

# KNOWLEDGE OF PATIENTS ATTENDING ALI KAMAL HEALTH CENTER IN SULAIMANI CITY ABOUT CORONARY HEART DISEASE



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## ABSTRACT

### *Background*

Coronary heart disease (CHD), the principal manifestation of cardiovascular diseases, is the leading cause of morbidity and mortality worldwide <sup>(1)</sup>. The World Health Organization (WHO) predicts that, by 2020, coronary heart disease will become the world's most important cause of death and disability and, further, the most important cause of premature death<sup>(2)</sup>.

### *Objective*

To assess the degree of knowledge of coronary heart disease among adults attending Ali Kamal Health Center in Sulaimani city and to identify factors associated with the knowledge.

### *Patients and Methods*

A cross-sectional study was conducted on 923 patients attending Ali Kamal Health Center in Sulaimani city, from 2<sup>nd</sup> April to 2<sup>nd</sup> July 2011. Close-ended questionnaires were used to evaluate participants' knowledge. SPSS version 17.0 was used for data analysis.

### *Results*

Among 923 studied participants; 50.1% were female, the mean age was 33±12 years. About 34.9% of all participants were housewives or out of work, 56.6% were married, 85.04% had moderate economic status. Higher knowledge scores were found among older age, retired individuals, widows, (p-value < 0.05). TV was the main source of coronary heart disease's information among 32.9% of the patients.

### *Conclusion*

Overall there is a significant relation between CHD knowledge level of the patients and level of education, occupation and marital status. There is low knowledge of warning signs and symptoms of CHD. The main source of patients' CHD information was TV.

**Keywords:** *Knowledge, Coronary Heart Disease, Sulaimani.*

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## INTRODUCTION

Cardiovascular disease (CVD) causes 30% of deaths globally. By comparison, infectious diseases account for 10% of global mortality<sup>(3, 4)</sup>. There is a trend toward a decrease in developed countries, CVD has been declining slightly in North America over the past four decades due, in part, to a parallel decrease in the prevalence of major CVD risk factors and improved care of patients with known CVD<sup>(5, 6)</sup>. However, the burden of CHD in developing countries has increased to epidemic proportions<sup>(7)</sup>.

Lifestyle factors are prevalent in Westernized or technologically advanced cultures, in which required daily physical activity is low because of widespread automation, calorie-dense but nutrient poor food is readily available at a relatively low cost, psychological stress and social isolation is common and chronic exposure to cigarette smoke is still a common occurrence<sup>(8, 9)</sup>. Primarily a disease of advancing age, CHD also frequently attacks the middle-aged, and in some cases the young<sup>(10)</sup>.

Knowledge about coronary heart disease (CHD) and its risk factors is an important pre-requisite for an individual to implement behavioral changes leading towards CHD prevention<sup>(11, 12)</sup>. Lifestyle is the key factor in community-based prevention programs since lifestyle modifications and behavioral changes are cheaper and more effective approaches<sup>(13, 14)</sup>.

### Objectives

The purpose of this study is to assess the degree of knowledge of coronary heart disease among adults attending Ali Kamal Health Center in Sulaimani city & to identify factors associated with the Knowledge of coronary heart disease.

## PATIENTS AND METHODS

This study was approved by ethical committee of School of Medicine, University of Sulaimani. The study patients were included from patients attending Ali Kamal Health Center for various complaints. Ali Kamal Health Center in Sulaimani city which covers a wide area of different socio-economic status population. The study design was cross-sectional study. Data were collected from 2<sup>nd</sup> April to 2<sup>nd</sup> July 2011. Total number of the

study patients was 923 subjects. The patients were chosen by systematic random sampling.

Exclusion criteria: Age less than 18 years and severely ill patients who could not concentrate.

To measure the knowledge level of individuals about CVD or CHD there was no standard questionnaire accepted<sup>(9, 15, 16)</sup>, the knowledge of participants were assessed using self designed questionnaire, the questions of which were designed depending on published relevant studies used to assess CHD Knowledge<sup>(15)</sup>.

