).

#### 4.4.6 Non Random Error

Non random error refers to error that has a systematic biasing effect. For instance if in a mailed questionnaire it was discovered that highly educated people were overrepresented, it is possible that education could bias some answers in a certain way. If analysis of the responses shows such a biasing effect some steps can be taken to remove the bias due to education--obtaining more respondents with little education. Unlike random error, which is unsystematic, non random error produces a certain pattern and these errors have the disadvantage of not cancelling each other out. This pattern will affect results in a systematic way (Carmines and Zeller, 1979). Just as reliability is inversely related to the amount of random error, validity depends on the extent of non random error present. Non random error may be difficult to find but whenever it occurs it prevents indicators from representing the theoretical concepts (Carmines and Zeller 1979).

#### 4.4.7 The Relationship Between Reliability and Validity

These few examples will illustrate the intimate relationship between the ideas of validity and reliability.

When using the split-half technique or the alternate forms technique to establish reliability, it can be argued that one is really establishing criterion validity which entails comparing answers of one test to that of a criterion.

When one is comparing parallel items as is done when using 'internal consistency' to establish reliability, all these correlations are due to the correlations among each of the variables and some underlying construct. These correlations would indicate the validity of each item since they indicate the degree to which each item correlates with the underlying construct. Validation procedures must therefore be independent of those which establish reliability (Bohrnstedt, 1970).

Chapter V  
METHODOLOGY

5.1 GENERAL THEORETICAL FRAMEWORK AND ASSUMPTIONS

Food is recognized to be both a social and cultural object. Nutrition-related health practices (behaviour) and attitudes will be affected by social factors. Concepts of social support and social network have been discarded because of the complexities involved in measurement and operationalisation. The concept of social participation, however, is appropriate for the purposes of this research. The independent variable, social participation, will be related to nutrition related health practices and attitudes. Just how they are related can be formulated into hypotheses.

The determination of what constitutes nutrition-related health practices is twofold. On the one hand it has to be determined what nutrition related practices are, and on the other hand, consideration must be given to those nutritional practices that can impinge upon the nutritional status of elderly women. The review of the literature and the focus group discussions suggest that practices can be divided into the several categories that will be defined later in this chapter.

An assumption is being made however. The assumption, which is quite reasonable, is that these factors can affect nutritional status. The concept of nutritional status is elusive in itself and is measured by a

number of indicators, i.e. dietary intake and clinical and biochemical measures. It would be very difficult if not impossible to prove that these health practices in fact do affect nutritional status. Without making assumptions however, very few if any studies could be conducted.

## 5.2 METHODOLOGY

### 5.2.1 Focus Groups

Two focus groups were arranged for practice and three formal focus groups were arranged through administrative channels for exploratory purposes, before questionnaire construction. These were reported in Section 2.7. Focus group discussions are recognized as being a valuable tool in providing direction for exploratory studies (Calder, 1977).

### 5.2.2 Questionnaires

Two questionnaires were developed. One questionnaire addressed nutrition related health practices and the other addressed nutrition related attitudes. The questionnaires are shown in Appendix E and G.

The practices questionnaire contained both open and closed questions. Open questions were necessary since the purpose of this study was exploratory. The closed questions used multiple choice and forced alternative items. Provision was made in some cases for the 'Don't Know' response which was accepted if volunteered. The multiple choice items included a category of 'other' to capture other possible answers. The multiple choice answers were derived from a combination of a review of the literature, focus group discussions and pre-testing. The ques-



tions on social participation were adapted from Lawton, undated, OARS Methodology, 1975, and McIntosh and Shifflett, 1984.

The attitude statements were adapted from those used by Axelson and Penfield (1983), McIntosh and Shifflett (1984) and others were devised by the researcher.

The attitude questionnaire utilized the Likert scale. The seven attitude factors were represented by a series of 70 statements to which subjects responded on a 5-point Likert scale of 'strongly agree' to 'strongly disagree'. Some of the statements were in a positive direction and some were in a negative direction. For statistical purposes the negative direction statements were scored in reverse so that each statement contributed in a cumulative fashion. To offset a possible order effect, the attitude factors were randomized and the questions within each factor were randomized. This manner of randomizing allowed the context of the questions to be preserved.

### 5.2.3 Sample

A non-random sample was obtained through the Lion's Manor, the Harrow United Church Women's group and the Selkirk Avenue Senior Centre all in central Winnipeg. The Director of Volunteer Services at the Lion's Manor obtained women who were willing to participate and also scheduled appointment times. The administration at the Selkirk Avenue Centre facilitated the researcher in obtaining two participants. The president of the Harrow United Church Women's group provided the researcher with a list of names and the researcher initiated contact and obtained participation. See Appendix B for sample letters.

Fifteen women were interviewed from the Lion's Manor. Seven women were interviewed from the church group. Two women from the Selkirk Avenue Senior Centre participated and then dropped out. There was a total of 24 women and a total of 22 completed interviews. Consent forms were signed whenever the respondent agreed to do so. A sample consent form is shown in Appendix A.

Given the unpredictability of health events, the high level of social activity and the possibility of loss of commitment, a span of two weeks was deemed an appropriate time interval between test 1 and test 2.

#### 5.2.4 Pre-Test

The draft version of the questionnaire was pre-tested on five elderly women; revisions were made and then the questionnaire was pre-tested again on six elderly women, making a total of 11 subjects in the two pre-tests.

#### 5.2.5 Interviewing

The interviews were carried out verbally usually in the respondent's place of residence. All interviews were conducted by the researcher, since having more than one interviewer could introduce another source of random error. If the sample size was much larger, having several interviewers would be advantageous in assessing the questionnaire. At the first interview the 'practices' questionnaire was given and at the second interview both questionnaires were given. This method was chosen to allow the respondent and interviewer to become better acquainted and

also to avoid overtaxing the respondent on the first interview. With a few exceptions the length of the interview was about an hour and the second was about one and a half hours.

#### 5.2.6 Validity

Validity for the 'practices' questionnaire was assessed for content validity by three independent evaluators from differing fields of study at the University of Manitoba. The first assessment was undertaken by Professor Alex Segall, Department of Sociology, who helped in the organization of concepts. The revised version of the questionnaire was again evaluated by Professor Segall and judged to be satisfactory. A second evaluator was Professor David Koulack, Department of Psychology. Minor revisions were suggested in question wording. The third evaluator was Professor Elizabeth Feniak, Department of Foods and Nutrition, whose suggestions involved minor changes in wording and content.

The indicators used to assess social participation came under the heading of social support, reciprocity and activities. These measures should have been correlated with an independent variable, to determine if they all related to this variable in the same way. If they did, this would suggest that they were measuring the concept of social participation and as such show construct validity. This could not be done because none of the independent variables (age, education, income) had variation.

### 5.2.7 Reliability

Reliability of the closed-ended questions in the 'practices' questionnaire was assessed by the test-retest method. The answers on one testing were correlated with those on a second testing to generate a reliability coefficient (P). The reliability coefficient is a calculation of the proportion of answers that are the same at each test out of a total of 22 respondents. While the proportion was calculated out of 22 respondents, 24 respondents participated in the first test and their answers were included in the first test. The questionnaire was administered twice to the same group of women within a two-week time interval. In one case the interval was one month.

Reliability of the attitude statements was determined by a test for internal consistency using a method called Pearson's correlation coefficient. Statements within each factor are correlated with their total test scores. This method was chosen over the test-retest method for reasons of practicality. In terms of the kind of respondents and the time required to repeat the attitude questionnaire as well as the practices questionnaire, a simpler procedure was indicated. Respondents reacted with puzzlement when they were asked to answer the practices questionnaire twice and in spite of the interviewer's attempt to explain the reason for the retest, some respondents felt that the questionnaire was in some way testing them for memory or inconsistency.

### 5.3 CONCEPTS AND DEFINITIONS

The following section lists the five aspects of practices and provides definitions as developed for the purposes of this study. The concept 'use' is also defined.

**THERAPEUTIC USE OF FOODS.** The use of foods for particular health reasons based on the premise that food can serve to promote health beyond its normal nutrition functions. **REMEDIES** refers to something taken (ingested) or applied to alleviate, cure or treat a problem. Remedies constitute examples of the therapeutic use of foods.

**FOOD AVOIDANCE.** Food avoidance refers to the refraining from consuming certain foods or beverages other than alcohol.

**USE OF FOOD SUPPLEMENTS.** Food supplements do not refer to staple diet items such as bread or to such items as honey, molasses, and cider vinegar. Food supplements are products such as lecithin or brewers yeast which are not considered to be part of one's usual diet. Food supplements are taken to supplement the diet with nutrients that may or may not be present in one's own diet. A distinction is made here between food supplements and vitamin and mineral supplements.

**USE** refers to regular usage for some period of time of products such as vitamin, mineral or food supplements. The definition does not depend on where the products were purchased.

**USE OF DRUGS.** Drugs refer to both prescription and non-prescription drugs and include pharmacological products such as antacids and laxatives. Under this category are included vitamin and mineral supplements.

EATING PATTERNS. Eating patterns refers to when and how many meals are eaten.

#### 5.3.1 Rationale

The following paragraphs provide the justification for making the assumptions that these aspects of practices may affect nutritional status.

The therapeutic use of foods may have a positive effect on one's nutritional status because using food in this way is individualized and based on what seems to work. Also if foods are used in this way, one would suspect that fewer drugs will be taken, for example using milk for sleeping rather than a sleeping pill.

Food avoidance may reasonably lead to a diet that is lacking in necessary nutrients particularly if many foods are avoided.

Abuse of OTC drugs such as laxatives and antacids may have adverse effects on one's health and nutritional status. Antacid abuse may lead to phosphate depletion, loss of stomach acidity with accompanying impairment in digestion. Laxative abuse may lead to mineral and vitamin losses and to sodium overload (in the case of sodium bicarbonate). Nutrient losses due to antacid and laxative abuse have been implicated as a factor in the development of osteomalacia. It is established that food-drug interactions exist. Some drugs alter appetite (increase or decrease), and some interfere with nutrient absorption and metabolism. The potential dangers inherent in self-prescribed vitamin and mineral supplements is well documented. These aspects were discussed in Section 1.5.

The use of food supplements may or may not have nutritional implications. The effect on nutritional status by the use of food supplements would be difficult to determine, aside from the documented dangers of contamination. Again a compromise must be made. The use of food supplements does constitute a food practice and as such should be considered.

### 5.3.2 Nutrition Related Attitudes

The following definitions of attitude and beliefs are presented based on the attitude research done by Ajzen and Fishbein (1980) and Sims (1981).

**ATTITUDE:** The evaluative or affective component of the individual's perception of a concept or relation between concepts. Attitude refers to a feeling of favorableness or unfavorableness toward something. It is the amount of affect for or against a given object.

**BELIEF:** Represents the information one has about the object. A belief links an object to some attribute. Belief assesses the probability or improbability that a particular relationship exists between the object of belief and some other object, concept or goal. Belief consists of two components: belief in---that an object or event exists and belief about---the manner in which a concept exists (Ajzen and Fishbein, 1980).

## GENERAL DISTINCTION BETWEEN BELIEF STATEMENTS AND ATTITUDE STATEMENTS

Belief statements tend to measure the cognitive dimension, by measuring knowledge, and by probing for correctness or incorrectness and require responses such as yes/no, true/false. Attitude statements probe evaluative feelings by requiring responses such as like/dislike, agree/disagree, good/bad, prefer/not prefer, favor/oppose and should/should not (Sims, 1981).

The attitude indices of Axelson and Penfield (1983) are used, along with a few others. The definitions worked out are based on the understanding of what Axelson and Penfield meant by their attitude indexes. Rather than use one index Nutritious-Healthful, two indices are used because it was felt that more than one dimension is being tapped--one dimension being the more positive healthful attitude and the other being the attitude of concern or apprehension regarding foods. The following attitude factors along with their accompanying definitions are used.

### QUALITATIVE PLEASURABLE

**DEFINITION:** The favorable or unfavorable evaluation of foods according to their attributes of quality and pleasure-giving potential. Here food is evaluated for its attributes of quality (which may mean freshness) and the enjoyment received from its consumption.

### SOCIAL ADVENTURESOME

**DEFINITION:** The favorable or unfavorable evaluation of foods according to their perceived attributes of providing the possibility for innovation and social interaction. Here food is evaluated for its attributes



of expressing innovation and being a vehicle for social interaction. Interaction could mean trying out new food for taste or appearance.

#### FRUGAL UTILITARIAN

DEFINITION: The favorable or unfavorable evaluation of foods according to the perceived attributes of frugality and utility. This factor is based on the belief that food is necessary to sustain life. Food is valued according to the attribute of practicality. Foods that are easy to prepare, cheap and versatile are given the attribute of utility.

#### TRADITIONAL

DEFINITION: The favorable or unfavorable evaluation of foods according to the attribute of being linked to the past or to cultural consideration. This factor refers to liking or not liking foods because they are associated with family experiences--how mother prepared foods, or to traditions handed through culture---special foods for special occasions etc.

#### HEALTHFUL NUTRITIOUS

DEFINITION: The favorable or unfavorable evaluation of food according the attributes of health and nutrition. This attitude factor shows that food is valued for its healthful and nutritious properties. This attitude factor stems from the belief that certain foods impart health---that they are nutritious or good for one's body and health, while other foods are not.

#### HEALTH APPREHENSION

DEFINITION: The favorable or unfavorable evaluation of foods or supplements according to perceived health consequences associated with

their use. This attitude factor indicates that part of the choice in eating certain foods or in taking or not taking supplements is influenced by perceived health consequences. For example, people may feel that by eating healthful foods they have a better chance of staying well and by not paying attention to diet they may increase their risk of getting sick.

#### NUTRITION AND AGING

DEFINITION: This factor evaluates food and nutrition in terms of perceived constraints of age alone. This attitude would stem from the belief that after a certain age, foods may not have the same nutritive value or that it does not matter what one eats because one's age, not nutrition, is the dominant factor. Alternatively there could be a belief that one's age can determine what one can or cannot eat.

## Chapter VI

### ANALYSIS AND DISCUSSION

The analysis and discussion of validity and reliability will be done separately for each instrument, since the practices and the attitude instruments required separate procedures and considerations.

Table 1 shows the demographic characteristics of the sample. It can be seen that a large number of respondents were over age 85, that most had some high school education and that income comprised a very narrow range. All respondents assessed their health as fair to excellent and most were socially active.

TABLE 1  
Description of Sample

<u>Characteristic</u>	<u>Category</u>	<u>Frequency</u>
Age (years)	65-70	3
	71-75	1
	76-80	5
	81-85	4
	86+	9
Education	Elementary	4
	Some High School	11
	Post High School	7
Income per month (\$)	250-499	1
	500-749	13
	750-999	7
	1000-1249	1
Health Score	Fair to Good	15
	Excellent	7
Social Participation Score	High	14
	Medium	8
	Low	0

### 6.1 CONTENT VALIDITY FOR THE PRACTICES QUESTIONNAIRE

Content validity was assessed as indicated in the previous chapter (Section 4.2.6). The concepts as they were finally developed, the indicators of the concepts and which questions are used to measure the indicators are referred to in Appendix C.

Two major conceptual definitions were identified by Professor Segall as being problematic. Vitamin and mineral supplements and food supplements originally put into one category were separated into two categories. The concept of vitamin/mineral supplements was included under the category of drugs since they qualify as pharmaceutical products and are often prescribed by physicians.

Originally 'home remedies' and 'therapeutic use of foods' were conceived as being separate concepts and this became problematic. A conceptual revision was made to include home remedies as an aspect of the therapeutic use of foods, since questions about home remedies were another way of asking about the therapeutic use of foods. Remedies that do not use food were excluded from the definition to eliminate answers that involved first aid.

