Knowledge of Cardiovascular Disease among Undergraduate University Students in Palestine

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Abstract

Although cardiovascular diseases (CVD) typically occur in middle age or later, the initiating behaviors for the development of CVD begins in childhood and continued into adulthood.CVD is estimated to cause 40% of all mortalities in Palestine. CVD will continue to be a leading cause of death to the young generation unless they have knowledge regarding CVD and the risk factors for developing this disease and having the knowledge to encounter it. Individuals with higher levels of health knowledge may perform healthier behaviors at greater frequency than individuals who are less informed. Unfortunately, Studies reporting the knowledge of CVD risk factors among Palestinian college students are lacking. Hence, this study was performed to assess the level of knowledge regarding CVD undergraduate university students. A cross-sectional study was carried out among 2nd through 5th year college students of the health campus in Al-Quds University, in Palestine. A self-administered survey was distributed to a proportionate sample of 300 undergraduates students from nursing, midwifery, medicine, pharmacy, and others courses at Al-Quds University by using pre validated Heart Disease Fact Questionnaire (HDFQ) developed by Wagner et al. (2005).Descriptive and inferential statistics were used for data analysis. The sample had an average knowledge score of 63.3% out of a maximum correct score of 100%. Results from data analysis revealed overall knowledge of CVD risk factors was relatively fair. Our study elucidates that CVDs are not perceived as major risk by college population, which could turn into insufficient preventative practices and suboptimal patient outcomes. There is an urgent need to establish more wide-spread and effective educational interventions, which should be sensitive to the perceptions, attitudes, and abilities of targeted individuals. Heart disease awareness campaigns for college students, to increase the preventive actions and adoption of healthy lifestyles are essential.

Keywords: Cardiovascular disease, Knowledge, Undergraduate university students, Palestine.

Introduction

The burden of cardiovascular disease (CVD) has risen to epidemic proportions, and has been considered as a major public health challenge worldwide (Ghrayeb, 2014). According to the World Health Organization (WHO), CVD is the commonest leading cause of morbidity and mortality with an estimation of 17.5 million people died from CVDs in2012, representing 31% of all global deaths. Of these deaths, an estimated 7.4 million were due to coronary heart disease and 6.7 million were due to stroke (WHO, 2013), accounting for a third of all global death in the last three decades (Mathers, Lopez and Murray, 2001; Gaziano, 2008). It is projected that by the year 2030, CVD will be the cause of 23.6 million deaths worldwide (WHO, 2011).In Palestine, CVD is estimated to cause 40% of all mortalities (Ghrayeb et al., 2014). CVD is a disease of the heart and blood vessels often caused by atherosclerosis, or the buildup of plaques within the arterial walls. Atherosclerotic buildup over time limits blood flow through the arteries, creating narrowing and increasing the potential for a piece of the atherosclerotic plaque to break off and cause a heart attack or stroke (American Heart Association [AHA], 2011).

Cardiovascular diseases (CVDs) are a group of disorders of the heart and blood vessels which include coronary heart disease, cerebrovascular disease, peripheral arterial disease, rheumatic heart disease, congenital heart disease, deep vein thrombosis and pulmonary embolism (WHO, 2016).Many college students develop unhealthy lifestyle behaviors that increase CVD risk including diets low in fruits and vegetables, high consumption of soft drinks, decreased intake of fiber and vegetables, frequent consumption of fast foods, and physical inactivity which all are linked as independent, modifiable risk factors for the development of CVD (Reddy and Yusuf, 1998; Ghrayeb et al., 2013; Ghrayeb et al., 2014). However, risk for CVD can be decreased through adherence to dietary and lifestyle modifications: eating a healthy diet with low fat and salt, exercising regularly, quitting smoking, and maintaining a healthy body weight (Ghrayeb et al., 2014).

