

## TRENDS IN CHRONIC DISEASES IN KUWAIT

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### ABSTRACT

Kuwait has experienced a rapid change in economic and social status during the past 30 years. This change has brought alteration in life style of the Kuwaiti population particularly in their food habits and dietary intake patterns. Increased food consumption, specially fat and protein, reflects on increased calorie intake together with decrease in physical activity. These lead to the emergence of diet related non-communicable diseases such as obesity, diabetes, hypertension and heart disease. Changes in the eating patterns have also impacted the mortality patterns, resulting in the predominance of degenerative over infectious diseases. Studies showed that obesity is of a high prevalence among all age groups and more in females than males and is now considered a major public health problem in Kuwait. There is a progressive increase in the number of newly diagnosed diabetic cases every year. Heart diseases are among the major causes of death in Kuwait. The incidence of cancer increases annually and breast cancer is the most common one among females, while lung cancer is more common among males. Programmes to control these chronic diseases should be given a high priority.

**Key Words :** Anaemia, cancer, cardiovascular disease, diabetes, hypertension, Kuwait, obesity.

### INTRODUCTION

Anthropological studies show that the diets of our ancestors were low in fat, very low in sugar and high in fibre and other complex carbohydrates. It was only some 200 years ago that agricultural and industrial evolution brought radical improvements in methods of food production, processing, storage and distribution of food. People then started to indulge in preferred foods and these dietary preferences have influenced the development of several major chronic diseases.

Chronic diseases including coronary heart disease, stroke, various cancers, diabetes mellitus, obesity and gallstones are linked to the affluent diet. This involves high consumption of energy-dense foods prepared with added fat, sugar and salt.

In virtually every developing country in the world diet-related chronic diseases are becoming the new health problem as the population abandons traditional healthy diets in favour of affluent

foods. This is due, not only to the increased availability of foods rich in fat, sugar and salt, but also to inappropriate public perception of what constitutes an appropriate diet and by a tendency to equate "good" food with "rich" food.

Dietary changes from tradition high fibre diets to those containing refined flour and sugar have coincided with the adoption of sedentary life styles. This has led to increased obesity and diabetes followed by higher incidence rates of hypertension and coronary heart disease. The increase in chronic diseases which occurs in middle and later adult life has been attributed to an improved food supply and to the control of infectious diseases. Even a modest increase in prosperity can induce the considerable burden of chronic disease.

Thus changes in the dietary pattern towards the affluent diet have increased the incidence of diet-related disease even in developing countries. If such trends continue, cardiovascular disease and cancer will be major health problems in every country in the world. There is a need for population wide approach to the prevention of diet-related chronic diseases. The entire population of most affluent countries is at high risk and intervention is needed to change dietary patterns towards a safer range of intakes. In undertaking such mass interventions, governments are challenged to develop policies that will allow consumers to make healthy food choices (WHO, 1991).

In the last two decades the State of Kuwait has witnessed a dramatic increase in income due to immense oil revenues. This has resulted in a rapid economic and social development and has put pressure on people to adapt to industrialization and urbanization. An unprecedented opportunity occurred for indulging in fat and sugar rich foods with a consequent rapid change in the life style for many.

According to Food and Agricultural Organization Food Balance Sheets for Kuwait (1977-1979) versus (1987-1989), food availability data showed a general increase in all food groups with an overall increase food energy availability by 220 kcal, protein by 5.5 grams. and total fats by 18.5 grams. per capita per day. (FAO, 1990).

These changes in food availability together with decreased physical activity have led to the emergence of nutrition related chronic diseases. This paper reviews studies on the increased prevalence of obesity, hypertension, diabetes, and ischemic heart disease and cancer in Kuwait together with the rather paradoxical increased incidence of anaemia.

## **Assessment of nutritional problems**

### **Birth Weight**

Low birth weight (below 2.5 Kg) was 6.7% in 1977 and decreased to 3.3% in 1990. High birth weight of > 4.0 Kg. had increased to 10.0% in 1990 (Al-Awadi et al, 1977; Nutrition Unit, 1990).