Professor Segall's critical evaluation led to other numerous revisions aimed at clarifying questions. Two other evaluators, Professors Koulack and Feniak also examined the questionnaire in succession. Professor Koulack helped with 'how often' categories and suggested additional answers for some of the forced choice questions. The categories for the 'how often' questions remained mutually exclusive but became less precise in order to be more meaningful to the respondents. For example a category 'one or three times a month' was changed to 'one or more times a month. No problem was found with concepts and indicators by the evaluators.

Apart from these assessments, Maria Rogers, Director of the Selkirk Avenue and Main Street Senior Centres, took a critical look at the instruments in terms of validity for the population served by the ethnic centres. She evaluated content validity from the perspective of the test taker. She suggested minor wording changes. A helpful suggestion for a question on education was to make allowances for apprenticeship and for a question on employment to make allowances for employment that was not salaried i.e. farming, housewife. Content validity for the practices questionnaire depends on evaluation. Overall, the judgement received indicated that at face value, the instrument has validity.

## 6.2 RELIABILITY OF CLOSED-ENDED QUESTIONS FOR "PRACTICES" QUESTIONNAIRE

The reliability assessment for the 'practices' questionnaire was done by examining the closed-ended and the open-ended questions separately.

Test-retest reliability coefficients were obtained by an analytic procedure (Borhnstedt, 1970) that calculated the proportion of respondents who gave the same answer to a question both times. The analysis was performed using the SAS programs available at the University of Manitoba. Table 2 presents list of variables representing the closed-ended questions with their corresponding reliability coefficients. The variable names (third column) are in alphabetical order. The second column is an abbreviated description of the question and the first column shows the number corresponding to the number of the question in the questionnaire. The table also indicates the number of respondents replying to the question at time 1, time 2 and at both times. The analysis was performed using the SAS program at the University of Manitoba.

TABLE 2

Reliability Coefficients of Questions and Number of Respondents for Time  
1, Time 2 and Both Times

Q#	Question Name	Variable NAME	T1	T2	Both	P
1	Age	Age	24	22	22	1.00000
55	Often use Anacin	Anacino	5	8	4	0.09091
54	Use Anacin	Anacinu	5	9	4	0.18182
78	Describe Appetite	Appd	24	20	20	0.81818
25	Have Arthritis	Arthr	22	20	19	0.68182
54	Use aspirin	Aspu	17	14	13	0.59091
55	Often use Aspirin	Aspo	15	11	11	0.50000
8	Avoid foods	Avoid	10	9	8	0.36364
14	Have colds	Cold	22	22	21	0.90909
6	Concern about weight	Concern	22	20	20	0.90909
33	Have constipation	Const	23	21	20	0.81818
77	Change in diet	DietC	24	21	18	0.72727
51	Drugs affect appetite	Druga	17	16	15	0.54545
50	Number of drugs taken	Drugno	18	18	17	0.40909
49	Take drugs	Drugs	23	22	21	0.95455
68	Eat regularly	Eatreg	24	22	22	0.95455
2	Education	Educ	24	22	22	0.95455
62	Take food supplement	Foodsup	21	20	17	0.77273
64	Fd. suppl. for condition	Foodsupc	2	2	2	0.09091
14	Help a cold	Hcold	21	20	19	0.68182
2	Health condition	Healthc	24	22	22	0.77273
1	Health at present	Hpres	24	22	22	0.68182
4	Income	Income	24	22	21	0.95455
19	Have indigestion	Indigest	23	21	20	0.81818
7	Like to do about wt.	Like	24	22	22	0.81818
66	How many meals	Meal	24	22	22	0.81818
34	Often constipation	Oconst	12	13	12	0.27273
26	Often arthritis	Ofarthr	9	12	8	0.27273
2	Often indigestion	Ofindi	15	14	13	0.22727
75	Change in eating habits	Oldec	24	19	19	0.68182
42	Often trouble sleeping	Osleep	15	17	14	0.31818
47	Often sleeping pill	Oslepp	7	10	5	0.22727
76	Reason poor appetite	Poorapp	1	1	1	0.04545
74	Reason avoid foods	Reaav	21	20	18	0.59091
77	Reason take supplement	Reavm	15	14	12	0.45455
41	Trouble sleeping	Sleep	24	22	22	0.77273
70	Eat snacks	Snack	23	22	21	0.72727
4	Doctor's treatment	Treat	24	22	22	0.95455
58	Doctor prescribed?	Vmpres	14	14	12	0.40909
53	Use of vit/min suppl	Vitsup	21	20	19	0.81818
59	Taken for health condition	Vmsheal	13	14	9	0.40909
5	Weight assessment	Weight	24	22	22	0.81818
3	Work	Work	24	22	22	1.00000

A reliability of 0.700 was arbitrarily chosen as a cut off point between unacceptable and acceptable reliability. Table 3 lists the questions by variable name according to categories of acceptable and unacceptable reliabilities.

TABLE 3

## Variables Categorized According to Reliability Coefficients

<u>Acceptable &gt; .700</u>	<u>Unacceptable &lt; .700</u>
Age	Anacino
Appd	Anacinu
Cold	Arthr
Concern	Aspo
Const	Aspu
Dietc	Avoid
Drugs	Druga
Eatreg	Drugno
Educ	Foodsupc
Foodsup	Hcold
Healthc	Hpres
Income	Oconst
Indigest	Ofarthr
Like	Ofindi
Meal	Oldec
Sleep	Osleep
Snack	Oslepp
Treat	Poorapp
Vitsup	Reaav
Weight	Reavm
Work	Vmpres
	Vmsheal



Tables 2 and 3 indicate that seven questions had perfect (1.000) or nearly perfect reliability coefficients (0.954) and that 21 questions had reliability coefficients of 0.700 or greater.

The questions that had reliabilities of 0.700 and lower were examined to determine, whenever possible, the sources of unreliability. Ideally the questions with acceptable reliabilities should have been examined to illustrate that the same sources of error did not apply to them as well. The small sample size however, would not make such an evaluation meaningful. The evaluation of questions with reliability coefficients of 0.700 or lower revealed that several factors were operating to lower reliability and that in some cases these factors were operating concurrently. The following sources of unreliability were found: 1) contingency questions 2) wording 3) change 4) uncertainty 5) difficulty 6) coding error 7) number of responses and 7) other. A discussion of these sources of error follows.

**CONTINGENCY QUESTIONS:** The question preceding the question being examined often had a direct bearing on the answer to the question. If the respondent is uncertain about whether to answer 'yes' or 'no' on the contingency question, then the following question may be affected because if the answer on the contingency is 'no' at one testing the following question will be skipped but if the answer is 'yes' on a second testing the next question will be answered. The wording of the contingency question was not the problem but the change in answers on the contingency question led to a lowered reliability coefficient for the following question. Reliability coefficients are not meaningful for questions that are heavily affected by the contingency question.

**WORDING:** Words like 'problem', 'sometimes', 'prescription' and 'aspirin' lend themselves to interpretation in this instrument and can result in different answers depending upon the interpretation at the time of testing.

**CHANGE:** Change such as a change in health or change in drugs may have actually occurred. The interviewer can attest to these changes having occurred.

**UNCERTAINTY:** Decisions have to be made by the respondent and when the respondent is not sure, herself, the answers may change from 'yes' to 'no' or from one forced choice response to another.

**DIFFICULTY:** Questions that try to pinpoint how often something occurs are unreliable because no one can be expected to give a precise answer. Questions of how often are also subject to the effects of memory and to the events of the recent past.

**CODING ERROR:** A few coding errors were discovered after analysis.

**NUMBER OF RESPONSES:** Unreliability can be a direct result of too few people answering the question.

**OTHER:** This category would include any unknown sources of error and also sources of error that were anticipated but that cannot be measured such as interviewer-respondent effects. Respondent effects could be fatigue, emotional upset or ill health to name a few.

### 6.2.1 Analysis of Questions to Determine Sources of Random Error

The following is an evaluation of the questions regarding practices in alphabetical order according to their variable names. Four sets of questions based on scores require a different interpretation and are treated separately. These questions are the indicators of social participation and are called social support, friendship, reciprocity and activities.

ANACIN USAGE, HOW OFTEN, (P=0.09) ASPIRIN USAGE, HOW OFTEN (P=0.50)

The question of anacin usage (Do you use anacin?) had a low reliability because the few people who responded to anacin usage (5) could have failed to distinguish between anacin and aspirin. In one questionnaire the response to the question of usage could apply to aspirin and in the other questionnaire to anacin. The question of aspirin usage had a much higher reliability coefficient suggesting that listing related OTC drugs may lead to lower reliabilities because the respondent may not distinguish between them. Since the aspirin question was asked first, all aspirin-related drugs could have been lumped together.

DO YOU SOMETIMES HAVE A PROBLEM WITH ARTHRITIC PAIN? (P=0.68)

The word 'sometimes' caused discrepancy. The question can be answered 'sometimes yes' and 'sometimes no'.

ARE THERE ANY FOODS THAT YOU AVOID TO LOSE WEIGHT? (P=0.36)

The answer to whether there were any foods avoided to lose weight depended on the contingency question that asked what the person wanted to do about her weight. If the respondent changed answers to the preceding question then the following question was affected.

HOW MANY DRUGS ARE YOU TAKING? (P=0.40)

A drug not often taken was omitted at one point and listed at another time, an additional prescription was used between test 1 and test 2 and a coding error was found.

WHEN YOU HAVE A COLD DO YOU DO ANYTHING TO HELP IT? (P=0.68)

A problem was encountered when asked whether the respondent did anything to help a cold. When the respondent could not remember last having a cold she could not always remember what she did if anything.

HOW WOULD YOU RATE YOUR HEALTH AT PRESENT? (P=0.68)

The discrepant answers reveal uncertainty and borderline cases. Six respondents changed responses between 'good' and 'fair'; one respondent varied between 'poor' and 'very poor' and one varied between 'good' and 'excellent'. A change in health between test 1 and test 2 can also explain differences in answers.

HOW OFTEN DO YOU HAVE A PROBLEM WITH CONSTIPATION? (P=0.27)

The answers to how often is difficult to answer. Discrepancies occurred between the first two choices (Nearly every day-----Once or twice a week) and the last two choices (Once or twice a month---Less than once a month). One respondent gave two extreme answers \_\_\_\_ 'Every day' and 'Less than once a month'. This person had indigestion every day with constipating side effects. At one testing this indigestion was interpreted as constipation. This question was also affected by the contingent question.

## HOW OFTEN DO YOU HAVE A PROBLEM WITH ARTHRITIS? (P=0.27)

There was an effect of the contingent question in three cases. Two people who said 'no' to having a problem with arthritic pain later changed to 'yes' and responded 'less than once a month'. One person who said 'no' to the contingent question, responded 'yes' on the second testing and answered 'varies with the weather'. Two people changed from one extreme to the other, indicating an influence of arthritic events in the recent past.

## HOW OFTEN DO YOU HAVE INDIGESTION? (P=0.22)

The question of how often is also a difficult one. Wide discrepancies were shown in two responses attesting to the difficulty in determining the frequency of indigestion. There was an effect of the contingent question in three of the six discrepancies. When indigestion was infrequent some respondents said 'no' to the contingent question on one test then 'yes' on the second test. Their answers on how often were on the infrequent side which supports the contingency effect.

## SINCE YOU HAVE GROWN OLDER HAVE YOUR EATING HABITS CHANGED? (P=0.68)

This question is subject to uncertainty. When eating habits changed in a minor way, some would say 'no' then change to 'yes' even on one testing.

## HOW OFTEN DO YOU HAVE TROUBLE SLEEPING? (P=0.32)

This question is affected by the contingent question. Two respondents who said 'no' to the contingent question on one test and then

'yes' on the other test were also the ones who said 'less than once a month'. Memory and sleeping events of the recent past likely affected responses as well. Two people answered 'several times a week' and then 'less than once a month'

WHAT ANSWER BEST DESCRIBES YOUR REASON FOR AVOIDING THESE FOODS?  
(P=0.59)

The forced choice responses suggested a close association between a food 'disagreeing' with one and disliking that food. This qualifies as a difficult question since two or more answers could apply. There was also a contingent effect.

WHAT ANSWER BEST DESCRIBES YOUR REASON FOR TAKING A VITAMIN/MINERAL SUPPLEMENT? (P=0.45)

One discrepancy is explained by the contingent question and the other two discrepancies centred on two choices of answers. In the respondent's mind two of the possible answers may have meant the same thing. There may be little distinction between 'helping indirectly' and 'experiencing an improvement in one's health' This can be considered a difficult question.

ARE THE VITAMIN/MINERAL SUPPLEMENTS PRESCRIBED BY YOUR DOCTOR? (P=0.40)

The word 'prescribed' may explain the 'yes' then 'no' answers. Vitamin and mineral supplements do not always require a prescription indicating a 'no' response but yet the physician may recommend a supplement indicating a 'yes' response.

DO YOU TAKE A VITAMIN/MINERAL SUPPLEMENT FOR A SPECIAL HEALTH CONDITION?  
(P=0.40)

This question may reveal uncertainty in the respondent's mind as to whether a vitamin or mineral supplement was taken for a specific health condition. Two respondents said 'yes' to one testing and then 'no' to the other.

Table 4 categorizes questions with unacceptable reliability into two categories---those with a reliability coefficient of 0.500 and less and those with a coefficient greater than 0.500 but less than 0.700.

TABLE 4

Categorization of Questions With Reliability Coefficients Less than  
0.700

Q#	P=0.500 to 0.700	Q#	P= < 0.500
51	Druga 0.54	76	Poorapp 0.04
54	Aspu 0.59	55	Anacino 0.09
74	Reaav 0.59	64	Foodsupc 0.09
25	Arthr 0.68	54	Anacinu 0.18
26	Oarthr 0.68	20	Ofindi 0.22
1	Hpres 0.68	47	Oslepp 0.22
75	Oldec 0.68	26	Ofarthr 0.27
		34	Oconst 0.27
		8	Avoid 0.36
		50	Drugno 0.40
		58	Vmpres 0.40
		59	Vmsheal 0.40
		55	Aspo 0.40

Questions that had reliabilities of 0.500 and less were examined for another significant source of error. In these cases the number of



respondents who answered the question had a direct bearing on reliability level. Entering the calculation of reliability is not only the number of respondents at time 1 and at time 2 but the number of respondents who answered both times. The questions with reliability coefficients of 0.400 or more were not as greatly affected by the number of respondents as those questions with reliabilities of less than 0.400. However those questions with reliability coefficients of 0.400 (Drugno, Vmpres, Vmsheal, Aspo) were also affected by sources of error previously discussed.

Figure 2 is used as an example to show how number of responses at time 1 and time 2 affected the reliability estimate. The cross tabulation is shown for Anacino (How often do you use anacin?) but will indicate why the contingent question Anacinu (Do you use anacin?) also had a low reliability. Figure 2 is a cross tabulation which shows that 5 people responded at time 1 and 8 people responded at time 2, but of the 4 people who responded both times, two responses were identical (lower right cell). In this case, the low number of responses resulted in a very low reliability coefficient (0.09).

	Time 2			
	NA	YES	NO	
	N	N	N	
Time 1				
NA	15		4	19
YES			1	1
NO	1	1	2	4
Total	16	1	7	24

Figure 2: Cross tabulation of frequencies of responses at both time 1 and 2 for ANACINO (Q 55)

An examination of the questions with reliabilities less than 0.500 revealed that too few people answered these questions since they did not apply and/or of those that answered both times few answers were identical. For example the question on poor appetite (Poorapp) had only two responses. Of the 15 women who responded to the question of how often indigestion occurs (OFINDI) 5 had identical answers both times. Only 5 women responded both times to the question on how often they had sleeping difficulties (OSLEEP) but all answers were identical.

Table 5 summarizes the questions with reliability coefficients of less than 0.700 according to the sources of error that applies to them.

