

PREVALENCE AND LIFESTYLE DETERMINANTS OF HYPERTENSION AMONG SECONDARY SCHOOL FEMALE TEACHERS IN BASRAH

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ABSTRACT

Background: Hypertension is one of the most prevalent chronic diseases in the world and it is increasing particularly in developing countries (including Iraq). A number of factors increase blood pressure, including: obesity, insulin resistance, high alcohol intake, high salt intake (in salt-sensitive patients), aging, sedentary lifestyle, stress, low potassium intake, and low calcium intake, furthermore, many of these factors are additive, such as obesity and alcohol intake.

Objectives: This study was conducted with the aim of determining the prevalence of hypertension among secondary school female teachers and identifying lifestyle related risk factors.

Subjects and methods: A sample of 16 schools (25%) of female secondary schools in Basrah city was chosen randomly. All the female teachers present in the schools at the time of the visits were interviewed according to a special questionnaire. Height, weight and blood pressure were measured. The whole sample size was 403 participants; the only excluded criterion was pregnancy. The number of those who were excluded was five teachers.

Results: The prevalence of hypertension among the study population was 21.3%, and about one fifth of them (20.3%) were prehypertensive. The prevalence of lifestyle risk factors among the study population was as follows; physical inactivity (67. %), overweight (40.9%), obesity (37.7%), contraceptive pills use (18.6%), salty diet (18.1%), fatty diet (15.4%), drugs intake (mostly non-steroidal anti-inflammatory drugs) (12.4%), coffee intake (6.5%), and smoking (0.5%). A significant association was found between some lifestyle risk factors and hypertension, those were: drug intake, and body mass index, while no significant association was found between other risk factors and hypertension which were: fatty diet, physical activity, coffee intake and, contraceptive pills intake.

Conclusions: The prevalence of hypertension was within the range of that reported for women in Iraq. There was a significant proportion of participants with unidentified hypertension, and a significant association was found between certain lifestyle risk factors and hypertension. Early detection of hypertension and educational health programs regarding lifestyle behavior were highly recommended.

INTRODUCTION

Hypertension is an important public health challenge. The prevalence of hypertension varied around the world, with the lowest prevalence in rural India (3.4% in men and 6.8% in women) and the highest prevalence in Poland (68.9% in men and 72.5% in women).^[1] There are major changes in the lifestyle and health profile of many developing countries. The control of many infectious and parasitic diseases and the sharp decline in infant mortality have increased the average life expectancy in these countries. Since people live longer, they are exposed to chronic diseases of old age such as hypertension and cardiovascular diseases.^[2] Iraq has witnessed an epidemiological transition with increasing prevalence of chronic non-communicable diseases with their contributory risk factors being the leading causes of morbidity and mortality.^[3] There is a strong association between lifestyle factors and development of hypertension; on the other hand lifestyle factors modification had been associated with hypertension control.^[4] A working woman is

bearing a dual role responsibility one in family and the other at job. The work of school teachers includes interaction with people whose safety and well-being they are responsible for, in addition to their role of teaching.^[5]

The present study was carried out to estimate the prevalence of hypertension in female secondary school teachers in Basrah, and to determine the contributing lifestyle risk factors of hypertension.

SUBJECTS AND METHODS

This study is a descriptive, cross-sectional one, conducted in Basrah city on female secondary school teachers, for the period from April 2008 to October 2008.

Subjects:

The participants were female secondary school teachers who work in the schools of Basrah city. This restriction was adopted to study the prevalence and pattern of risk factors of hypertension in such working female group. In addition, up to our knowledge, no such study

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had been done before on such group of people in Basrah.

Sampling and sample size:

A list of all female secondary schools in the center of Basrah containing (64) schools was obtained from the General Directorate of Education in Basrah. From this list every 4th school was drawn and a sample of 16 schools (25%) of schools was drawn. Then all the female teachers present in the schools at the time of the visits were interviewed. The total number of the participants was 403 teachers. The only exclusion criterion was pregnancy. The number of those who were excluded was 5 teachers.

Methods:

A special questionnaire was used in interviewing. It covers the following aspects; socio-demographic characteristics, pattern of lifestyle including dietary habits, smoking, physical activity, coffee intake, drugs intake particularly steroid and non-steroidal anti-inflammatory drugs, and contraceptive pills use. Information on history of diabetes and family history of hypertension were also obtained. Smoking habits: non-smokers defined by those who never smoke, Ex-smokers included those who stopped smoking before more than 3 months, while Current smokers were those who smoke at least one cigarette per day on regular basis. Diet was classified on the type of food that individuals consumed; those who consumed a well known fatty diet such as butter, cream, cheese, solid fat on most days of the week were considered to be on fatty diet. Blood pressure was measured while the individual is in a setting position with the right arm on the desk. After 5 minutes rest the blood pressure was measured twice 3-5 minutes apart, the average reading was considered as the final reading. If the blood pressure was high in individuals who were not previously hypertensive, a second reading was done 1-2 weeks later, if the blood pressure was still high the person was considered hypertensive. Blood pressure was classified as normal if the systolic blood pressure was <120 mmHg and/or diastolic blood pressure was <80 mmHg, pre-hypertension if the systolic blood pressure was 120-139 mmHg and/ or diastolic