Findings of previous studies worldwide suggested that people lacked knowledge regarding the risk of cardiovascular diseases and did not perceive themselves at risk for cardiovascular diseases. Knowledge and

perceptions of CVD risk factors are a vital prerequisite for successful prevention of CVD and very essential for nursing and midwifery college students as they will be the health-care providers of future. Literature indicates that awareness regarding CVD as the leading cause of death has been correlated with individual action to reduce one's risk factors for CVD (Mosca et al., 2006). A study conducted among the 320university female employees aged 20 -58 years old from Al-Quds University, Palestine in 2015 demonstrated poor knowledge regarding heart disease (Ghrayeb, 2016).

In another study conducted among the 720 students of grades (7-11) from four high schools in Tarqumia, Palestine in 2014 showed that 18.61% and 9.17% of respondents were overweight and obesity, respectively, and fast food consumption, drinking soft drinks was 29.31%, and 38.75%, respectively (Ghrayeb et al., 2014). In an another study conducted among 1,503 college students at state university of New York at Plattsburgh in 1990 found that over 91% of respondents knew hypertension was a major cardiovascular risk factor. In addition, 90% identified smoking, 86.7% identified cholesterol level, and 72% identified exercise as additional factors (Frost, 2010). A study conducted in Palestine showed that the age of the start of smoking was found to be 13 years for male and female students (Ghrayeb et al., 2013).

In order for Palestinians to develop healthy behaviors in the present and realize health benefits through the life course, strategies to reduce CVDs should include efforts to improve health knowledge and behavior among adolescent populations. Health knowledge is critical for determining health behavior. Individuals with higher levels of health knowledge may perform healthier behaviors at greater frequency than individuals who are less informed. Studies reporting the knowledge of CVD risk factors among nursing college students in Palestine are still lacking. It is therefore important to assess the knowledge and attitude regarding the major risk factors of cardiovascular diseases among the college students. Findings of this study would help in identifying areas of weaknesses and misconceptions and health-risk behaviors that require additional educational efforts. Finally, this would provide impetus for improvement of the current and future programs devoted to college students' education for CVD

Materials and Methods

This is a descriptive cross-sectional with stratified sampling method had been utilized for this study to assess the Knowledge regarding risk factors of CVD among students of Al-Quds University, Palestine. This study was conducted at Al-Quds University Campus between Octobers to November 2016. The Heart Disease Fact Questionnaire (HDFQ) was self-administered to the participants. Questionnaire was pretested. Before the survey conduction; purpose of the study was explained and verbal consent was taken from the students as well as ethical approval was obtained from the ethical committee of the college. The questionnaires were distributed to the selected undergraduate students of all departments in the medical and health Campus; namely the Faculty of Medicine, Pharmacy, Dentistry, and faculty of health professions, given some interval time and collected back after they have completed the questionnaire. The inclusion criteria for the participants were age of 18 years old and above of both genders, which include Year 1 through Year 4 from each faculty. The students who have CVD were excluded from this survey. The calculated sample size was 330, inclusive of the 15% non-response rate, with a response rate of 90.9%. The confidence level chosen was 95%.

Instrument

A structured questionnaire consisted of eight parts. Prior to the study, the questionnaire was tested for content validity by a panel of experts which comprised three faculty members and two health promoters who were experienced in the field of health promotion, advanced nursing and medical nursing. Consequently, items or questions that were ambiguous or extraneous were either modified or expunged. The test-retest reliability of the questionnaire was determined in a pilot study among 50 undergraduate students who were excluded from the main study. The internal consistency of the questionnaire was found to be 0.82 on Cronbach's alpha. The eight-section questionnaire obtained information on: part I demographic data including age, gender, marital status, Insurance, Place of residence, student status, year of study, employment, and family history of cardiovascular disease and specialty of education. Part II modified to estimate level of knowledge about heart disease. Part III was designed to measure knowledge of risk factors about coronary Heart Disease. Part IV consisted of items to measure knowledge of types of cardiovascular disease. Part V designed to measure knowledge of symptoms of heart attack. Part VI consisted to evaluate the knowledge of symptoms of stroke. Part VII to measure the knowledge of ischemic heart disease risk factors. Part VIII was designed to measure the knowledge of dealing with acute myocardial infarction.

