Knowledge of cardiovascular disease risk factors among the non-medical staff of a medical university in UAE

Nelofer Khan1*, K.G. Gomathi1, Soofia Ahmad2, Syed Ilyas Shehnaz3, Salwa Abdelzaher4, Sana Abdul Jabbar1
1Department of Biochemistry, 2Department of Physiology, 3Department of Pharmacology, 4Department of Internal medicine, Gulf Medical University, Ajman, United Arab Emirates
*Presenting Author

ABSTRACT
Introduction: Cardiovascular diseases (CVD), a group of disorders of heart and blood vessels (Coronary Heart Diseases; CHD and stroke), are the most common causes of premature morbidity and mortality worldwide.

Objectives: To study the level of knowledge about CVD risk factors and prevention among non-medical staff of Gulf Medical University.

Materials and Methods: A cross-sectional questionnaire-based survey was used to collect data from 77 participants. Questions enquiring about the definitions of CHD and stroke (closed ended statements); steps to be taken to reduce the risk of getting CHD/stroke (Open ended sections) and identification of factors that increase risk of CVD (from a list) formed parts of the questionnaire.

Results: Majority of the participants were South Asians, educated males (74%). Around 76.6% and 57.1% knew definitions of CHD and stroke respectively. Exercise (76.6% & 45.5%), healthy food habits (68.8% & 35.1%) and smoking cessation (28.6% & 20.8%) were indicated as steps to be taken to reduce the risk of CHD and stroke respectively. From the listed factors, high blood cholesterol (87%), high blood pressure (84.4%), family history (75.3%), obesity/overweight (65.7%), and diabetes mellitus (58.4%) were identified as factors that increase the risk for CVD. Very few participants identified male gender (30%) and South Asian ethnicity (18.2%) as risk factors. Though 84.4% identified tobacco smoking as a risk factor of CVD, only half of them knew that regular exposure to second-hand smoke can also lead to CVD. Moreover, few (36.4%) knew about high risk in females who smoke and use oral contraceptives and that the risk increases after menopause (23.4%).

Conclusion: The knowledge about CVD risk factors and prevention among the participants is high which may have been influenced by their working environment. However, it is far from ideal as they belong to a high risk ethnic population.

Key words: CVD, CHD, stroke, knowledge

INTRODUCTION
Cardiovascular disease (CVD) is the commonest cause of morbidity and mortality with an estimation of 17.3 million deaths worldwide annually1, 2. According to WHO, “CVD is a group of disorders of heart and blood vessels including coronary heart disease (CHD) & cerebrovascular disease (manifested by stroke and transient ischemic attack)”. CHD alone accounts for almost half of the total cases of CVD.

CVD is considered as a degenerative and progressive disease which originates from early childhood. Hereditary plays an important part in CVD occurrence; however behavior related factors like cigarette smoking, alcohol, obesity, physical inactivity, stress and other unhealthy lifestyle practices can greatly accelerate its development. Early recognition of risk factors of CVD is considered to be an important step in preventing such events. The INTERHEART study has shown that around 90% of first event of heart attack could be prevented through the diet and lifestyle modifications.

Studies have been conducted to assess the knowledge of risk factors (modifiable) of CVD among different population groups. The findings of such studies could assist in developing the programs aimed
to reduce the disease burden. Awareness of the risk factors and the perceived self-vulnerability can influence prevention seeking actions\textsuperscript{12}. Lack of CVD knowledge could result into inadequate behavioral changes and eventually poor clinical outcomes. So addressing knowledge and perceptions regarding CVD will be helpful in prevention, early diagnosis and management of these disorders.

To our knowledge there are no published studies about the CVD knowledge among the UAE population. The population of UAE is diverse in terms of nationality and ethnicity. Knowledge about this population is important to healthcare professionals. Findings of this survey would help in identifying areas of weaknesses and misconceptions and unhealthy lifestyle practices that require additional educational efforts. Eventually, this would provide impetus for improvement of the current and future programs devoted to public education for CVD.

