

## PUTTING KNOWLEDGE AND ATTITUDE INTO PRACTICE— A HUGE CHALLENGE!

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### Contribution

FA, SH, SSA conceived the idea, designed the study and did manuscript writing. RA, MZ, AMG did data collection, data analysis and manuscript writing. MH did review and final approval of manuscript. All authors contributed equally to the submitted manuscript.

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### ABSTRACT

**Objective:** To study knowledge, attitude, practice and behavior about CVD in college and university students of Peshawar.

**Methodology:** This cross sectional study was conducted in colleges and university students from October 2015 to May 2016. A questionnaire based on WHO stepwise approach to surveillance was used to study the understanding of knowledge, attitude and practice/behavior towards cardiovascular health and barriers to healthy practices besides demographic data. The questionnaires were distributed among students through administration of the institute. Data was analyzed using SPSS 16.

**Results:** A total of 618 participants were included. The response rate was 61.8%. Among these, 43.5 % were males. Mean age of students was  $20.58 \pm 2.16$  years. Knowledge of risk factors of CVD was documented as high blood pressure 77.2%, diabetes 34.3%, high cholesterol 77.5%, physical inactivity 41.1%, overweight 66.7%, 44.3% smoking 44.3%, mental stress 57%. Of respondents 69.9% knew pain in chest as a major heart attack warning sign. Respondents familiar with one sign of heart attack were 50%, two signs 37%, three signs 11.42%, four signs 2.5%. Consumption of more fruits and vegetables and exercise can prevent heart disease was known to 85.1% and 82.1% respectively. As regarding practice, 59.5% of the respondents had their blood pressure measured, 75% took healthy food and reduced their consumption of unhealthy foods, 44.2% tried to lose weight, 67.5% tried to increase physical activity, 50% of smokers said that they had attempted to quit smoking.

**Conclusion:** College students had satisfactory knowledge of CVD, its risk factors, warning signs, heart healthy diet and physical activity. However, knowledge has to be put into practice to create positive attitude and good practice.

**Key Words:** CVD, KAP study, Risk factors, Prevention

## INTRODUCTION

Non-communicable diseases (NCDs) have become an increasingly important public health issue in low-income and middle-income countries.<sup>1</sup> These diseases have been strongly associated with unhealthy lifestyle habits, including unhealthy diet, sedentary life style and cigarette smoking. According to WHO 17.7 million people die from CVD every year around the world. This accounts for 31% of all deaths globally. In 2008, 80% of global NCD deaths occurred in lower and middle income countries. NCDs recently accounted for 7.9 million of 14.5 million deaths (54%) in Southeast Asia and were responsible for two of every three deaths (34.5 million) worldwide in 2010.<sup>2</sup> A similar pattern is evident in Pakistan, where NCDs currently occur more frequently than communicable diseases and behavioral risk factors such as tobacco smoking inappropriate nutrition and inactivity increase the risk of diabetes, hypertension, obesity and cardiovascular diseases.<sup>3,4</sup>

There has been change over the last 20 years in the geographical distribution of the CVD incidence with significant decline in the industrialized countries and rise in the developing countries including the Eastern Mediterranean region<sup>5</sup>. There are several effective intervention programs in developed countries, targeting the risk factors for CVD, which have resulted in a decrease in prevalence of risk factors and thereby decreasing the prevalence of CVD events.<sup>6-7</sup> CVD's are considered as the leading cause of mortality in Iran for the last decade.<sup>8</sup> Poor nutrition habits, smoking and physical inactivity led to higher prevalence of CVD risk factors among the Iranian community.<sup>9</sup> Isfahan Healthy Heart Program (IHHP) is a long-term community trial for improvement of health through the reduction of CVD risk factors. The main objectives of IHHP were improvement of health behaviors, lowering blood cholesterol level, controlling blood pressure and quit cigarette smoking and increase in physical activity. These changes would subsequently reduce cardiovascular disease morbidity and mortality<sup>9</sup>

College life is an important stage for individuals as at this time their behaviors are conducive to change. Unhealthy habits picked up at this stage generally persist in later life. University and college arenas, therefore, represent an important opportunity for health and nutritional education.