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The data entry and analysis were done using SPSS (Statistical Package for the Social Sciences) for Windows, version 23. Descriptive statistics (frequency and percentage) were used to describe the socio-demographic characteristics and the Knowledge, independent t-test and ANOVA test was used to compare the Knowledge between the different socio-demographic characteristics.

RESULTS

A total of 330 male and female college students were recruited and invited to fill out the self-administered questionnaire; 300 agreed to participate filled and return the questionnaire for a response rate of 90.9%. Table 1 presents an overview of the participants' socio-demographic and general characteristics. The average age of the respondents is 20.54 years old with the majority (90.0%, 270) of them were single while the rest were married (10.0%). Sixty-two (20.7%) were from department of nursing, 25 (8.4%) from midwifery, 57(19.0%) from pharmacy, 53 (17.7%) from medical laboratory, 12 (4.3%) from physiotherapy, 26 (8.4%) from radiography, and64 (21.3%) from dentistry. Out of these participants 102 (34.0%) were males and 198(66.0%) were females. Sixty (20.0%) of the participants were 2nd year, 121 (40.3 %) were 3rd year, 97 (32.3%) were 4th year, and 22 (7.3%) were 5th year.

Table 1 Socio-demographic Characteristics of the study participants

Variables	n=300	Percentages (%)
Age-group		
20 years old and less	160	53.3
Between 21-23 years	128	42.7
24 years old and more	12	4.0
Gender		
Male	102	34.0
Female	198	66.0
Study major		
Nursing	62	20.7%
Midwifery	25	8.4%
Pharmacy	57	19.0%
Medical laboratory	53	17.7%
Physiotherapy	12	4.3%
Radiography	26	8.4%
Dentistry	64	21.3%
Academic year		
2nd year	60	20.0%
3rd year	121	40.3 %
4th year	97	32.3%
5th year	22	7.3%

Level of knowledge regarding cardiovascular disease

Table 2 describes the percentages of correct response to each individual item regarding the knowledge about heart diseases. Overall 63.3% of the participants answered knowledge questions correctly, 22.1% answered incorrectly, and 14.6%responded "I don't know". The statement with the highest proportion of correct responses is "Coronary heart disease is a type of cardiovascular diseases" (91.7%, 275) followed by "Do you think obesity influences the progress of coronary heart disease?" (84.0%, 252). However, only 67.7% (203) respondents answered "false" as the correct answer for "Eating fatty foods does not affect blood cholesterol levels", while 52.3% (157) answered "I don't know" for "If your "good" cholesterol (HDL) is high, you are at risk for heart disease". Whereas, only 65.0% (195) respondents answered "True" for "If your "bad" cholesterol (LDL) is high, you are at risk for heart disease". Again, 34.3% (102) opined false for "Time is of no importance when it comes to treatment results for Acute Myocardial Infarction". Two hundred twenty-eight (76.0%) of the participants identified tobacco smoking as a risk factor of CVD. The details are shown in Table 2.

