

**GENERAL PUBLIC AWARENESS ABOUT SYMPTOMS AND RISK FACTORS OF  
SOME CARDIOVASCULAR DISEASES IN KSA, RIYADH 2017**

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Article Received on 16/07/2017

Article Revised on 06/08/2017

Article Accepted on 26/08/2017

**ABSTRACT**

**Background:** Cardiovascular diseases is considered the most common cause of death in the world; it is the cause of about 50% of deaths in the world, and it's expected to increase significantly. Cardiovascular diseases is also the most common cause of death in KSA. **Objective:** To determine the level of awareness regarding cardiovascular diseases among a random representative sample of Riyadh population in 2017. **Methodology:** Cross-sectional study, random sampling technique and the sample size was 388 from adult (18 up to +50) general public excluding medical staff. **Results:** Half of respondents had good knowledge regarding risk factors of cardiovascular diseases (46.6%) and good level of awareness regarding prevention of cardiovascular diseases (71.2%) while majority (67.2%) had poor knowledge of clinical pictures of cardiovascular diseases. Most of respondents had moderate level of knowledge of cardiovascular diseases (60.5%) and they were from low economic status. Majority of participants who had moderate level of awareness of cardiovascular diseases were from university level of education (36.3%). **Conclusion:** Most of participants had good knowledge regarding risk factors and prevention of cardiovascular diseases, majority of participants had poor knowledge regarding clinical pictures of cardiovascular diseases. There is no statistical relationship between economic status, education level and the level of awareness of cardiovascular diseases.

**KEYWORDS:** CVD Cardiovascular diseases. CVS Cardiovascular System. KSA Kingdom of Saudi Arabia. PHC Primary health care. MOE Ministry of Education. MOH Ministry of Health.

**INTRODUCTION**

The term cardiovascular diseases (CVD) refer to pathological conditions which occur in the heart and blood vessels, it includes: heart failure, angina and congenital anomalies of the heart.<sup>[1]</sup>

It's an umbrella term which covers numerous diseases affecting the heart and blood vessels. Although the term is usually used to describe disorders related to atherosclerosis, it still can be used to describe other disorders affecting the cardiovascular system. CVD is divided into three major categories: - Health related CVD (Angina, Arrhythmia), Brain related CVD (Cerebrovascular stroke) and Circulatory system related CVD (Deep vein thrombosis).<sup>[2]</sup>

The most common risk factor of CVD is hypertension. Sadly only 50% of hypertensive patients are aware of this fact. Recent studies show that control of hypertension can be effective, but is generally not enough to prevent CVD.<sup>[3]</sup>

CVD is considered the most common cause of death in the world, it is the cause of about 50% of deaths in the world. In middle and low income countries, it causes 80% of deaths; this is expected to increase significantly, especially in the Arabian Gulf region where Kingdom of Saudi Arabia is located. CVD is also the most common cause of death in KSA.<sup>[4]</sup>

The incidence of CVD is remarkably increasing in developing countries such as: Afghanistan, Turkey Iran, Iraq, Lebanon, Saudi Arabia, Syria and United Arab Emirates (UAE). This is partially due to "westernization" of our lifestyle which led to increased use of fast food, increased smoking and increased consumption of food rich in hydrogenated fats.<sup>[5]</sup>

Cardiovascular disease is considered largely a preventable disease as majority of CVD risk factors are preventable or controllable, such as: hypertension, dyslipidemia, diabetes, obesity, smoking, lack of physical activity and stress. Knowledge is a known requisite for change in health behavior. Also, better

awareness about the disease may lead to better patient outcome. Individuals need to know and understand the implication of CVD, its symptoms and risk factors to allow them to be proactive about minimizing their risk.<sup>[6]</sup>

Increasing awareness of CVD, its symptoms and its risk factors may lead to prevention of the disease in the first place or at least reduce its mortality.<sup>[7]</sup>

A lot of studies have shown that CVD exist in different areas of Saudi Arabia. Nevertheless, there is no new methodical review that has examined the epidemiology of CVD in Saudi population.<sup>[8]</sup> The general objective of our research is to determine the level of awareness regarding CVD among a random representative sample of Riyadh population in 2017.

