Assessment of knowledge and behavior regarding cardiovascular diseases and their risk factors among medical students of a private medical college in Lahore

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ABSTRACT

Background: Cardiovascular diseases (CVD) is a major cause of premature deaths globally. The gap between knowledge and behavior regarding modifiable risk factors related to these diseases has been noticed in medical students and is associated with a high number of morbidity and mortality. The aim of this study was to assess knowledge and behavior regarding cardiovascular diseases risk factors among newly enrolled MBBS students.

Subjects and methods: This cross-sectional study was conducted from May to September 2021. A total of 140 first-year MBBS students participated including 80 females and 60 males. Data were collected through a self-administered questionnaire having 17 questions and two sections, one for knowledge assessment and the other for the behavior of participants regarding CVD risk factors.

Results: Major risk factors for heart disease identified by students included obesity (99.3%), high cholesterol (98.6%), hypertension (97.9%), lack of physical activity (95.7%), smoking (82.1%), older age (89.3%), family history of heart disease (73.6%) and diabetes (78.6%). Pertaining to personal history, 10% were smokers, 32.1% regularly consumed soft drinks and 79.3% reported having any physical activities. Significant differences were found between male and female students regarding knowledge of CVD risk factors such as smoking (p-value = 0.003). Similarly, significant differences were observed between male and female students heart health behavior such as cholesterol checkup (31.7% vs. 16.2%, p-value = 0.032), use of soft drinks (48.3% vs 20%, p-value = 0.001) and physical activity (90% vs. 71.2%, p-value = 0.007).

Conclusion: First-year medical students have good knowledge of CVD risk factors but the behavior, regarding practice to avoid these risk factors, needs improvement. It was also observed by comparison that male students have more knowledge of heart disease risk factors as compared to female students.

Keywords:
Medical students, Risk factors, CVD, Knowledge, Behaviour, Assessment

INTRODUCTION

Risk factors minimization can prevent morbidity and mortality in people with recognized cardiovascular diseases (CVD).[1] Modifiable risk factors for CVD include hypertension, hypercholesterolemia, smoking, obesity, a sedentary lifestyle, and an unhealthy diet like fast food. To reduce the burden of disease regarding CVD, better knowledge and behaviors regarding the prevention of CVD are a prerequisite. Knowledge of CVD risk factors should be inculcated among medical students as they will be future healthcare providers. Different studies, in developing countries, have reported a lack of knowledge among the general population.[2,3] Whereas similar studies elucidate that knowledge of CVD risk factors is still lacking even in medical students and needs to be enhanced along with practice.[4,5] According to global records CVD has turned into an epidemic and becoming a major cause of death in the whole world.[6] An obvious decline of 60% in the number of CVD cases in western countries has been seen over the past three decades. While in developing regions this number has drastically increased.[7] Suburbanisation, illiteracy, and operative defensive policies are major factors in this surge of heart diseases. Risk factors modification can help to lessen medical measures and deaths even in people with genetic prevalence. According to WHO, CVD accounts for 82% of morbidity and 37% of mortality in lower-middle-income countries.[8] Pakistan being a middle-income country is fighting a double burden of diseases in spite of having good knowledge regarding CVD, its risk factors are increasing in Pakistan's young population. A gap between knowledge and behaviors has been observed in medical students.[9] Thus, in this study,

we aimed at assessing the knowledge of freshly enrolled medical students regarding CVD risk factors at CMH Medical College.

SUBJECTS AND METHODS

This cross-sectional study was carried out from 10 May to 10 August 2021. It was conducted in Combined Military Hospital Lahore. The Sample was comprised of 140 students from first-year MBBS. A nonprobability convenient sampling technique was used. It was calculated through the WHO stat calculator. Ethical approval was granted by the Institutional Review Board of CMH Medical College Lahore. Newly enrolled medical students were included in the study, the rest were excluded. The questionnaire had three sections into which study parameters were divided; Sections A comprised frequency and percentage of demographic data (gender and year of study), section B comprised frequency and percentage regarding knowledge of participants about the risk factors of cardiovascular diseases, and section C included practice and existing behavior to avoid risk factors in daily life by assessing weight, cholesterol level, smoking habit, soft drinks intake, and the daily activities and exercise. The questions were closed-ended, and the response was recorded as 'yes' or 'no'. Ten questionnaires were pretested on students having an idea about the general perception rate of participants, which were not included in the final count of the filled questionnaire. Data was entered on SPSS 23 version. A Chi-square test was used for association. A p-value less than 0.05 was considered significant. The questionnaire was adopted from the research article.[7] The questionnaire based on Cronbach's alpha value was 0.78. descriptive statistics were analyzed in form of frequencies and percentages

