

## The prevalence of some non-communicable diseases and risk factors in Tuz district/Amirlee township.

*Imad Noaman Shareef\*, Abudul Rahman J. Mansoor\*\*.*

*\*Dept. of Pharmacology, College of Medicine, Tikrit University.*

*\*\*Dept. of Physiology, College of Nursing, Tikrit University.*

### Abstract

This cross sectional study was designed to determine the prevalence of non communicable diseases and risk factors. The study was performed on 72 peoples in age between 20-45 years (36 males and 36 females) in Tuz district/Amirlee township from Jun till December/2013.

Results: The study show the prevalence rate of the behavioral information as tobacco was 22.2% and fruit and vegetable serving two time per day was 16.7% while three time per day was 4.2%, physical activity for two time per week was 13.9% and three time per week was 2.8%, body mass index as over weight was 63.9% and obese was 18.1% , systolic hypertension was 25% while diastolic hypertension was 26.4% and fasting blood sugar was 20.8%.

Conclusions: These study was recorded the poor consumption of fruit and vegetable and low intensity physical activity. The distribution of behavioral risk factors show that smoking was more prevalent among males, the increasing impact of behavioral risk factors over the life course might have contributed to the high prevalence of hypertension and hyperglycemia.

**Key words:** People, fill direct questioner form, sphygmomanometers, stethoscope, tape measurement for height, weight scale measurement for weight, tube, laboratory investigation.

### Introduction

Non communicable disease is a medical condition, non infectious and non transmissible among people(1). Non-communicable disease may be chronic disease of long duration and slow progression as cardiovascular diseases, diabetes, chronic respiratory disease, Alzheimer's disease, and cancer(2-4) or they may result in more rapid death such as stroke(5).

Most of these diseases are attributed to common preventable risk factors. The most modifiable risk factors are tobacco use, unhealthy diet, physical inactivity, and behaviors, these risk factor which lead to increased risk of obesity, and hypertension(6-8).

Integrated prevention and control strategies are most effective-focusing on the common risk factors and cutting across specific disease(9). So the basis of

prevention is identification of the magnitude of the common risk factors for their prevention and control(9).

80% of non-communicable diseases deaths – 36 million – occur, every year(10), at least 5 million people die because of tobacco use(11) and about 2.8 million die from being overweight(12), high blood pressure for roughly 2.6 million death(13) and 7.5 million from other risk factor(14). They are the leading causes of death in all regions.

All age groups and all regions are affected by non-communicable diseases. Non-communicable diseases are often associated with older age groups, but evidence shows that more than 9 million of all deaths attributed to non-communicable diseases (NCDs) occur before the age of 60. Children, adults and the elderly are all vulnerable to the risk factors that contribute to non-communicable diseases(15-17). To lessen the impact of non-communicable diseases on individuals and society, a comprehensive approach is needed that requires all sectors, including health, finance,



foreign affairs, education, agriculture, planning and others, to work together to reduce the risks associated with non-communicable diseases, as well as promote the interventions to prevent and control them(5). An important way to reduce non-communicable diseases is to focus on lessening the risk factors associated with these diseases(18-19). Low-cost solutions exist to reduce the common modifiable risk factors (mainly tobacco use, unhealthy diet and physical inactivity, and the harmful use of alcohol)(1) and map the epidemic of non-communicable diseases and their risk factors. Other ways to reduce non-communicable diseases are high impact essential non-communicable diseases interventions that can be delivered through a primary health-care approach to strengthen early detection and timely treatment. Evidence shows that such interventions are excellent economic investments because, if applied to patients early, can reduce the need for more expensive treatment(20). These measures can be implemented in various resource levels. The greatest impact can be achieved by creating healthy public policies that promote non-communicable diseases prevention and control and reorienting health systems to address the needs of people with such diseases(1,21).

## Materials and methods

This work was conducted in Tuz district /Amirlee township, the work was carried from August to December/2013.

This study is involve 72 peoples (36 males and 36 females) with age range from 20-45 years. These material involve survey information, these include behavioral information (tobacco, fruit and vegetable), physical activity, biochemical measurement (fasting blood sugar by laboratory investigation)(22), measurement of blood pressure by using sphygmomanometers, stethoscope , and body mass index by divided weight in kilogram to the height in square meter (weight in kilogram by use weight scale, high in square meter by using tape measurement). Comparisons were

performed by using mean, prevalence rate and chi square test(23).

The prevalence of body mass index: according to the world health organization(24 ).

BMI value less than 18.5 are considered underweight.

BML value from 18.5 to 24.9 is normal.

BMI value from 24.9 – 29.9 is over weight.

