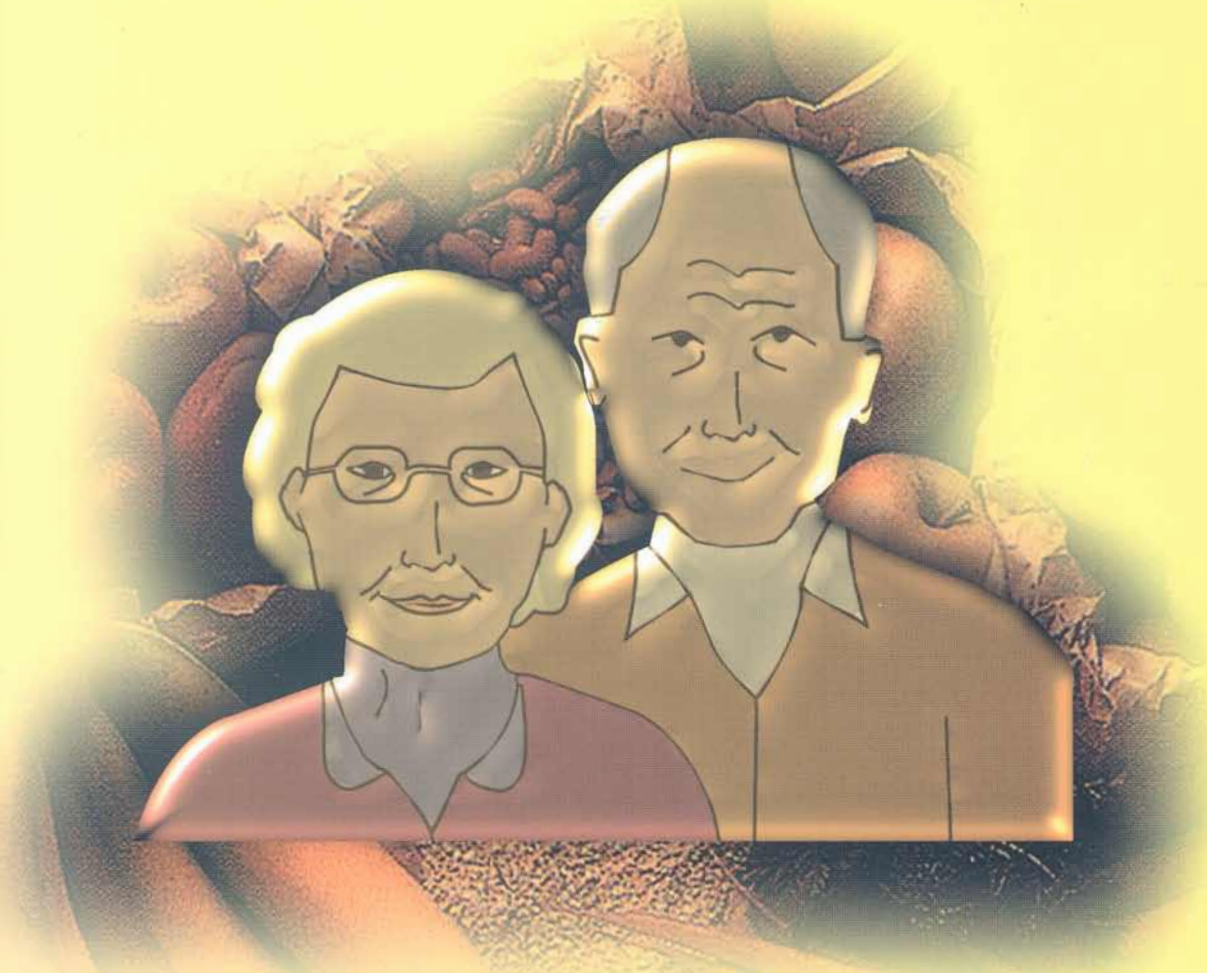
DIETARY HABITS AND SOME HEALTH PROBLEMS IN ELDERLY NATIVE BAHRAINIS

(A COMMUNITY-BASED SURVEY)



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INTRODUCTION

Ageing is an important issue in developed and developing countries. The unprecedented demographic trend which is being witnessed today, shows a rapid increase in the older segment of the population in both absolute and relative terms. In other words, not only are there many more elderly people today than ever before, but the proportion of older people in the general population is rising. What is more disturbing is the fact that in a large number of developing countries, the population aged 60 years and over is increasing at a faster rate than the population as a whole. Thus, between 1980 and 2020, the total population of developing countries is expected to increase by 95%, whereas the elderly population will probably rise by almost 240%. Not only is the aged population increasing in the developing world, but the elderly population is itself getting older, as more and more people survive longer (Bagchi, 1992).

