Assessment Student's Knowledge about Associate Risk Factors of Cardiovascular Diseases (CVDs) in Jiblah University for Medical & Health Sciences, Yemen 2023

Noman Ahmed Yahya Alhatemi

Assistant Professor in Community Health Nursing, Dean, Faculty of Nursing, Jiblah University for Medical & Health Sciences, Ibb, Yemen
nalhatemi2019@gmail.com

Sanya Abdulkareem Al-qormuti

Assistant Professor in Invertebrate and Parasitology, Jiblah University for Medical & Health Sciences, Ibb, Yemen

Zahid Mohammed AL-Homid, Salman Sadiq Mothana, Ammar Hassan Modaqel, Omar Taha AL-Bokhaiti, Fursan Abdulrahman Alselwi

Faculty of Nursing, Jiblah University for Medical & Health Sciences, Ibb, Yemen

Muhannad Abdulkawi Ali Al-Fakih

Faculty of Medicine, Jiblah University for Medical & Health Sciences, Ibb, Yemen

Abstract

Cardiovascular diseases (CVDs) are the main cause of morbidity and mortality with an estimation of 17.9 million deaths around the world annually. Student's Knowledge about the associate risk factors will help in changes individuals' health behaviors and lifestyle practices in their life. Objective: This study tries to find out the relationship between students' knowledge and selected socio-demographic variables in regard to the risk factors of CVDs. Methods: Descriptive-across section study was conducted with regular undergraduate students at Jibla university for Medical & Health Sciences, Yemen. Convenience sampling technique is used to recruit the participants

from each college in this study. Results: A total of 309 students were recruited in this study. Data analysis found that most participants (79%) under age 20 years, the mean age is 22.1±2.3, more than half (57.3%) are females, 71.2% of students are from rural areas, and the majority of participants (87.7%) are married and less than third (31.4%) of them are from the Faculty of Medicine. Moreover, the majority of participants reported that the risk factors of cardiovascular diseases are obesity, high cholesterol, old age, and passive smoking (93,8%, 91.9%, 90.9%, and 90.3% respectively). Regarding the total score, there are statistically significant differences between subject study, age, and place of residence with P-value = <5 (0.000, 0.003, and 0.008 respectively). Except marital status and sex not significant was noted with P-value= <5 (0.256, and 0.678 respectively).

Conclusion: The majority of participants have good knowledge regarding to associate risk factors of cardiovascular diseases. The participants showed low knowledge in regard to the high HDL, heredity, high BP, and Irregular eating food.

Keywords: Cardiovascular diseases (CVDs), student, knowledge.

Introduction

Globally, non-communicable diseases (NCDs) are the primary cause of death, accounts for 73.4% of all mortality around the world (1). It was estimated that 17.9 million died each year due to (CVDs) (2). These premature deaths occurred in people under the age of 70 (3). Three quarters of CVDs deaths are found in low and middle-income countries. In 2022, CVDs deaths are estimated by one person dies every 34 seconds in the United States (4). Regarding to Institute for Health Metrics and Evaluation (IHME), the CVDs are the top leading cause of death in the Arab world (5). So, there are global efforts in order to reduce this burden and suffering from non-communicable diseases (NCDs), the target 3.4 of Sustainable Development Goal (SDG) emphasize to reduce premature death from NCDs by a third by 2030. This

target 3.4 used data from all counties and determined the cause of the NCD is ischemic heart diseases, that estimated more than half of women, and more than three-quarters of men. To achieve the decline in mortality, the countries should achieve improvements in the rate of decline in at least five causes which include "Tobacco, alcohol control, hypertension, diabetes, low-dose inhaled corticosteroids, bronchodilators for asthma and chronic obstructive pulmonary disease"(6).

According to many studies, the WHO Regional Office for the Eastern Mediterranean is accounted the CVDs risk factors such as diabetes, obesity and hypertension (7). In Arabic countries, the prevalence of history for CVDs risk factors included Salt/Sodium intake, Tobacco use, raised blood pressure, diabetes, obesity, Ambient air pollution, and household air pollution (8). The prevalence of history of premature coronary heart disease (CHD) and obesity was high among Saudi students; while Egyptian's students have a higher prevalence of hypertension (9). Furthermore, in Yemen, the most common CVDs are "Hypertensive heart disease (HHD), valvular heart disease, heart failure with reduced ejection fraction (HFrEF), Ischemic heart disease (I.H.D), congenital heart diseases (CHDs), (26.42%, 22.44%, 19.67%, 16.99%, and 2% respectively). Moreover, the rheumatic heart disease (RHD), senile valvular degenerative lesions (SVDL), mitral valve prolapse (MVP), mitral insufficiency, aortic insufficiency were as estimated in 51.10%, 26.99%, 21.9%, 71.2%, and 19.1% respectively)"(10). On the other hand, in Yemen the coronary artery disease (CAD) was highly affected in males compared with females, and amongst people who are more than 30 years old and predominate after 50 years old (11).