## MATERIALS AND METHODS

### Research approach

Research design: PHC unit based cross-sectional study.

Study area: Saudi Arabia, Riyadh, PHC unit in different Riyadh town sectors.

Study population: Adult, Male and Female, Riyadh inhabitant.

Inclusion criteria: any adult is a subject for study.

Exclusion criteria: medical personnel.

Sample size: 388

Sample technique: random sampling.

### Data needs

Data collection instruments: pre-tested pre-coded self-administered questionnaire that covers general public awareness about CVD regarding (Risk factors, prevention, clinical picture ...) and this questionnaire was subjected to probe before data collection to test for reliability and validity.

Data collection method: the questionnaire was self-administered questionnaire.

Data analysis: using SPSS software Version 23 and Microsoft excel to generate tables and charts.

Data presentation tables (dummy table): are attached to this document.

Statistical test: CHI square test is a test of significance with p value 0.05.

Ethical Consideration: consent will be obtained from each participant before data collection emphasizing on the right of participant to withdraw from the study at any point of time.

## RESULTS

**Table 1: Demographic data.**

Age	18-30	31-40	41-50	51+	Total
Frequency	220	88	51	29	388
Percent	56.7%	22.7%	13.1%	7.5%	100.0%
Gender	Male		Female		Total
Frequency	257		131		388
Percent	66.2%		33.8%		100.0%
Marital status	Married	Single	Divorced	Widow	Total
Frequency	225	147	11	5	388
Percent	58.0%	37.9%	2.8%	1.3%	100.0
Employment status	Employed	Unemployed	Self-Employed	Student	Total
Frequency	242	39	37	70	388
Percent	62.4%	10.1%	9.5%	18.0%	100.0%
Education level	University	Secondary	Primary	Illiterate	Total
Frequency	246	108	22	12	388
Percent	63.4%	27.8%	5.7%	3.1%	100.0%
Residence	North	South	East	West	Total
Frequency	215	42	84	47	388
Percent	55.4%	10.8%	21.6%	12.1%	100.0%

n=388.

The table shows that out of 388 participants 66.2% were male and 33.8% were female. of all the participants 63.4% had a university level of education. 71.9% with a low monthly income. Regarding the age; the range of 18-30 was (56.7%), 31-40 was (22.7%), 41-50 was (13.1%) and +51 was (7.5%). Regarding marital status in our study showed that 58% were married, 37.9% were single, 2.8% were divorced and 1.3% were widowed. Employment status 62.4% were employed, 10.1% were

unemployed, 9.5% were self-employed and 18% were student. About the education level 63.4% of the participants had a university level of education, 27.8 % had a secondary level, 5.7% primary level and 3.1% were illiterate. All participants were from Riyadh among them 55.7% live in the north, 10.8% live in the south, 21.6% live in east and 12.1% live in west region of Riyadh.

**Table 2: level of awareness regarding risk factors of CVD.**

<b>Which one of the following is a risk factor of CVD ?</b>		
	<b>Frequency</b>	<b>Percent</b>
Smoking	54	13.9
Hypertension	25	6.4
High serum cholesterol	25	6.4
Overweight	21	5.4
Diabetes	16	4.1
Family history of CVD	16	4.1
All of them	231	59.5
Total	388	100.0
<b>Do you think lack of exercise is a risk factor of cardio vascular disease ?</b>		
	<b>Frequency</b>	<b>Percent</b>
No	60	15.5
I don't know/not sure	45	11.6
Yes	283	72.9
Total	388	100.0

n=388.

The table indicate that 13.9% of the participants were aware about smoking as a risk factor of CVD while 6.4% were aware about hypertension and high serum cholesterol, 5.4% were aware about over-weight, 4.1%

were aware about Diabetes and family history and 59.5% were are about all of them. For lacking of exercise, 15.5% of the participants answered by no and 11.6% answered by I don't know and 72.9% answered by yes.