The number of older Bahrainis has increased as a proportion of the total population. The elderly are also getting older. In addition, life expectancy has increased during the past 30 years and is going to increase in the future. Life expectancy has increased more for women than for men, so that women over 65 years outnumber men in the same age group. The increase in the life span of Bahrainis will have significant implications on the nation's economy and health care system.

The proportion of the population in Bahrain aged 60 years and over was 4% in 1980 and is projected to be 6.4% in 2001. The life expectancy at birth was 68.2 years during 1980-85, and is projected to increase to 73.2 years during 2000-2005, and to 76.0 years at 2020-2025 (CSO, 1998).

The elderly are at risk of certain chronic diseases such as heart disease, diabetes, osteoporosis, hypertension and cancer. Proper nutrition, therefore, might be the best way to minimize the effects of ageing and its associated illnesses. Poor nutrition might accelerate the ageing process. The physical, emotional and social demands of ageing affects the nutritional needs of the older adults. The diets of older people are often low in some essential nutrients including protein, vitamin A, vitamin C, calcium and iron (Health Media, 1991).

As the elderly population has increased, the cost of retirement pensions and health care has also increased, almost leading to bankruptcy of the social security system. Thus, ageing has become an important subject for research (Lesourd, 1999).

There have been very few studies on the health status and food habits of the elderly in Arab countries in general, and in the Arab Gulf in particular. Fact-finding research is urgently needed to provide a base for a strategy for protecting and promoting the

health of the elderly. Information regarding the present status of nutrition and health of the elderly, their main limitations in maintaining proper health and the impact of measures taken by the government or the community for the protection of their health are almost unknown in most Arab countries (WHO/ EMRO, 1991).

OBJECTIVES

The main objective of this study was to obtain information on dietary habits and some health problems among elderly Bahrainis. The specific objectives were:

1. To find out the association between the sex of the elderly and dietary habits.
2. To find out the association between the age of the elderly and dietary habits.
3. To determine the nutrients intake of elderly people (protein, fat, energy, calcium and iron) by age and sex.
4. To find out the prevalence of some chronic diseases among the elderly, such as heart disease, hypertension, diabetes, peptic ulcer and arthritis.
5. To find out some health and mobility problems in elderly.

METHODOLOGY

The Sample

The target group was elderly people aged 65 years and over, and living in their homes. The total sample selected was 201, of whom 88 were men (43.8%) and 113 women (56.2%). This sample represents 2% of total Bahraini population of the same age group, according to the latest census, 1991.

Sampling Technique

The elderly people were selected from households using the multistage sampling method. Bahrain was divided into 337 blocks distributed in 10 geographical areas. Fifty one blocks were selected by using random number tables technique.

Blocks were selected proportionally from each geographical area. The number of elderly people selected from each geographical area was proportional to the number of blocks.

The WHO sampling technique for diarrhoeal diseases was used for selection of the households (WHO, 1984). An approximate geographical center of the block was selected, and the direction was randomly selected. The interviewers then moved in a straight line in

that direction and surveyed the houses in that direction until the required numbers of households was covered. Elderly people were interviewed in their homes by two trained female workers. Age of subject was obtained from the Identification Card, which is issued by the Central Statistics Organization.

The distribution of elderly people by geographical area is illustrated in Table 1. The highest number of elderly people was obtained from Manama, the capital, (15.9%), followed by Jidhafs (13.4%), Riffa (12.9%) and Muharraq (11.9%). These proportions mainly reflect the distribution of elderly people in these areas, rather than the total population.