TABLE 5

Sources of Error and Questions Affected by Source of Error

Contingent	Wording	Uncertainty	Change	Difficult	Memory
Avoid	Anacino	Druga	Drugno	Oconst	Hcold
Oconst	Anacinu	Hpres	Hpres	Ofindi	Oconst
Ofindi*	Aspo	Oldec	Osleep	Reaa	Ofindi
Osleep	Aspu	Reavm	Osleepp		Osleep
Osleepp*	Arthr				
Reaav	Oconst				
	Osleepp				
	Vmpres				
=====					
Coding Error	Other				
=====					
Drugno	Drugno				

=====

\*contingent effect accounts for most variation

### 6.2.2 Comparison of Scores

The scores are presented for the questions that make up the indicators of social participation (Q 1-12). The indicators are called activities, friendship, social support and reciprocity. Appendix D shows how the indicators were scored. Tables 6,7,8 and 9 present the scores for test 1 and test 2 along with the score differences between the two tests. Any difference of 10 or greater is identified by an asterisk. This is an arbitrary choice. A look at the scores for test 1 and test 2 tells us that there were no large differences in scores for activities, friendship and social support but there were large differences in the scores for reciprocity. This result can be partly explained by the fact that there were fewer questions that contributed to the reciprocity

score, and since all questions were weighted, these fewer questions individually contributed much more than questions for the other scores. Aside from that, the word 'advice' in the questions was problematic and led to different interpretations. On the basis of the scores and problems encountered with the word 'advice' the questions on reciprocity should be omitted or rewritten and possibly replaced by a larger number of more suitable questions.

TABLE 6  
Activities Scores

Respondent number	Test 1	Test 2	Score difference between tests
1	32	26	6
2	17	24	7
3	28	26	2
4	26	30	4
5	26	22	4
6	25	28	3
7	31	33	2
8	28	27	1
9	31	28	3
10	27	28	1
11	32	38	6
12	24	23	1
13	28	30	2
14	25	29	4
15	22	28	4
16	28	27	1
18	28	28	0
19	21	25	4
20	31	28	3
21	26	31	5
22	27	32	5
23	25	26	1

TABLE 7  
Friendship Scores

Respondent number	Test 1	Test 2	Score differences between tests
1	48	48	0
2	48	44	4
3	48	40	8
4	48	44	4
5	28	24	4
6	48	48	0
7	48	48	0
8	48	40	8
9	48	48	0
10	40	28	12*
11	48	40	8
12	48	48	0
13	48	48	0
14	48	44	4
15	44	40	4
16	36	36	0
18	48	40	8
19	48	48	0
20	44	48	4
21	48	48	0
22	48	48	0
23	48	40	8

\* score differences of 10 or greater

TABLE 8  
Reciprocity Scores

Respondent number	Test 1	Test 2	Score differences between tests
1	48	0	48
2	48	48	0
3	40	48	8
4	0	0	0
5	48	0	48*
6	0	0	0
7	48	0	48*
8	32	32	0
9	40	45	3
10	0	0	0
11	0	0	0
12	48	48	0
13	0	0	0
14	0	0	0
15	0	40	40*
16	0	48	48*
18	40	40	0
19	40	0	40*
20	40	48	8
21	48	40	8
22	40	30	10*
23	40	48	8

\* score difference between tests are 10 or greater

TABLE 9  
Social Support Scores

Respondent number	Test 1	Test 2	Score differences between tests
1	48	48	0
2	24	24	0
3	30	39	9
4	48	48	0
5	18	21	3
6	30	30	0
7	48	48	0
8	30	30	0
9	45	48	3
10	12	21	9
11	48	48	0
12	39	48	9
13	39	48	9
14	27	27	0
15	18	27	9
16	24	24	0
18	30	27	3
19	24	30	6
20	45	48	3
21	36	36	0
22	30	48	18*
23	36	45	9

\* score difference between tests are 10 or greater

### 6.2.3 Validity Assessment of Open-ended Questions

The nature of open-ended questions makes reliability coefficients inappropriate. Reliability coefficients would indicate low reliabilities and this would be expected since open-ended questions impose few limitations on the answers and at the same time answers can be influenced by many uncontrollable factors. Reliability coefficients in the case of open questions cannot help in identifying poor open questions from acceptable ones. A look at the frequencies can reveal patterns but no findings of any precision. An examination of the frequencies provides information on validity but not on reliability. The frequencies reveal information that is consistent with the literature as reported in Subsection 2.2.2, Section 2.5 and Section 3.3 and thus confirms the validity of the questions examined.

Five open-ended questions were selected for examination because these questions were typical of the type of questions asked. Question 12 (LWEIGHT) was selected to find out whether elderly women have their own ways of losing weight. Question 24 (FAIND) was selected because the most common reason for food avoidance was indigestion. Questions 36 (FCONST) and 37 (FPCONST) were selected because the therapeutic use of foods for alleviation or prevention was more evident in constipation. Question 60 (VMCNAME) and (VMCON) attempts to find out what vitamin/mineral supplements were used and for what health condition.

Table 10 shows the frequencies for the answers given to the question of what is done to lose weight.



TABLE 10

Frequencies of Answers for Losing Weight for Test 1 and 2

Question Answers	Time 1	Time 2
Skip bedtime meal	1	1
Cut out sweets, desserts and pastries	5	3
Cut out snacks	2	
Cut out bread		2
Don't overeat	7	8
Cut down on meat and potatoes		1
Eat one meal per day	2	1
Eat low calorie foods	1	
Nothing	6	4

Question 12 (LWEIGHT). If we select 3 as an indicator of things commonly done on either test, the frequencies indicate that ways of losing weight are to cut out sweets, desserts and pastries, not over-eating and doing nothing.

Question 24 (FAIND). The frequencies, using the number 3 as an indicator of commonly avoided foods to prevent indigestion at either time 1 or time 2, show the most frequently avoided foods to be: citrus fruits, pastries, onions, legumes, salads and cabbage. Table 11 lists the frequencies.

TABLE 11

Frequencies of Answers to Question on Foods Avoided to Prevent  
Indigestion for Tests 1 and 2

Answers on food avoidance for tests 1 and 2	Time 1	Time 2
orange juice	2	2
citrus fruits	3	2
citrus fruit juices and drinks	2	2
fried, oily and fat foods	2	2
raw fruit		2
fats		1
raw vegetables	2	1
pastries	3	3
spicy foods and condiments		2
onions	3	3
spinach		1
french fries	1	1
steak	2	1
legumes	3	2
cucumber		1
salads	2	3
cafeteria stews		1
wine	1	
cauliflower	1	1
tomatoes		1
whole wheat bread		1
cabbage	4	3
green peppers	1	1
eggs		1
pork and pork products	1	

Question 36 (FCONST). Foods used to alleviate constipation are:  
bran muffins, fruits and prune juice (Table 12).

Question 37 (FPCONST). Foods used to prevent constipation are:  
orange juice, bran muffins, cooked cereal, ready to eat fibre containing  
cereals, fruit, hot water and prunes. Tables 12 and 13 show the  
frequencies of answers to questions 36 and 37. The fact that frequen-  
cies were higher for foods used to prevent constipation than to allev-

iate it may suggest that food is recognized more as a factor in prevention than in alleviation of constipation.

TABLE 12

Frequencies of Answers for Foods to Alleviate Constipation for Tests 1 and 2

Answers to foods used to alleviate constipation	Time 1	Time 2
orange juice	1	1
bran muffin	3	1
cooked cereal	1	
commercial cereal	2	1
flax	1	
apple juice	1	
fruit	3	
hot water	1	2
prunes		2
fruit juice		2
prune juice	3	1

TABLE 13

Frequencies of Answers for Foods Used to Prevent Constipation for Tests  
1 and 2

Answers to foods used to prevent constipation	Time 1	Time 2
orange juice	5	2
bran muffin	3	3
cooked cereal	3	4
ready to eat fibre containing cereals	5	6
flax	1	1
apple juice	2	1
fruit	4	2
whole wheat bread	1	
coffee	1	1
hot water	2	3
prunes	3	3
fruit juice		1
canned fruit	1	
vegetables		1
prune juice	1	1

Table 14 shows the frequencies for the vitamin/mineral supplements used (VMCNAME) and Table 15 shows the frequencies of the health conditions (VMCON) for which supplements are taken. Of the few women who were taking a supplement, they took several supplements for several conditions. The frequencies themselves cannot tell us which supplements were taken for which condition. Again using 3 as an indicator the highest frequency for the supplements used was for calcium.

TABLE 14

Frequencies of Answers for Vitamin and Mineral Supplements for Tests 1 and 2

Answers to vitamin/minerals taken	Time 1	Time 2
vitamin E	2	1
iron	1	1
vitamin C	2	1
vitamin B and C compound	1	1
calcium and vitamin D	1	1
vitamin B complex	1	1
vitamin A and D	1	1
potassium chloride		1
calcium	2	4
cod liver oil	1	

TABLE 15

Frequencies of Answers for Conditions for which Supplements were taken  
for Tests 1 and 2

Answers to conditions for which Supplements are taken	Time 1	Time 2
nerves	2	2
low potassium	2	2
shingles	1	1
eyes (inflammation)	2	1
low blood	1	2
indigestion	2	
thyroid	1	
weak bones	1	1
colds	2	1

#### 6.2.4 Conclusion for Reliability Estimates for Closed Questions

The general conclusion can be drawn that the instrument has shown an acceptable degree of reliability. For the purpose of a study using these types of questions a reliability level of 0.700 is appropriate. An estimate of reliability requires qualifying statements. Where numbers of respondents affect the reliability coefficient, that estimate is not meaningful. When reliability is largely affected by the contingent question, the coefficients again cannot tell us much.

An examination of the sources of error however, can help in correcting sources of unreliability. The reliability coefficients are helpful in identifying questions that were problematic. Identifying where the problem lies is just as important and in some cases has shown why the coefficients themselves were not meaningful. This chapter has identified sources of unreliability for the closed-ended questions. The

nature of open-ended questions precludes using reliability coefficients but instead allows us to make appropriate changes and whenever possible to devise a closed format of the questions. The final chapter will provide recommendations.

### 6.3 ANALYSIS OF THE VALIDITY OF THE ATTITUDE INSTRUMENT

The attitude questionnaire appears in Appendix G. The attitude factors and the statements that comprised each factor are identified in Appendix F. The responses to the 70 attitude statements were subjected to factor analysis to determine whether the original factors would emerge or whether with our sample a new set of factors would be identified.

As Table 16 indicates, the 70 statements can be reduced to 19 factors, each of which explains .86 units of variance or more. The cumulative proportion of variance indicates that the first five factors explain 51% (0.5143) of the variance and each of the remaining factors accounts for only a small percentage of the variance. The analysis was performed using SAS programs available through the University of Manitoba computer services (SAS, 1985).

TABLE 16  
Factors Identified and Their Variance

FACTOR	VARIANCE EXPLAINED	CUMULATIVE PROPORTION OF VARIANCE	
		IN DATA SPACE	IN FACTOR SPACE
1	10.1302	0.1447	0.1482
2	8.0060	0.2591	0.2653
3	6.9344	0.3582	0.3667
4	5.9686	0.4434	0.4540
5	4.9625	0.5143	0.5266
6	4.2713	0.5753	0.5890
7	4.0381	0.6330	0.6481
8	3.8547	0.6881	0.7045
9	3.4454	0.7373	0.7549
10	2.8767	0.7784	0.7969
11	2.4606	0.8136	0.8329
12	2.3775	0.8475	0.8677
13	2.0731	0.8771	0.8980
14	1.7616	0.9023	0.9238
15	1.6183	0.9254	0.9475
16	1.3349	0.9445	0.9670
17	1.1983	0.9616	0.9845
18	1.0592	0.9767	1.0000
19	0.8579	0.9890	
20	0.7705	1.0000	
21	0.0000	1.0000	
22	0.0000	1.0000	
23	0.0000	1.0000	
24	0.0000	1.0000	

Unrotated factor loadings for principal components were done and then the factor loadings were rotated to provide maximum separation of factors.

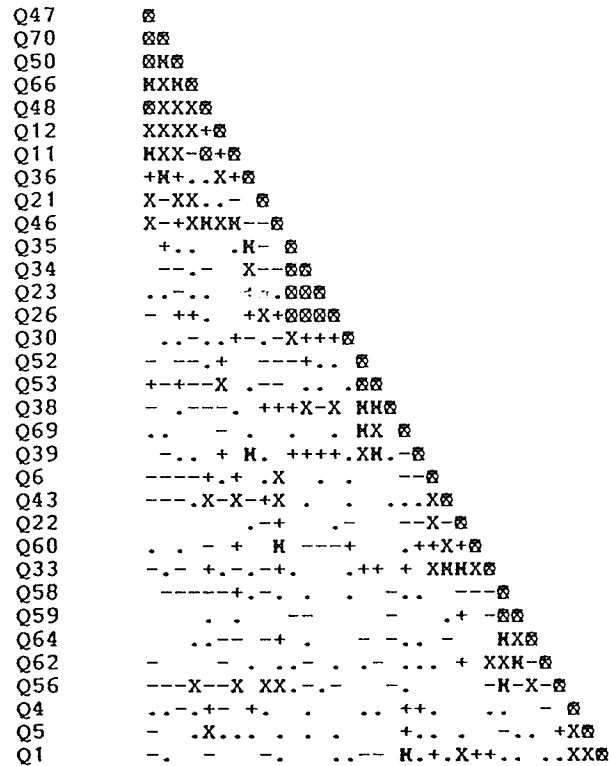
Each statement was given a factor loading value. The higher the factor loading value, the relatively more important the independent variable or statement was in controlling or accounting for a proportion of the variance in the independent variable or factor. Table 17 shows the sorted factor loadings and indicates that there are clusters of statements that fall within five major factors.



TABLE 17  
Sorted Rotated Factor Loadings (Pattern)

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
Q47	0.888	0.000	0.000	0.000	0.000
Q70	-0.854	0.000	0.000	0.000	0.000
Q50	0.773	0.000	0.000	0.000	0.000
Q66	-0.661	0.000	0.000	0.000	0.000
Q48	0.645	0.000	0.000	0.000	0.000
Q12	0.595	0.000	0.000	0.000	0.000
Q11	0.594	0.000	0.000	0.000	0.000
Q36	0.574	0.508	0.000	0.000	0.000
Q21	0.530	0.000	0.000	0.000	0.000
Q46	0.519	0.000	0.000	0.000	0.000
Q35	0.000	0.932	0.000	0.000	0.000
Q34	0.000	0.898	0.000	0.000	0.000
Q23	0.000	-0.888	0.000	0.000	0.000
Q26	0.000	-0.796	0.000	0.000	0.000
Q30	0.000	-0.503	0.000	0.000	0.000
Q52	0.000	0.000	0.956	0.000	0.000
Q53	0.000	0.000	0.914	0.000	0.000
Q38	0.000	0.000	-0.640	0.000	0.000
Q69	0.000	0.000	0.571	0.000	0.000
Q39	0.000	0.504	0.532	0.000	0.000
Q6	0.000	0.000	0.000	0.887	0.000
Q43	0.000	0.000	0.000	0.663	0.000
Q22	0.000	0.000	0.000	-0.581	0.000
Q60	0.000	0.000	0.000	0.578	0.000
Q33	0.000	0.000	0.000	-0.545	0.000
Q58	0.000	0.000	0.000	0.000	0.915
Q59	0.000	0.000	0.000	0.000	0.873
Q64	0.000	0.000	0.000	0.000	0.756
Q62	0.000	0.000	0.000	0.000	0.664
Q56	0.000	0.000	0.000	0.000	0.511
Q4	0.000	0.000	0.000	0.000	0.000
Q5	0.000	0.000	0.000	0.000	0.000
Q1	0.000	0.000	0.000	0.000	0.000

The matrix of the values of the correlations in sorted and shaded form (Figure 3) illustrates the groupings of statements into factors. The left hand side represents the statement number and the entries on the right indicate the strength of the correlations among the statements. Each grouping represents statements that are related to one another. The first five groupings form the largest groupings of statements and can be identified as factors.