**Table 3: level of awareness regarding risk factors of CVD.**

<b>Determination the level of awareness about risk factors of CVD</b>				
	0 Poor	1 Moderate	2 Good	Total
Frequency	55	152	181	388
Percent	14.2%	39.2%	46.6%	100.0%

n=388.

The table illustrate the level of awareness regarding risk factors of CVD and it shows that 14.2% of the participants had poor knowledge about the risk factors

while 39.2% had moderate knowledge and 46.6% had good knowledge.

**Table 4: level of awareness regarding clinical picture of CVD.**

<b>Feeling weak, lightheaded or faint is a common symptom of having heart attack?</b>		
	<b>Frequency</b>	<b>Percent</b>
No	96	24.7
I don't know/not sure	149	38.4
Yes	143	36.9
Total	388	100.0
<b>Which of the following is a clinical picture of CVD?</b>		
	<b>Frequency</b>	<b>Percent</b>
Shortness of breath	86	22.2
Pain in the chest, shoulder, jaw, neck or back	103	26.5
Pain in upper part of stomach	28	7.2
All of them	171	44.1
Total	388	100.0
<b>Do you think swelling of your lower extremities can be a clinical picture of heart failure?</b>		
	<b>Frequency</b>	<b>Percent</b>
No	91	23.5
I don't know/not sure	182	46.9
Yes	115	29.6
Total	388	100.0

n=388.

The table shows the level of awareness regarding clinical picture of CVD, 24.7% of the participants answered that feeling weak, lightheaded or faint are not a common symptoms of having heart attack while 38.4% answered by I don't know and 36.9% answered by yes. 22.2% of the participants thought that shortness of breath is a clinical picture of CVD while 26.5% thought that pain in the chest, shoulder, jaw, neck or back are clinical

pictures of CVD, 7.2% thought that pain in upper part of stomach is clinical picture of CVD and 44.1% thought that all of the clinical pictures which listed above are clinical pictures of CVD. 23.5% of respondents thought that swelling of lower extremities is not a clinical picture of heart failure while 46.9% answered by I don't know and 29.6% answered by yes.

**Table 5: level of awareness regarding clinical picture of CVD.**

Determination the level of awareness about clinical picture of CVD				
	0-1 Poor	2 Moderate	3 Good	Total
Frequency	261	93	34	388
Percent	67.2%	24.0%	8.8%	100.0%

n=388.

The table revealed that 67.2% of the participants had poor knowledge regarding clinical pictures of CVD

while 24% had moderate knowledge and 8.8% had good knowledge.

**Table 6: level of awareness regarding prevention of CVD.**

Walking is considered as a type of exercise that can lower heart disease risk?		
	Frequency	Percent
No	14	3.6
I don't know/not sure	34	8.8
Yes	340	87.6
Total	388	100.0
How many times do you think is recommended as a regular is check-up for serum lipid?		
	Frequency	Percent
Once per year	219	56.4
Three times per year	113	29.1
Once every two years	39	10.1
No need for annual check-up	17	4.4
Total	388	100.0
Do you think eating healthy foods can prevent CVD ?		
	Frequency	Percent
No	20	5.2
I don't know/not sure	45	11.6
Yes	323	83.2
Total	388	100.0
Do you think a good control of hypertension can reduce the risk of CVD ?		
	Frequency	Percent
No	30	7.7
I don't know/not sure	42	10.8
Yes	316	81.4
Total	388	100.0
Do you think keeping your blood sugar normal can reduce the susceptibility of CVD ?		
	Frequency	Percent
No	25	6.4
I don't know/not sure	68	17.5
Yes	295	76.0
Total	388	100.0

n=388.

The table shows the level of awareness regarding prevention of CVD. Majority of respondents (87.6%) thought that walking is considered as a type of exercise that can lower heart disease risk while 3.6% of the them answered by no and 8.8% answered by I don't know.