RESULTS

Out of 140 total participants, 80 (57.1%) were females while the remaining 60 (42.9%) were males. The age group of participants was around 17 to 19 years. There were 98 (70%) students from an urban background and 42 (30%) from rural background. The percentage of students who correctly identified the CVD risk factors and the perception and practices of students toward cardiac health are summarized in Table 1. Major risk factors for heart disease identified by students were old age (89.3%), smoking (82.1%), hypertension (97.7%), high cholesterol (98.6%), family history of heart disease (73.6%), obesity (99.3%), diabetes (78.6%), male gender (56.4%) and lack of physical activity (99.7%).

Participants' behavior to avoid cardiac diseases was assessed by their perceptions and practices. A total of 40% stated that their weight has increased in the past few years. Less than one-fourth reported having lipid profile checked. Pertaining to personal history, (10%) were smokers, (32.1%) regularly consumed soft drinks, and (79.3%) reported having regular physical activities like exercise and running (Table 2).

Out of 140, 125 (89.2%) persons answered yes, to the correlation of age to the greater risk of having heart disease. In this data 58 (97.7%) males and 67 (83.8%), females answered that positive relations do prevail between increasing age and high risks of cardiovascular diseases. There was a statistically significant association between gender and old age, the greater risk of having heart disease (p-value = 0.014). The association between gender and smoking showed that out of 140 participants, 115 agreed to have a positive association, while 25 denied this association between smoking and increased risk of CVD. Our results regarding this question were also found to be statistically significant (p-value = 0.036). The association between gender and high HDL showed that out of 140, 57 participants agreed with this association, while 83 did answer 'No' for this association the result for this question was also found to be statistically significant (p-value = 0.003). The question containing knowledge of the association between gender and LDL showed that out of 140, 100 participants agreed with the association that high LDL can enhance the risks for cardiovascular diseases, while 40 did not agree with this association and the data from

Table1: Frequency of students giving correct response to CVS disease risk factor and their knowledge

Question	Number of respondents (n =140)	Percentage
Cardiovascular disease is the most common cause of death in Pakistan	119	85%
The Older person is, the greater their risk of having heart disease	125	89.3%
Smoking is a risk factor for heart disease	115	82.1%
Hypertension is a risk factor for heart disease	137	97.9%
High cholesterol is a risk factor for heart disease	138	98.6%
If your HDL is high, you are at risk for heart disease	57	40.7%
If your LDL is high, you are at risk for heart disease	100	71.4%
If you have a family history of heart disease, you are at risk	103	73.6%
Obesity increases a person's risk for heart disease	139	99.3%
Diabetes is a risk factor for developing heart disease	110	78.6%
Exercise lowers a person's chance of getting heart disease	134	95.7%
Men have a greater risk of heart disease than women	79	56.4%

Table 2: Frequency of students giving correct response to CVS disease risk factors and their behavior

Question	Number of respondents	Percentage
Has your weight increased in the last 12 months?	67	47.9%
Have you ever had your cholesterol checked	32	22.9%
Have you ever smoked?	14	10%
Do you drink soft drinks regularly?	45	32.1%
Participate in any physical activities	111	79.3%

Table 3: Association between genders with their knowledge about risk factors prevailing heart diseases

Question	Gender		p-value
	Male	Female	
The older person is, the greater risk of having heart disease	58	67	0.014
Smoking is a risk factor for heart disease	54	61	0.036
HDL is high	33	24	0.003
LDL is Low	34	66	0.001
Diabetes	56	54	0.001

Table 4: Association between gender with the practice of risk factors for heart diseases

Question	Gender		p-value
	Male	Female	
Have you ever had your cholesterol checked	19	13	0.032
Soft drinks regularly `	29	16	0.001
Participate in any physical activities	54	57	0.007

this question also found to be statistically significant (p-value = 0.001). The association between gender and diabetes showed that out of 140, 110 participants thought that there is a strong correlation between diabetes and risks of developing CVD, while 30 participants were not in favor of this association. This result was also found to be statistically significant (p-value = 0.001) (Table 3).