### **Anaemia**

Iron deficiency anaemia is prevalent amongst all age groups. The most affected age groups were pre-school children and pregnant women. Iron deficiency anaemia amounted to 46.9% among pre-school children (Mostafa and Nuwayhed, 1979). In school children it was 26% among girls and 11% among boys (Eid et al., 1986a). Among pregnant women 39.7% were anaemic (Dawood et al., 1990), in adult women 42% (Hb. < 12 g.) and in adult men 34% (Hb. < 14 g.) were anaemic (MOH, 1985). Dietary studies showed that women in particular had low intakes of iron. (Al-Awadi et al. 1976, Mustafa and Nuwayhed 1981, Dawood et al. 1990).

### **Obesity**

The major diseases linked to obesity include hypertension, coronary heart disease, diabetes, gallstones, osteoarthritis, and other gastrointestinal disorders. In addition obese women face increased risk of cancers of the gall bladder, breast (after the menopause) and uterus. In men obesity increases the risk of cancers of prostate and kidney. The importance of these health risks increases according to the severity of obesity (WHO, 1991).

Obesity is a public health problem in Kuwait (Table 1). It occurs in all age groups and is more prevalent in females than in males. Obesity (120% or more than standard weight for height median (WHO, 1983) was found to be prevalent among school children being 18.1 % among boys and 26.8 % among girls (Eid et al., 1986b). Obesity among Kuwaiti adults was reported to be 24.6% among males and 47.9% among females (Mustafa and Nuwayhed, 1981). The Kuwait Health Survey (MOH 1985) showed that the prevalence of obesity was 49% among adult males and 59% among adult females. A recent study on Kuwaiti students (7-18 years) showed that 20% of males and 23.1% of females were obese (Nutrition Unit, 1992).

TABLE 1

Prevalence of obesity by age groups and sex

Age Group (years)	Sex	Prevalence	Name of the study
18 - 60	M	24.6	Mustafa and Nuwayhed (1981)
	F	47.9	
13 +	M	49.0	Kuwait Health Survey MOH (1985)
	F	59.0	
6 - 17	M	18.1	Eid et. al. (1986b)
	F	26.8	
6 - 14	M	20.0	Nutrition Unit (1992)
	F	23.1	

%

## **Diabetes**

Non insulin dependent diabetes mellitus is a chronic metabolic disorder involving impairment in the body's capacity to utilize glucose derived from carbohydrate foods, from body stores of glycogen or from body and dietary protein. The disease usually starts in middle adulthood and is strongly associated with increased risk of coronary heart disease as well as a range of renal and neurological and ocular disorders. A major risk factor is obesity, with risk increasing according to both duration and degree of obesity. The occurrence of diabetes within a community appears to be triggered by a number of environmental factors such as sedentary lifestyle, stress, urbanization and socio-economic status as well as by dietary factors. The prevention of obesity through both exercise and diet is the most promising approach to the prevention of this disease. Glucose tolerance improves as weight is reduced. Exercise, apart from helping to reduce weight, has its own beneficial effect on insulin metabolism.

A study on Diabetes mellitus (MOH/CDC, 1980) showed that it is more prevalent among Kuwaiti than Non-Kuwaiti and more among Kuwaiti females than males (Table 2). The highest prevalence for both Kuwaiti males and females were found to be in the age group 50-59 years (Table 3). The increasing rate of prevalence of diabetes specially among females in Kuwait may be related to fact that obesity alters the body response to insulin.

The number of new cases of diabetes and of the out patient visits to the diabetic clinics have shown an overall increase in number from 6,999 cases in 1985 to 14,723 cases in 1992, an increase of 110%.

## **Hypertension**

Excessive weight can affect blood pressure while salt intake has a significant relationship to the gradual increase of blood pressure that accompanies aging. The prevalence of hypertension among Kuwaiti adults as defined by a diastolic blood pressure in excess of 90 mm Hg indicates that about one fifth of the adults suffer from hypertension (Al-Awadi and Desuki, 1980). A later study (MOH, 1985) as part of the Kuwait Health Survey showed slightly higher values for males but somewhat lower percentages for females. These data are shown in Table 4. It was also shown by the latter survey (Table 5) that the percentage of adults with hypertension was greater among diabetics and the obese than among nondiabetics and normal weight adults.