Majority of respondents (56.4%) thought that the recommended regular check up for serum lipid is once per year while 29.1% thought that three times per year, 10.1% thought once every two years and 4.4% thought that no need for annual check-up. Majority of

respondents (83.2%) thought that eating healthy food can prevent CVD while 5.2% answered by no and 11.6% answered by I don't know. Majority of respondents (81.4%) thought that controlling of hypertension would reduce the risk of CVD while 7.7% answered by no and

10.8% answered by I don't know. Majority of respondents (76%) thought that keeping blood sugar within normal would reduce the susceptibility of CVD while 6.4% said no and 17.5% said I don't know and 76% said yes.

**Table 7: level of awareness regarding prevention of CVD.**

Determination the level of awareness about prevention of CVD				
	0-1 Poor	2-3 Moderate	4-5 Good	Total
Frequency	21	91	276	388
Percent	5.4%	23.4%	71.2%	100.0%

n=388.

The table shows the awareness regarding the prevention of CVD. Majority of participants (71.2%) had good level

of awareness while 5.4% had poor level of awareness and 23.4% had moderate level of awareness and.

**Table 8: Annual income.**

Annual income				
	<120.000 Low	120.000- 200.000 Moderate	>200.000 High	Total
Frequency	279	80	29	388
Percent	71.9%	20.6%	7.5%	100.0%

n=388.

**Table 9: Relation between Economic status and level of knowledge of CVD.**

Relation between Economic status and level of knowledge of CVD					
		<120.000 Low	120.000- 200.000 Middle	>200.000 High	Total
Low 1-3	Frequency	25	6	6	37
	Percent	67.57%	16.22%	16.22%	100%
Moderate 4-7	Frequency	172	49	14	235
	Percent	73.19%	20.85%	5.96%	100%
High 8-10	Frequency	82	25	9	116
	Percent	70.69%	21.55%	7.76%	100%
Total	Frequency	279	80	29	388
	Percent	71.91%	20.62%	7.47%	100%

P value =0.526.

The table shows the percentage of annual income, 71.9% of the participants had annual income less than 120.000 SAR while 20.6% had 120.000-200.000 SAR and 7.5% had annual income more than 200.000 SAR. Regarding the relation between economic status and level of knowledge of CVD, the majority of participants who had low level of knowledge of CVD (9.5%), were low economic status 6.4%, remaining of participants who had low level of knowledge of CVD, 1.5% were middle economic status and 1.5% were high economic status, and the majority of participants who had moderate level of knowledge of CVD (60.5%) were low economic status 44.3%, remaining participants who had moderate level of knowledge 12.6% were middle economic status and 3.6% were high economic status, majority of people who

had high level of knowledge of CVD (30%) were low economic status 21.1%, remaining participants 6.4% were middle economic status and 2.3% were high economic status. We found that there is no statistical relationship between economic status and level of knowledge of CVD.

**Table 10: Relation between educated and the illiterate regarding level of awareness of CVD.**

Relation between educated and the illiterate regarding level of awareness of CVD						
		University	Secondary	Primary	Illiterate	Total
Low 1-3	Frequency	17	11	5	4	37
	Percent	45.95%	29.73%	13.51%	10.81%	100%
Moderate 4-7	Frequency	141	74	13	7	235
	Percent	60.00%	31.49%	5.53%	2.98%	100%
High 8-10	Frequency	88	23	4	1	116
	Percent	75.86%	19.83%	3.45%	0.86%	100%
Total	Frequency	246	108	22	12	388
	Percent	63.40%	27.84%	5.67%	3.09 %	100%

P value =0.968.

The table revealed that the majority of participants who had low level of awareness of CVD were university level of education 4.4%, remaining participants 2.8% had secondary level of education and 1.3% had primary level of education and 1% were illiterate. Regarding the participants who had moderate level of awareness of CVD the majority were university level of education 36.3% and remaining participants 19% were secondary level of education 3.4% were primary level of education 1.8% were illiterate. Majority of participants in our study who had high level of awareness of CVD were university level of education 22.7%, remaining participants 5.9% were secondary level of education, 1% were primary level of education and 0.3% were illiterate. We found that there is no statistical relationship between educated and illiterate regarding level of awareness of CVD.