The questionnaire consisted of three parts:

First part of the questionnaire contained questions regarding socio-demographic characteristics. 6 questions including age (year), gender, literacy level, occupation, marital status, and economy. Literacy level was categorized to six groups including; illiterate, can read and write, primary, secondary, intermediate and institute, university or higher education respectively. Occupation was asked as an open-ended question, then categorized to five groups including employed, retired, self-employed, house wife or unemployed and student, respectively. Marital status was categorized to 4 groups including single, married, widow and divorced, respectively. Economic status was self assessed by the patients and was categorized to five groups including very poor, poor, moderate, good and very good.

Second part of the questionnaire included questions regarding life styles of the patients in the form of: History of smoking was asked, the answers were categorized to three groups including; non-smoker, smoker and ex-smoker respectively. Patients were asked about smoking hookah and the answers were categorized as yes and no coded as one and zero respectively. The patients were asked about alcohol intake and the answers were categorized to three groups as no-alcohol intake, low-moderate intake (up to one drink/day for women or two drinks/day for men and also those drink in occasions only as mentioned in 2010 dietary guidelines for Americans) and high intake (more than 75 gm/day) respectively. Example of one drink included; Beer: 12 fluid ounces (355 ml), Wine: 5 fluid ounces (148ml), Distilled spirits (80 proof): 1.5 fluid ounces (44 ml).

Practice of physical activity and exercise was asked considering activities during transportation, at work and during leisure time including exercise and sport participation, physical activity was categorized into four groups according to the type of exercise, frequency and duration of the exercise<sup>(17, 18, 19)</sup> as sedentary (means no physical activity more than house-hold activity), light physical activity (defined as energy expenditure less than 600 calories per week such as walking), moderate physical activity (defined as energy expenditure between 600 and 1499 calories per week, refers to activities that take moderate physical effort and make one breathe somewhat harder than normal, e.g. brisk walking), and vigorous physical activity (defined as energy expenditure more than 1500 calories per week, refers to activities that take hard physical effort and make one breathe much harder than normal, e.g. running).

Third part of the questionnaire included questions about knowledge of CHD, questions on risk factors and healthy lifestyles, and questions on signs and symptoms of CHD. Questions about risk factors, healthy lifestyles and signs and symptoms were asked as close-ended questions with answers of "yes", "no" and "don't know".

Finally the source of information about CHD was asked as close-ended question with answers of "school", "television", "radio", "books and magazines", "internet" and "others". The patients could choose more than one as their main source of CHD information.

The right answers with score one were summed to give the total score of knowledge, with a possible range from 0 – 26. Patients' scores equal or less than 40% of the maximum score were regarded as "poor Knowledge level"; scores between 41% - 60% of the maximum score were regarded as "moderate knowledge level" and scores more than 60% of the maximum score were regarded as "good knowledge level".

#### **Statistical analysis:**

The data was analyzed using SPSS version 17.0 software program. Means and standard deviations were calculated for continuous variables as age

and awareness scores and frequencies were calculated for categorical variables. Chi square, t-test and ANOVA were used to find statistically significant associations between variables. P-value of < 0.05 was regarded as statistically significant.

## **RESULTS**

The age of participants ranged from 18 to 82 years with mean age of 33 ±12 years.(not tabulated)

Table 1 shows socio-demographic characteristics of the patients in the current study, in which among 923 subjects, 462 (50.1%) were females. Regarding level of education, 213 (23.1%) of the patients were of institute, university or high education, & those were illiterate 170 (18.4%) and only 117(12.7%) could read and write. Regarding occupation, 322 (34.9%) of all subjects were housewives or out of work, self employed were 218 (23.6%), about (21 %) were students, 178 (19.3%) were employed and only 13 (1.4%) were retired. More than half of the patients were married and 10 (1.1%) were divorced. Regarding self-assessed economic status, about half of subjects had medium economic status and only 15 (1.5%) had very good economic status.