TABLE 2

Prevalence of diabetes in Kuwait by sex and nationality

	Prevalence rate / 1000		
	Kuwaiti	Non-Kuwaiti	Total
Males	17.0	13.9	15.3
Females	18.7	12.5	15.7
Total	17.8	13.3	15.5

(MOH/CDC 1980)

TABLE 3

Age specific prevalence of diabetes for Kuwaiti

Age group (years)	Prevalence rate / 1000	
	Males	Females
< 20	0.6	0.2
20 -	2.2	5.2
30 -	23.3	29.6
40 -	77.4	69.0
50 -	124.1	160.6
60 -	115.9	128.3
70 +	71.8	124.0

(MOH/CDC, 1980)

TABLE 4

Prevalence of hypertension among adults (20 year and above) in 1980 and 1985

Study and year	Male	Female	Total
	%	%	%
Al-Awadi and Desuki (1980)	20.3	23.9	21.8
MOH, (1985)	22.6	16.1	19.3



TABLE 5

Percentage of hypertension among diabetics and obese

Hypertension	%
Hypertensive diabetic	42
Hypertensive nondiabetic	15
Hypertensive obese (excessive)	32
Hypertensive obese (light)	19
Hypertensive normal weight	7

(MOH, 1985)

## **Cardiovascular Disease**

The risk of developing heart disease is increased by three major factors, high serum cholesterol, high blood pressure and cigarette smoking. Diet is known to have a direct impact on both serum cholesterol and on blood pressure. As the population has changed its former life style to that characterised by western countries, mortality from ischemic heart disease has increased.

Chronic ischemic heart diseases, acute myocardial infarction, essential hypertension, atherosclerosis and hypertensive heart diseases are among the ten leading causes of death in Kuwait. These data are shown in Table 6. Chronic ischemic heart diseases, essential hypertension and hypertensive heart disease have all increased as percentages of total deaths since 1985. It can also be seen that heart diseases as a group are the leading cause of death amounting to 19-26% of all deaths depending on the grouping used.

## **Cancer**

Dietary factors have a significant overall impact on global cancer rates. In developed countries where the cancer rates are highest and can account for approximately one-quarter of deaths, some 30-40% of cancer in men and up to 60% in women have been attributed to dietary factors. Cancers that have been linked to dietary factors in different populations are cancers of oral cavity, pharynx, larynx, oesophagus, stomach, large bowel, liver, pancreas, lung, breast, endometrium and prostate. (WHO, 1991).

Data for cancer cases by the Kuwait Cancer Control Center (MOH, Health Statistics : 1985-1989) are shown in Table 7. Breast cancer occupied the first rank during the whole period. Trachea and lung cancer occupied the second rank. Cigarette smoking is an important risk factor for lung cancer and the Kuwait Health Survey (MOH, 1985) showed that 27.3% of males above 12 years of age were smokers. Cancers of the female reproductive system are also among the ten most common cancers. A report on the incidence of cancer in Kuwait (Table 8) showed that, except for lung cancer, the incidence of cancer was higher among non-Kuwatis and this was attributed to difference in ethnic backgrounds, religion and food habits (Mansi, 1982).

Analysis of the available data on breast cancer showed that the incidence rate of breast cancer among Kuwaiti women showed an overall increase through the period from 1970's to the 1980's. This also applies for other types of female reproductive system cancers (Table 9). These changes could well be linked with dietary changes that has taken place over the same period (Gjorgov, 1986).