THE ABSOLUTE VALUES OF  
 THE MATRIX ENTRIES HAVE BEEN PRINTED ABOVE IN SHADED FORM  
 ACCORDING TO THE FOLLOWING SCHEME

.	LESS THAN OR EQUAL TO	0.112
-	0.112 TO AND INCLUDING	0.224
	0.224 TO AND INCLUDING	0.335
+	0.335 TO AND INCLUDING	0.447
X	0.447 TO AND INCLUDING	0.559
H	0.559 TO AND INCLUDING	0.671
☒	0.671 TO AND INCLUDING	0.783
☒	GREATER THAN	0.783

Note: The Y axis comprises Q47 to Q1 as on the X axis.

Figure 3: Absolute values of correlations in sorted and shaded form

The original 70 statements and seven factors were reduced to 30 statements that clustered under five major factors. The remaining 40 statements formed factors that explained very little of the variation in the data. These statements forming the five major factors were then examined to determine if there was an underlying theme to identify the attitude and to arrive at an appropriate name for each factor.

FACTOR 1. The first 10 statements with the highest factor loadings ranging from 0.519 to 0.888 were identified. These appear in Table 18. Since six of the ten statements, including the first five statements related to health and nutrition, this factor was named GENERAL NUTRITION-RELATED ATTITUDES. The interpretation of the scores based on the 10 statements is difficult and shows that the attitude of nutrition is entwined with other considerations. The percentage of variance explained by this factor was 14.5%.

FACTOR 2. The statements in factor 2 with high factor loadings show a concern with food cost and food quality (Table 19). The factor was named COST-QUALITY. The percentage of variance explained by factor 2 was 11.4%.

FACTOR 3. At first these statements (Table 20) seemed less clearly related than the others. The first two statements are related to nutrition whereas the last three are related to the pleasurable aspects of food. This may indicate a close association between these two aspects. The factor was named NUTRITION-PLEASURE. The percentage of variance explained by factor three was 9.9%.

FACTOR 4. Four of the statements in factor 4 were concerned with food preparation and convenience (Table 21). The fourth statement in the sequence seemed incongruous but in fact may represent a very practical attitude toward eating. The name FOOD PREPARATION-PRACTICALITY applies to these statements and was given as a factor name. The percentage of variance explained by factor 4 was 8.8%.

FACTOR 5. At first glance the first four statements in Table 22 seemed to reflect an attitude toward vitamin and mineral supplements and the fifth statement seemed unrelated. However the 5 statements were from the original Health Apprehension factor and this suggests that HEALTH-APPREHENSION may be an appropriate name, since underlying each of these statements one can read the element of health safety or health concern. The percentage of variance explained by factor 5 was 7.1%.

In tables 18 to 22, the 30 statements are numbered in the order of their factor loadings as they appear in Table 17.

TABLE 18

## FACTOR 1: GENERAL NUTRITION-RELATED ATTITUDES

- 1) I do not think about nutrition when I choose foods.
- 2) An older person needs the same nutrients or food as anyone else.
- 3) Nutrition is not so important as long as I eat a lot of food.
- 4) Older people do not need to drink milk since their teeth and bones have finished growing.
- 5) Even if I take vitamins I feel that I should be concerned about the foods that I eat.
- 6) I like to exchange recipes with my friends.
- 7) Food preparation is rewarding because my friends and my family like my cooking.
- 8) The food I eat must have a very good flavour and appearance.
- 9) I like to buy foods that are in season because they cost less.
- 10) I like to make home made foods because they are nutritious.

PERCENTAGE OF VARIANCE EXPLAINED BY FACTOR 14.5

TABLE 19

## FACTOR 2: COST-QUALITY

- 1) I sometimes prefer to buy foods of lower quality because they are cheaper.
- 2) I like to buy the best quality foods.
- 3) I prefer meat substitutes such as eggs or cheese because they are less expensive.
- 4) Meat and meat products are too expensive to serve every day.
- 5) Foods such as fruit and juices are too expensive to serve every day.

PERCENTAGE OF VARIANCE EXPLAINED BY FACTOR 11.4

TABLE 20

## FACTOR 3: NUTRITION-PLEASURE

- 1) As long as the doctor doesn't say anything to me about nutrition I don't think I need to worry about it.
- 2) I feel that as long as I am maintaining my weight, I don't have to worry about nutrition.
- 3) Sometimes I buy any food I want, even if it is expensive.
- 4) No matter what age a person is, food will always have an appeal.
- 5) I want the food I eat to taste okay, but it doesn't have to be the best.

PERCENTAGE OF VARIANCE EXPLAINED BY FACTOR 9.9

TABLE 21

## FACTOR 4: FOOD PREPARATION-PRACTICALITY

- 1) I like to prepare special meals for special occasions.
- 2) Cooking does not really interest me even though I have to do it.
- 3) I prefer convenience foods such as cake mixes because they are easy to prepare.
- 4) Eating nutritious foods helps me to stay well.
- 5) I prefer to make meals that are simple and easy to prepare.

PERCENTAGE OF VARIANCE EXPLAINED BY FACTOR 8.5

TABLE 22

## FACTOR 5: HEALTH-APPREHENSION

- 1) Even if one eats a wide variety of foods, it is necessary to take a vitamin supplement at least every other day.
- 2) Taking vitamins and minerals ensure that I am not lacking anything in my diet.
- 3) People who eat a variety of available foods every day can get all the vitamins and minerals they need without taking pills.
- 4) Everyone should take vitamins just to be safe.
- 5) I think that it is not good for a person to eat a lot of meat.

PERCENTAGE OF VARIANCE EXPLAINED BY FACTOR 7.1

It is difficult to compare attitude factors of different studies but some general observations can be made. In this study, the factor Cost-Quality incorporates the factors of Frugal-Utilitarian and Qualitative-Pleasurable used by Axelson and Penfield (1983a). The factor Health-Apprehension encompasses the factor named Nutrition is Important as developed by Sims(1978).

Table 23 illustrates factors and percentages of variance explained by these factors for the study conducted by Axelson and Penfield (1983a) and for this study. The results of the analysis indicate that the statements used in this study showed better performance than those used in the study of Axelson and Penfield (1983a). In this study the sample size was small (N=22) and yet the five factors accounted for 51% of the variance in the data. The sample size in the study of Axelson and Penfield was much larger (N=66) and the four factors explained only 36% of the variance.



TABLE 23

Comparison of Factor Names and Percentage of Variance Explained

Axelson and Penfield 1983a		Present Study	
Factor Name	% Variance	Factor Name	% Variance
Social Adventurousome	9.3	General Nutrition-Related Attitudes	14.5
Frugal-Utilitarian	8.7	Cost-Quality	11.4
Qualitative-Pleasurable	9.2	Nutrition-Pleasure	9.9
Nutritious-Healthful	9.2	Food Preparation-Practicality	8.5
		Health-Apprehension	7.1
Total var. explained	36.4	Total var. explained	51.4
N=66		N=22	

### 6.3.1 Factor Scores

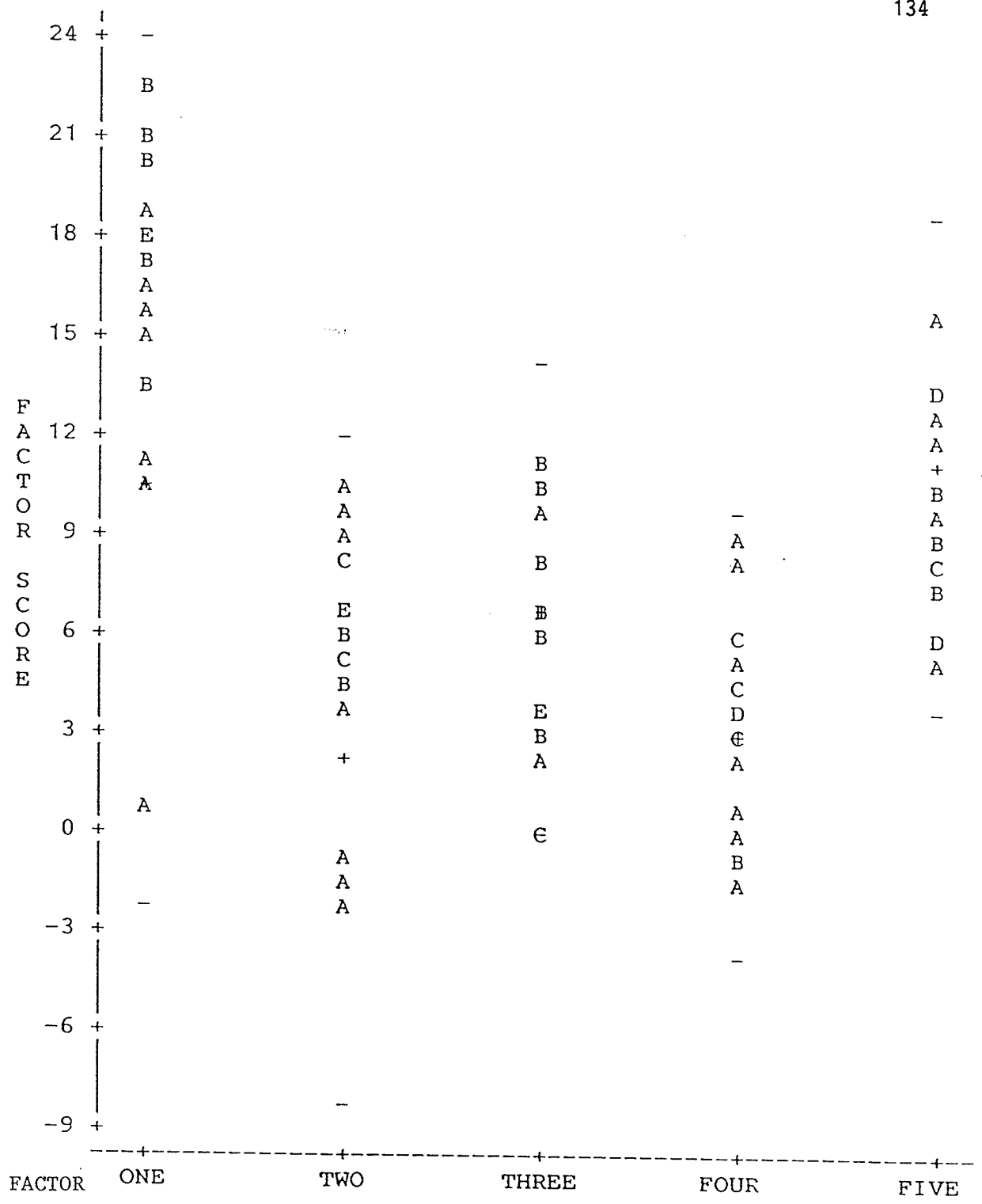
The scores for each respondent for each of the five generated factors were computed. Each statement was multiplied by its factor loading (Table 24) that reflected the contribution of each statement to the factor. Table 24 shows the scores for the 22 respondents in each of the attitude factors.

TABLE 24

Scores for Attitude Factors Generated by Factor Analysis

Subject	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1	19.887	10.631	10.205	8.939	6.018
2	17.011	9.835	3.838	-0.530	10.248
3	17.881	5.986	3.400	4.099	9.603
4	17.745	5.986	0.319	1.096	13.364
5	17.961	6.490	7.907	5.724	13.297
6	15.839	6.994	8.218	1.922	8.311
7	11.512	9.332	3.838	3.962	6.278
8	20.185	7.926	6.348	3.684	13.850
9	18.016	8.006	9.466	-0.808	12.036
10	16.265	6.886	5.708	-1.468	7.193
11	13.870	6.918	2.189	6.269	5.767
12	18.475	5.098	2.829	4.628	12.547
14	0.796	5.364	0.351	-0.031	5.767
15	13.367	4.156	3.400	4.601	13.364
16	10.561	-0.877	6.454	5.146	9.333
18	17.442	6.994	11.596	2.803	8.460
19	18.215	-2.048	3.400	2.800	8.822
20	20.858	8.324	0.319	5.809	5.252
21	22.376	4.394	6.550	8.394	10.340
22	20.884	-1.550	10.290	3.299	7.704
23	14.848	3.606	11.437	3.726	15.498
24	22.311	5.190	2.760	4.434	8.215

Figure 4 depicts the attitude scores and their frequencies. The scores are represented in the Y axis and the score frequency for each of the five factors appear as columns according to factor number. Each factor score has its own midpoint designated as (+) in the column. The maximum and minimum scores are designated as (-) at the extreme upper and lower ends of the columns. Figure 4 shows the actual scores as well as the possible minimum and maximum scores when using the factor loadings for each statement. The value for each statement was multiplied by its factor loading. The statements were then summed to provide a factor score.



Low factor score symbol (-)  
 High factor score symbol (+)  
 Mid factor score symbol (+)

A=1 observation  
 B=2  
 C=3  
 D=5

Figure 4: Plot of scores for five factors using factor loadings

### 6.3.2 Interpretation of Scores

FACTOR 1: GENERAL NUTRITION-RELATED ATTITUDES. This factor is difficult to interpret using the ten statements in Table 18 but suggests that other aspects are entwined with the attitude of nutrition. Six of the 10 statements including the first five and last statement concern health and nutrition. The remaining statements reflect attitudes toward food preparation, food cost and pleasure. This result is interesting because the first factor appears to be a generalized version of the entire questionnaire. With the exception of statements found under factor 5, this group of 10 statements reflects the content of the remaining factors. An important fact is exemplified here, namely that attitudes toward food reflect the fact that food is a social object and as such is associated with cultural and psychological considerations. Factor 1 appears to be a mini version of the attitude questionnaire and gives credence to the validity of the attitude factors. For these reasons this factor was named GENERAL NUTRITION-RELATED ATTITUDES.

FACTOR 2: COST-QUALITY. Low scores or those below the midpoint show agreement with a cost attitude because the statements concerning cost have a negative factor loading (Table 19). Those scores above the midpoint (Figure 4) show agreement with the quality attitude. Cost and quality are both involved but all the respondents except three value quality over cost. The attitude statements appear in Table 19.

FACTOR 3: NUTRITION-PLEASURE. Of the 22 respondents 9 have scores at or above the midpoint and 13 below the midpoint (Figure 4). Lower scores would indicate a preference for pleasure and the higher scores a

preference for nutrition. The scores tell us that pleasure from food is rated more highly than its nutritional value. The attitude statements appear in Table 20.

FACTOR 4: FOOD PREPARATION-PRACTICALITY. Of the 22 respondents 16 had scores at or above the midpoint for that factor and 6 had scores below the midpoint (Figure 4). This suggests that food preparation and convenience are valued but those whose scores are below the midpoint emphasize convenience (or practicality) more than food preparation. The attitude statements appear in Table 21.

FACTOR 5: HEALTH APPREHENSION. Of the 22 respondents 15 had scores below the midpoint suggesting that health apprehension is low (Figure 4). The attitude statements appear in Table 22.

### 6.3.3 Discussion

An assessment of the validity of these statements is really one of determining whether we are measuring what we intend to measure. The question of validity entails 1) determining whether the statements really measure the factors that factor analysis identified and 2) determining whether attitude factors really represent the attitudes that the name implies. This latter question cannot be answered through statistical analysis.

1) The problem with nutrition-related statements is that the subject of food is closely entwined with social, psychological and cultural factors. The validity of these statements can be argued from the point of view that in the respondent's mind certain qualities are perceived

together and cannot be separated. Each statement identified as belonging to a given factor was logically related and had factor loadings of 0.500 and over. The statements that were identified in the study by Axelson and Penfield (1983) were statements that had loadings of greater than the absolute value of 0.425.