Table 2 Knowledge of students regarding cardiovascular diseases risk factors

Statements	Frequency (%)		
	True	False	Don't Know
If you have a family history of coronary heart disease, you are at risk for developing heart disease	177(59.0)	46(15.3)	77(25.7)
Keeping blood pressure under control will reduce a person's risk for developing heart disease	222(74.0)	50(16.7)	28(9.3)
If your "good" cholesterol (HDL) is high, you are at risk for heart disease	88(29.3)	55(18.3)	157(52.3)
A person who has diabetes can reduce their risk of developing coronary heart disease if they keep their blood sugar levels under control	178(59.3)	78(26.0)	45(15.0)
Regular physical activity will lower a person's chance of getting heart disease	207(69.0)	60(20.0)	33(11.0)
Do you think obesity influences the progress of coronary heart disease?	252(84.0)	38(12.7)	10(3.3)
Coronary heart disease is a type of cardiovascular diseases	275(91.7)	19(6.3)	6(2.0)
Eating fatty foods does not affect blood cholesterol levels	58(19.3)	39(13.0)	203(67.7)
Do you think smoking habits influence the progress of coronary heart disease?	228(76.0)	35(11.7)	37(12.3)
Time is of no importance when it comes to treatment results for Acute Myocardial Infarction	114(38.0)	102(34.3)	83(27.7)
Deep vein thrombosis and pulmonary embolism are a types of cardiovascular diseases	183(61.0)	90(30.0)	27(9.0)
Atherosclerosis is a type of cardiovascular disease	206(68.7)	50(16.7)	44(14.7)
Do you think stress influences the progress of coronary heart disease?	227(75.7)	53(17.7)	20(6.7)
Stress may cause an increase in blood sugar, blood pressure, and cholesterol levels	227(75.7)	50(16.7)	23(7.7)
Rheumatic heart disease is a type of cardiovascular diseases	156(52.0)	94(31.3)	50(16.7)
Myocardial oxygen supply is dependent on coronary blood flow	213(71.0)	70(23.3)	17(5.7)
The older a person is, the greater their risk of having coronary heart disease	221(73.7)	49(16.3)	30(10.0)
High blood sugar makes the heart work harder	177(59.0)	78(26.0)	45(15.0)
I would seek medical care urgently, even if chest pain was of intermittent character	170(56.7)	105(35.0)	25(8.3)
If your "bad" cholesterol (LDL) is high, you are at risk for heart disease	195(65.0)	69(23.0)	36(12.0)

Analysis of knowledge by socio-demographic characteristics of respondents

In comparing the total knowledge scores, there is a significant difference between males and females (p = 0.0.19), whereas, there is no significant difference between the marital status or between type of study, (p=0.794), (p=0.700) respectively. The full results are shown in Table 3.

On the other hand, significant difference was found between the age-group (p = 0.039). The post-hoc test shows that the significance difference lies between the age-group 20 years old and less with age-group 24 years old and above (p = 0.048). The other significant differences were detected between the years of study(p = 0.022). The post-hoc test shows that the significance difference lies between years of study second year with fourth year (p = 0.023). The full results are shown in Table 4.

Table 3 Comparison of Total Knowledge Scores between Gender, Marital status and Type of student using Independent *t* Test (N=300).

Variable	Mean (SD)	*t* statistics(df)	P value
Gender			
Male (n=102)	57.7 (9.5)	2.37 (298)	0.019
Female (n=198)	55.1 (8.8)		
Marital status			
Married (n=30)	56.0 (8.8)	0.26 (298)	0.794
Single (n=270)	55.6 (12.0)		
Type of student			
Regular	56.0 (9.2)	0.39 (298)	0.700
Upgrade	55.2 (8.5)		

Table 4 Comparison of Total Knowledge Scores between Age-group, Place of residence and Year of study using ANOVA Test (N=300).

Variable	Mean (SD)	*t* statistics(df)	P value
Age-group			
20 years and less (n=160)	56.9 (9.1)	3.3 (2)	0.039
Between 21 – 23 years (n=128)	55.4 (9.2)		
24 years and above (n=12)	50.4 (7.4)		
Place of residence			
City (n=127)	56.4 (8.3)	0.19 (2)	0.831
Village (n=154)	55.7 (9.3)		
Camp (19)	55.6 (10.6)		
Year of study			
2nd	59.1 (9.1)	3.24 (3)	0.022
3rd	55.6 (10.0)		
4th	54.9 (7.4)		
5th	54.2 (10.2)		
Faculty			
Nursing (n=62)	54.6 (10.7)	2.04 (6)	0.060
Midwifery (n=25)	55.1 (11.8)		
Pharmacy (57)	54.6 (7.7)		
Medical laboratory (53)	57.9 (7.0)		
Physiotherapy (13)	59.0 (8.6)		
Radiography (26)	59.8 (7.5)		
Dentistry (64)	56.0 (9.1)		