Table 1. Distribution of sample studied by geographical areas and sex

Area	Male		Female		Total	
	No.	%	No.	%	No.	%
Hidd	3	3.4	3	2.7	6	3.0
Muharraq	7	8.0	17	15.0	24	11.9
Manama	16	1.2	16	14.2	32	15.9
Jidhafs	11	12.5	16	14.5	27	13.4
Northern Area	9	10.2	13	11.5	22	10.9
Sitra	2	2.3	10	8.8	12	6.0
Central Area	12	13.6	8	7.1	20	10.0
Essa Town	4	4.5	8	7.1	12	6.0
Riffa	12	13.6	14	11.4	26	12.9
Western Area	12	13.6	8	7.1	20	10.0
Total	88	43.8	113	56.2	201	100.0

The Questionnaire

The questionnaire was designed to obtain the following information:

- Socio-demographic characteristics of elderly people
- Chronic diseases
- Activities in daily living
- Food intake during the past 24 hours
- Food preferences
- Other related problems (feeling thirsty, chewing problems, and appetite for food)

History of Chronic Diseases

History of chronic disease was assessed by positive response to the question about whether or not a doctor has ever told the subject that he or she had diabetes, heart diseases, hypertension, arthritis, and pepetic ulcer.

Food and Nutrition Intake

The 24 hour dietary recall was assessed by asking the subject to recall the exact food intake during the previous twenty-four-hour period or preceding day. Detailed descriptions of all foods and beverages consumed were recorded by the interviewers. Quantities of foods consumed were estimated in household measures (Gibson, 1990). Due to limitation in the nutrient data of Bahrain, only data on protein, fat, energy, calcium and iron were obtained, using Food Composition Tables of Bahrain (Musaiger and Al-Dallal, 1985).

Pilot Study

A pilot study was done on 7 elderly people in Manama City to pretest the questions, find out the time needed to fill in the questionnaire and provide training for the interviewers.

It was found that the questionnaire was understandable and the time needed to finish the questions was reasonable.

Data Analysis

Data were stored in the computer using Dbase programme. Data were then analyzed using the SPSS-PC+ package. Statistical analysis was calculated using the EPI-INFO programme (WHO/CDC, 1990).

RESULTS AND DISCUSSION

SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE ELDERLY

The socio-demographic characteristics of the elderly by sex is shown in Table 2. The mean age of elderly people was 70.7 years for men, and 71.8 years for women, with a total mean of 71.3 years. There was no significant difference between the mean age of women and men. About 47% of elderly people were between 65 and 69 years of age, while the rest were over 69 years.

As expected, the great majority of the elderly were illiterate (96.5%). This was consistent with findings from other studies that were carried out in Bahrain (Musaiger and Al-Roomi, 1997). However, all the elderly women were illiterate (100%) compared to 92% of the men.

Most of the elderly were unemployed (90.5%). About one fifth of the elderly men (20.5%) were employed, while only one woman was employed. This is may be due to the fact that the age of retirement in Bahrain start at 60 years old.

Most of the men were married (84.1%), whereas the majority of women were widowed (71.6%). This distribution is expected as the

life expectancy of women is higher than that of men, so fewer men will stay alive to an older age compared to women.

Table 2. Socio-demographic characteristics of elderly Bahrainis by sex

Demographic Characteristics	Male		Female		Total	
	No.	%	No.	%	No.	%
Age (years)						
65 – 69	42	47.7	52	46.0	94	46.8
70 +	46	52.3	61	54.0	107	53.2
Mean age (years) ±SD	(70.7±5.4)		(71.8±6.9)		(71.3±6.3)	
Educational level*						
Illiterate	81	92.0	113	100.0	194	96.5
Literate	7	8.0	-	-	7	3.5
Employment						
Not Working	70	79.5	112	99.1	182	90.5
Working	18	20.5	1	0.9	19	9.5
Marital Status						
Married	74	84.1	27	23.9	101	50.2
Widowed	9	10.2	81	71.6	90	44.8
Single	3	3.4	3	2.7	6	3.0
Divorced	2	2.3	2	1.8	4	2.0

* Illiterate includes those who do not read and write and those who have little ability to read and/or write. Literate include those who have primary education and above.

PREVALENCE OF CHRONIC DISEASES

The aged population has special health problems that are basically different from those of the adult or younger population. The most common diseases of the elderly are chronic in nature, such as

cardiovascular diseases, arthritis, mental disorders, loss of hearing and vision, and infectious diseases (WHO/EMRO, 1991). The prevalence of chronic diseases in the sample studied was as follows: 13.4% for heart disease, 15.4% for hypertension, 12.9% for diabetes, 33.3% for arthritis, and 4.0% for peptic ulcer. In general, women were more susceptible to these chronic diseases than men, except for peptic ulcer (Table 3). The risk for certain chronic diseases increased steeply with age, especially among women.