2) The subject of nutritional attitudes does not lend itself to neat attitude packages that separate nutrition attitudes into all the distinct factors a researcher can think of. It is not surprising then that when factors are identified they encompass more than one aspect. Other researchers have failed to come up with single food and nutrition related attitude dimensions. The attitude statements of Axelson and Penfield (1983) fall under factor names that suggest more than one dimension, as for example the the factor 'SOCIAL-ADVENTURESOME'.

The results of this analysis suggest that these attitude factors are valid. A study on perceived food meanings conducted by Kronl et al. (1982) found that taste perception was the strongest motive in determining food use of older persons, followed by perception of health belief. A factor 'NUTRITION-PLEASURE' is consistent with the finding of Kronl et al. (1982) and the attitude scores of this factor also suggest that nutritious foods must have an acceptable flavor before they will be consumed. The study of Kronl and colleagues (1982) found that perceptions of price, and convenience were not single entities but could only be measured in relation to other factors. The fact that this study identified as factors, more than one attitude then, is only to be expected.

The re-emergence of an attitude factor named HEALTH=APPREHENSION also suggests validity. Rather than grouping all health-related statements into a factor called HEALTHFUL-NUTRITIOUS this study attempted to separate the so-called health statements into two types--those expressing a more positive attitude and those that tap health concern or safety. The scores for the HEALTH-APPREHENSION factor suggest that apprehension in our sample was low. The 'practices' questionnaire also showed that use of food supplements and vitamin/mineral supplements was low, suggesting that this factor is valid.

#### 6.3.4 General Statement of Validity of Attitude Instrument

Any statement of validity must consider the question 'valid for what purpose?' If we wish to capture certain attitudes, which in the respondent's mind are closely related, then these statements and their factors appear to be valid. In the respondent's mind certain qualities are perceived together. The analysis shows that these qualities do belong together. By looking at the scores one can make some judgement as to what things are important to the respondent and one can to some extent group respondents into categories on the basis of their attitude scores. For this purpose the instrument shows validity.

In summary validity is confirmed by the following:

1. Statements within the factors are both logically consistent and have factor loadings of greater than 0.500.
2. Factor names suggest entwined aspects of nutrition-related attitudes. The literature suggests that clear cut attitude categories are

difficult to obtain. The categories found are consistent with the literature.

3. The re-emergence of an attitude factor that was originally used suggests validity.

4. The congruence between the attitude factor HEALTH-APPREHENSION and actual practice as measured by the 'practices' instrument suggests validity.

5. The fact that factor 1 contains statements that reflect the content of the remaining factors except for the factor named Health-Apprehension, confirms validity by reinforcing the fact that these attitude factors are real. The fact that a statement relating to Health-Apprehension was absent is consistent with the fact that in this sample health apprehension was not a strong concern. The last five statements within factor 1 appear to have all the important aspects of the other factors. Factor 1 is a generalized factor but it is invalid in the sense that it is related to all the other factors. There are statements in factor 1 which load on more than one factor because these factors are interrelated. The other factors are more independent from each other and tap more specific dimensions of nutritional attitudes.

6. The concise group of 20 statements composing factors 2, 3, 4 and 5 can be used to categorize respondents on the basis of attitude scores, indicating that the instrument can perform its intended function.



### 6.3.5 Reliability Estimates of Attitude Statements

Internal consistency is a measure of reliability commonly used for attitude statements (Bornstedt, 1970). A statistical procedure called Pearson's correlation coefficient (Babbie, 1979) was used to determine internal consistency. If the respondent's score on each statement correlates positively with her total test score that suggests consistency of response or reliability. Internal consistency is shown when respondents with a low total score give low scores to all statements, when respondents with a high total score give high scores to all statements or when respondents with a moderate total scores give moderate scores to all statements.

Tables 25, 26, 27, 28 and 29 show the scores for each of the statements that make up the five factors. With the exception of factor 1, each of factors contained five statements with a minimum possible score of 5 and a maximum possible score of 25. All ten statements were analysed in factor 1 because these statements were originally generated by factor analysis.

Table 25 illustrates the concept of consistency. Respondent 14 had a low score for each statement and a low total score. Respondent 21 had a high score for each statement and a high total score. Respondent 16 had a moderate score for each statement and a moderate total score. Lack of consistency was shown by respondents 1 and 23. Similar examples may be seen in Tables 26, 27, 28 and 29.

TABLE 25

Factor 1 Statement Scores and Total Scores for Each Respondent

Question Number

SUBJECT	Q47	Q70	Q50	Q66	Q48	Q12	Q11	Q36	Q21	Q46	TOTAL
1	4	5	5	4	5	5	5	5	1	4	43
2	3	4	4	3	3	5	5	5	4	4	40
3	4	5	4	4	5	4	4	4	2	4	40
4	4	4	5	4	5	2	5	4	4	3	40
5	4	4	4	4	4	4	4	4	4	5	41
6	4	4	4	4	5	4	2	4	2	4	37
7	2	4	4	4	2	2	2	5	2	4	31
8	4	5	4	5	5	4	5	4	3	5	44
9	4	4	4	4	4	4	4	5	4	4	41
10	4	5	5	5	3	4	1	4	4	2	37
11	4	4	4	2	4	2	4	4	2	4	34
12	4	5	4	4	5	4	5	4	2	4	41
14	1	2	1	2	2	1	1	2	1	2	15
15	2	4	4	4	3	4	3	4	2	4	34
16	2	2	4	4	4	3	3	2	2	4	30
18	4	4	4	4	4	4	4	4	4	4	40
19	4	4	5	4	4	4	4	4	4	4	41
20	5	4	4	5	5	5	5	5	2	5	45
21	5	5	5	5	5	4	5	4	4	5	47
22	5	4	5	5	5	4	4	3	5	5	45
23	5	.	5	2	4	2	2	1	2	5	28
24	5	5	5	5	5	3	5	4	5	5	47

TABLE 26

Factor 2 Statement Scores and Total Scores for Each Respondent

Question Number

SUBJECT	Q35	Q34	Q23	Q26	Q30	TOTAL
1	5	5	4	5	5	24
2	5	5	4	4	5	23
3	4	4	4	4	4	20
4	4	4	4	4	4	20
5	4	4	4	4	4	20
6	4	4	4	4	4	20
7	5	5	4	4	4	22
8	5	4	4	4	4	21
9	4	4	4	4	4	20
10	4	5	4	4	2	19
11	5	4	4	4	4	21
12	4	4	3	4	4	19
14	4	5	4	4	4	21
15	3	3	4	4	4	18
16	2	2	3	3	3	13
18	4	4	4	4	4	20
19	2	2	2	2	2	10
20	5	5	4	4	4	22
21	4	4	4	2	4	18
22	2	2	2	2	4	12
23	2	4	4	4	4	18
24	4	4	4	3	4	19

TABLE 27

Factor 3 Statement Scores and Total Scores for Each Respondent

Question Number

SUBJECT	Q52	Q53	Q38.	Q69	Q39	TOTAL
1	4	5	1	5	4	19
2	2	2	1	2	4	11
3	2	2	2	2	2	10
4	1	1	1	1	2	6
5	4	3	2	4	3	16
6	4	4	2	2	4	16
7	2	2	1	2	4	11
8	3	3	2	2	4	14
9	4	4	4	1	5	18
10	3	3	1	2	4	13
11	2	2	1	1	2	8
12	2	2	2	1	2	9
14	1	1	1	2	1	6
15	2	2	2	2	2	10
16	4	2	2	4	2	14
18	5	4	4	4	4	21
19	2	2	2	2	2	10
20	1	1	1	1	2	6
21	3	3	4	2	2	14
22	5	5	4	2	2	18
23	5	5	5	1	4	20
24	2	2	1	2	2	9

TABLE 28

Factor 4 Statement Scores and Total Scores for Each Respondent

Question Number

SUBJECT	Q6	Q13	Q22	Q60	Q33	TOTAL
1	5	2	5	5	4	21
2	1	4	2	4	1	12
3	4	4	1	5	1	15
4	2	1	1	4	1	9
5	4	4	4	5	2	19
6	1	2	3	4	2	12
7	2	4	4	5	2	17
8	3	2	3	4	2	14
9	2	4	1	3	1	11
10	2	2	2	2	1	9
11	4	4	4	5	3	20
12	2	2	5	4	2	15
14	1	1	4	4	1	11
15	4	2	4	4	1	15
16	4	4	4	4	2	18
18	2	4	3	4	2	15
19	2	2	2	5	2	13
20	4	1	4	4	2	15
21	5	5	5	5	3	23
22	2	5	4	5	2	18
23	2	2	4	5	4	17
24	4	2	5	5	1	17

TABLE 29

Factor 5 Statement Scores and Total Scores for Each Respondent

Question Number

SUBJECT	Q58	Q59	Q64	Q62	Q56	TOTAL
1	2	2	1	1	2	8
2	3	3	2	2	4	14
3	2	4	1	3	3	13
4	4	4	2	4	4	18
5	3	4	4	3	4	18
6	2	3	2	2	2	11
7	1	2	1	2	3	9
8	4	3	4	3	5	19
9	4	4	2	2	4	16
10	2	2	1	2	3	10
11	1	2	1	2	2	8
12	4	4	2	2	5	17
14	1	2	1	2	2	8
15	4	4	2	4	4	18
16	2	3	2	2	4	13
18	2	2	2	2	4	12
19	2	3	2	2	3	12
20	1	1	1	1	4	8
21	3	3	3	1	4	14
22	2	2	1	2	4	11
23	3	5	4	5	4	21
24	2	2	1	2	5	12

Table 30 shows the correlation of each statement in a factor with the total test score for each factor for all the respondents.

TABLE 30

Item to Total Correlation for Each Factor for All Respondents

Factor 1	Statement	Correlation	Probability that correlation is greater than zero
	1	0.74367	0.0001
	2	0.75493	0.0001
	3	0.68076	0.0005
	4	0.74051	0.0001
	5	0.72407	0.0001
	6	0.71532	0.0002
	7	0.78325	0.0001
	8	0.59418	0.0035
	9	0.58217	0.0045
	10	0.56806	0.0058
Factor 2	1	0.88933	0.0001
	2	0.90963	0.0001
	3	0.85010	0.0001
	4	0.81445	0.0001
	5	0.65210	0.0010
Factor 3	1	0.96723	0.0001
	2	0.93460	0.0001
	3	0.70511	0.0002
	4	0.48957	0.0207
	5	0.66279	0.0008
Factor 4	1	0.72466	0.0001
	2	0.49760	0.0184
	3	0.72315	0.0001
	4	0.71663	0.0002
	5	0.69557	0.0003
Factor 5	1	0.87903	0.0001
	2	0.86688	0.0001
	3	0.80860	0.0001
	4	0.74941	0.0010
	5	0.65210	0.0010

#### 6.3.6 Discussion

The results of the analysis for each statement shows a positive correlation and with the exception of seven of the 30 statements analysed all have a correlation of 0.700 or greater. All statements have a positive correlation of about 0.50 and greater and all the correlations are strong. These results indicate that the instrument shows consistency and as such is reliable.



## Chapter VII

### SUGGESTIONS AND RECOMMENDATIONS

The final chapter will briefly outline key considerations when interviewing elderly women and suggest revisions for the questionnaires based on the results of analysis and on the interviewing experience.

#### 7.1 KEY CONSIDERATIONS FOR INTERVIEWING

1) The most difficult task is to obtain the interview. The literature verifies the difficulty in obtaining participants and the reluctance of elderly women to participate in surveys is documented (Coleman and Krondl, 1981).

2) The participation of elderly respondents should not be conditional upon signing a consent form because in some cases written consent is more threatening than answering questions (Chappell and Strain, undated). The researcher has found this to be true even in unexpected cases such as the case of a woman whose life occupation was teaching. She refused to sign.

3) There must be a rapport established which leads to a spirit of co-operation between interviewer and respondent. It has been noted that respondents usually react more to their relationships with the inter-

viewer than to the content of the questions they are asked (Institute for Social Research). One difficult interview with a 91 year old woman exemplifies this point. She showed embarrassment about her memory loss and anxiety about whether she was giving information to the interviewer's satisfaction. Yet upon completion of the interviews this woman expressed pride and confidence--she felt she had accomplished something. It was a co-operative effort.

4) How the interviewer establishes rapport becomes an individual matter. The point to emphasize is that the interviewer be comfortable with himself or herself first. Interviewing manuals provide basic suggestions (Institute for Social Research, 1969).

5) The interviewer must be prepared for great differences among the elderly respondents. There are no stereotypes.

6) The interviewer must be prepared for stories, diversions and possible requests outside the scope of the interviewer role.

7) The interviewer should be alert for signs of fatigue, physical discomfort and poor hearing. The researcher has found that in some cases the respondent still wants to answer questions in spite of not feeling well. Mental fatigue however should announce breaking off the interview for another time.

8) Respondents try to please or help the interviewer. The interviewer must be alert for feelings of anxiety over their own competence in providing answers or feelings of embarrassment over memory loss. It is up to the interviewer to decide how to best alleviate these obstacles to effective communication.

9) The nature of the 'practices' questionnaire itself may present a difficulty. The researcher has encountered a certain acceptance of discomfort and pain as well as a denial of it. Questions on one's health are difficult because of the tendency to deny health declines. One respondent said she had no problem with arthritic pain. Yet at another point in the interview she said she was 'full of arthritis'. When asked how she knew that, she responded 'I can feel it'. Another respondent applied ointment to her knees daily for arthritis yet claimed she had no pain. This tendency to deny could be the major obstacle in this questionnaire.

## 7.2 RECOMMENDATIONS FOR PRACTICES QUESTIONNAIRE

### Questions to be Omitted

The questions to measure social participation should be revised to include only those on friendship and activities. The questions on social support and reciprocity should be omitted. The questions on activities should remain but the interviewer should avoid becoming bogged down by precision.

The questions on social support should be omitted because they are painful. The interviewer noted these reactions--thoughtfulness, answering but turning away from interviewer, tears. There was evidence of emotional pain.

The questions on reciprocity should be omitted rather than re-written. This would shorten and simplify the instrument. The word 'advice' in the context of the question (meaning information, suggestions, ideas) was not always understood according to its intended meaning. For example one respondent said 'I don't tell anyone what to do--I don't take advice from anyone'.

Question 6 (WEIGHTC) on weight concern does not add any useful information.

Question 17 (uncoded) had no responses. No one took a food supplement for colds.

Question 11 (uncoded). No one took diet aids or drugs for weight control. It is not likely that many elderly women do.

Questions 31 and 32 (uncoded) had no responses. These questions are not useless however, since they are covered under the question on use of vitamin/mineral supplements for specific conditions (VMCON).

Question 58 (VMPRES). Asking whether the doctor prescribed the supplement may not be necessary because the answer is covered under 'Reason for use'.

### Word Revision

The word 'sometimes' should be deleted from questions such as 'Do you sometimes have trouble with indigestion?' The interviewer instructions to accept the answer 'sometimes' as 'yes' should remain.

### Questions to be Retained

Questions 54 and 55 on aspirin and anacin (ASPU, ASPO, ANACINU, ANACINO) can remain as they are. The answers for coding purposes can be considered as aspirin.

Multiple choice questions can be retained. On the surface there appears to be no reason to change the format or the categories. The questions on how often (OFINDI, OFCONST) for example may be difficult but nothing is gained by turning them into open questions.

### General Question Revision

In each case the questions on home remedies and the therapeutic use of foods should be combined into one question since they were intended to ask the same question in different ways. Nothing was gained by asking two questions.

### Revising Open-Ended Questions

The answers to the open-ended questions can be used to generate categories of responses in forming closed questions. An 'other' category should be added to catch responses not found on the list. Using the answers obtained for the open version, the open questions discussed can be revised to form closed questions as follows.

Question 24 (FAIND): I will read a list of foods. Tell me if you avoid any of these foods because it disagrees with you.