Table 2 shows distribution of sample according to the lifestyles of the patients Concerning smoking, 159 (17.2%) of the total patients were current smokers, among them 149 (93.7%) were males, of all patients 94 (10.2%) were ex-smokers, among them 74 (78.7%) were males, the patients smoked hookah 51 (5.5%), among them, 49 (96.1%) were males.

Among all of the patients who were drinking alcohol, only one female was drinking alcohol with low intake, while 40 (97.6%) of total 41 (4.4%) low-moderate alcohol intake were males (not tabulated). Regarding exercise, about half of the patients were sedentary and 297 (32.2%) of all the patients were doing light physical activities, among them 174 (58.8%) were males.

Table 1. Socio-demographic characteristics of the patients.

Socio-demographic variable	No	Percentage
<b>Gender</b>		
Female	462	50.1
Male	461	49.9
<b>Literacy level</b>		
Illiterate	170	18.4
Can read and write	117	12.7
Primary school	132	14.3
Intermediate school	169	18.3
Secondary school	122	13.2
Institute, university or higher	213	23.1
<b>Occupation</b>		
Employed	178	19.3
Retired	13	1.4
Self employed	218	23.6
Housewife or out of work	322	34.9
Student	192	20.8
<b>Marital status</b>		
Single	364	39.4
Married	522	56.6
Widow	27	2.9
Divorced	10	1.1
<b>Economic status</b>		
Very low	38	4.1
Low	175	19.0
Medium	465	50.4
Good	230	24.9
Very good	15	1.5

**Table 2. Distribution of sample according to the lifestyles of the patients.**

Medical background & lifestyle variable	No	Percentage
<b>Smoking</b>	670	72.6
No	159	17.2
Current smoker	94	10.2
Ex-smoker		
<b>Hookah</b>	872	94.5
No	51	5.5
Yes		
<b>Alcohol</b>	881	95.4
No	41	4.4
Low-moderate intake	1	0.1
High intake		
<b>Exercise</b>	462	50.1
No (sedentary)	297	32.2
Light physical activity	84	9.1
Moderate physical activity	80	8.7
Vigorous physical activity		

Table (3) shows distribution of sample by knowledge about healthy diet & the factors that reduced the risk of CHD, majority of the patients, 810 (87.8%) and 830 (89.9%) knew that fruits and vegetables oil is better than fat and eating red meat more than three times per week is harmful, respectively, and 689 (74.6%) knew that fresh fruits and vegetables can be preventive against CHD and 655 (71.0%) knew that salty diet increases risk of CHD, 692 (75.0%) correctly answered that risk reduces when smoking is stopped, 560 (60.7%) knew that risk reduces when blood pressure is controlled and only 365 (39.5%) of all patients knew that risk reduces when blood glucose is controlled.

Table (4) shows distribution of the sample by knowledge of the signs & symptoms of CHD just over (65%) of the subjects knew that chest pain is a symptom of CHD. About one-third, namely 306 (33.2%) knew that pain in upper back could be of CHD. about (43%) of all patients had knowledge that pain in left arm could be of CHD, while only 159 (17.2%) knew that epigastric pain could be of CHD. Those knew that sweating and dyspnea could be signs of CHD are 434 (47.0%) and 677 (73.3%) respectively. Only 191 (20.7%) of all

patients correctly answered that CHD could be asymptomatic. Table (5) shows relation of socio-demographic characteristics to CHD knowledge mean score. There was no significant difference between males and females regarding knowledge mean score. Higher knowledge mean scores were found among illiterates, retired and widows (p value < 0.05), while there was no significant association between knowledge scores and patients' economic status

Table (6) shows the relation of life-style variables to CHD knowledge mean score

There were no significant association between CHD knowledge scores and life styles of smoking, hookah, alcohol intake and exercise.