Hypertension is associated with greater risk of morbidity and mortality; it is the first among the risk factors of cardiovascular disease. The prevalence of hypertension among elderly men and women was 11.4% and 18.6%, respectively. These percentages are less than that reported among elderly Americans (USDHHS, 1988). However, the prevalence of diabetes among elderly Bahrainis was higher than that of Americans for the same age groups (12.9% and 9% respectively). In Saudi Arabia, Suliman et al (1993) found that 9.4% of men and 14.7% of women aged 60 years who were admitted to hospital were diabetics. Diabetes in the elderly is a major health problem. This disease often comes to hight accidentally while investigating other problems such as heart diseases or vision impairment (WHO, 1985).

Table 3. History of some chronic diseases in Bahraini elderly by sex

Diseases	Male		Female		Total	
	No.	%	No.	%	No.	%
Heart disease	11	12.5	16	14.2	27	13.4
Hypertension	10	11.4	21	18.6	31	15.4
Diabetes	9	10.2	17	15.0	26	12.9
Arthritis	27	30.7	40	35.4	67	33.3
Peptic ulcer	4	4.5	4	3.5	8	4.0

FEELING THIRSTY

Dehydration is very risky for elderly people since they experience less thirst and drink less water. If water is lost, as in diarrhoea, or vomiting, the loss is mostly extracellular intestinal fluid which is already greatly reduced in the elderly as a normal physiological process. Advising elderly people to drink more water and at frequent intervals is the best way to retain water balance (Bagchi, 1992).

Many older people experience diminished thirst (Reiff, 1986). The present survey showed that only 16% of elderly people usually felt thirsty, and the percentage was higher among females (17.7%) than males (14.8%). About 36% of elderly people stated that they sometimes felt thirsty. Males were more likely to report this feeling than females. As for the age of the elderly, it was found that old people aged 70 years and over were more likely to report that they sometimes felt thirsty than those aged between 65 and 69 years

(Table 4). There was no statistically significant association between feeling thirsty and age or sex of elderly people.

Table 4. Feeling thirsty in the Bahraini elderly by sex and age

Sex and age	Feeling Thirsty						Total	
	Usually		Sometimes		Never			
	No.	%	No.	%	No.	%	No.	%
Sex*								
Male	13	14.8	35	39.8	40	45.5	88	100.0
Female	20	17.7	38	33.6	55	48.7	113	100.0
Age (yrs)**								
65 – 69	17	18.1	28	29.8	49	52.1	94	100.0
70 +	16	15.0	45	42.1	46	43.0	107	100.0
Total	33	16.4	73	36.3	95	47.3	201	100.0

* N.S. (Not significant) ** N.S.

CHEWING PROBLEMS

Difficulty in chewing the food for a person without teeth leads to many modifications in eating patterns. The ensuing chewing problems affect both quantity and quality of food intake of the elderly (Lowenstein, 1986). Of elderly people studied, 62% had a chewing problem. More women (66.4%) than men (56.8%) had this problem. Naturally, people aged 70 years and over had a higher percentage of chewing problems than people aged 65-69 years (75.7% and 46.8%, respectively) as shown in Table 5. The association between chewing problems and the age of the elderly was highly statistically significant (p=0.00003).

A study of the relationship of chewing ability to nutrient and food intake in the community elderly in Japan showed that 82% of men and 83% of women had good chewing ability with no statistically significance difference concerning age or sex (Nagai et al, 1991). These percentages were higher than those reported in the present study. In fact, tooth status is highly related to chewing ability. There is no information on tooth problems in elderly Bahrainis.

Table 5. Chewing problems in the Bahraini elderly by sex and age

Sex and age	Yes		No		Total	
	No.	%	No.	%	No.	%
Sex*						
Male	50	56.8	38	43.2	88	100.0
Female	75	66.4	38	33.6	113	100.0
Age (yrs)**						
65 – 69	44	46.8	50	53.2	94	100.0
70 +	81	75.7	26	24.3	107	100.0
Total	125	62.2	76	37.8	201	100.0

* N.S. ** X= 17.7, p=0.00003

APPETITE FOR FOOD

Contrary to expectation, a small percentage of elderly people reported that they have no appetite for food (4.5%), while 10.4% said that they sometimes have appetite, and the majority said that they have appetite for food (Table 6).