- citrus fruits
- citrus fruit juice
- raw fruit
- onions
- cabbage
- tomatoes
- cauliflower
- green pepper
- spinach
- salads
- dried legumes
- whole wheat bread and baked products
- white bread
- pastries
- fried foods
- spicy foods
- meat
- other

Question 37 (FCONST): I will read a list of foods and beverages. Tell me if you use any of these foods or beverages to alleviate constipation.

- orange juice
- prune juice
- apple juice
- fruit juice (other than above)
- hot water
- bran muffin
- cooked cereal
- ready to eat cereal
- flax
- prunes
- other

Question 36 (FPCONST): I will read a list of foods and beverages. Tell me if you use any of these foods and beverages to prevent constipation.

- orange juice
- apple juice
- prune juice
- hot water
- coffee
- fruit
- vegetables
- bran muffin
- cooked cereal
- ready to eat cereal

whole wheat bread  
flax  
other

Question 12 (LWEIGHT): I will read a list of things some people do to lose weight. Tell me which answers apply to you.

cut down on sweets and desserts  
cut out snacks  
cut down on meat  
cut down on potatoes  
cut down on bread  
eat low calorie foods  
skip a meal  
eat less  
do nothing

### 7.3 RECOMMENDATIONS FOR ATTITUDE STATEMENTS

Factors 2, 3, 4 and 5 should be retained. The statements within these factors were not found to be problematic although some in the original version of 70 statements were subject to different interpretations.

When asking respondents to indicate their responses to each statement it is suggested that the interviewer first explain that the purpose is to get at feelings, that there are no right or wrong answers and that the first response that comes to mind should be given. This approach is suggested because the purpose is to tap feelings more than thought. If the respondent tries to use thought processes to arrive at answers, she is more likely to be giving an opinion.

#### 7.4 IMPLICATIONS OF STUDY

The revised version of the questionnaires can be used in a study of the factors that impinge upon the nutritional status of elderly women living alone. Hypotheses can be developed from the questionnaires themselves.

Possible hypotheses that emerge from this exploratory study that remain to be tested are:

1) That high scores in certain attitude factors are correlated with certain health practices. For example, health apprehension is correlated with the behaviour of using vitamin and mineral supplements.

2) That levels of social participation or levels of physical health are associated with certain attitudes.

3) That certain attitudes are associated with particular habits and eating patterns.

With regard to the attitude scales themselves, these can describe the attitudes of the elderly and can be used to focus programs toward specific segments of elderly who display common attitudes. For example, in our small sample, one would want to take advantage of the following attitudes:

- \* that nutrition is important
- \* that good quality food is important
- \* that food must be appealing as well as nutritious
- \* that food preparation should generally be convenient and



\* that these respondents are not apprehensive about the nutritional quality of their food.

The usefulness of using an attitude instrument to assess attitudes is that candidates for a nutrition program may be assessed using their attitude scores and a diversity of programs could be developed to meet their particular interest. Those that score highly on the nutrition-pleasure factor would prefer a program that focuses on nutrition. Those that score highly on the convenience factor would prefer a program that highlights ease of food preparation. Such programs would be feasible in senior centres.

With this emphasis on attitudes, it is necessary that we remember that this is only part of the model. Other influences on an individual's nutrition - related behaviour are group norms and social participation.

The findings of a larger survey could facilitate the development of nutrition programs that could encourage innovative use of foods and possibly finding ways to using foods that are commonly avoided. The ultimate goal is to achieve a healthy, well nourished elderly population.

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Appendix A  
LETTER OF CONSENT



## \*CONSENT FORM

I understand that the purpose of the interview is to develop a questionnaire which will be used in a later study. The information I provide is strictly confidential. I am free to decline answering questions that I do not wish to answer.

---

Signature

---

Date

Appendix B  
LETTERS OF CORRESPONDENCE



THE UNIVERSITY OF MANITOBA

FACULTY OF HUMAN ECOLOGY

Winnipeg, Manitoba  
Canada R3T 2N2

November 24, 1986

Mrs. Mary Lou McMahon, President  
Harrow United Church Women  
1238 Hector Bay  
Winnipeg, Manitoba

Dear Mrs. McMahon:

This letter introduces Mary Jane Rampersad, a student from the U. of M., Dept. of Foods and Nutrition, who is conducting interviews with women aged 65 and over in Winnipeg. The interviews are done with older women who live alone for the purposes of the research project entitled "Nutrition-related Attitudes and Practices of Elderly Women Living Alone". Mary Jane would like to meet with your group for the purpose of obtaining women who are willing to participate in the interviews.

The information participants provide is confidential and their identities remain anonymous to everyone except the person doing the interviews. This part of the study involves testing a questionnaire. One procedure for testing questionnaires is to repeat the same interview at another time. Anyone willing to participate would be interviewed twice. Testing the questionnaire in this manner is helpful in making changes. The questionnaire once revised, will be used in a later study. It is hoped that each interview will take about one hour. Participants are free to refuse answering any questions they are not comfortable with.

I hope that you can help us by allowing Mary Jane to meet with your group or by providing her with names of potential participants who she may contact by telephone. If you have any questions about this project, feel free to call:

Mary Jane Rampersad - Home 474-4068; University 474-8315 OR  
Ruth Diamant - University 474-8070.

Yours sincerely,

R.M.F. Diamant  
Associate Professor

Mary Jane Rampersad  
Master's Graduate Student

MJR:nrn



THE UNIVERSITY OF MANITOBA

FACULTY OF HUMAN ECOLOGY

Winnipeg, Manitoba  
Canada R3T 2N2

November 24, 1986

Mrs. Joan McKeag-Barker  
Director of Volunteer Services  
Lion's Manor  
320 Sherbrook Street  
Winnipeg, Manitoba  
R3B 2W6

Dear Mrs. McKeag-Barker:

Thank you for taking the time to discuss the possibility of finding participants to assist in the reliability and validity testing of the questionnaires being developed and for obtaining participants and arranging interviews.

The interviewing experience has been a challenging and positive experience for both myself and the participants. As a token of appreciation, I am happy to take part in a nutrition-related program at the Lion's Manor. Since the interviews have generated some curiosity, I am also happy to meet with the participants to discuss the questionnaire and results at a later time.

Please feel free to contact me to discuss any contribution I can make to your programs. Your assistance has been invaluable to me. Thank you.

Yours truly,

Mary Jane Rampersad  
Master's Graduate Student

MJR:prp



THE UNIVERSITY OF MANITOBA

FACULTY OF HUMAN ECOLOGY  
Department of Foods and NutritionWinnipeg, Manitoba  
Canada R3T 2N2

(204) 474-9901

TO WHOM IT MAY CONCERN

This introduces Mary Jane Rampersad, a student from the University of Manitoba, Department of Foods and Nutrition who is conducting interviews with women aged 65 and over in Winnipeg. The interviews are done with older women who live alone, for the purposes of the research project entitled "Nutrition-Related Attitudes and Practices of Elderly Women Living Alone". Mary Jane would very much like your help with this project.

The information you provide is confidential and you will remain anonymous to everyone except the person who interviews you. This part of the study involves testing a questionnaire. Your participation will be useful in making changes on the questionnaire that will be used in a later study. One procedure for testing questionnaires is to repeat the same interview at another time. Anyone willing to participate would be interviewed twice. It is hoped that each interview would take about one hour. You are free to refuse to answer any question you are not comfortable with.

I hope that you can help us and that you will enjoy the interview. If you are willing to be interviewed for this project or wish to ask questions about it please call:

Mary Jane Rampersad - home - 474-4068  
university - 474-8315

or

Ruth Diamant - university - 474-8070.

Yours sincerely,

Ruth Diamant  
Associate Professor

*Mary Jane Rampersad*  
Mary Jane Rampersad  
Investigator

Appendix C

CONCEPTS, INDICATORS AND OPERATIONALIZATION

1. CONCEPT SES

Indicators:

Educational attainment Q 2.

Previous occupation Q 3 .

Monthly income Q 4 .

2. CONCEPT SOCIAL PARTICIPATION

Indicators:

Friendship: number of friends, contact with Q 1-3.

Social Support: presence of confidante, availability of help, number of close friends. Q 4-9

Social Activities: Q 12.

Reciprocity: the giving and receiving of information.  
Q 10,11

3. CONCEPT HEALTH

Indicators:

Self-assessment: questions on present health rating, comparative health rating, doctor's visits, number of health problems if treatment is received. Q 1-4

#### 4. CONCEPT NUTRITION-RELATED HEALTH PRACTICES

##### Indicators:

Therapeutic use of foods: operationalized by questions on use of foods or home remedies involving food for problems of weight, colds, indigestion, arthritis, sleeping, constipation and other health problems. Q 15,16,21,23,27, 28,36,39,44,45,48

Food Avoidance: operationalized by questions on whether some foods are avoided and which foods they are. Q 8,9, 24,29,32,33,38,48,53,63,73,95,96,98-102,105,106

Food Supplements: operationalized by questions on whether they are used and what they are. Q 17,32,62-65

Drug use: operationalized by questions on number of drugs, doctor prescribed yes or no, what drugs, perceived effects, use of aspirins or anacin, use of OTC drugs, use of vitamin or mineral supplements. Q 11,16,18,22,30,31 40,46,47,49-60

Eating Patterns: operationalized by questions on how many meals are eaten, if there is any change in eating habits, if snacks are eaten, and by questions on rating diet, appetite and reason for poor appetite. Q 66-71

#### 5. CONCEPT REASONS UNDERLYING NUTRITION-RELATED HEALTH PRACTICES

##### Indicators:

Questions that ask why aspirins/anacin are used, whether

supplements are used for a special condition, question  
reason for supplements, reason for food avoidance,  
reason for poor appetite.reason underlying concern  
about weight. Q 22,30,56,58,59,60,61,64,65,79,84,  
97,102



Appendix D

SCORING

The values for each question are in the practices questionnaire. The values for each indicator for 'social participation' were weighted so that each question contributed equally to the total score.

TABLE 31

Scoring for Social Participation Measures

Friendship	12x4=48
Social support	16x3=48
Reciprocity	6x8=48
Activities	48
Total	<hr/> 192

Possible Groupings      derived by dividing total score into thirds

HIGH	129-192
MEDIUM	65-128
LOW	1-64

TABLE 32  
Scoring for Health Measures

Health Score	Questions 1-4
	Question 1 highest score=5
	Question 2 highest score=3
	Question 3 highest score=5
	Question 4 highest score=2
	Highest possible total= 15

Possible Groupings

Excellent	12-15
Fair	5-11
Poor	1-4

Appendix E  
PRACTICES QUESTIONNAIRE

- \_\_\_\_\_
1. What age group do you belong to?
- |                    |       |
|--------------------|-------|
| 1) 65-70----       | _____ |
| 2) 71-75           | _____ |
| 3) 76-80-----      | _____ |
| 4) 81-85-----      | _____ |
| 5) 86 or over----- | _____ |

2. How far did you go in school? INTERVIEWER: CHECK APPROPRIATE ANSWER

- 1) Elementary school \_\_\_\_\_ GRADE \_\_\_\_\_
- 2) High school? \_\_\_\_\_ GRADE \_\_\_\_\_
- 3) Post high school, business or trade school or special  
training ie apprenticeship-----

3. What kind of work have you done most of your life? INTERVIEWER: CHECK ONE ANSWER. IF PERSON DID NOT RECEIVE A SALARY ASK WHAT KIND OF WORK WAS DONE IE HOMEMAKER, FARMING ETC.

- 1) Never employed----- Work done-----
- 2) Employed----- Occupation-----

4. What is your average monthly income including the old age security payment?

- 1) No income \_\_\_\_\_
- 2) Less than \$250 \_\_\_\_\_
- 3) \$250-499 \_\_\_\_\_
- 4) \$500-749 \_\_\_\_\_
- 5) \$750-999 \_\_\_\_\_
- 6) \$1000-1249 \_\_\_\_\_
- 7) \$1250-1499 \_\_\_\_\_
- 8) \$1500-1749 \_\_\_\_\_
- 9) \$1750-1999 \_\_\_\_\_
- 10) \$2000-2249 \_\_\_\_\_
- 11) \$2250-2499 \_\_\_\_\_
- 12) \$2500-2749 \_\_\_\_\_
- 13) \$2750-2999 \_\_\_\_\_
- 14) \$3000 or more \_\_\_\_\_
- 88) Don't know \_\_\_\_\_
- 99) No answer \_\_\_\_\_

## FRIENDS AND RELATIVES

The second set of questions are about your friends and relatives and how you feel about them. INTERVIEWER: CIRCLE ONE ANSWER.

1. How many friends or relatives do you know well enough to visit with in their own homes or have them visit you?

1) Five or more

4

\_\_\_\_\_

2) Three to four

3

\_\_\_\_\_

3) One to two

2

\_\_\_\_\_

4) None

0

\_\_\_\_\_

2. Generally about how many times did you talk to someone--friends, relatives or others on the telephone in the PAST WEEK?

1) Three or more times

4

\_\_\_\_\_

2) Twice

3

\_\_\_\_\_

3) Once

2

\_\_\_\_\_

4) Not at all

0

\_\_\_\_\_

3. How many times during the PAST WEEK did you spend time with someone, that is you went to see them or they came to visit you or you went out to do things together? INTERVIEWER: PROBE TO FIT INTO CATEGORIES.

1) Three or more times

4

\_\_\_\_\_

2) Twice

3

\_\_\_\_\_

3) Once

2

\_\_\_\_\_

4) Not at all

0

\_\_\_\_\_

Friends Possible total - 17

4. Do you have someone you can trust and confide in?

1) Yes----  3

2) No----  0

3) Don't know-----

---

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---

5. If you find yourself feeling lonely would you say this happens

1) Quite often  1

2) Sometimes  2

3) Almost never  3

---

---

---

6. Is there someone who would help you now and then---take you to the doctor, to the supermarket , shopping for clothes etc?

1) Yes\_\_\_\_  3

2) No-----  0

3) Don't know-----

---

---

---

7. Is there someone who would take care of you for a short time ( a few weeks to six months)?

1) Yes---  3

2) No----  0

3) Don't know-----

---

---

---

8. Is there someone who could take care of you as long as needed?

- a) Yes \_\_\_\_\_  3
- b) No-----  0
- c) Don't know-----

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

9. Some people think of themselves as having just one or two really close friends. Others see themselves as having a large number of people they are really close and friendly with. Which of these comes closer to you?

- 1) I have no close friends  1
- 2) I have one or two close friends  1
- 3) I have three or four close friends  1
- 4) I have a large number of close friends  1

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Support Possible Total 16

10. Sometimes friends give each other advice. Do you and your friends ever exchange advice? INTERVIEWER: THE FOLLOWING QUESTIONS APPLY TO RELATIVES AS WELL.

- 1) Yes-----
- 2) No----- (GO TO QUESTION 25)  0
- 3) Don't know-----

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

11. Which statement is most true? INTERVIEWER: CIRCLE ONE.

- 1) We give each other advice about equally
- 2) I give more advice than my friends
- 3) My friends give me more advice
- 4) We seldom give each other advice

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Remainder Possible Total \_\_\_\_\_



Now I would like to ask you some questions about your social activities. Please indicate which activities you participate in.

INTERVIEWER: NEVER=1, ONCE=~~2~~, ONCE A MONTH=3, ONCE A WEEK=~~4~~.

CIRCLE APPROPRIATE NUMBER.

