

## Original Article

# Prevalence of Hypertension in Young and Middle Aged Kuwaiti Citizens in Primary Health Care

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## ABSTRACT

**Objectives:** To study the prevalence of hypertension amongst young and middle aged Kuwaiti citizens attending the primary health care centers and to find its relationship with risk factors such as age, gender, smoking, body mass index and exercise

**Design:** A cross - sectional study carried out to evaluate non-labeled hypertensive individuals attending primary health centers for other medical problems.

**Setting:** Two primary health care centers were chosen randomly from each health region. Data collection sheet was produced and distributed to primary health care physicians in the chosen health centers.

**Subjects:** Eight hundred and sixty patients attending the clinic and twenty practitioners were included in the study.

**Results:** Prevalence of hypertension was found to be 6.4% in males and 6.1% in females. Influence of risk factors such as age, body mass index, exercise and smoking was statistically significant whereas gender differences were not significant.

**Conclusion:** Our study emphasizes the importance of early detection of hypertension among young and middle aged patients and adopting an effective policy on health education regarding risk factors at the primary health care center level.

KEYWORDS: hypertension, prevalence, primary health care

## INTRODUCTION

Hypertension is a common health problem in developed countries, and its prevalence is probably increasing in nations of the developing world. Also known as the "silent killer", it may exist for prolonged periods in the individual without symptoms and may manifest only after causing serious irreversible pathology and complications<sup>[1,2]</sup>. Hypertension has a proven association with high mortality and morbidity from cardiovascular, cerebrovascular and renal disease<sup>[3,4]</sup>. Its control will significantly lower these diseases<sup>[5-8]</sup>.

Hypertension is prevalent in about 20% of adult population in most developed countries<sup>[9]</sup>. In Kuwait, the most recent data on hypertension showed a prevalence rate of 26.3% in 1999<sup>[10]</sup>. All over the world there are few studies about the prevalence of non-labeled hypertension. Many studies showed a significant relationship between hypertension and risk factors such as age, body mass index, smoking and physical inactivity. The primary health centers have the best opportunity for early detection of hypertension. The aim of this study was to detect the prevalence of undiagnosed hypertension among the younger age group and to

find its relationship with risk factors like age, gender, body mass index, smoking and exercise.

## SUBJECTS AND METHODS

A cross sectional study was carried out to estimate the prevalence of undiagnosed hypertension in the five health regions of Kuwait. Two primary health care centers were chosen randomly from each health region.

A sample of 860 non-labeled individuals was collected between January 2002 and March 2002. A verbal consent was obtained from the participants who attended the centers for complaints other than hypertension. Those who were known hypertensives, had renal impairment, were pregnant or were taking medication that could cause secondary hypertension were excluded from the study. Patients with severe or malignant hypertension were referred immediately to the medical casualty. Earlier, a pilot study of 50 participants was carried out and the questionnaire was suitably modified for proper data collection.

## METHOD

Measurements of blood pressure were made

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**Table 1:** Characteristics of the study sample (n= 860)

Factors	No. of Patients	%
<b>Sex</b>		
Male	419	48.7
Female	441	51.3
<b>Age (Years)</b>		
21-30	247	28.7
31-40	307	35.7
41-50	177	20.6
51-60	98	11.4
61-70	31	3.6
<b>BMI</b>		
Normal < 25	277	32.2
Over Weight (25-30)	315	36.6
Obese (31-35)	154	17.9
Morbid obese > 35	114	13.3
<b>Smoking</b>		
Yes	658	76.5
No	202	23.5
<b>Exercise</b>		
Yes	233	27.1
No	627	72.9

according to the recommendations of British Hypertension Society guidelines for hypertension management (1999), in order to standardize the examination of the target subjects<sup>[11-13]</sup>. Measurements began after the subject had rested for five minutes and had avoided smoking and intake of caffeine during the last half an hour. The patients were seated in a comfortable chair with their backs supported and arms bared and supported at heart level. An appropriate cuff size was used to ensure accurate measurement. The bladder within the cuff encircled at least 80% of the upper arm. Standard bladder measured 12-13 cm X 35 cm and we inflated the cuff to 30 mmHg above pulse occlusion. The systolic blood pressure was recorded at the first appearance of a sound and the diastolic blood pressure was recorded at the disappearance of the sound. Blood pressure was measured twice at two-minute intervals and if the readings differed by more than 5 mmHg, an additional reading was taken. We used calibrated mercury sphygmomanometers. Hypertension was diagnosed as per the criteria laid down by the World Health Organization - International Society for Hypertension (1999). A patient was labeled hypertensive if an average of three readings showed the systolic blood pressure to be 140 mmHg or greater and the diastolic blood pressure to be 90 mmHg or greater.