#### **Patients' sources of CHD information**

As shown in figure (1); the most common source of patients' CHD information was TV (32.9%), the respondents had CHD information from other sources was 28.4%, those had information from school was 11.9%, from books and magazines 11.4%, from internet 8.1% and only 7.1% from radio.

**Table 3. Distribution of sample by knowledge about healthy diet and the factors that reduced the risk of CHD.**

<b>Question</b>	<b>No</b>	<b>Percentage</b>
<b>Plant oil is better than fat</b>	44	4.8
No	810	87.8
Yes	69	7.5
Don't know		
<b>Eating red meat &gt;3 times/week is harmful</b>	22	2.4
No	830	89.9
Yes	71	7.7
Don't know		
<b>Fresh fruits &amp; vegetables can be preventive against CHD</b>	102	11.1
No	689	74.6
Yes	132	14.3
Don't know		
<b>Risk is reduced when smoking stopped</b>	90	9.8
No	692	75.0
Yes	141	15.3
Don't know		
<b>Risk is reduced when blood pressure is controlled</b>	43	4.7
No	560	60.7
Yes	320	34.7
Don't know		
<b>Risk is reduced when blood glucose is controlled</b>	80	8.7
No	365	39.5
Yes	478	51.8
Don't know		

**Table 4. Distribution of the sample by knowledge of the signs and symptoms of CHD**

<b>Question</b>	<b>No</b>	<b>Percentage</b>
<b>Sweating could be a sign of CHD</b>	70	7.6
No	434	47.0
Yes	419	45.4
Don't know		
<b>Dyspnea could be a sign of CHD</b>	39	4.2
No	677	73.3
Yes	207	22.4
Don't know		
<b>CHD could be asymptomatic</b>	451	48.9
No	191	20.7
Yes	281	30.4
Don't know		
<b>Chest pain could be a symptom of CHD</b>	61	6.6
No	602	65.2
Yes	260	28.2
Don't know		
<b>Pain in the upper back could be of CHD</b>	172	18.6
No	306	33.2
Yes	445	48.2
Don't know		
<b>Pain in the left arm could be of CHD</b>	158	17.1
No	394	42.7
Yes	371	40.2
Don't know		
<b>Epigastric pain could be of CHD</b>	282	30.6
No	159	17.2
Yes	482	52.2
Don't know		

**Table 5. Relation of socio-demographic characteristics to CHD knowledge mean score.**

<b>Socio-demographic variable</b>	<b>Knowledge mean*</b>	<b>SD**</b>	<b>P. value</b>
<b>Gender</b>	15.77	4.93	0.396
Female	15.50	4.54	
Male			
<b>Literacy level</b>	17.35	4.54	<b>0.001</b>
Illiterate	15.68	4.51	
Can read and write	14.22	5.60	
Primary school	14.83	5.02	
Intermediate school	15.21	4.01	
Secondary school	15.10	4.15	
Institute, university or higher			
<b>Occupation</b>	16.00	4.16	<b>0.003</b>
Employed	19.54	3.36	
Retired	15.19	5.02	
Self worker	15.93	5.06	
Housewife or out of work	15.06	4.28	
Student			
<b>Marital status</b>	14.86	4.66	<b>0.001</b>
Single	16.13	4.72	
Married	16.78	5.23	
Widow	15.10	4.25	
Divorced			
<b>Economic status</b>	16.45	5.75	0.388
Very low	16.13	4.61	
Low	15.51	4.66	
Medium	15.37	4.90	
Good	15.87	2.85	
Very good			

\*Maximum awareness score= 26

\*\* SD: Standard Deviation

Table 6. Relation of life-style variables to CHD knowledge mean score.