## DISCUSSION

Our result indicated that the majority of respondents had a good knowledge about risk factors of CVD and this goes in contrary with other research was conducted in Turkey 2015<sup>[9]</sup> which showed that the respondents of Turkish research had moderate knowledge and this difference might be because of the Turkish research was conducted in rural area while ours was conducted in urban area and in a capital city (Riyadh) and also the majority of our respondents had a university level of education and in the Turkish study the majority had elementary level of education. Introducing effective practical health education would address the underlying conditions such as smoking, hypertension, high serum cholesterol, over-weight, diabetes and family history and this eventually would lower prevalence of CVD.

The majority of participants didn't know that feeling weak, light headed or faint are common symptoms of having heart attack. Majority of participants were aware that shortness of breath, pain in the chest, shoulder, jaw, neck or back and pain in upper part of stomach are clinical pictures of CVD. Majority of participants didn't know or they weren't sure that swelling of lower extremities is a clinical picture of heart failure. Our result indicated that the majority of our participants didn't know that feeling weak, light headed and faint are common symptoms of having heart attack and this goes in contrary with another study was conducted in Pakistan 2015<sup>[10]</sup> which showed that the majority of respondents

knew about these symptoms and this difference might be because of their research was conducted among university student and our research was conducted within general population. Majority of participants were aware about shortness of breath, pain in the chest, shoulder, jaw, neck, back, pain in upper part of stomach are clinical pictures of CVD and this goes in line with other study was conducted in Rhode Island 2011.<sup>[11]</sup> Majority of our participants didn't know that swelling of lower extremities can be clinical picture of heart failure and this goes in line with other study was conducted in Rhode Island 2011.<sup>[11]</sup> As a result of poor knowledge of clinical pictures of CVD the late presentation, mortality and morbidity rate might be increase over the time.

The majority of participants knew that walking is considered as a type of exercise that can lower heart disease risk. Majority of respondents knew that the recommended regular check up for serum lipid is once per year. Majority of participants knew that eating healthy foods would prevent CVD. Majority of respondents thought that controlling of hypertension would reduce the risk of CVD. Majority of respondents knew that keeping blood sugar within normal would reduce the susceptibility of CVD. Our result indicated that majority of the participant had good knowledge about prevention of CVD and this goes in contrary with other study which was conducted in India 2013<sup>[12]</sup> in which showed that their participants had poor knowledge and this might be because of the Indian research was already conducted among patients of CVD who were admitted to the hospital at the time of the research and our research was conducted among general public who weren't in the hospital. In our point of view the continuation of conducting the same health behavior would decrease the incidence of CVD.

The majority of participants were low economic status (less than 120.000 SAR) and those participants had moderate level of awareness, the middle economic status participants (120.000-200.000 SAR) had moderate level of awareness and the high economic status participants (more than 200.000 SAR) had moderate level of awareness. There is no statistical relationship between economic status and level of awareness of CVD. Our result goes in line with other research which was conducted in Brazil 2009.<sup>[13]</sup> MOE should facilitate more

effective health education program to a rise the level of awareness of CVD.

The majority of participants were educated (in different levels) and they had moderate level of awareness of CVD and the minority of participants had also moderate level of awareness of CVD. And this shows us that there is no statistical relationship between education level and awareness of CVD. Our result indicated that majority of our participant had moderate level of awareness and this goes in contrary with other research was conducted in Greek 2015<sup>[14]</sup> which shows that the majority of their participants had poor knowledge and the Greek research was done in rural areas and our research was conducted among civilized people. MOH should increase the level of awareness regarding CVD among different economic status with the same method to increase the level from moderate to good knowledge of CVD.

### CONCLUSION

Most of participants had good knowledge regarding risk factors and prevention of CVD, majority of participants had poor knowledge regarding clinical pictures of CVD. There is no statistical relationship between economic status, education level and the level of awareness of CVD.

### ACKNOWLEDGMENT

We would like to thank our colleagues, Dr. Ammar Fathi Khalifa and our college for all the help and support they have provided to us and to thank all health care units who have provided us with the needed information and data.

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