Sakamaki et al conducted a study on Chinese university students showing that only a small number of students (7%) apply the concept of healthy dietary intake when selecting food. However, a majority (51%) showed a desire to learn about healthy diet.<sup>10</sup> A similar study on Swedish university students showed that females had healthier habits despite being more prone to stress. Male students on the other hand had high level of obesity and were less interested in nutritional advice, health enhancing activities, were also physically inactive and indulged in alcohol consumption<sup>11</sup>. College life is also a period during which individuals are for the most part exposed to stress and lack of time, posing a barrier to adoption of healthy practices. In a survey about habits and perceived barriers to following a healthy lifestyle in a college population, the biggest restriction to exercise and bad eating habits was lack of time.

Currently, attempts to improve health knowledge and behavior focuses mainly on campaigns that transmit information but pay

little attention to the population's actual health literacy. The aim of study was to assess KAP in young students of Peshawar as a part of primary prevention exercise of cardiovascular disease in the different colleges and universities of Peshawar.

## METHODOLOGY

The present study was a cross-sectional descriptive study. A sample of participants, male and female students from different colleges /universities of Peshawar was collected from October 2015 to May 2016. Consent was taken from the departmental ethics committee to conduct this study. A questionnaire based on WHO stepwise approach to surveillance was used to study the understanding of knowledge, attitude and practice/behavior towards cardiovascular health and barriers to healthy practices. Questionnaire recorded demographic data including age, gender, place of residence and name of the institute. The questionnaires were distributed among students through the institute administration. Students filled the questionnaire and handed over to the administration. Frequencies and percentages were used to summarize data. Continuous variables were analyzed to find mean and standard deviation. Chi square was used to compare categorical variables. Data was analyzed by statistical program for social sciences SPSS 16.

## RESULTS

A total of 618 out of 1000 students participated. The response rate was thus 61.8%. Among these 43.5 per cent were males and 56.5 per cent were females. Mean age of students was  $20.58 \pm 2.16$  years. Mean age of female participants was  $20.65 \pm 1.54$  years and of male participants  $20.63 \pm 2.78$  years. The percentage of participating students from Islamia College University were 34.5%, Frontier College for Women 37.9% and Peshawar University were 27.6%.

Regarding knowledge of risk factors of CVD, the responses were, 77.2% for high blood pressure, 34.3% for blood sugar, 77.5% high cholesterol and physical inactivity 41.3%, overweight 66.7%, 44.1% for smoking and 57% for mental stress. (Table 1) About warning signs of heart attack, of total 69.9% of respondents knew pain in chest as major heart attack signs, 12% of respondents thought numbness of hands and 10.8% were of the opinion that difficulty in breathing as sign of heart attack. Respondents who were familiar with only one sign were 50%, two signs 37% three signs 11.42% and four signs 2.53%. It is interesting to observe that male participants were statistically more aware than female students about risk factors and warning signs. (Table 1)

About heart healthy diet, when asked to identify a particular heart-healthy food, most respondents identified green-leafy vegetables (93.6%) and fruit (92.1%). Furthermore, 54.2% thought grains are healthy food, 19.1% answered meat as healthy food, 34% considered dairy products as healthy, 35.4% considered nuts as healthy for heart, 8.1% said fried food or saturated fat are healthy foods.

When asked about medium that provided most information on CVD, 31.9% received information by talking to a doctor, 27.3% by watching television and radio, 18.8% by reading health material in print media, 12.0% by talking to others.