Jiblah University for Medical & Health Sciences is established and announced hereto the republican decision in 2019. It includes six faculties (Medicine, Dentistry, Pharmacy, Laboratory, Nursing, and Midwifery).

Objective of Study

The study in hand tries to find out the relationship between students' knowledge and selected socio-demographic variables in regard to the risk factors of CVDs.

Methodology

Ethical Approval

Ethical approval for this study was agreed on by the Ethical Committee of the Medical and Health Sciences Study at Jiblah University for Medical & Sciences, Yemen. The ethical committee approved verbal informed consent from students who agreed to participate in this study after explained adequately objectives of study for all participants.

Setting

The study was carried out among students at Jibla University for Medical& Health sciences, Ibb governorate, Yemen.

Study Design

Descriptive-across section study was conducted with regular undergraduate students, who are agreed to participate in this study. All students who had a diagnosis or had family history as CVDs were excluded.

Sampling and Sample Size

Convenient sampling was used to collect data from 309 medicine and health sciences students at level one in Jiblah university, for medical & health science included faculties of medicine, laboratory, dentistry, midwifery and nursing.

Tools of the Study

The questionnaire was designed by the researcher based on the reviews of relevant literature. It was used to measure two parts; first part included the students characteristics: age, sex, place of residence, marital status, and study subjects. Second part included the knowledge of students related to CVDs risk factors such as diabetic, high cholesterol, old age, obesity, contraceptive drugs, smoking, fat food and fast food.

The Validity of Tool

The questionnaire was translated to Arabic language and reviewed to find out by the panel of five experts from staff at Jibla University, for medical & health science, who reviewed the tool for their clarity, relevance, and comprehensiveness, understanding, and applicability.

Reliability of Tool

Reliability is applied by the researcher and co-researchers for testing the tool, by management of the same tools to the same subjects under similar conditions three times for 12 days. Cronbach's Alpha reliability for knowledge was 7.8.

Methods

Administrative Phase: an official letter of approval was obtained from the rector of Jiblah University for medical& health science and deans of faculties (medicine, dentistry, medical laboratory, midwifery, and nursing).

Study Pilot: it was achieved out before starting the data collection on 15% of the students, who were included in the sample. The purpose of the pilot study was to test the clarity of the tools and estimate the required time to fill the questionnaire.

Data Collection: Researcher and Co-researchers started to explain the objectives of study and questionnaire's parts for students. Oral consent before actual data collection was taken from the participants. Self-questionnaire sheets were distributed, and they were collected during the period from December 11, 2022 to February 19, 2023.

Statistical analysis: the collected data were reviewed and prepared to be coded, tabulated and analyzed by computer. The statistical methods used to analyze the date are descriptive statistics as percentage, Chi-square test and significant when P-value less than 0.05. and standard deviation were done using computer program SPSS version (21).

Results

Table1: Distribution of Some Socio- Demographic Characteristics of Students in Jiblah University, Ibb- Yemen 2023 (n=309)

Items	Categories	Frequency	ercentage (%)
Age	=<20 years	65	21%
	>20 years	244	79%
	Range of age 21-35		
	Mean±SD of age = 22.1±2.3		
sex	Male	132	42.7%
	Female	177	57.3%
Residence	Urban	89	28.8%
	Rural	220	71.2%
Marital status	single	271	87.7%
	married	38	12.3%
Major	Nursing	66	21.4%
	Midwifery	74	23.9%
	Medicine	97	31.4%
	Dentistry	35	11.3%
	Medical Laboratories	37	12%

A total of 309 students were participates in this study. Regarding to table (1) illustrates the distribution of socio-demographic characteristic, of participants. It is noted that most of participants (79%) under age of 20 years, with the mean of age 22.1±2.3, and more than half (57.3%) of them are female. Also, table 1 shows that more than two third (71.2%) of participants are from rural areas, the majority (87.7%) of them are single and less than a third (31.4%) of them are from faculty of medicine.