12. In the PAST YEAR have you

- 1) Gone to a senior center, or attended a senior citizen's group? 1 2 3 4. \_\_\_\_\_
- 2) Attended a church or synagogue service?  
1 2 3 4 \_\_\_\_\_
- 3) Gone to meetings of a church group? 1 2 3 4 \_\_\_\_\_
- 4) Gone to a sporting event? 1 2 3 4 \_\_\_\_\_
- 5) Participated in a physical activity like swimming, bicycling, or bowling? 1 2 3 4 \_\_\_\_\_
- 6) Played cards, bingo or some other game? 1 2 3 4 \_\_\_\_\_
- 7) Eaten out at a restaurant for a special occasion with friends or relatives? 1 2 3 4 \_\_\_\_\_
- 8) Babysat for grandchildren or other children?  
1 2 3 4 \_\_\_\_\_
- 9) Visited a friend or relative out-of-town for overnight or longer? 1 2 3 4 \_\_\_\_\_
- 10) Gone out-of-town for a vacation? 1 2 3 4 \_\_\_\_\_
- 11) Had a visit from a friend or relative who lives out of town? 1 2 3 4 \_\_\_\_\_
- 12) Done volunteer work? 1 2 3 4 \_\_\_\_\_

Activities Possible Total \_\_\_\_\_  
48

## PHYSICAL HEALTH

Now I would like to ask you some questions about your physical health. Please remember there are no right or wrong answers. Your answers will be kept strictly confidential. INTERVIEWER: CIRCLE THE BEST ANSWER.

1. How would you rate your health at the present time compared to others your own age?

- 1) Very poor
- 2) Poor
- 3) Fair
- 4) Good
- 5) Excellent

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2. How would you rate your health now compared to when you were 60?

- 1) Worse now
- 2) About the same
- 3) Better now

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3. Here is a list of some health problems. If you have any of the following health problems, say YES as I read them.

INTERVIEWER: CIRCLE EACH CONDITION RESPONDENT SAYS YES TO.

FILL IN CONDITIONS NOT IN THE LIST ON THE LINE 'OTHER'.

- |  |                    |     |           |       |
|--|--------------------|-----|-----------|-------|
| 1) I have no health problems                                 |                    |     |           | _____ |
| 2) Eye trouble not relieved by glasses (Cataracts, glaucoma) |                    |     |           | _____ |
| 3) Hard of hearing   |                    |     |           | _____ |
| 4) Arthritis   |                    |     |           | _____ |
| 5) Heart problems  | 5 or more ailments | = 1 | very poor | _____ |
| 6) Ulcers  | 4                  | = 2 | poor      | _____ |
| 7) Colitis   | 3                  | = 3 | fair      | _____ |
| 8) Diverticulitis  | 2                  | = 4 | good      | _____ |
| 9) Stroke  | 1                  | = 5 | excellent | _____ |
| 10) Cancer   |                    |     |           | _____ |
| 11) Diabetes   |                    |     |           | _____ |
| 12) Lung problems  |                    |     |           | _____ |
| 13) Osteoporosis (fragile bones)                             |                    |     |           | _____ |
| 14) Allergies  |                    |     |           | _____ |
| 15) High blood pressure                                      |                    |     |           | _____ |
| 16) Other-----   |                    |     |           | _____ |

4. Are you receiving any treatment from a physician for any of your health problems?

- 1) Yes-----
- 2) No-----

Health Possible Total 15

## HEALTH PRACTICES

The next questions are about health practices. The questions will cover the topics of weight control, colds, indigestion, arthritis, constipation and sleeping. Again there are no right or wrong answers. The first questions are about weight control.

5. Do you consider yourself to be

- 1) About the right weight
- 2) Underweight
- 3) Overweight

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6. If you are concerned about your weight which reason best applies to you? INTERVIEWER: PROBE TO FIND WHICH REASON UNDERLIES CONCERN ABOUT WEIGHT.

- 1) Appearance
- 2) Health

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7. What would you like to do about your weight?

- 1) Gain weight (GO TO 10)
- 2) Lose weight (GO TO 8)
- 3) Nothing (GO TO 12)

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8. Are there any foods that you avoid to lose weight?

1) Yes-----

2) No-----

---

---

9. Can you tell me what these foods are?

-----

INTERVIEWER: THE FOLLOWING QUESTIONS CAN APPLY TO EITHER LOSING  
WEIGHT OR GAINING WEIGHT. CROSS OUT THE WORD THAT DOESN'T APPLY.

10. Have you taken any drugs or diet aids to help you LOSE/GAIN weight?

1) Yes (for losing) -----

2) Yes (for gaining) -----

3) No ----- (GO TO 12)

---

---

---

11. Can you tell me what these drugs or diet aids are?

-----

12. In general tell me what you do when you want to LOSE/GAIN weight?

-----  
-----

The next set of questions are about colds and how you treat a cold. You may have your own remedy for a cold.

13. How often would you say you get a cold?

- 1) Twice a year or less \_\_\_\_\_
- 2) Three times a year or more \_\_\_\_\_

14. When you have a cold do you do anything to help it?

- 1) Yes---- \_\_\_\_\_
- 2) No---- (GO TO 19) \_\_\_\_\_

15. Do you have any home remedies that you use for a cold? INTERVIEWER  
IF NO WRITE NONE. If so can you tell me what these are? (DESCRIBE)

-----  
\_\_\_\_\_  
\_\_\_\_\_

16. Are there any foods or beverages that you take to help alleviate a cold? (IF NO WRITE NONE) If so can you tell me what they are? (DESCRIBE).

-----  
-----

17. Are there any food supplements that you take for a cold? (IF NO WRITE NONE). If so can you tell me what they are? (DESCRIBE).
- 

18. Are there any drugs or drug store products that you take for a cold? (IF NO WRITE NONE) If so can you tell me what they are? (DESCRIBE).
- 

The next questions are about problems with INDIGESTION and ARTHRITIS. INTERVIEWER: INDIGESTION COULD MEAN GAS, HEARTBURN, A FEELING OF FULLNESS OR STOMACHE PAIN.

19. Do you have sometimes have trouble with indigestion?

- 1) Yes-----  
2) No----- (GO TO 25)
- \_\_\_\_\_
- \_\_\_\_\_

20. How often would you say that you have indigestion?

- 1) Nearly every day  
2) Once or twice a week  
3) Once or twice a month  
4) Less than once a month
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

21. Do you have any home remedies for indigestion? (IF NO WRITE NONE).  
If so can you tell me what they are? (DESCRIBE).

-----  
-----

22. Do you take any drugs or drug store products for indigestion? (IF  
NO WRITE NONE). If so can you tell me what they are? (DESCRIBE).

\_\_\_\_\_

23. Are there any foods or beverages that you take to alleviate or  
prevent indigestion? (IF NO WRITE NONE). If so can you tell me  
what they are? (DESCRIBE).

-----  
-----

24. Are there certain foods or beverages that you avoid to prevent  
indigestion? (IF NO WRITE NONE). If so can you tell me what  
they are? (DESCRIBE).

-----  
-----

25. Do you sometimes have problems with arthritic pain?

1) Yes-----

2) No----- (GO TO 33)

\_\_\_\_\_  
\_\_\_\_\_



26. How often would you say you have arthritic pain?

- 1) Nearly every day
- 2) Once or twice a week
- 3) Once or twice a month
- 4) Less than once a month
- 5) It can vary with the weather

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---

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27. Do you have any remedies for arthritis? (IF NO WRITE NONE). If so can you tell me what they are? (DESCRIBE).

---

---

28. Are there any foods or drinks that you take to alleviate arthritis? (IF NO WRITE NONE). If so can you tell me what they are?

---

29. Are there any foods or beverages that you avoid because they may aggravate this problem? (IF NO WRITE NONE). If so tell me what foods or beverages you avoid.

---

30. Are there any drugs or drug store products that you are taking for arthritis? (IF NO WRITE NONE). If so can you tell me what you are taking?

---

31. Do you take any vitamin or mineral supplements for arthritis?  
(IF NO WRITE NONE). If so can you tell me what they are?

-----

32. Do you take any food supplements for arthritis? (IF NO WRITE  
NONE). If so can you tell me what they are?

-----

THE NEXT QUESTIONS ARE ABOUT A COMMON PROBLEM OF CONSTIPATION.

33. Do you have a problem of constipation? INTERVIEWER: ACCEPT  
'SOMETIMES' AS YES.

1) Yes-----

2) No----- (GO TO 36 AND THEN TO 41)

34. How often would you say that you have a problem with constipation?

1) Nearly every day

2) Once or twice a week

3) Once or twice a month

4) Less than once a month

35. How do you decide that there is a problem of constipation?

INTERVIEWER: PROBE FOR HOW MANY DAYS WITHOUT A BOWEL MOVEMENT IS USED TO DETERMINE CONSTIPATION BUT ALSO ACCEPT OTHER INDICATORS.

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36. Are there any foods or beverages that you take to PREVENT constipation? (IF NO WRITE NONE). If so tell me what these foods or beverages are?

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37. Are there any foods or beverages that you take to alleviate or correct constipation? (IF NO WRITE NONE). If so tell me what the are?

---

38. Are there any foods or beverages that you avoid because they may be constipating? (IF NO WRITE NONE). If so what are they?

---

39. Do you have any home remedies to alleviate constipation? (IF NO WRITE NONE ). If so can you tell me what these are? (DESCRIBE).

---

---

40. Are there any drugs or drug store products that you take to correct constipation? (IF NO WRITE NONE). If so what are they?
- 

THE NEXT QUESTIONS ARE ABOUT DIFFICULTIES IN SLEEPING. INTERVIEWER CIRCLE THE BEST ANSWER. ACCEPT 'SOMETIMES' AS YES.

41. Do you have problems falling asleep or waking up during the night and not being able to fall asleep again?

- 1) Yes----  
2) No---- (GO TO 48)
- 
- 

42. How often would you say that you have trouble sleeping?

- 1) Every night  
2) Several times a week  
3) Several times a month  
4) Less than once a month
- 
- 
- 
- 

43. Can you think of any reason why you have difficulty in sleeping?
-

44. Are there any foods or beverages that you take to help you sleep?  
(IF NO WRITE NONE). If so tell me what they are.
- 

45. Do you have any home remedies to help you sleep? (IF NO WRITE  
NONE). If so can you tell me what they are? (DESCRIBE).
- 

46. Do you take any drugs or drug store products to help you sleep?  
(IF NO WRITE NONE). Can you tell me what these drugs or products  
are?
- 

INTERVIEWER: IF A SLEEPING PILL IS TAKEN GO TO QUESTION 47

47. If you use a sleeping pill how often do you take  
it?

- 1) Every time I cannot sleep \_\_\_\_\_
- 2) Only once in a while \_\_\_\_\_
- 3) Regularly whether I can sleep or not \_\_\_\_\_

48. Are there any home remedies that you found helpful for any OTHER health problems that you have? INTERVIEWER: LOOK FOR PROBLEMS THAT OCCURRED IN THE PAST YEAR AND THAT DO NOT INCLUDE PROBLEMS ALREADY DISCUSSED. IF NO WRITE NONE.

Problem	Home remedies
_____	_____
_____	_____
_____	_____
_____	_____

#### QUESTIONS ON DRUGS AND NUTRITION

Now I would like to ask you some questions on the drugs you may be taking and how these may affect you.

49. Are you taking any drug(s) that your doctor has prescribed?

1) Yes-----

2) No----- (GO TO 54)

\_\_\_\_\_  
\_\_\_\_\_

50. How many are you taking?

Number of drugs \_\_\_\_\_ Names \_\_\_\_\_

-----  
-----  
-----

51. Do any of these drugs affect your appetite?

1) Yes-----

2) No----- (GO TO 53)

3) Don't know-----

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

52. If your appetite is affected by any drugs in what way is it affected?

1) My appetite is increased

2) My appetite is decreased

\_\_\_\_\_  
 \_\_\_\_\_

53. Do you have any other side effects? INTERVIEWER: THESE SIDE EFFECTS ARE WHAT RESPONDENT PERCEIVES THEM TO BE. SOME SIDE EFFECTS COULD BE DRY MOUTH, DROWSINESS, PERSPIRATION, VISUAL IMPAIRMENT, STOMACH UPSET OR NAUSEA ETC.

\_\_\_\_\_

54. Do you use aspirins? Anacin? ACCEPT 'SOMETIMES' AS YES.

1) Yes-----

1) Yes-----

2) No----- (GO TO 57)

2) No----- (GO TO 57)

\_\_\_\_\_  
 \_\_\_\_\_

55. Do you take Aspirins?

Anacin?

1) Regularly

1) Regularly

2) Occasionally

2) Occasionally

\_\_\_\_\_  
 \_\_\_\_\_

56. Why do you use aspirins? INTERVIEWER: TREAT AS OPEN QUESTION  
 PROBE, FIT ANSWERS INTO CATEGORIES AND FILL IN 'OTHER' WHEN  
 APPROPRIATE.

- 1) I use aspirins to relieve pain \_\_\_\_\_
- 2) I use aspirins to relieve a chronic disease such as  
 arthritis. \_\_\_\_\_
- 3) I use aspirins to help me sleep \_\_\_\_\_
- 4) I use aspirins to prevent health problems such as heart  
 attack or stroke. \_\_\_\_\_
- 5) Other----- \_\_\_\_\_

I would like to ask a few more questions on the subject of  
 VITAMINS and MINERAL SUPPLEMENTS.

57. Do you REGULARLY take a mineral or vitamin supplement?

- 1) Yes---- \_\_\_\_\_
- 2) No---- (GO TO 62) \_\_\_\_\_

58. If you take a mineral or vitamin supplement fill in the details.

BRAND	TYPE	HOW OFTEN	DR. PRESCRIBED	REASON FOR USE
			YES or NO	
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____



59. Do you take a vitamin or mineral supplement for a specific health condition?

- 1) Yes-----
- 2) No-----
- 3) Don't know-----

\_\_\_\_\_  
 \_\_\_\_\_

60. If yes state what you take and for what condition.

Vitamin or mineral taken ----- Condition -----  
 ----- Condition -----  
 ----- Condition -----

61. What reason best describes why you take a mineral or vitamin supplement? INTERVIEWER : CIRCLE ONE ANSWER ONLY.

- 1) I am offered some protection against colds.
- 2) These products cannot do any harm but may be beneficial
- 3) I experience an improvement in my health when I take a vitamin or mineral supplement.
- 4) These products help a person indirectly.

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

QUESTIONS ON FOOD SUPPLEMENTS

62. Do you take a food supplement?

- 1) Yes-----
- 2) No----- (GO TO 66)

\_\_\_\_\_  
 \_\_\_\_\_

63. From the list of food supplements indicate which ones you use. INTERVIEWER: CHECK SUPPLEMENTS USED AND WRITE NAME OF SUPPLEMENT UNDER 'OTHER' WHEN APPROPRIATE.

- 1) Brewers yeast \_\_\_\_\_
- 2) Lecithin \_\_\_\_\_
- 3) Kelp (powder or tablet) \_\_\_\_\_
- 4) Herbal tonics \_\_\_\_\_
- 5) Garlic pills \_\_\_\_\_
- 6) Other----- \_\_\_\_\_

64. Do you take a food supplement for a specific health condition?

- 1) Yes---- \_\_\_\_\_
- 2) No---- \_\_\_\_\_

65. If yes state what you take and for what condition.

Food supplement taken ----- Condition -----  
 ----- Condition -----  
 ----- Condition -----

QUESTIONS ON EATING PATTERNS

The last questions are on your eating patterns.

66. In general how many meals do you have in a day?

- 1) More than three meals a day
- 2) Three meals a day
- 3) Two meals a day
- 4) One meal a day

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67. Can you describe your meal pattern, that is what meals you eat and when you eat them? INTERVIEWER: LOOK FOR WHAT MEALS ARE EATEN AND WHAT TIME OF DAY THEY ARE EATEN.

MEALS EATEN

TIME OF DAY EATEN

---



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68 Do you eat at regular times each day?

- 1) Almost always
- 2) Sometimes
- 3) Almost never
- 4) Don't know

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69. How many days a week (on the average) do you eat the following meals?

- 1) Breakfast-----
- 2) Lunch or dinner-----
- 3) Supper-----
- 4) Don't know-----

---

---

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70. Do you eat snacks? INTERVIEWER: ACCEPT 'SOMETIMES' AS YES.