#### Data Collection:

Data collection sheet included information such as civil ID, (age, occupation and gender), presence of life style risk factors like smoking, physical inactivity or regular exercise (mild physical activity for 30 minutes at least 3-4 times a week) and

**Table 2:** The prevalence of hypertension and its co-relation with risk factors

Risk Factors	Hypertension		p value		
	Yes n = 60 (7 %)	No n = 800 (93%)			
<b>Age</b>					
21-30	2	0.23	245	28.5	0.000
31-40	14	1.62	293	34.2	
41-50	25	2.90	152	17.8	
51-60	13	1.51	85	9.9	
61- 70	6	0.69	25	2.9	
Total	60	6.95	800	93.1	
<b>BMI:</b>					
normal (BMI <25)	6	.69	271	31.5	0.000
Over weight BMI 25	23	2.67	292	34.0	
Obese (BMI 31-35)	15	1.74	139	16.2	
Morbid obese BMI >35	16	1.96	98	11.4	
Total	60	6.96	800	93.1	
<b>Exercise</b>					
Yes	5	.58	288	26.51	0.001
No	55	6.39	572	66.51	
Total	60	6.97	800	93.02	
<b>Smoking</b>					
Yes	51	5.93	193	22.44	0.000
No	9	1.04	607	70.58	
Total	60	6.97	800	93.02	0.000

measurement of height and weight and calculation of body mass index (BMI). For height and weight measurement, we used the Detecto-Scale Instrument, which was calibrated once a day before use.

#### Statistical Analysis:

Data was collected and analyzed using the statistical package for social sciences (SPSS) version 11. The chi-square test was used to compare categorical variables and a p 0.005 was used as the cut-off level for statistical significance.

#### RESULTS

Table 1 shows the characteristics of patients in the study sample. Male and female patients were almost equally distributed in the sample population (51.3%, 48.7% respectively). More than one third of the study sample aged from 31-40 years (35.7%). About two thirds (68.8%) of the study sample had a BMI > 25 (overweight 36.6%, obese 17.9% and morbidly obese 13.3%). Almost three quarters of the study sample were smokers and did not exercise regularly (76.5%, 72.9% respectively).

Table 2 shows the percentage of hypertension within the study sample and its correlation with risk factors. The prevalence of undiagnosed hypertension in the sample was 7%. In the current study, a significant relationship between prevalence of undiagnosed hypertension and BMI was found in both sexes (p < 0.001). The prevalence of hypertension in individuals with high BMI

(overweight 2.7%, obese 1.7% and morbid obese 1.9%) was more than individuals with normal BMI (0.7%).

The study also showed that regular exercise had a significant influence on the prevalence of hypertension ( $p < 0.01$ ). Blood pressure was markedly high in individuals who were not exercising regularly. Out of 72.9% who were not regularly exercising, 6.4% were hypertensive. Smoking had significant relationship with the prevalence of undiagnosed hypertension ( $p < 0.01$ ).

## DISCUSSION

This study showed that the relationship between age and hypertension was bell shaped, high blood pressure being more prevalent in the 41-50 year age group. Blood pressure consistently increases with age in most populations all over the world, modified only by genetic and environmental factors<sup>[14,15]</sup>. As more is learned about the natural history of the development of atherosclerosis, it is clear that the process, which results in morbidity and mortality in adults, has its origin in childhood and adolescence. Traditional risk factors, such as hypertension and dyslipidaemia, are important in the early stages of the process. This supports the recommendation of screening the young adult population for hypertension<sup>[16]</sup>. Similar to our study, other studies showed that there is significant relationship between hypertension and smoking. Smokers should be counseled repeatedly and unambiguously to stop smoking. Patients who continue to smoke may not receive full protection against cardiovascular, cerebrovascular and pulmonary diseases<sup>[12,13]</sup>. The study also showed that there is significant relationship between BMI and hypertension. A BMI of 25 correlates closely with increased blood pressure<sup>[12]</sup>. Other studies also support the fact that weight gain is associated with increased blood pressure and increased incidence of hypertension<sup>[18,19]</sup>. In general, being overweight is associated with a two to six-fold increase in the risk of developing hypertension<sup>[20]</sup>. Clinical trials have proved that weight loss is effective in the primary prevention of hypertension as well as in the reduction of both systolic and diastolic blood pressure in patients with normal or high blood pressure<sup>[20]</sup>. Several epidemiological studies have shown an association between BMI and blood pressure in normal and overweight patients. Weight loss has been recommended for the obese hypertensive patient and has been shown to be the most effective non-pharmacological treatment approach<sup>[21]</sup>. The deposition of excess fat in the upper part of the body (a waist circumference of 34 inches in women, or 39 inches in men) is associated with the risk of hypertension, dyslipidemia,

diabetes and CHD mortality<sup>[22,23]</sup>. This study showed that there is a significant relationship between hypertension and exercise. It has shown that regularly performed aerobic exercise significantly lowers blood pressure in patients with essential hypertension<sup>[23]</sup>. Mild to moderate intensity exercise may be more effective in lowering blood pressure than high intensity exercise<sup>[23]</sup>. Sedentary individuals have a 20 to 50% increased risk of developing hypertension<sup>[24]</sup>. Regular exercise for 30 minutes four times per week can result in a 5-10 mmHg reduction in blood pressure in hypertensive patients and up to 3 mmHg reduction in the blood pressure of normal people<sup>[25]</sup>. So the study findings reveal the necessity for population-wide primary prevention of hypertension, as well as increasing effort to detect unfavorable blood pressure levels in teenagers, young adults and others<sup>[26-29]</sup>.

## CONCLUSION

In conclusion, our study showed an incidence of 7% for undiagnosed hypertension. There was a significant influence of risk factors such as higher BMI, lack of exercise and smoking. An educational program encouraging life style modification is highly recommended. Also, there is a need to increase the awareness of primary health care physicians towards the importance of opportunistic screening, aiming at early detection of undiagnosed hypertensive individuals. Physicians should be motivated to provide guidance to the population regarding healthy life style practices that can help prevent and control hypertension.

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