Table 2: Percentage of Student's Knowledge in Regard to Correct Responses About Associated Risk Factors of Cardiovascular Diseases (CVDs) In Jiblah University, for Medical & Health Sciences, Ibb- Yemen 2023 (n=309)

Items of knowledge	Student's Correct Responses	
	No.	%
Cardiovascular diseases are the most common cause of death in Yemen.	228	74
Older people are high susceptible to catch heart disease.	281	90.9
High cholesterol is a risk factor for CVDs.	284	91.9
If your HDL is high, you are at risk for CVDs.	120	38.8
if your High LDL is high, you are at risk for CVDs.	237	76.7
Diabetes is a risk factor for developing heart disease.	201	65.1
High blood pressure is a risk factor for CVDs.	268	68.7
Eating fatty foods does not affect blood cholesterol level.	250	80.9
Most cardiovascular disease cases are hereditary.	117	37.9
CVD can occur to young people.	259	83.8
Contraceptive agents can increase the risk of CVD.	159	51.5
Obesity can increase the risk of occurring CVDs.	290	93.8
Men have a greater risk of heart disease than women.	197	57.9
Myocardial infarction is more effective in patients,	200	64.7
Renal disease is one of the risk factors for cardiovascular disease.	200	64.7
Fast food is one of the risk factors for CVDs	238	77
Passive smoking is one of the risk factors for CVDs	279	90.3
Irregular eating patterns has no harm on health of CVDs.	214	25.2
Chi-squire	**780.1**	
Total score of knowledge P-value= <5	**0.000**	

Table 2 showed the percentage of students' knowledge regarding to correct responses about associate risk factors of cardiovascular diseases. It is obvious that only, 74% of participants referred to cardiovascular disease is the main cause for death in Yemen and the majority of participants reported that the associate risk factors for cardiovascular diseases are obesity, high cholesterol, old age, and passive smoking (93,8%, 91.9%, 90.9%, and 90.3% respectively). While most of participants pointed at fat food, fast food and high LDL are associate risk factors to cardiovascular diseases (80.9%, 77%, and 76.7% respectively). Also, this table 2 showed that the participants knew that the high blood pressure, diabetic people, and renal diseases are high risks to affect by cardiovascular disease (68.7%, 65.1% and 64.7% respectively).

Furthermore, it is observed that more than three-fifty (64.7%) of participants mentioned to myocardial infarction is more effective in patients, and most of them (83.8%) reported that cardiovascular diseases is affect adult people. While more than half (57.9%) of participants said that the men have a greater risk of heart disease than women, and 51.5% of them referred to Contraceptive agents can increase the risk of CVD.

Finally, low knowledge among participants regarding the associate risk factors for cardiovascular diseases included, high HDL, heredity, high BP, and Irregular eating food increase affect on cardiovascular diseases (38.8%, 37.9%, 47.2%, and 25.2% respectively).

Table3: Percentage of Students' Knowledge Regarding to Correct Responses about Control on Associate Risk Factors of Cardiovascular Diseases (CVDs) In Jiblah University, for Medical & Health Sciences, Ibb- Yemen 2023 (n=309)

Items of knowledge	Frequency	ercentage (%)
Control on cholesterol led to reduce affect by CVDs.	270	87.4%
Control on sugar lead to reduce affect by CVDs	232	75.1%
Stop smoking reduce of affect by CVD.	283	91.6%
Daily exercise is reduce affect by CVD	211	68.3%
Eating the fruit and vegetable reduce of affect by CVD.	239	77.4%
Control on Blood Pressure led to reduce affect by CVDs.	270	87.1%
Chi-squire	**216**	
Total score of knowledge P-value= <5	**0.000**	

Table 3 shows the percentage of students' knowledge in regard to the correct responses about control on associate cardiovascular diseases. This table revealed that the majority of participants reported the stop smoking and control on cholesterol (91.6% and 87.4% respectively) are reduced of affect by cardiovascular diseases. While only (42.6%) of participants referred to control on high blood pressure.

Moreover, table 3 revealed that most of participants mentioned eating the fruit and vegetable and make sugar of blood under control to reduce affect by cardiovascular diseases (77.4%, and 75.1% respectively).

Finally, this table shows that more than two thirds (68.3%) pointed to daily exercise is reduce affects by cardiovascular diseases.