DISCUSSION

Cardiovascular diseases (CVDs) include a variety of medical conditions mainly comprising of coronary heart disease, rheumatic heart disease, cerebrovascular disease and other numerous conditions (WHO, 2016). Statistics have shown that CVDs are the most common cause of mortality worldwide, including Palestine. As most of CVDs' risk factors are reversible and can be controlled at an early stage; the disease can be prevented by increasing the level of awareness regarding the causes or risk factors of CVD. The low level of knowledge might lead to bad attitudes and poor practice of healthy lifestyles. In this study, the general knowledge of CVD among undergraduate university students was fair as 63.3% (n=190) of the participants answered knowledge questions correctly. On the other hand, 36.7% of the people were not able to give 20 correct answers. This shows the lack of awareness among college population of Palestine. This research findings were consistent with others worldwide research finding that done in university students and general population (Flink et a., 2013; Mosca et al., 2013; Vaidya et al., 2013).

In assessment of the knowledge of the participants it was observed that more than 50% of the students were aware about leading risk factors for CVDs including smoking; raised blood pressure, obesity, increased cholesterol & glucose levels. This is supported by the results of a study conducted in Kuwait which showed that about half of the people were aware of the majority of risk factors of CVDs (Awad and Al-Nafisi, 2014).Smoking is a major cause of CVD and contributes to approximately 10%of all cardiovascular related deaths worldwide (Yoon et al., 2001). Secondhand exposure to smoke causes coronary heart disease in adults, increasing the risk of disease by approximately 25–30% (Institute of Medicine, 2010). Similar to other reports (WHO, 2012), very few of our participants acknowledged the fact that smoking increase cardiovascular disease risk.

Although relationship between stress and CVD is not clear, our study participant perceived that stress is an important risk factor for CVD. The study results are consistent with other studies reported stress to be one of the most commonly mentioned causes of CVD (Schneider et al., 2003).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, and stress management plays such an important role in managing the risk factor of CVD as likely to cause heart disease (Farooqi et al., 2000; Khayyam-Nekouei et al., 2013).A study found that 86% subjects believed that reducing stress was one of the ways to prevent or reduce the heart disease occurrence (Winham et al., 2011).

Physical activity is one of the important protective factors for CVDs and according to current American Heart Association (AHA) recommendations, moderate exercise of at least 150 minutes/week or vigorous exercise of 75 minutes/week helps to improve cardiovascular health(American Heart Association, 2014) and studies have proved that sedentary lifestyle is a major hazardous risk factor for both men and women leading to obesity, cardiovascular diseases and increase in both morbidity and mortality (Barnes, 2012; Warren et al., 2010). Physical inactivity as a risk factor was identified by 69% of respondents. On the other hand, almost one-third (31.0%) of the study participants were not aware that regular physical activity will lower a person's chance of getting heart disease. Nevertheless, the study participants show lower knowledge related to physical inactivity and obesity as risk factors when compared with the figures in Jordan (Mukattash et al., 2012), and in Nepal (Vaidya and Krettek, 2013).

Conclusion

The common assumption is that college students are in the prime of their health based on their age and level of physical activity. Lack of awareness about CVD risk factors and unhealthy behavioral practices are prevalent among the study participants. The low level of knowledge might lead to bad attitudes and poor practice of healthy lifestyles. Over time, these practices may predispose them to cardiac risk. Therefore, health educators, nurses and other primary care providers working with college populations should overcome the assumption that college students are healthy and should advocate them to implement and maintain a healthy standard of living for cardiovascular disease prevention. However, efforts for health-promotion if started at an early and healthy age can result in better quality of life of adolescent population with reduced burden of such disorders on the society. Thus, assessment of level of awareness regarding CVDs risk factors provide the basis for best practice by health educators, nurses and other health providers working with college populations.

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