blood pressure was 80-89 mmHg, stage 1 hypertension if the systolic blood pressure was 140-159 mmHg and/or diastolic blood pressure was 90-99 mmHg, and stage 2 hypertension if the systolic blood pressure was 160 mmHg and/or diastolic blood pressure was $100 \pm$ mmHg.^[6] Height and weight were measured, and the body mass index (BMI) was calculated using the Quetlet index [BMI= weight in Kg/height in m²]^[7] Non obese: BMI <25kg/m², overweight: BMI 25-29.9 kg/m², and obese if BMI was ≥ 30 kg/m².^[8]

Statistical analysis

The statistical analysis was made by the use of the Statistical Package for Social Science (SPSS) version 15. Data were tabulated and X² test was used to test the significance of association. A P-Value of <0.05 was considered significant.

RESULTS

The participants were aged (22-61) years, with a mean of 41 ± 9.4 years.

As shown in table-1, the number of teachers with hypertension (both stage I and stage II) was 86(21.3%), 21(24.4%) of them were recognized as hypertensive for the first time. About one fifth of the participants (20.4%) were prehypertensive.

Table 1. Prevalence of hypertension according to stage of hypertension

Stage of hypertension	No.	%
Normal	235	58.3
Prehypertension	82	20.4
Stage I	83	20.6
Stage II	3	0.7
Total	403	100

Figure-1 shows the prevalence of lifestyle risk factors among the study population. The most common lifestyle risk factors were; physical

inactivity (67.7%), overweight (40.9%), and obesity (37.7%). The least prevalent risk factors were coffee intake (6.5%), and smoking (0.5%).

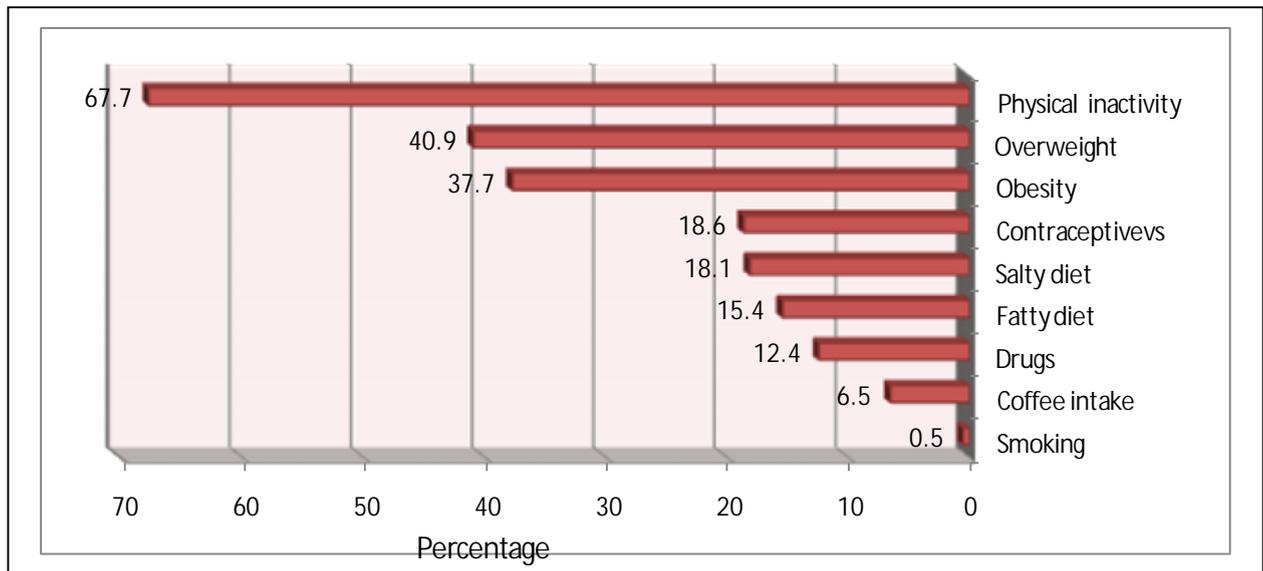


Fig 1. Prevalence of lifestyle risk factors among the study population

As shown in Table-2, among inactive teachers the prevalence of hypertension was more than that among active teachers, but the association was not significant. The same difference was noticed among teachers who used contraceptive pills and among coffee drinkers. The prevalence

of hypertension was higher among obese teachers and those who were on drugs intake in comparison with those with normal weight and with no history of drugs intake respectively. The association between hypertension and drug use was highly significant.

Table 2. Relation between the lifestyle risk factors and hypertension.