- 1) Yes-----
- 2) No----- (GO TO 72)
- 3) Don't know-----

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71. When you eat snacks what time of day is it usually at?

- 1) In mid-afternoon
- 2) In mid-morning
- 3) In the evening
- 4) During the night
- 5) Don't know

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72. Are there certain foods that you purposely avoid?

- 1) Yes-----
- 2) No----- (GO TO 75)

---

---

73. If there are foods that you avoid can you list them?

---

74. Which answer best describes the reason for avoiding these foods?

- 1) I avoid these foods because I don't like them \_\_\_\_\_
- 2) I avoid these foods because they are fattening \_\_\_\_\_
- 3) I avoid these foods because they disagree with me \_\_\_\_\_
- 4) I avoid these foods because of doctor's orders \_\_\_\_\_
- 5) Other \_\_\_\_\_

75. Since you have grown older have your eating habits changed in any way? INTERVIEWER: ACCEPT 'VERY LITTLE' AS NO.

- 1) Yes---- \_\_\_\_\_
- 2) No---- (GO TO 77) \_\_\_\_\_
- 3) Don't know---- \_\_\_\_\_

76. How have your eating habits changed? INTERVIEWER: TREAT AS OPEN QUESTION, PROBE, FIT ANSWERS INTO ONE OF THE CATEGORIES.

- 1) I avoid more foods now because they disagree with me \_\_\_\_\_
- 2) I avoid more foods now because they are fattening \_\_\_\_\_
- 3) I have a greater variety of foods in my diet now than before \_\_\_\_\_
- 4) I eat more than I did before but have the same variety \_\_\_\_\_
- 5) I eat the same foods but I eat LESS than before \_\_\_\_\_
- 6) I eat FEWER foods AND I eat LESS than before \_\_\_\_\_
- 7) I eat fewer meals \_\_\_\_\_
- 8) I avoid more foods now because of doctor's orders \_\_\_\_\_
- 9) I eat lighter meals now that is more fruits and vegetables \_\_\_\_\_
- 10) Other \_\_\_\_\_

77. Would you say that your diet is better, worse or the same as compared to when you were 60 years old?

1) Better \_\_\_\_\_

2) Worse \_\_\_\_\_

3) Same \_\_\_\_\_

78. Would you describe your appetite as:

1) Good \_\_\_\_\_

2) Fair \_\_\_\_\_

3) Poor (GO TO 79) \_\_\_\_\_

4) Don't know \_\_\_\_\_

79. Which statement best describes your reason for

a poor appetite? INTERVIEWER: ONE ANSWER ONLY.

1) I feel depressed \_\_\_\_\_

2) I don't feel like eating when there is no one to share the meal with. \_\_\_\_\_

3) The medication I am taking affects my appetite. \_\_\_\_\_

4) Other \_\_\_\_\_

Here are a few last questions.

80. Have you attended any nutrition classes?

1) Yes-----

2) No----- (GO TO 85)

81. If you have , how many have you attended and where did you attend them?

Number of classes \_\_\_\_\_ Location \_\_\_\_\_

82. Did you enjoy the classes you attended?

1) Yes

2) No

83. Can you tell me in a few words what you most liked about the classes?

\_\_\_\_\_

84. If there was anything you disliked about the classes can you tell me what it was?

\_\_\_\_\_

85. Do you attend a Day Care?

1) Yes-----

2) No-----

86. Do you receive Meals on Wheels?

1) Yes----

2) No----

---

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Thank you for your time and thought in replying to these questions.



Appendix F

ATTITUDE FACTORS AND STATEMENTS TO MEASURE FACTORS

ATTITUDE FACTORS

SOCIAL ADVENTURESOME

statements 1-12 and statement 20

TRADITIONAL

statements 13-19

FRUGAL UTILITARIAN

statements 21-33

QUALITATIVE PLEASURABLE

statements 34-44

HEALTHFUL NUTRITIOUS

statements 45-51

HEALTH APPREHENSION

statements 52-65

NUTRITION AND AGING

statements 66-70

Appendix G  
ATTITUDE QUESTIONNAIRE

Here are some statements about food and nutrition. Please decide how you FEEL about each statement and choose ONE answer that is closest to how you feel. There are five possible answers: STRONGLY AGREE, AGREE, UNDECIDED, DISAGREE, and STRONGLY DISAGREE. There are no right or wrong answers.

STRONGLY AGREE = SA; AGREE = A; UNDECIDED = U; DISAGREE = D;  
STRONGLY DISAGREE = SD.

- |   |    |   |   |   |    |       |
|---|----|---|---|---|----|-------|
| 1. I like to try out new foods.                               | SA | A | U | D | SD | _____ |
|   | 5  | 4 | 3 | 2 | 1  |       |
| 2. I enjoy my meals more when<br>they are shared with others. | SA | A | U | D | SD | _____ |
|   | 5  | 4 | 3 | 2 | 1  |       |
| 3. I am more comfortable<br>when I eat alone.                 | SA | A | U | D | SD | _____ |
|   | 1  | 2 | 3 | 4 | 5  |       |
| 4. I like to go to social<br>functions that involve food.     | SA | A | U | D | SD | _____ |
|   | 5  | 4 | 3 | 2 | 1  |       |

SOCIAL ADVENTURESOME

STRONGLY AGREE = SA; AGREE = A; UNDECIDED = U; DISAGREE = D;  
STRONGLY DISAGREE = SD.

5. I enjoy giving or  
receiving gifts of food from  
others.

SA	A	U	D	SD
5	4	3	2	1

---

6. Like to prepare special  
meals for special occasions.

SA	A	U	D	SD
5	4	3	2	1

---

7. I eat more when I share a  
meal with others.

SA	A	U	D	SD
5	4	3	2	1

---

8. A big problem with  
living alone is that there  
is no one to share the  
meals with.

SA	A	U	D	SD
5	4	3	2	1

---

9. Sometimes cooking is an  
important creative art.

SA	A	U	D	SD
5	4	3	2	1

---

STRONGLY AGREE =SA; AGREE =A; UNDECIDED = U; DISAGREE = D;  
STRONGLY DISAGREE = SD.

10. Sometimes it is fun to  
make my own recipes.

SA	A	U	D	SD	_____
5	4	3	2	1	

11. Food preparation is  
rewarding because my friends  
and my family like my  
cooking.

SA	A	U	D	SD	_____
5	4	3	2	1	

12. I like to exchange recipes  
with my friends.

SA	A	U	D	SD	_____
5	4	3	2	1	

13. I am more comfortable  
eating familiar foods than  
trying new foods.

SA	A	U	D	SD	_____
5	4	3	2	1	

TRADITIONAL

STRONGLY AGREE = SA; AGREE = A; UNDECIDED = U; DISAGREE = D;  
STRONGLY DISAGREE = SD.

14. When I cook I prefer to  
make dishes that I learned  
from my mother rather than  
follow a recipe.

SA	A	U	D	SD
5	4	3	2	1

---

15. New recipes are usually  
not as good as the old ones.

SA	A	U	D	SD
5	4	3	2	1

---

16. The foods I like best are  
the ones my mother prepared  
when I was at home.

SA	A	U	D	SD
5	4	3	2	1

---

17. I like to have special  
foods on special occasions.

SA	A	U	D	SD
5	4	3	2	1

---

STRONGLY AGREE = SA; AGREE = A; UNDECIDED = U; DISAGREE = D;

STRONGLY DISAGREE = SA.

18. I feel that home-cooked foods are more wholesome than convenience foods.

SA	A	U	D	SD	_____
5	4	3	2	1	

19. Even though it is not necessary I like to do some home preserving.

SA	A	U	D	SD	_____
5	4	3	2	1	

20. I like to serve fancier foods when I have guests.

SA	A	U	D	SD	_____
5	4	3	2	1	

SOCIAL  
ADVENTURESOME

21. I like to buy foods that are in season because they cost less.

SA	A	U	D	SD	_____
5	4	3	2	1	

22. I prefer convenience foods such as cake mixes because they are easy to prepare.

SA	A	U	D	SD	_____
5	4	3	2	1	

FRUGAL UTILITARIAN

STRONGLY AGREE = SA; AGREE = A; UNDECIDED = U; DISAGREE = D;  
STRONGLY DISAGREE = SD.

23. I prefer meat  
substitutes such as eggs or  
cheese because they are less  
expensive.

SA	A	U	D	SD	_____
5	4	3	2	1	

24. Money is the thing I  
consider most when I plan  
meals

SA	A	U	D	SD	_____
5	4	3	2	1	

25. I think the new  
convenience foods are great.

SA	A	U	D	SD	_____
5	4	3	2	1	

26. Meat and meat products are  
too expensive to serve every  
day.

SA	A	U	D	SD	_____
5	4	3	2	1	

27. Rather than eat leftovers  
I prefer to throw away.

SA	A	U	D	SD	_____
1	2	3	4	5	



STRONGLY AGREE = SA; AGREE = A; UNDECIDED = U; DISAGREE = D;  
STRONGLY DISAGREE SD.

28. I am glad if I can get

filled up any way I can.

SA	A	U	D	SD	_____
5	4	3	2	1	

29. I choose softer foods because

they are easier to chew.

SA	A	U	D	SD	_____
5	4	3	2	1	

30. Foods such as fruit and

juices are too expensive to

serve everyday.

SA	A	U	D	SD	_____
5	4	3	2	1	

31. I prefer to use

convenience foods such as

TV dinners sparingly.

SA	A	U	D	SD	_____
1	2	3	4	5	

32. I prefer to use canned

vegetables rather than frozen

or fresh vegetables.

SA	A	U	D	SD	_____
5	4	3	2	1	

STRONGLY AGREE = SA; AGREE = A; UNDECIDED = U; DISAGREE = D  
STRONGLY DISAGREE = SD.

33. I prefer to make meals  
that are simple and easy to  
prepare.

SA	A	U	D	SD	_____
5	4	3	2	1	

34. I like to buy the best  
quality foods.

SA	A	U	D	SD	_____
5	4	3	2	1	

35. I sometimes prefer to  
buy foods of lower quality  
because they are cheaper.

SA	A	U	D	SD	_____
1	2	3	4	5	

36. The food I eat must have a  
very good flavour and  
appearance.

SA	A	U	D	SD	_____
5	4	3	2	1	

37. My main concern in  
eating is the appeal the  
food has to me.

SA	A	U	D	SD	_____
5	4	3	2	1	

38. Sometimes I buy any food  
I want, even if it is  
expensive.

SA	A	U	D	SD	_____
5	4	3	2	1	

QUALITATIVE PLEASURABLE

STRONGLY AGREE = SA; AGREE = A; UNDECIDED = U; DISAGREE = D;

STRONGLY DISAGREE = SD.

39. I want the food I eat  
to taste okay , but it doesn't  
have to be the best.

SA	A	U	D	SD	_____
1	2	3	4	5	

40. I try to make my meals  
attractive even when I eat  
alone.

SA	A	U	D	SD	_____
5	4	3	2	1	

41. I spend little time in the  
kitchen preparing my meals.

SA	A	U	D	SD	_____
1	2	3	4	5	

42. I like to prepare fancy  
foods for myself.

SA	A	U	D	SD	_____
5	4	3	2	1	

43. Cooking does not really  
interest me even though I have  
to do it.

SA	A	U	D	SD	_____
1	2	3	4	5	

44. I see eating as necessary  
and something I have to do.

SA	A	U	D	SD	_____
1	2	3	4	5	

STRONGLY AGREE = SA; AGREE = A; UNDECIDED = U; DISAGREE = D;  
STRONGLY DISAGREE = SD.

45. Having a variety of foods  
helps ensure that I have a  
balanced diet.

SA	A	U	D	SD
5	4	3	2	1

46. I like to make home made  
foods because they are  
nutritious.

SA	A	U	D	SD
5	4	3	2	1

47. I do not think about  
nutrition when I choose  
foods.

SA	A	U	D	SD
1	2	3	4	5

48. Even if I take vitamins,  
I feel that I should be  
concerned about the foods that  
I eat.

SA	A	U	D	SD
5	4	3	2	1

HEALTHFUL NUTRITIOUS

STRONGLY AGREE = SA; AGREE = A; UNDECIDED = U; DISAGREE = D;  
STRONGLY DISAGREE = SD.

49. I prefer to eat nutritious  
foods throughout the  
day.

SA	A	U	D	SD	
5	4	3	2	1	_____

50. Nutrition is not so important  
as long as I eat a lot of food.

SA	A	U	D	SD	
1	2	3	4	5	_____

51. Vitamin and mineral pills  
provide a person with more  
pep and energy.

SA	A	U	D	SD	
5	4	3	2	1	_____

52. As long as the doctor  
doesn't say anything to me  
about nutrition I don't think  
I need to worry about it.

SA	A	U	D	SD	
1	2	3	4	5	_____

53. I feel that as long as I  
am maintaining my weight, I  
don't have to worry about  
nutrition.

SA	A	U	D	SD	
1	2	3	4	5	_____

HEALTH APPREHENSION

STRONGLY AGREE = SA; AGREE = A; UNDECIDED = U; DISAGREE = D;  
STRONGLY DISAGREE = SD.

54. Cutting down on fats

helps prevent health problems.

SA	A	U	D	SD
5	4	3	2	1

---

55. When a person is ill, she  
or he should take special care  
of what she or he eats.

SA	A	U	D	SD
5	4	3	2	1

---

56. I think that it is not  
good for a person to eat  
a lot of meat.

SA	A	U	D	SD
5	4	3	2	1

---

57. The chemicals added to  
our manufactured food may  
be harmful to our health.

SA	A	U	D	SD
5	4	3	2	1

---

58. Even if one eats a wide  
variety of foods, it is  
necessary to take a vitamin  
supplement at least every  
other day.

SA	A	U	D	SD
5	4	3	2	1

---

STRONGLY AGREE = SA; AGREE = A; UNDECIDED = U; DISAGREE = D;  
STRONGLY DISAGREE = SD.

59. Taking vitamins and  
minerals ensure that I am  
not lacking anything in my  
diet.

SA	A	U	D	SD
5	4	3	2	1

---

60. Eating nutritious foods  
helps me to stay well.

SA	A	U	D	SD
5	4	3	2	1

---

61. There are foods that I  
avoid because they disagree  
with me even though I may  
like them.

SA	A	U	D	SD
5	4	3	2	1

---

62. Everyone should take  
vitamins just to be safe.

SA	A	U	D	SD
5	4	3	2	1

---

63. I feel that the foods  
I eat will affect my  
future health.

SA	A	U	D	SD
5	4	3	2	1

---

STRONGLY AGREE = SA; AGREE = A; UNDECIDED = U; DISAGREE = D;  
STRONGLY DISAGREE = SD.

64. People who eat a variety  
of available foods every day  
can get all the vitamins and  
minerals they need without  
taking pills.

SA	A	U	D	SD	_____
1	2	3	4	5	

65. Much of our food has  
been so processed and refined  
that it has lost its value  
to health.

SA	A	U	D	SD	_____
5	4	3	2	1	

66. Older people do not need  
to drink milk since their  
teeth and bones have  
finished growing.

SA	A	U	D	SD	_____
5	4	3	2	1	

67. There are some foods  
aging people should cut  
out of their diet.

SA	A	U	D	SD	_____
5	4	3	2	1	

NUTRITION AND AGING



STRONGLY AGREE=SA; AGREE=A; UNDECIDED=U; DESAGREE=D

STRONGLY DISAGREE=SD.

68. As one grows older  
eating a nutritious diet won't  
make much difference to one's  
health.

SA	A	U	D	SD
5	4	3	2	1

---

69. No matter what age a  
person is, food will always  
have an appeal.

SA	A	U	D	SD
1	2	3	4	5

---

70. An older person needs  
the same nutrients or food  
as anyone else.

SA	A	U	D	SD
1	2	3	4	5

---