TABLE 6

The ten leading causes of death in Kuwait (B.T.L.; ICD-9 : 1975)\*

Code	Disease	1985	1986	1987	1988	1989
		(%) R**	(%) R**	(%) R**	(%) R**	(%) R**
414	Chronic ischaemic heart disease	3.9 (5)	5.4 (4)	6.4 (4)	6.7 (3)	9.6 (1)
410	Acute myocardial infarction	10.0 (1)	8.9 (1)	9.1 (1)	9.1 (1)	6.5 (2)
819	Traffic Accidents	8.6 (2)	7.2 (2)	6.7 (2)	7.2 (2)	6.4 (3)
765	Short Gestation	7.2 (3)	6.4 (3)	6.5 (3)	5.8 (4)	5.0 (4)
401	Essential hypertension	3.6 (6)	4.0 (6)	4.4 (6)	4.7 (5)	4.7 (5)
797	Senility	4.4 (4)	5.2 (5)	3.8 (7)	4.1 (6)	4.3 (6)
486	Pneumonia	3.3 (7)	3.2 (7)	4.5 (5)	4.0 (7)	3.5 (7)
440	Atherosclerosis		3.1 (8)	3.2 (8)	2.4 (9)	3.0 (8)
402	Hypertensive heart diseases	2.0 (9)	2.5 (10)	2.0 (10)	2.1 (10)	2.9 (9)
250	Diabetes Mellitus	2.1 (8)	3.0 (9)	2.6 (9)	3.5 (8)	2.5 (10)
746	Cong. anomalies of heart	1.9 (10)				

\* (Basic Tabulation List; International Code of Death 9th Revision 1975)

\*\* (R = Rank)

(MOH, Vital &amp; Health Statistics Abstract : 1985 - 1989)

TABLE 7  
The first ten diagnosis for Kuwait Cancer Center (1985 - 1988)

Code	Diagnosis	1985		1986		1987		1988	
		(%)	R*	(%)	R*	(%)	R*	(%)	R*
174	Breast cancer	14.6	(1)	8.2	(1)	10.6	(1)	10.5	(1)
162	Trachea & Lung	4.3	(4)	1.4	(8)	4.3	(5)	6.9	(2)
200	Lymphosarcoma	4.7	(3)	2.7	(3)	6.8	(2)	5.6	(3)
201	Hodgkin disease	3.5	(8)	1.4	(10)	4.8	(3)	4.7	(4)
183	Ovary & adnexia	3.9	(7)	1.8	(5)	3.8	(7)	4.4	(5)
188	Bladder			1.9	(4)	3.8	(7)	4.2	(6)
205	Myeloid leukemia	4.1	(6)			4.2	(6)	3.9	(7)
193	Thyroid			1.5	(7)	4.2	(6)	3.8	(8)
203	Multiple myeloma					3.2	(10)	3.4	(9)
204	Lymphoid leukemia					3.2	(10)	3.1	(10)
147	Nasopharynx	3.2	(9)			4.3	(4)		
161	Larynx	7.5	(2)	5.3	(2)	3.5	(8)		
180	Uterus, unspc.	4.2	(5)	1.8	(6)	3.5	(9)		
202	Other lymphotic	3.1	(10)						
141	Tongue			1.4	(9)				
Total of all Diag.		No.		No.		No.		No.	
		942		1060		864		955	
		%		%		%		%	
		53.0		56.7		47.8		50.6	
Total of ten Diag.		No.		No.		No.		No.	
		1776		1868		1807		1888	
		%		%		%		%	
		(100.0)		(100.0)		(100.0)		(100.0)	

(MOH, Health Statistics : 1985 - 1992)

TABLE 8

Cancer incidence and mortality rates in Kuwait (1982) by nationality

Primary site:	Incidence rate (per 100,000)		Mortality rate (per 100,000)	
	K*	NK**	K	NK
Digestive Syst.	2.47	4.16	4.74	5.37
Lung & Bronchus	2.47	1.21	4.33	2.77
Kidney & Urin. Blad.	1.44	5.02	1.85	2.94
Breast	7.93	9.67	5.43	3.78
Ovary	1.25	2.94	1.67	0.42
Uterus	0.83	5.04	0.83	0.84

\* Kuwaiti

\*\* Non-Kuwaiti

TABLE 9

Cancer of female reproductive system in Kuwait (1974-1983)

Site	(Crude incidence rate / 100,000 female population)		
	(1974 - 1978)	(1979 - 1983)	(Total)
Breast	7.9	10.9	10.2
Ovary	2.2	2.4	2.3
Cervix	1.7	2.8	2.3

(Gjorgov, 1986)

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