BMI value from 29.9 – 34.9 is obese.

BMI value from 34.9 - 40 is sever obesity.

BMI value from 40 – 44.9 is morbid obesity.

BMI value from 45 - 50 is super obese.

The prevalence of hypertension according work health organization as(24) show in table (1):

## Results

The study was designed to see prevalence rate of non communicable disease in people in this area (36 males and 36 females).

### 1- Behavioral risk factor as:

#### 1-1. Tobacco :

The result showed that prevalence rate of smoking in male 38.9%, in female 5.6% and in both sex 11.6% as in table 1.

#### 1-2. Fruit and vegetable consumption:

Respondents were asked about the number of serving fruit and vegetable each day. Result showed that one time consumption per day in male 63.9%, female 91.7% and in both sex 76.4%, two time consumption per day in male is 25%, female is 8.3% and in both sex is 16.7%, while three time consumption per day in male is 8.3%, female is 0%, in both sex is 4.2%. and also result no any one serving five time daily as in table 2.

The result of Fruit and vegetable consumption was very little.

#### 2- Physical activity:

The frequency of performing different types of physical activity (work, travel, recreation) in week was inquired.

The prevalence rate of physical activity one time per week in male is 44.4%, in female is 55.5% and in both sex is 50%. Two time per week in male is 25%, in female is 2.8% and



in both sex is 13.9% , while three time weekly is in male 5.6%, in female 0%, in both sex 2.8%

The result of this activity is very little as in table 3.

### **3- Physical measurement: body mass index (BMI):'**

This is a measure of nutritional status whereby the body weight in kilogram is divided to the square meters for height.

The prevalence of body mass index between 18.5-24.9 in male is 13.9%, in female is 22.2% and in both sex is 18.1% as in table 4.

The prevalence of BMI between 24.9-29.9 in male is 55.6%, in female is 72.2% and in both is 63.9% as in table 4.

The prevalence of BMI between 29.9-34.9 in male is 30.6%, in female is 5.6% and in both sex is 18.1% as in table 4.

### **4- awareness to hypertension and diabetes:**

To identify public awareness about their health status, the prevalence of hypertension and diabetes was estimated based on this study.

#### **4-1. Hypertension:**

The prevalence rate of systolic hypertension in male was 22.2%, in female was 27.8%, and in both sex was 25% as in table 5.

The prevalence rate of diastolic hypertension was in male 25%, in female 27.8 and in both sex 26.4% as in table 6.

#### **4-2. Fasting blood sugar:**

The mean fasting blood sugar in male is 0.19, in female is 0.22 and in both sex is 0.20.

The respondent is considered hyperglycemic with fasting blood sugar  $\geq 126$  mg/dl(23).

According results showed that the prevalence rate of hyperglycemia in male 19.4%, in female 22.2%, and in both sex 20.8% as in table 7.

## **Discussion**

This study is important as it adds to the limited literature available documenting rates of and correlates of achieving the recommended level of tobacco use,

unhealthy diet and physical inactivity, in addition to measurement of blood pressure, and fasting blood glucose .

The prevalence rate of current smoking was 22.2% which is higher than United state (20.8%)(25) while same the England (22%)(25) and Canada (22.3%)(26).

The prevalence rate of physical activity three time per week was 2.8% which is very less than American (Indians, Hispanics) which is 45%. Also fruit and vegetable serving 4.2% was less than American Indian which is 37%(27). The prevalence of overweight is more than England (19.8%) and in united state 18.8% while the obesity is less than England 23.9%, and united state 20.2%(27).

The prevalence of arterial systolic hypertension is higher than brazil is 2.2% while is also higher than Brazilian in arterial diastolic hypertension is 2.5%(28-30).

The prevalence of hyperglycemia in this study was 20.8%. which is lower than what was reported by Apkon et al. (61.8%) and also Deepak et al (45%)(31-33).

Interventions to promote the two behavioral strategies and physical activity described in this report might be accomplished simultaneously or individually. Interventions should be comprehensive, combining both consumer education and environmental factors, such as education about the effective of smoking in health and environment, also the availability of fresh fruits and vegetables and access to these foods(34) ). New approaches, such as improving availability by developing alternative sources for fruits and vegetables (e.g., food cooperatives, farmers' markets, and community gardens) and providing alternative transportation options (e.g., car pools and ride-sharing programs) should be considered and changes in high calorie beverage consumption and also increase physical activity at the community level(35).

A number of metabolic consequences of obesity have been proposed as the blood pressure-elevating mechanism(36). Increasing weight has been shown to increase salt retention(37) and insulin resistance is proposed by some to be a cause of hypertension, hyperglycemia(38).