**MATERIALS & METHODS**

**Study questionnaire**

The questionnaire was developed after extensive literature search\textsuperscript{13,14} and its content was edited and validated by an expert panel. This study is based on a small subset of questions from the questionnaire which was divided into several sections. The originally developed instrument has many sections which were open ended. However, pilot work showed unwillingness on part of the respondents to fill up the questionnaire. Therefore, it was amended retaining only two open ended questions. It was pilot tested again in order to identify any problems relating to question design and understanding; followed by corrections. The pretested data was excluded from the study analysis.

The questionnaire had a section for demographics followed by (a) Definition of CHD was given (to be answered by ticking – I knew this/ I didn’t know this). This was required because the answers of certain sections were dependent on correct understanding of CHD. (b) Open response question addressing what you can do to reduce/prevent the risk of getting CHD. Respondents were encouraged to provide multiple responses to this question. Another similar section was developed which included the definition of stroke and open response question about knowledge of its prevention.

A list of risk factors of CVD was developed. It included hypertension, hypercholesterolemia, first & second hand smoking, diabetes, obesity, physical inactivity, stress, unhealthy diet, family history, being South Asian, increasing age and male gender. The respondents were asked to identify the factors which, in their opinion, increase the risk of getting CVD. From the provided list, for each, they had to tick “Yes”, “No” or “unsure” (simplified from a memory to a recognition approach).

With the intention of providing the respondents with some additional information, another section with correct statements was developed (to be answered by ticking – I knew this/ I didn’t know this). It included the facts which were at a slightly higher level and were expected that not many of the participants were aware of it. The statements are shown in Table 2.

**Sample**

This is a preliminary survey done on non-medical staff of GMU and is a part of an ongoing study to be conducted on general population.

**Analyses**

Categorical variables were described by frequencies and percentages using Microsoft Excel spread sheet.

**Ethics**

The study was approved by the Ethics committee of the Gulf Medical University, Ajman.

**RESULTS**

Out of the 100 forms distributed to the non-medical staff of GMU, 77 were filled and returned (response rate 77%). Majority
of the participants were South Asians, males (74%), educated up to College/University level and belong to middle class of socioeconomic status. 76.6% of them knew the definition of CHD (“Narrowing of the small blood vessels that supply blood to the heart. Sometimes these can become blocked and cause a heart attack”) (13). A large number of the participants (83%) responded to the open ended question mentioning what can be done to prevent/reduce the risk of getting CHD (shown in Figure. 1).

Around 57% knew the definition of stroke and responded to the open ended question mentioning what can be done to prevent/reduce the risk of getting stroke (Also shown in Figure. 1).

**DISCUSSION**

To develop effective educational programs accurate assessment of the baseline knowledge of a population is required15. This study is designed to specifically examine the baseline knowledge of risk factors and prevention regarding CHD and stroke among the different population subgroups of UAE.

In this study we have used both open and closed ended (yes/no) formats to assess knowledge, utilizing both memory (open ended) & recognition task (close ended). In a closed ended format a person without any knowledge also has a fifty percent chance of giving the correct response16. We found major differences in the response to a question when assessed through the two formats (e.g. Only 29% mentioned that cessation of smoking can reduce the risk of getting CHD, at the same time 84.4% identified smoking as a factor which increases the risk of getting CVD (through the closed ended question).

Using tobacco is a major cause of CVD and contributes to approx. 10% of all cardiovascular related deaths worldwide14. Secondhand exposure to smoke causes coronary heart disease in adults, increasing the risk of disease by approximately 25–30%18. Similar to other reports19, very few of our participants acknowledged the fact that breathing secondhand smoke causes cardiovascular disease.

On World Heart Day (September 29, 2012) a statement released by the European Cardiology Society (ESC) reported “although there is a significant improvement in Europe’s heart health, the number of young women having heart attacks is on the rise”. It further added that most of these women were smokers20,21. It is reported that the risk of heart attacks increase in women who are on oral contraceptive pills and smoke22. Surprisingly, only one-third
The factors identified by the respondents which increase the risk of getting CVD are shown in Table 1.