**Table 1: Knowledge Regarding CVD Risk Factors and Warning Signs (n=618)**

Causes of heart attack	Male	Female	Total	P value
Hypertension	7.8%	4.9%	6.1%	.017
High blood sugar	36.1%	20.3%	27.2%	.0001
High cholesterol	6.3%	3.7%	4.9%	.199
Physical inactivity	21.2%	19.8%	20.4%	.0001
Overweight	17.5%	5.4%	10.7%	.0001
Smoking	29.7%	16.0%	22.0%	.0001
Excess stress	20.1%	10.3%	14.6%	.002
<b>Warning signs of CVD</b>				
Difficulty in breathing	13.4%	8.9%	10.8%	.0001
Pain in chest	74.3%	66.5%	69.9%	.0001
Pain or numbness in the arms	5.2%	17.2%	12.0%	.0018
Pain in the teeth or jaw	1.9%	4.6%	3.4%	
Excessive sweating	2.2%	2.6%	2.4%	
Nausea /Vomiting	2.2%	0.0%	1.0%	
Loss of consciousness	0.7%	0.3%	0.5%	

**Table 2: Attitude Items on Heart Health (n=618)**

Items	Male	Female	Total	P-value
I don't perceive myself to be at risk for heart disease	26.4%	17.8%	21.2%	0.001
I don't want to change my lifestyle	18.2%	18.3%	18.3%	0.948
I feel overweight is bad for heart health	7.8%	10.9%	9.5%	0.047
I don't think behavior change will reduce heart health	22.3%	19.5%	20.7%	0.552
I don't have time	36.4%	27.2%	31.2%	0.029
God ultimately determines my heart health	7.8%	12.3%	10.4%	0.008
<b>Opinion on various preventive aspects of Heart Health that are helpful</b>				
Consumption of more fruits & vegetables prevent CVD	81.0%	88.3%	85.1%	.033
Quit smoking /sheesha prevent CVD	67.7%	52.4%	59.1%	.001
Regular exercise prevent CVD	81.0%	83.7%	82.5%	.010
Regular medical checkup prevent CVD	63.6%	79.7%	72.7%	.0001
Reducing mental stress prevent CVD	65.8%	77.4%	72.3%	.003

Of total 62% said they were well informed about the risk factors of CVD. About 28.8% considered old age 18.9%, middle age, 38.3% in young adulthood, 9.7% adolescence, 4.2% childhood. When asked if they ever discussed about prevention of CVD with their doctor/health care provider? 81.2% participants had never discussed prevention CVD,

Males 58.3% and females 41.7% perceived themselves to be at risk of CVD. Of total of 18.3%, 43.4% males and 55.6% females did not want to change their lifestyle. Among total of 45.8%, 47.3% males and 52.7% females were of the opinion that being overweight is bad for health.

Of total 13.3%, 31.7% males and females 68.3% believed that they did not have time to take care of themselves. Total 10.4%, 35.9% males and 64.1% females did not think that changing their behavior would lower their cardiovascular risk. Total 37.5% thought that God or a higher power determined their health, among them males were 39.23% and females 60.8%. Regarding the respondent's opinion on factors that can prevent CVD: 85.1% respondents believed that increased consumption of fruits, vegetables would be helpful in preventing CVD. 82.5% believed the regular exercise was beneficial. (Table 2)