Lifestyle variable	Knowledge mean*	SD	P. value
<b>Smoking</b>	15.71	4.78	0.350
No	15.16	4.49	
Current smoker	15.94	4.82	
Ex-smoker			
<b>Hookah</b>	15.66	4.75	0.555
No	15.26	4.54	
Yes			
<b>Alcohol</b>	15.66	4.76	0.459
No	15.37	4.19	
Low-moderate intake	10.00	3.02	
High intake			
<b>Exercise</b>	15.46	4.98	0.57
No (sedentary)	15.97	4.49	
Light physical activity	15.06	4.74	
Moderate physical activity	16.24	3.99	
Vigorous physical activity			

\*Maximum awareness score= 26

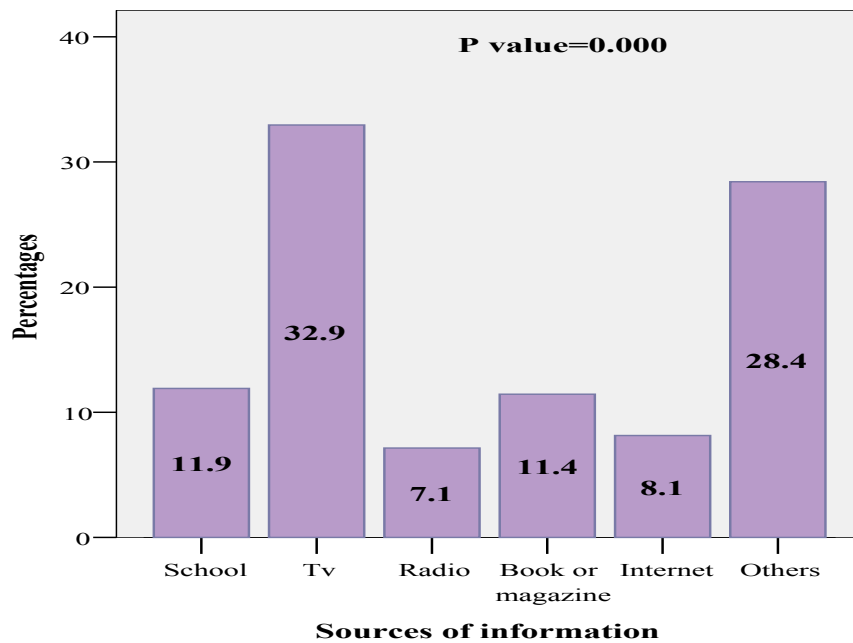


Figure 1. Sources of CHD information of the patients.

## DISCUSSION

In this study occupation was significantly associated with knowledge of CHD, as highest scores were found among retired participants; this could be justified by relatively older ages of retired people and co-occurrence of medical conditions. A study done among Ga-Rankuwa community in South Africa <sup>(12)</sup> showed significant association between occupation and knowledge. Marital status was significantly associated with knowledge; as widow and married people showed higher knowledge scores in comparison to singles, this finding is in agreement with a study in a disadvantaged inner-city population in Canada <sup>(6)</sup> which showed that being married was independently related to good knowledge. Knowledge was significantly associated with literacy level; strangely higher knowledge scores found among illiterates, this finding can be justified by the explanation that majority of illiterate patients were of middle and old ages associated with medical conditions like hypertension or diabetes mellitus or others that made them more knowledgeable than younger ages and others without medical conditions and were of frequent visits to health centers. Or this finding could be due to reporting bias, as the illiterate participants filled the questionnaire by interview and there was possibility of tendency to answer questions by "yes", although efforts had been made to avoid this and the participants were asked the same question in different ways to ensure the answer whenever possibility of reporting bias was observed. No significant association was found between CHD knowledge and gender, economic status.

Overall patients had good knowledge about healthy diet in terms of the use of oil instead of fat, not eating red meat more than three times per week and reducing salty diet, this is in agreement with the focus group survey done amongst South Asians <sup>(20)</sup> as diet was identified by many as a cause for heart disease and the survey in Canada as fat in food was mentioned by more than half of the participants as a risk factor and a survey <sup>(21)</sup> with high knowledge toward salt intake and in contrast to the survey done among women in the US as only few of the patients (5%) identified high fat diet as a risk factor <sup>(19)</sup>.