International Journal for Scientific Research (IJSR)

Vol. (2), No. (7)

IJSR

July 2023

المجلة الدولية للبحوث العلمية

الإصدار (2)، العدد (7)

Table 4: The Relation Between some Socio-Demographic Characteristic and good Score of Student's Knowledge about Associate Risk Factors of Cardiovascular Diseases (CVDs) and it's control In Jiblah University, for Medical,& Health sciences Ibb - Yemen 2023 (n=309)

Some -Socio-demographic		Total Score of Student's Knowledge						Significant	
		Poor		Average		Good			
		No.	%	No	%	No	%	Chi-square	P-value
Variables	Categories								
Age	<20 years	5	7.7	50	77	10	15.3	11.686	0.003
	>20 years	7	2.9	150	61.5	87	35.6		
Sex	Female	6	3.4	118	66.7	53	29.9	0.778	0.678
	Male	6	4.6	82	62.1	44	33.3		
Residence	Rural	4	1.8	150	68.2	66	30	10.271	0.006
	Urban	8	9	50	56.2	31	34.8		
Marital status	Single	10	3.7	180	66.4	81	29.9	2.776	0.256
	Married	2	5.3	20	52.6	16	42.1		
Subject Study	Nursing	1	1.5	39	59.1	26	39.4	34.623	0.000
	Midwifery	3	4.1	43	58.1	28	37.8		
	Medicine	1	1	62	64	34	35		
	Dentistry	6	17.1	23	65.8	6	17.1		
	Laboratory	1	2.7	33	89.2	3	8.1		

*Statistical significant difference   The test of significant used Chi-square and P-value<5

Poor knowledge= <50   Average knowledge =>51 - <70   Good knowledge = >70

Table 4 shows that relationship between some socio-demographic characteristics and the total score of student's knowledge about associate risk factors of cardiovascular diseases. This table showed that there is statistically significant difference between subject study, age, and residence with P-value = <5 (0.000, 0.003, and 0.006

International Journal for Scientific Research (IJSR)

Vol. (2), No. (7)

IJSR

July 2023

المجلة الدولية للبحوث العلمية

الإصدار (2)، العدد (7)

respectively). Except marital status and sex not significant was noted with P-value= <5 (0.256, and 0.678 respectively).

Regarding age, table 4 showed that more than one third (35.6%) of participants over age 20 years have good knowledge compared with only 15.3% of participants who their age under 20 years. Also, one third (33.3%) of participants male have good knowledge compared with (29.9%) of female.

As regard to residence, more than one thirds (34.8%) of urban participants have good knowledge compared with less than one third (30%) of rural participants. While more than two-fifty (42.1%) of participants who were married have good knowledge compared with more than one quarter (29.95) of single participants.

At last, this table revealed that more than one third (39.4%) of participants from nursing faculty have good knowledge compared with participants from midwifery, medicine, dentistry, and medical laboratory faculties (37.8%, 35%, 17.1% and 8.1% respectively).

Discussion

Cardiovascular diseases (CVDs) are important health problems because they are considered as a main cause of premature death and disability among middle age around the world. Risk factor for cardiovascular diseases can be modification on lifestyles in order to reduce the clinical events and premature death, particularly amongst people who are at high cardiovascular risks with one or more risk factors. The most important risk factors for the development of cardiovascular diseases were an unhealthy diet, inadequate physical activities, alcohol consumption, smoking, and physiologic changes such as obesity or overweight, hypertension, diabetes and dyslipidemia (2). This study is considered as the first study conducted in Yemen aimed to find out the relationship between students' knowledge and selected socio-demographic variables in regard to the risk factors of CVDs. It is recruited 309

medicine and health sciences students to response on the questionnaire. Most of them (79%) were under age of 20 years, with the mean of age 22.1±2.3. This result was agreed with other study conducted in Saudi Arabia about "Cross-sectional Study of Cardiovascular Risk Factors among Male and Female Medical Students" in Saudi Arabia. They revealed that the mean of age of participants was 22 ± 1.831 (12). While more than half (57.3%) of current study's participants were females. This result was in the same line with other study conducted in Pakistan about "Assessment of knowledge and behavior regarding cardiovascular diseases and their risk factors among medical students of a private medical college in Lahore". It revealed that (57.1%) of students were females (14). Also, our study found out that more than two thirds (71.2%) of participants were from rural areas, majority (87.7%) of them are single and less than third (31.4%) of them are from Faculty of Medicine, Jiblah University for Medical & Health Sciences.