<table>
<thead>
<tr>
<th>Table 1: In your opinion, which of the following increases the risk of getting CVD (heart attack and/or stroke)?</th>
<th>% Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>High blood cholesterol</td>
<td>87.0</td>
</tr>
<tr>
<td>Tobacco smoking</td>
<td>84.4</td>
</tr>
<tr>
<td>High blood pressure</td>
<td>84.4</td>
</tr>
<tr>
<td>Stress</td>
<td>75.3</td>
</tr>
<tr>
<td>Unhealthy diet</td>
<td>75.3</td>
</tr>
<tr>
<td>Family history</td>
<td>75.3</td>
</tr>
<tr>
<td>Physical inactivity</td>
<td>67.5</td>
</tr>
<tr>
<td>Obesity and overweight</td>
<td>67.5</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>58.4</td>
</tr>
<tr>
<td>“Regular exposure to secondhand smoke increases the risk of heart disease by around 25%”.</td>
<td>49.4</td>
</tr>
<tr>
<td>Increasing age</td>
<td>40.3</td>
</tr>
<tr>
<td>Being Male (CVD more common in men)</td>
<td>30.0</td>
</tr>
<tr>
<td>Being South Asian (Indian / Pakistani / Bangladeshi / Sri Lankan / Nepali)</td>
<td>18.2</td>
</tr>
</tbody>
</table>

Table 2 shows the percentage of respondents who were aware of the additional information related to CVD.

<table>
<thead>
<tr>
<th>Table 2: Additional information about CVD</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk of CVD is high for women who smoke and use oral contraceptives.</td>
<td>36.4</td>
</tr>
<tr>
<td>The risk of CVD increases in women after menopause.</td>
<td>23.4</td>
</tr>
<tr>
<td>Transient ischemic attack (TIA) is a warning stroke caused by a temporary blockage. Symptoms occur rapidly, last for less than 5 minutes, and usually cause no permanent injury to brain. People who had TIA have a high risk of stroke. Recognizing and treating TIA can reduce the risk of major stroke.</td>
<td>23.4</td>
</tr>
<tr>
<td>Clot dissolving medicines if given within 3-4 hrs significantly reduces the effect of stroke and reduces permanent disability. Immediate hospitalization is the best.</td>
<td>44.2</td>
</tr>
<tr>
<td>“Survivors of heart attack or stroke are at high risk of recurrences and at high risk of dying from them”.</td>
<td>64.9</td>
</tr>
</tbody>
</table>

of our participants were aware of this fact. Moreover, similar to other reports\textsuperscript{23}, less number of our participants knew that risk of heart attack increases after menopause.

Although relationship between stress and CVD is not clear, our respondents perceived that stress is an important risk factor for CVD. Several other studies have also reported stress to be one of the most commonly mentioned causes of CVD (24). A study from UK had reported about the South Asians immigrants that they feel stressed and perceive that stress is a major cause of heart disease\textsuperscript{25}.

“The National Cholesterol Education Program, Adult Treatment Panel III (NCEP ATP III) included diabetes mellitus (DM) as a risk factor for major coronary events equivalent to existing coronary heart disease (CHD)\textsuperscript{26}. In this regard medical providers have been recommended to strictly follow NCEP ATP III guidelines with regards to lifestyle modifications and drug therapy while treating patients with diabetes\textsuperscript{27}. Unfortunately, in concordance with other reports\textsuperscript{28}, the knowledge of our participants was found to be low about the link of DM to CVD.
Most of the intervention studies regarding CVD prevention had targeted middle-aged population with some signs and symptoms of the disease as these folks may have higher stimulus to change their practices in a way that reduces the risk of CVD. However, efforts for health-promotion if started at an early and healthy age can result in better quality of life of general population with reduced burden of such disorders on the society.

We are aware that our sample size is small and very specific so it is not a representative of the educated general population. We assume that the participants responded honestly as several questions were correct statements which were to be answered by ticking - I knew this/ I didn’t know this.

CONCLUSION
The knowledge about CVD risk factors and prevention among the non-medical staff of GMU, when assessed by recognition based closed ended questions, is high. It reflects the influence of their working environment. However, it is far from ideal as they belong to a high risk ethnic population (South Asians).

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REFERENCES