Quitting smoking was commonly (75%) identified as beneficial to heart health by the participants,

few of the respondents thought that quitting smoking is harmful to health because of withdrawal symptoms or some thought that smoking has already made changes and stopping smoking is of no benefit, these misconceptions lead the smokers to continue smoking. The relatively common finding that quitting smoking is beneficial to heart health is consistent with the result of the study done among American women <sup>(21)</sup>. A lower proportion of the participants (55%) among university students in Pakistan considered quitting smoking to prevent heart disease <sup>(22)</sup> More than half of the participants said that risk is reduced when blood pressure is controlled, this finding is in agreement with the study in the US <sup>(19)</sup>, but in contrast to Ga-Rankwa survey <sup>(12)</sup> as this was mentioned by only 12% of the participants.

Early recognition of the warning symptoms of CHD by the patient or someone who is with the patient is an important first step that must occur before evaluation and life-saving treatment can be obtained <sup>(23)</sup>. In the present study, knowledge about signs and symptoms of CHD among participants was relatively low which is in agreement with several studies conducted in different countries that showed relatively low knowledge about warning signs and symptoms of CHD <sup>(11, 19, 24, 25)</sup>. Among the respondents of this study, 65.2% identified chest pain as a warning symptom of CHD, this result is in agreement with the studies conducted in the US where approximately 67% <sup>(19)</sup> and 62% <sup>(21)</sup> of all respondents identified chest pain as a warning symptom for heart attack. A lower proportion of the participants (59% and 50%) identified chest pain as a symptom of heart attack in surveys conducted among Vietnamese Americans <sup>(24)</sup> and Chinese Canadians <sup>(25)</sup> respectively. A much lower proportion (36%) identified chest pain as a symptom of heart disease in a study done in Pakistan <sup>(11)</sup>. Less than half of the participants identified pain in the upper back or shoulders and arms, epigastric pain and sweating as warning symptoms of CHD, these findings are in agreement with surveys done among Chinese Canadians <sup>(25)</sup>, in the US <sup>(19)</sup> and Pakistan <sup>(11)</sup>. Only few respondents (20.7%) identified that CHD could be asymptomatic, this is in contrast to the result of the survey conducted in the US <sup>(19)</sup> in which about 91% of the respondents knew that heart disease can easily go undetected. No

significant association was found between CHD knowledge and lifestyles or habits of smoking, hookah, alcohol intake and physical exercise, in contrast to the American Indian survey which showed lower knowledge among smokers than non smokers. The participants' most common source of CHD information was television (32.9%), a number of studies also reported television as a significant source of health related information<sup>(22, 24, 26)</sup>, while a study done among university students in Pakistan showed only 21% for TV and radio as their source of information. The second common source of information among participants was "others" which included friends, relatives and healthcare providers. The studied community has more social environment in comparison to western countries, as there is high rates of visits and conversations among population and people are commonly discussing health related subjects among themselves especially during visits to ill patients. This finding is in contrast to a survey conducted in a European institution<sup>(26)</sup> as a small number of patients depended on family and relatives for information. A study in Pakistan which was conducted among university students showed that 51% of them have received their information from their families and friends<sup>(22)</sup>. A lower proportion of the patients (11.4%) identified printed media as magazines and books as their main source of information, this is in contrast to surveys conducted in several countries among which magazine was reported as their major or significant source of health related information<sup>(19, 21, 25)</sup> and in agreement with the study done in Pakistan as only 10% read the subject somewhere<sup>(22)</sup>. In this study; only 8.1% of the patients used internet as their source of information and this is in agreement with a survey conducted among Chinese Canadians<sup>(25)</sup> as 8% reported internet as their source of information and the survey in a European country<sup>(26)</sup> showed that internet usage for gaining information was limited to very few patients.

Knowledge level is significantly related to level of education, occupation and marital status. Knowledge of warning signs and symptoms of CHD is relatively low. There is no significant association between knowledge level and gender, economic status, smoking, alcohol intake and physical exercise. The most common source of patients' CHD information was TV.

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