Table 6. Appetite for food of the Bahraini elderly by sex and age

Sex and age	Appetite for food						Total	
	Yes		Sometimes		No			
	No.	%	No.	%	No.	%	No.	%
Sex*								
Male	75	85.2	11	12.5	2	2.3	88	100.0
Female	96	85.0	10	8.8	7	6.2	113	100.0
Age (yrs)**								
65 – 69	80	85.1	11	11.7	3	3.2	94	100.0
70 +	91	85.0	10	9.3	6	5.6	107	100.0
Total	171	85.1	21	10.4	9	4.5	201	100.0

* N.S. ** N.S.

LIKING FOR SALTY FOODS AND SWEETS

Anatomical changes in the tongue and mouth in the elderly are associated with a marked rise in the threshold for taste and smell. This may lead to aberrant eating behaviour in many old people and affect their nutritional requirements (Lowenstein, 1986). Most of the elderly Bahrainis (79.1%) liked salty foods, and the percentage was higher among men (83%) than women (76%). As for age, there was no significant difference between liking for salty foods and age or sex of the elderly (Table 7).

Similarly, most of elderly (83.6%) liked sweets. The percentage was higher among men (85.2%) than women (82.3%), and among those aged between 65-69 years than those aged 70 years and over (87.2% and 80.4%, respectively). However, the association between liking for sweets and age or sex of the elderly was statistically not significant (Table 8).

Table 7. Liking for salty foods by the Bahraini elderly according to sex and age

Sex and age	Liking for salty foods				Total	
	Like		Dislike			
	No.	%	No.	%	No.	%
Sex*						
Male	73	83.0	15	17.0	88	100.0
Female	86	76.1	27	23.9	113	100.0
Age (yrs)**						
65 – 69	75	79.8	19	20.2	94	100.0
70 +	84	78.5	23	21.5	107	100.0
Total	159	79.1	42	20.9	201	100.0

* N.S. ** N.S.

Table 8. Liking for sweets by the Bahraini elderly according to sex and age

Sex and age	Liking for Sweets					
	Like		Dislike		Total	
	No.	%	No.	%	No.	%
Sex*						
Male	75	85.2	13	14.8	88	100.0
Female	95	84.1	18	15.9	113	100.0
Age (yrs)**						
65 – 69	84	89.4	10	10.6	94	100.0
70 +	86	80.4	21	19.6	107	100.0
Total	170	84.6	31	15.4	201	100.0

* N.S. ** N.S.

FOOD LIKES AND DISLIKES

In general, few elderly people stated that they preferred or disliked certain foods. Among common foods preferred by the elderly were fish (12%) and fruit and vegetables (9.5%) as shown in Table 9. Females were more likely to prefer fruit and vegetables than males (12.4% and 5.6%, respectively). This finding is in a good agreement with that reported in Canada (Yeung and Lmbach, 1988). The main foods disliked by the elderly were chicken (7.5%), meat (6.5%), and cheese (6%), as shown in Table 10.

Table 9. Food preference among the Bahraini elderly by sex

Foods Preferred	Male		Female		Total	
	No.	%	No.	%	No.	%
Fruit & Vegetables	5	5.6	14	12.4	19	9.5
Fish	11	12.5	13	11.5	24	12.0
Meat	12	13.6	2	1.8	14	7.0
Chicken	4	4.5	3	2.7	7	3.5
Rice	12	12.5	7	6.2	19	9.5

Table 10. Food disliked among Bahraini elderly by sex

Foods Disliked	Male		Female		Total	
	No.	%	No.	%	No.	%
Fruit & Vegetables	4	4.5	1	1.0	5	3.0
Meat	2	2.3	11	9.7	13	6.5
Chicken	4	4.5	11	9.7	15	7.5
Cheese	2	2.3	10	8.8	12	6.0
Fish	2	2.3	-	-	2	1.0
Macaroni	5	5.7	2	1.8	7	3.5
Fatty foods	3	3.4	3	2.7	6	3.0

FOODS AVOIDED AND REASONS FOR AVOIDING

Food rich in fat, salty foods and sweets were the main foods avoided by the elderly (10% for each) as shown in Table 11. When the elderly were asked about the reasons for avoiding these foods, they mentioned certain diseases that restricted their food intake such as diabetes (8.5%), hypertension (5%) and heart diseases (3.5%), as shown in Table 12.