## Conclusions

The current survey deals with the identification of common modifiable risk factors: tobacco use, unhealthy diet and physical inactivity, in addition to measurement of blood pressure, and fasting blood glucose. The following were concluded:

1- Epidemiological pattern of risk factors:

**1.1 Tobacco use:** the prevalence rate of smoking was 22.2%, the proportion of smoking among males was seven folds higher than females.

**1-2 Fruit and vegetables servings:** the number of servings of fruit and vegetables was 76.4% one time per day, 16.7% two per time day while 4.2% three time per day.

**1-3 Physical activity:** the prevalence of physical activity was 50% one time per week, 13.9% two time per week while 2.8% three time per wk.

**1-4 Overweight and obesity:** overweight was estimated to be 63.9% while the prevalence rate of obesity was 18.1%.

**1-5 High blood pressure:** based on physical measurement, the mean systolic hypertension was 25%, while diastolic hypertension was 26.4%.

**1-6 Hyperglycemia:** the prevalence of hyperglycemia was 20.8%.

2- Poor consumption of fruit and vegetable and low intensity physical activity. All these have been contributed to the high prevalence of hypertension and hyperglycemia.

3- The distribution of behavioral risk factors show that smoking was more prevalent among males.

4- The increasing impact of behavioral risk factors over the life course might have contributed to the high prevalence of hypertension and hyperglycemia.

## Recommendations

- More survey is needed for other areas.

- Other laboratory investigation is needed as lipid profile.

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Table 1 :Category of blood

Category	systolic blood pressure (mmHg)	diastolic blood pressure
Optimal	< 120	< 80
Pre-hypertension	120 ≤ 140	80 ≤ 90
Hypertension stage 1	140 ≤ 160	90 ≤ 100
Hypertension stage II	≥ 160	

Table 2: Distribution of current smokers by male, female and both sex by using the mean and prevalence rate:-

Age groups	male		female		total		t-test
	mean	%	mean	%	mean	%	
20-45 years	0.38	38.9	0.05	5.6	0.22	22.2	11.6

Table 3: Distribution of the respondents that take one, two and three time of serving fruit and vegetable per day in male, female and both of them by use the mean and prevalence rate:-

Age groups	Time of serving fruit and vegetable per day	male		female		Both sexes		t-test
		mean	%		%	mean	%	
20-45 years	One time	0.63	63.9	0.9	91.7	0.76	76.4	6.5
20-45 years	Two time	0.25	25	0.08	8.3	0.16	16.7	6.6
20-45 years	Three time	0.08	8.3	0.0	0.0	0.04	4.2	3.14

Table 4: The percentage of participants practicing one, two and three time per week in male, female and both sex by use the mean and prevalence rate:-

Age groups	Physical activity per week	male		female		total		t-test
		mean	%	mean	%	mean	%	
20-45 years	One time	0.44	44.4	0.55	55.5	.05	50	0.9
20-45 years	Two time	0.25	25	0.02	2.8	0.13	13.9	7.44
20-45 years	Three time	0.05	5.6	0.0	0.0	0.02	2.8	2.1

Table 5: Rate of body mass index between 18.5-24.9, 24.9-29.9 and 29.9-34.9 among the respondents in male, female, and both sex by use the mean and prevalence rate.

Age groups	Body mass index	male		female		Both sexes		t-test
		mean	%	mean	%	mean	%	
20-45 years	18.5 – 24.9	0.13	13.9	0.22	22.2	0.18	18.1	0.81
20-45 years	24.9 – 29.9	0.55	55.6	0.72	72.2	0.63	63.9	2.9
20-45 years	29.9 – 34.9	0.30	30.6	0.05	5.6	0.18	18.1	7.6

Table 6: Rate of systolic hypertension  $\geq 140$ mmHg in male, female and in both sexes by using the mean and prevalence rate:-

Age groups	male		female		Both sexes		t-test
	mean	%	mean	%	mean	%	
20-45 years	0.22	22.2	0.27	27.8	0.25	25	0.3

Table 7: Rate of diastolic hypertension  $\geq 90$ mmHg in male, female and both sex by using the mean and prevalence rate:-

Age groups	male		female		Both sexes		t-test
	mean	%	mean	%	mean	%	
20-45 years	0.25	25	0.27	27.8	0.26	26.4	0.08

Table 8: Percentage of the respondents with fasting blood glucose  $\geq 126$ mg/dl in male, female and both sexes by using the mean and prevalence rate:-

Age groups	male		female		Both sexes		t-test
	mean	%	mean	%	mean	%	
20-45 years	0.19	19.4	0.22	22.2	0.20	20.8	0.08