Overall, the average prompted knowledge of heart diseases the

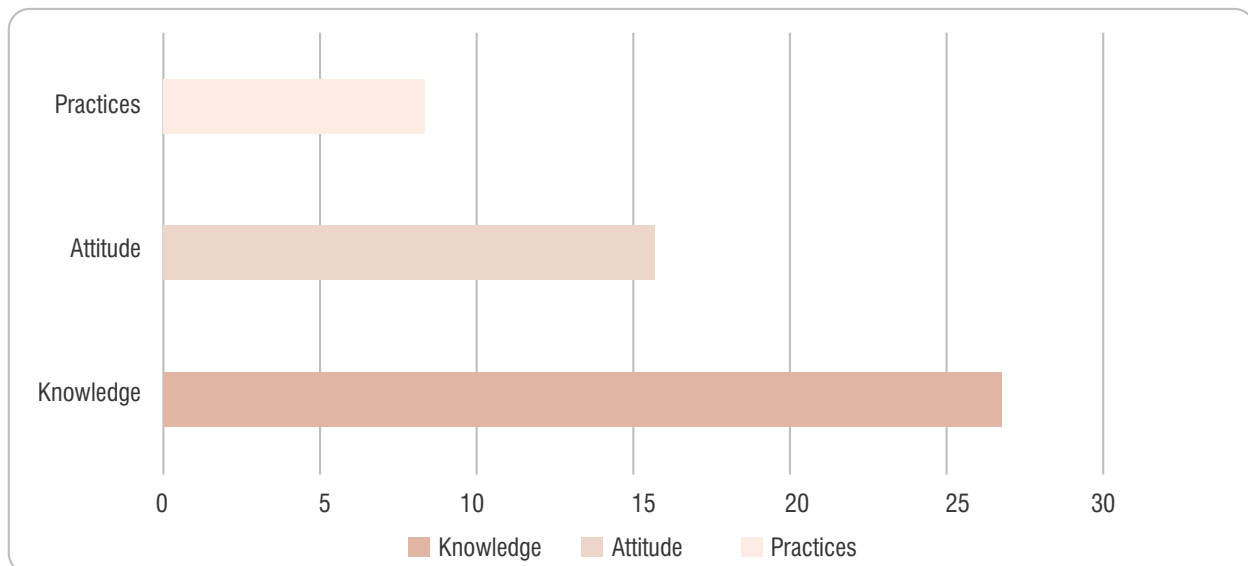
**Table 3 : Practices Towards Heart Diseases (n=618)**

Reasons		Male	Female	Total	P-value
Have you ever checked your blood	Yes	41.3%	39.8%	40.5%	0.718
	No	58.7%	60.2%	59.5%	
Are you taking healthy food milk, vegetables	Yes	21.9%	26.1%	24.3%	0.234
	No	78.1%	73.1%	75.7%	
Have you tried to increase your physical	Yes	26.0%	37.5%	32.5%	0.002
	No	74.0%	62.5%	67.5%	
Have you tried to lose	Yes	42.0%	45.8%	44.2%	0.341
	No	58.0%	54.2%	55.8%	

**Table 3 : Practices Towards Heart Diseases (n=618)**

Reasons	Male	Female	Total
For better quality of life	72.5%	65.9%	68.8%
Do it for family sake	13.0%	17.8%	15.7%
Gone through useful information	6.3%	9.5%	8.1%
Advised/encouraged by doctor	3.7%	2.0%	2.8%
Relative/family member died of heart attack	4.5%	4.3%	4.4%

**Figure 1: Comparison between Knowledge, Attitude and Practices (n=618)**



mean scores were 26.79 , 15.51 for attitude and the mean score for practices was 8.26. (Figure 1)

Regarding practical steps towards prevention of all the respondents 59.5% had their blood pressure measured, 75% attempted to take healthy food and reduce their consumption of unhealthy foods 44.2% tried to lose weight, 67.5% tried to increase physical activity and 50% of smokers said that they had attempted to quit smoking (Table 3).

The respondents who reported one or more positive health behaviors the main reason for trying to change their lifestyle or practice/behavior, the reasons given, they wanted to feel better (68.8%), read or heard information (8.1%) and 15.7% did for their family's sake (Table 4).

## DISCUSSION

Statistics have shown that CVD is the leading cause of death in Pakistan. This can be prevented by increasing the level of awareness regarding the risk factors of CVD. The respondents in our study population showed average knowledge of the causes of CVD. Most of the respondents knew that CVD is associated with hypertension (77.2%) and high cholesterol level (77.5%) respectively. However only 34.3% respondents knew that diabetes could be associated with CVD. The knowledge of respondents regarding behavioral risk factors was higher for obesity (66.7%), followed by mental stress (57%), smoking (44.3%) and physical inactivity (41.1%). A population based cross-sectional study done in Nepal showed that knowledge of behavioral factors was more among their respondents compared to conventional risk factors like hypertension.<sup>15</sup> In our study however maximum numbers of respondents regarded hypertension and high cholesterol to be associated with CVD. A KAP study done in Taiwan on possible causes of CVD, reported unhealthy diet, obesity and family history as common risk factors for development of CVD.<sup>14</sup>