Among 60 males, 41 (68.3%) never checked their cholesterol but 19 (48.7%) get it checked. There was a less positive response from students observed as few students, among 80 females only 13 (16.2%), had their cholesterol checked. While 67 (83.7%) did not ever check their cholesterol level. Whereas this association was also found to be statistically significant (p-value = 0.032). Among a total of 60 males, 29 (48.3%) agreed that they used soft drinks regularly, while 31 (51.1%), had no habit of taking soft drinks. Out of 80, 16 (20%) females used to drink soft drinks regularly and the association between this was also found to be statistically significant (p-value = 0.001). Among 60 males, 54 (90%) students use to participate in physical activity other than normal regular college duties while 6 (7.5%) did not. A total of 57 (71.2%) female participants active to be indulged in other physical activities whereas 23 (28.7%) denied their participation level. Association between gender with practice and

knowledge, regarding heart diseases and their risk factors, was found to be statistically significant (p-value = 0.007) (Table 4).

DISCUSSION

The purpose of this study was to evaluate the basic knowledge of newly enrolled medical students to have an idea regarding their perception of the risk factors related to cardiovascular diseases, as they have not been taught yet any clinical curriculum about CVD and its prevalence. A similar study described the result of having lower knowledge of junior medical students as compared to senior medical students regarding cardiovascular diseases.[10] In this study knowledge and behavior of medical students have been compared among male and female students regarding the prevalence of CVD risk factors. In which we found that knowledge of students remained highest for the question that, the increasing age with the ultimate increase in CVD risk Factors, 125 (89.2 %) students answered correctly. in comparison, a study was done on the correlation between age and CVD risks getting higher and also concluded that with increasing age more death has been recorded with cardiac diseases.[11] While the response to the question of high HDL causing increased CVD risk factors, as it was a negative question which has correct answer NO, 83 students out of 140 responded NO which was a right response remained (59.2%). The response to a question regarding high LDL levels increases risks for CVD, given results as (71.4%), as 100 out of 140 students responded correctly in this. In our study, 110 students out of 140 said that there is a correlation between diabetes and higher chances of CVD prevalence as compared to it an epidemiologic study has shown reports that diabetic patients are more prone to the risk of developing cardiovascular diseases.[1,12] Regarding the question about the correlation of smoking as CVD risk factors (82%) students responded to the positive relationship between smoking and increase chances of CVD while the response in section two for the behavior of students regarding risk factors for the people who smoke was very less (10%), which is positive quality been found in the young lot as they know that smoking is a risk factor for cardiac diseases so they do not smoke to avoid the CVD, in comparison to our results studies conducted with the same question reported the more attitude of medical students being habitual smoker besides knowing the risk factors and it has been noticed that people from high educational strata are more habitual to smoking.[7,13] In association with our question

about obesity and CVD prevalence students' response percentage, for its positive relation, was 99.3%, and regarding the behavior of our students adapting to other physical activities rather than routine college duties, more males do participate than females students. In accordance with the above two questions, there is a study reported that decreasing the fat mass and increasing physical activity rate has shown a decrease in cardiovascular events.[14,15]Many studies have been done in this regard to show the relation of exercise on improving cardiac health and sedentary lifestyle enhancing the inflammatory markers, causing an increase in atherosclerotic changes leading to cardiovascular diseases.[16,17]There was a question related to regular intake of soft drinks for which we had very less percentage of students, 32.1% were habitual of drinking beverages, regarding this behavior, a study showed that increment of consuming sweetened beverages is related to greater risk of stroke.[18] In response to the question related to gender affecting the risk factors of CVD, 56.4% of students said that CVD among men is more prevalent than in women, supporting this response there were other studies that reported that premenopausal women are more protected from CVD as compared to men.[19,20]

CONCLUSION

The results of this study indicate that our medical students have good knowledge of CVD risk factors but the behavior, regarding practice to avoid these risk factors, needs improvement. It was also observed by comparison that male students have more knowledge of heart disease risk factors as compared to female students. Sound knowledge of CVD and positive heart health behavior are very essential for the students as they are the healthcare providers of the future.

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