Risk Factor	Hypertensive		Not Hypertensive		Total		P-Value
	No.	%	No.	%	No.	%	
Physical activity							
Inactive	60	21.9	213	80.1	273	100	NS
Moderately active	15	21.4	55	78.6	70	100	
Active	11	18.3	49	81.7	60	100	
BMI							
Obese	45	29.6	107	70.4	152	100	<0.001
Overweight	37	22.4	128	77.6	165	100	
Normal	4	4.7	82	95.3	86	100	
Contraceptives use							
Positive	22	29.3	53	70.7	75	100	NS
Negative	64	19.5	264	80.5	328	100	
Salty diet intake							
Positive	9	12.3	64	87.7	73	100	< 0.05
Negative	77	23.3	253	76.7	330	100	
Fatty diet intake							
Positive	13	20.9	49	79.1	62	100	NS
Negative	73	21.4	268	78.6	341	100	
Drugs use							
Positive	27	54	23	46	50	100	<0.001
Negative	59	16.7	294	83.3	353	100	
Coffee intake							
Positive	8	30.7	18	69.3	26	100	NS
Negative	78	20.7	299	79.3	377	100	
Smoking							
Positive	0	0	2	100	2	100	NS
Negative	86	21.3	317	78.7	403	100	

DISCUSSION

One of the limitations for this study was the self report of physical activity which may minimize the accuracy of measurement, since people usually overestimate their physical activity in response to questionnaire.^[9] In addition, most of the participants didn't remember the type of diet which they were on before onset of hypertension, so most of them may give the description of the current type of diet. The prevalence of hypertension among the study population both (stage I and stage II) was similar to that reported in another study where the percentage of hypertension among Iraqi women was (22.2%).^[3] It was also similar to the prevalence of hypertension among females in Tehran where the prevalence of hypertension was 23%^[10], but it was higher than that reported for Kuwaiti women where the prevalence of hypertension was 12.9%.^[11] This difference may be due to differences in socio-economic status. In this study the most common risk factor for hypertension was sedentary lifestyle which represents 67.7% which was higher than that reported in another Iraqi study^[3] where the prevalence was 52.7% in Iraqi women in general; this difference may be due to differences in sociocultural factors of the two population, where the population in this study was a highly educated one, or may be due to difference in the percentages of young females between the two studies. In comparison with a study done in Iceland done by Fridriksdottir et al,^[12] the prevalence of sedentary lifestyle was 29%; this is mainly because in western countries there is more engagement in physical activity in general than in our region. The second most common lifestyle risk factor was overweight and obesity where the percentage of them was 40.9% and 37.7% respectively in comparison to 31.4% and 38.2% respectively among Iraqi females, which was reported in the above mentioned study,^[3] these differences may be due to differences in the levels of physical activity, age, education, and marital status between the two studies. Smoking was the least prevalent lifestyle risk factor among this study participants (0.5%) which was noticeably lower than what was reported among Iraqi women^[3] where the prevalence was 6.9%, this may be due to social factors, where smoking among women is socially unacceptable in our society,

therefore; many smoking women deny their smoking habit, or they were really non smokers due to a good health awareness. This study showed that the prevalence of hypertension increased with increasing BMI among the participants of the study, this agrees with a study done by Carretero and Opril., which showed that overweight and obesity increase the risk of high blood pressure by 180%.^[13] This study showed that there was no association between physical activity and hypertension, but this differs from that reported by another study^[14] which found that exercise programs prevent the development of hypertension and lower blood pressure in adults with normal blood pressure and those with hypertension. This may be attributed to the difficulties in estimating the physical activity depending on self-reporting. This result doesn't deny the beneficial effect of physical exercise in decreasing blood pressure. The proposed mechanisms for the blood pressure lowering effects of exercise include neurohumoral, vascular, and structural adaptations. Decreases in catecholamines and total peripheral resistance, and alterations in vasodilators and vasoconstrictors are some of the postulated explanations for the antihypertensive effects of exercise.^[14] This study showed a strong association between hypertension and drugs (mainly non-steroidal anti-inflammatory drugs), this agrees with a study done by Onusko E.,^[15] who found that non-steroidal anti-inflammatory drugs elevate blood pressure via their antiprostaglandin effects on the kidneys. The higher percentage of hypertensives among teachers with a history of contraceptive pills intake compared to those with no history of contraceptive pills intake may give an idea about the presence of a relationship between contraceptive pills intake and hypertension. A published data obtained from the Nurses' Health Study suggests that even oral contraceptives with lower doses of estrogen increase the risk of hypertension, and that the risk increases with duration of use and with increased progestin potency.^[16]

In conclusion, the prevalence of hypertension was within the range of that reported for women in Iraq, there was a significant proportion of participants with unidentified hypertension, and

a significant association was found between certain lifestyle risk factors and hypertension, those were (drug intake, and body mass index). Ascertaining the establishment of a health facility based screening system for early detection of asymptomatic hypertension at primary health care level, starting community based health education programs on the importance of the consultation and follow-up processes for early detection of hypertension and its complications, and strengthening action to promote healthy diet, weight reduction and physical activity were recommended.

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