KAP study done in urbanizing community in Nepal showed that only 20.5% of individuals could only recognize chest pain as a symptom of heart attack.<sup>15</sup> Where as in our study 69.9% of respondents knew chest pain as a major symptom of heart attack. Most of the respondents (85%) in our study considered vegetables and fruits to be part of heart healthy diet. The results are similar to the KAP study in Nepal where over 90% of the respondents considered vegetables and fruits as healthy food.<sup>15</sup>

About 31.9% respondents said that the information regarding CVD comes from talking to their physician followed by watching TV or listening to the radio. Most of the respondents (62%) thought that they were well informed about CVD, 38.8% of the respondents knew that CVD could start on young adult life. Over 90% of respondents had never discussed prevention of CVD with their physician

Regarding attitude towards cardiovascular health our study

showed more males than females perceived that they were at risk of CVD. However the total perceived risk for both genders was only 21.2%. Majority of the respondents (45.8%) however believed that being overweight was bad for heart health. 37.5% believed that God is the ultimate power to decide one's health. The study done in Nepal shows that 58% respondents thought that a change in life style would not benefit their risk of developing CVD.<sup>15</sup> In our study only 10.4 % thought that change in life would not prevent CVD. This means that respondents in our study had better attitude towards positive benefits of lifestyle change.

In contrast to their opinion that behavioral modifications can prevent CVD, most of our respondents did not consider themselves at risk and did not want to alter their lifestyle. This may be explained by the Health Belief Model.<sup>16</sup> Risk indicators (e.g. number of cigarettes smoked, death of a parent due to CVD and self assessment of blood pressure, weight and cholesterol levels) account for a 24% variance in perceived risk. However, respondents often underestimate their cardiovascular risk.<sup>16</sup>

To understand practice and attempts for better cardiovascular health practice/behavior, in our study 59.5 % of respondents underwent a blood pressure check. A study done in Nepal shows 50% respondents underwent a BP check.<sup>15</sup> This is almost similar to our study. Of the respondents 50% reported that they had tried to quit smoking. However the questionnaire could not explore whether they had actually quit smoking and did not identify the barriers against quitting.

When asked about consumption of healthy diet and regular physical exercise, coping with mental stress, more females than males showed a positive response. This is in contrast to KAP study done in Nepal that showed higher percentage of obesity and low physical activity among women.<sup>15</sup> In our study the respondents reasons for adopting a positive health behavior was wanting to feel better 68.8% or was encouraged by a health professional. Most of the respondents read information on prevention of CVD in print and social media that affected their behavioral decisions.

Drawing comparison between levels of KAP towards CVD the findings of our study indicate that there is a gap in knowledge, attitude and practices among college/university students. This has led to lack of health awareness among the student population. This trend has been observed in other studies where students had unhealthy dietary habits and made inappropriate choices in hypothetical scenarios.<sup>4,10-12</sup> Keeping in view the result that students had some knowledge on health issues and their implications, it may be concluded that they are not putting whatever knowledge they have, into practice due to certain barriers. The main barrier identified in this study was lack of time. Students due to examination stress find it hard to prioritize a healthy lifestyle and have no time to exercise or eat healthier meals. Therefore though the

students have some knowledge about heart health, they are unable to translate it into better practices. This was consistent with findings in a study by Silliman et al. that showed lack of time as the most important reason for not having healthy eating habits or skipping meals, and not getting enough exercise.<sup>4</sup> Experimental studies that aim to do so have been performed in similar population in the West and have yielded promising results in terms of improved practices.<sup>4</sup> Similarly positive results were seen in IHHP (the Isfahan healthy heart program) in Iran that targeted Heart Healthy Promotion from Childhood and Youth Healthy Heart Project that focused on nutrition, increase physical activity, tobacco control and stress management.<sup>9</sup>

It is recommended that educational institutions, cardiac preventive departments and the cardiac society should take measures to improve knowledge of students. Attempts should be made to increase commitment towards exercise and ensure that adequate time and facilities in the form of play areas and gymnasiums are made available to students for regular structured physical activity. Students should have access to healthy food options in the college cafeterias. Short courses on nutrition to students can also be offered as an adjunct to their basic curricula.