Table 11. Food avoided by the Bahraini elderly according to sex

Foods Avoided	Male		Female		Total	
	No.	%	No.	%	No.	%
Fatty foods	10	11.4	10	8.9	20	10.0
Salty foods	9	10.2	11	9.7	20	10.0
Sweets	6	6.8	14	12.4	20	10.0
Spicy foods	5	5.7	3	2.7	8	4.0
High Cholesterol foods	1	1.2	6	5.3	7	3.5

Table 12. Main reasons given for avoidance of foods by the Bahraini elderly according to sex

Reasons for Avoiding	Male		Female		Total	
	No.	%	No.	%	No.	%
Hypertension	3	3.4	7	6.2	10	5.0
Diabetes	6	6.8	11	9.7	17	8.5
Hypertension + Diabetes	2	2.3	2	1.8	4	2.0
Heart Diseases	4	4.5	3	2.7	7	3.5
Peptic ulcer	2	2.3	2	1.8	4	2.0
Indigestion	3	3.4	3	2.7	6	3.0

PROBLEMS IN ACTIVITIES OF DAILY LIVING

One of the most crucial factors determining functional capacity is mobility. As the musculoskeletal system deteriorates with increasing age, mobility problems increase. This is one of the most significant changes that adversely affect the ability of older people to cope independently in their communities and to have contacts

with other people. Impaired mobility also greatly increases the need for different kinds of services (Heikkinen, 1998).

The ability of the elderly to do some daily activities was studied (Table 13). A high percentage of the elderly (36.8%) were unable to do light housework such as washing or cleaning. This is mainly due to the fact that a higher percentage of elderly men did not participate in doing light housework. About 19% of elderly people were unable to use the stairs. In general most of the elderly Bahrainis were able to perform daily living activities.

Table 13. Problems in activities of daily living among the Bahraini elderly (combined sex)

Activities	Alone	With help	Unable
	%	%	%
To move outdoors	82.5	8.0	9.5
To walk between rooms	85.5	6.5	8.0
To use stairs	77.6	3.5	18.9
To use the toilet	91.0	4.5	4.5
To wash yourself	91.0	5.5	3.5
To dress and undress	92.0	4.5	3.5
To feed yourself	94.0	3.5	2.5
To do light housework	34.5	28.7	36.8

DAILY FOOD INTAKE

Based on the 24 hours food recall method, it was found that rice, bread, tea and fish were the main foods consumed by the elderly.

Rice, bread, fish, eggs tea and Arabic coffee were the most foods commonly consumed by the elderly. Men were more likely to consume meat fish, chicken and eggs than women (Tables 14 and 15). Bread was mostly consumed at breakfast and supper. Rice with fish, meat or chicken constituted the main lunch.

Interestingly, fish was highly consumed by elderly people when compared with adult people in Bahrain. A similar finding was reported by Lasheras et al (1998). This may be due to the fact that fish is a traditional food and it is well known that old people observe traditional habits more strictly than younger people.

The daily consumption of tea was very high among both elderly women and men. This is alarming because tea inhibits the absorption of iron. Fruit and vegetables were more consumed by elderly women than men. This finding confirmed the previous result that women were more likely to prefer fruits and vegetables than men.

In general, it can be concluded that the food habits of elderly Bahrainis were less varied when compared to those of other adults. The intake of fast foods such as beefburgers, french fries, fried chicken and milk shake was almost nil.

Table 14. Frequency of daily intake of foods by Bahraini elderly men

Food	Intake (%)	Not intake (%)
Bread	79.6	20.4
Dates	22.7	77.3
Arabic coffee	34.1	65.9
Rice	87.5	12.5
Meat	27.3	72.7
Fish	47.7	52.3
Chicken	21.6	78.6
Tea, black	39.8	60.2
Tea with milk	47.7	52.3
Eggs	43.1	56.9
Fruit	9.1	90.9
Vegetables	23.9	76.1

Table 15. Frequency of daily intake of foods by Bahraini elderly women

Foods	Intake (%)	Not intake (%)
Bread	79.2	20.3
Dates	29.2	70.8
Arabic coffee	42.4	57.6
Rice	81.4	18.6
Meat	18.6	81.4
Fish	42.5	57.5
Chicken	16.8	78.6
Tea, black	25.6	74.4
Tea with milk	57.5	42.5
Eggs	31.1	69.0
Milk	34.5	65.5
Fruit	34.5	65.5
Vegetables	19.5	80.5

NUTRIENTS INTAKE

Nutrient availability in this age group may be affected by disease-nutrient and drug-nutrient interactions and the efficiency with which nutrients are digested, absorbed and utilized. However, in most elderly people, nutritional status is largely dependent on the energy and nutrient content of the diet. In general, the intake of energy is lower in older than in younger age groups of the population.