Regarding to questions about risk factors of CVDs, majority of our study's participants pointed to obesity, high cholesterol, old age, passive smoking and diabetic (93,8%, 91.9%, 90.9%, and 90.3% respectively). A similar result was revealed by other study, conducted in Pakistan (13). Another finding in our study regarding to risk factor of CVDs, most of participants pointed to fat food, fast food and high LDL (80.9%, 77%, and 76.7% respectively). Similar results reported from study conducted in India about "Assessment of Knowledge with Regard to Cardiovascular Disease Risk Factors among College Students Using Heart Disease Fact Questionnaire" (14). Concerning the risk factors of gender on heart diseases, more than half (57.9%) of our participants said that the men have a greater risk of heart diseases than women. This result was supported from the other study, it revealed that 56.4% of students said that men have high risk for CVDs than women (13). Regarding the high blood pressure, more than two thirds (68.7%) of our participants knew that high blood pressure (BP) is a risk factor for heart disease.

While more than two fifties (42.6%) of them pointed to controlling BP led to reduce cardiovascular diseases. These results were less than the other study's results that conducted in the capital city in Ethiopia about, "Ethiopian university students' knowledge and perception towards cardiovascular disease risk factors". They reported that the majority of participants knew that BP is a risk factor for heart disease and referred to controlling BP will reduce risk of heart disease (94.5% and 87.3% respectively)(15). This difference between both studies occurred because the current study's participants were from rural and urban areas, and from level one. Also, more than one third (38.8%) of our participants said that the low HDL levels constitute a risk factor for cardiovascular diseases. This result was not agreed with the other study carried out in Turkey about "University students' knowledge levels about cardiovascular risk factors and assessment of their health behaviors in Turkey". It revealed that only 35.4% of university students did not know that low HDL levels constitute a risk factor for cardiovascular diseases (15). These differences between both studies occurred because our study was conducted among medicine and health sciences students. Concerning the control on risk factors of cardiovascular diseases. Study conducted by Amro et al, about "Knowledge of Cardiovascular Disease among Undergraduate University Students in Palestine" (16). They revealed that 74% of students reported that control on blood pressure led to reduce affect by CVDs, compared with 42.6% of participants in this study. This difference between both results is due to our study recruited student from level one only. Furthermore, most of our participants (77.4%) reported that eating fruit and vegetable reduce of affect by cardiovascular diseases. This result was agreed with another study conducted in Maharashtra, India, about "Assessment of awareness about cardiovascular diseases risk factors amongst first year medical students". It is revealed that 77.21 of students reported that eating vegetable reduce CVDs (17). Higher result was reported from study conducted by Abdela et, al,. They revealed that the majority (89.4%) of students said the physical activities reduce CVDs (14). While in our study only

International Journal for Scientific Research (IJSR)

Vol. (2), No. (7)

IJSR

July 2023

المجلة الدولية للبحوث العلمية

الإصدار (2)ء العدد (7)

(68.3%) of students pointed that the suitable exercise can prevent CVD. This different between both studies because our students, and their family members have not CVDs. Moreover, this study revealed that the majority of participants said that stop smoking, and control on cholesterol, and sugar led to reduce affect by cardiovascular diseases (91.6%, 87.4% and 75.1% respectively). Regarding the age, our study revealed that there is statistically significant difference between age groups with P-value <5= (0.002) and not significant was noted between marital status with P-value <5 = (0.864). These results were similar to another study conducted in Palestine (17). They reported that its significant difference was found between the age-group (p = 0.039) and no significant difference between the marital status with P- value<5 = (0.794).

Lastly, a significant difference was found between the study subjects groups (faculties) with P-value = <5 (0.000). This result was supported by another study carried out in Malaysia (19). Also, there is statistically significant difference between the residence groups with P-value<5= (0.008) in this study.

Finally, in regard to the gender, no statistically significant difference was noted between males and females with P-value =<5 (0.095). This result was agreed with another study, (16). They revealed that there aren't significant noted between males and females with P-value =<5 (0.097).

Limitation

The study design was cross-sectional with convenient sample and the findings of this study were based on students' self- report. In addition, this study was conducted in one university.

Recommendations

1. To carry out the education health program about associate risk factors of cardiovascular diseases.
2. Other study should be conducted and include other universities in Yemen.

Conclusion

This study conducted with medicine and health science students. So, the majority of participant have good knowledge regarding to associate risk factors of cardiovascular diseases. Excepted the high HDL, heredity, high BP, and Irregular eating food, where they showed low knowledge.

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