## CONCLUSION

When comparison was done among the mean scores of knowledge, attitude and practice, the result showed that the respondents of the study had satisfactory knowledge of CVD, its risk factors, warning signs, heart healthy diet and physical activity. However positive attitude and good practice are lacking in most students and to prevent CVD timely modification in healthy life style is necessary.

## REFERENCES

1. Alwan A. Global status report on noncommunicable diseases 2010. Geneva: World Health Organization, 2011.
2. World Health Organization. Noncommunicable diseases in the South-East Asia Region: situation and response 2011. New Delhi: World Health Organization, Regional Office for South-East Asia, 2011.
3. Eyre H, Kahn R, Robertson RM. Preventing cancer, cardiovascular disease, and diabetes: a common agenda for the American Cancer Society, the American Diabetes Association, and the American Heart Association.
4. Silliman K, Rodas-Fortier K, Neyman M. A Survey of Dietary and Exercise Habits and Perceived Barriers to Following a Healthy Lifestyle in a College Population.

- Californian J Health Promot 2004; 18: 281
5. Cardiovascular disease mortality in the developing countries. World Health Statist Quart, 1993; 46: 89-150.
  6. Puska P, Salonen J, Nissinen A. Change in risk factors for coronary heart disease during 10 years of community intervention program: North Karelia Project. Br Med J. 1983; 287: 1840-4.
  7. Sprafka JM, Burke GL, Folsom AR, Luepker RV, Blackburn H. Continued decline in cardiovascular disease risk factors: Results of the Minnesota Heart Survey, 1980- 1982 and 1985-1987. Am, J Epid 1990; 132: 489- 500.
  8. SarrafZadegan N, Boshtam M, MalekAfzali H, Bashardoost N, SayedTabatabaei FA, Rafiei M, Khalili A, Mostafavi S, Hassanvand R. Secular trends of mortality from cardiovascular disease in Iran: with special reference to Isfahan. ActaCardiologica 1999; 54(6): 327-33.
  9. SarrafZadegan N, Boshtam M, Rafiei M. Risk factors for coronary heart disease in Isfahan. Europe J of Pub Health 1999; 9(1): 20-6.
  10. Sakamaki R, Toyama K, Amamoto R, Liu CJ, Shinfuku N. Nutritional knowledge, food habits and health attitude of Chinese university students—a cross sectional study. Nutr J 2005; 4: 4.
  11. MI von Bothmer MI, Fridlund B. Gender differences in health habits and in motivation for a healthy lifestyle among Swedish university students. Nurs Health Sci 2005; 7: 107-18.
  12. Webb E, Ashton CH, Kelly P, Kamah F. An update on British medical students' lifestyles. Med Educ 1998; 32: 325-31.
  13. Ornish D, Brown SF, Sherwitz LW. Can lifestyle changes reverse coronary heart disease? The lifestyle heart trial. Lancet 1990; 336: 129-33.
  14. Chen W, Yu Y, Glaser K. The knowledge and attitudes of coronary heart disease prevention among middle and older aged people in a community in Taipei. Taiwan GeriatrGerontol 2009; 4: 251–62.
  15. Limbu YR, Malla R, Regmi SR, et al. Public knowledge of heart attack in a Nepalese population survey. Heart Lung 2006; 35: 164–9
  16. Redding CA, Rossi S, Rossi R, et al. Health behavior models. Int Electron J Health Educ 2000; 3: 180–93.