Several studies have demonstrated that the diet of old people is often low in several nutrients including protein, vitamin A and C, folic acid, calcium and iron (Health Media, 1991). The mean daily nutrients intake of elderly Bahrainis is presented in Table 16. In general, the intake of protein, fat, energy, calcium and iron was higher among men than women. However, there was no statistically significant difference in nutrients intake between the two age groups, 65-69 and 70+ years. The nutrients intake of elderly Bahrainis was lower than that reported in the United States (Payette and Gray-Donald, 1991), Australia (Stuckey et al, 1984), and Kuwait (Mostafa and Nuwayhid, 1981).

When the nutrients intake was compared with the Recommended Daily Allowances (RDA), it was found that protein intake slightly exceeded the RDA, especially for women (108% and 113% of WHO/FAO RDA for men and women respectively). The

percentage of energy from food intake was almost half of the RDA (46% and 54% for men and women respectively, according to WHO/FAO RDA). Lower energy intake reported in elderly people might be mainly related to lower physical activity in free living conditions (Vaughan et al, 1991).

Based on WHO/FAO recommendation, the calcium intake of the elderly was sufficient (100% and 93% for men and women respectively). However, when USA recommendation was used, the calcium intake was 56% for men and 53% for women (Table 17). Among the macronutrients, calcium is the first and most abundant in the human body. Calcium intake in apparently healthy people varies widely in the world from as low as 200-300 mg/day to as high as 1200-1500 mg/day. Based on this fact, calcium allowances have been established internationally at 400-500 mg/day for adults by a WHO/FAO Expert Committee. The RDA for calcium in USA is 800 mg/day because of the high level of protein and phosphorous in the diet. In the elderly, calcium absorption is decreased and total energy intake decreased, and this is a sufficient reason to raise the calcium requirement of the elderly (Kohrs and Gzaika-Narins, 1986).

Based on WHO/FAO requirement for iron, the intake of this nutrient exceeded the RDA for men (128%), but was very low for women (33%). This is mainly due to the fact that the WHO/FAO have no special daily iron requirements for the elderly. Using the

USA requirement, the iron intake of elderly Bahraini was 77% for men and 63% for women. It was found that iron status of apparently healthy elderly people consuming adequate iron does not depend on dietary iron but rather on gender, protein and vitamin C intake as well as smoking and drinking habits (Payette and Gray-Donald, 1991). The findings of this study are on line with the study of Ahrari and Kimiagar (1997).

Table 16. Mean ($\bar{X}$) and standard deviation (SD) of daily nutrients intake of elderly Bahraini by sex and age

Nutrients		Sex		Age (years)	
		Male	Female	65 – 69	70 +
Protein (g)	$\bar{X}$	57.4	47.3	52.0	51.5
	SD	(22.8)	(21.8)	(22.3)	(23.2)
Fat (g)	$\bar{X}$	42.7	35.5	38.2	39.0
	SD	(20.4)	(17.2)	(16.7)	(21.3)
Energy (Kcal)	$\bar{X}$	1396	1197	1284	1285
	SD	(442)	(450)	(468)	(449)
Calcium (mg)	$\bar{X}$	449.3	420.6	418.7	446
	SD	(273.0)	(230.5)	(224.6)	(270.4)
Iron (mg)	$\bar{X}$	7.7	6.3	7.0	6.8
	SD	(4.1)	(3.6)	(3.5)	(4.1)

Table 17. Percent of recommended daily requirement (RDA) for some nutrients by sex of Bahraini elderly

Nutrients	% WHO/FAO RDA		% USA RDA	
	Male	Female	Male	Female
Protein	108%	113%	102%	108%
Energy	46%	54%	58%	67%
Calcium	100%	93%	56%	53%
Iron	128%	33%	77%	63%

RECOMMENDATIONS

This is the first study on Bahrain to focus on dietary habits and problems in activities of daily living of home residence elderly. The findings reveal that the Bahraini elderly are facing several health and nutrition problems. A national plan to promote the health and nutrition of the elderly in the country is urgently needed. The following recommendations are suggested for this national plan (WHO, 1991):

1. The focal point for the health of the elderly should be adequately supported by the government in undertaking its responsibilities and serving as a catalyst for intersectoral measures.

2. Development of adequately trained human resources to serve in different sectors and at different levels of operation; the programmes for health care of the elderly should be an important component of the national health and social strategy. Thus, in the health sector there is a need for the training of geriatric specialists at the tertiary level of health care on the one hand, and primary health care workers on the other. Training of social workers and field workers of non-governmental agencies is equally important. The training prgramme should be designed after a careful needs assessment of training.

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3. Creating mass awareness on health and nutrition of the elderly should be an important component of the national strategy. There are numerous misconceptions and myths about the aged, and only a national campaign, utilizing visual media and printed material, can provide correct information. Such campaigns should be designed also to assist the elderly population in "self-care", and to provide simple rules of care to "informal carers" in homes and societies. Home and community-based care of chronic clinical disorders, like coronary heart diseases, diabetes and cancer, should be an important component of mass awareness campaigns.

4. Research in the elderly population is a neglected area. There are numerous issues relating to health , both physical and mental, of the elderly which need answers for better and simpler health care. Similarly, in most countries, operational research is clearly indicated for improving the health care programmes for the elderly.

5. An intersectoral coordination committee for over-viewing a national strategy is an important requirement, since health care of the elderly needs a holistic approach through an intersectoral strategy. A coordination committee, with senior representatives from the ministries concerned, will have to be established. This committee will review collectively the prevailing situation and

the existing and proposed sectoral plans of action for the care of the elderly, monitor the ongoing programmes and take decisions on evaluation. Eventually, such a coordination committee will formulate a multisectoral national policy for the care of the elderly with an appropriate plan of action.

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Appendix 1

ACTION TOWARDS ACTIVE AGEING

Factors	Individual action	Policy action
Fetal environment	• Ensure balanced nutrition in young girls and pregnant or lactating women • Avoid smoking during pregnancy	• Focus health promotion activities on girls and women • Increase awareness about importance of balanced nutrition for girls and women
Childhood environment	• Breastfeed habits for at least 4 months • Ensure balanced nutrition and adequate physical exercise for your children • Have your child immunized and observe good food hygiene to prevent infection	• Promote breastfeeding, legislate against advertising for milk powder, and fortify foods/water in areas of malnutrition • Ensure access to immunization programmes • Improve sanitation & housing and reduce domestic overcrowding
Smoking	• Stop smoking-cessation is beneficial at any age • Educate your children about all ill effects of smoking	• Ban tobacco advertising • Ban sale of tobacco to children • Provide health education in schools and workplace
Alcohol	• Maintain moderate drinking limits • Seek professional help if you think you may drink excessively	• Ban sale of alcohol to children

* Source: WHO (1999): Ageing, Exploding the Myths. World Health Organization, Geneva.

Physical activity	• Exercise regularly from the earliest years through to older ages, walking, climbing stairs, and housework are effective forms of exercise	• Incorporate exercise into school curricula • Create workplaces which provide exercise facilities • Encourage sports for seniors
Diet	• Consume a diet high in fiber and low in animal fat and salt • Reduce your weight if you are overweight and maintain normal body weight	• Increase consumer awareness about direct links between good nutrition and health
Adult Diseases	• Make above-listed life style adjustments • Make use of available prevention programmes (screening and vaccination) • See your doctor at regular intervals	• Implement evaluated prevention programmes • Ensure access to safe maternity services • Provide accessible and affordable health care for all and reduce environmental threats
Social integration	• Stay enrolled in your family your community, a club, or a religious organization • Be aware of, and speak out against ageism • Continue to educate yourself and all your children	• Support activities that foster social cohesion • Provide access to life-long learning • Promote solidarity among the generations
Gender	• Be aware of, and speak out against gender discrimination and prejudice • Educate boys and girls to avoid gender stereotyping	• Implement legislation against gender discrimination in education, jobs, health care, property rights, marriage and inheritance laws • Promote health education on the dangers of high risk

		life styles by targeting population groups that are particularly at risk • Integrate dangers analysis in health research and health care programmes
Income	• Be informed about public and private measures intended to protect income security over the life course	• Provide income security and access to appropriate health care for older people • Fight age discrimination in the workplace