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Life Style Risk Factors and Cardiovascular Disease: Exploring the Knowledge of Cardiovascular Disease among University Teachers in Saudi Arabia

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Abstract

Background/Objectives: To describe the perception and awareness of Cardiovascular Disease (CVD) among university teachers of King Fahd University of Petroleum and Minerals and to compare if there were differences between high and low risk groups on knowledge of cardiovascular disease. **Method:** A questionnaire consisting of 44 statements adopted from Heart Disease Fact Questionnaire -2 (HDFQ -2) and Behavioural Risk Factor Surveillance System (BRFSS) was distributed to 87 teachers of King Fahd University of Petroleum and Minerals (KFUPM) to assess knowledge of Cardiovascular Disease among participants. The study took place between 1st January 2012 and 1st January 2014 at KFUPM, Dhahran, Saudi Arabia. An exploratory study design was used to describe the perception and awareness towards of teachers towards CVD. T -Test was employed to compare knowledge of heart disease between risk groups. **Results:** Results revealed no significant difference between low and high risk groups on knowledge of Cardiovascular Disease ($t = -.372$, $p = .711$). The mean knowledge scores for low risk group were (72.97) while high risk group was (74.31). From results it was evident that greater awareness and knowledge of heart disease does not affect life style or risk factors of heart disease. **Application/Improvement:** There was no relation between knowledge of Cardiovascular Disease, lifestyle habits and risk factors among teachers. Teachers misperceived their general health and body mass. Higher risk group teachers were unable to perceive their heath correctly.

Keywords: Cardiovascular Disease, Perception, University Teachers

1. Introduction

Cardiovascular Disease (CVD) is now recognized as the leading cause of death and disability worldwide[1]. The global rise in CVDs is driven by both urbanization and its related lifestyle modifications[2]. Furthermore, developing countries is experiencing a double burden of diseases; both Communicable Diseases (CDs) and NCDs[3]. Along with the rapid socioeconomic growth in the Gulf countries, there has been a change in lifestyle such as an increased consumption of poor quality foods and the adoption of a sedentary lifestyle[4] and as a consequence the rates of CVD and associated risk factors among the Gulf population have also increased; the rates sometimes exceed that of developed countries[4]. The Kingdom of Saudi Arabia (KSA) is experiencing an alarming rising in incidence and death rates from CVDs[5,6] and also the rate of CVD deaths was also high in Saudi Arabia[6]. Coronary Heart Disease constitutes one of the main health problems in Saudi Arabia, representing the third most common cause of hospital-based mortality second to accident and senility[7]. This could be due to several reasons such as lifestyle change in Saudi Arabia towards urbanization. Dietary habits and lifestyle are the major causes of Cardiovascular Diseases[8].

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There is a unique social and cultural environment in Saudi Arabia. Therefore; the objective of the study was to describe the perception and awareness of Cardiovascular Disease (CVD) among university teachers of King Fahd University of Petroleum and Minerals (KFUPM) and to compare if there were differences between high and low risk groups on knowledge of CVD.

2. Methods

Participants in the present study were (n=87) male teachers of KFUPM. The age of teachers ranged from 25 – 65 years (mean 45.60 years ±12.05). The study took place between 1st January 2012 and 1st January 2014 at KFUPM, Dhahran Saudi Arabia. An exploratory study design was used to describe the perception and awareness towards of teachers towards CVD. To be considered for inclusion in the study a teacher had to be on roll with KFUPM during the period of study. Any teacher who was having a medical background or medical education was excluded from the study. A questionnaire consisting of 44 statements was distributed to participating population. To establish the reliability and validity of questionnaire we used questions from the existing surveys[9–12]. Question consisted of two sections. Section 1 consisted of 25 questions taken from Heart Disease Fact Questionnaire -2 (HDFQ -2)[9–11] to assess knowledge of Cardiovascular Disease among participants. Wagner et al. found that HDFQ-2 was readable and has adequate internal consistency (Kuder – Richardson r = 0.77)[11]. All questions in Section 1 had three responses; true, false and I don't know. Scores for each participant were calculated by summing all the correct responses. The higher score indicate higher knowledge of CVD. In Section 2 there were 19 questions which were adopted from Behavioural Risk Factor Surveillance System (BRFSS) Questionnaire[12]. Questions asked in this section depict participant's perception towards health, physical activity, smoking and cholesterol. Participation in the survey was entirely voluntary. Written informed consent was taken from each participant. Assurance was given to the participants that collected information would be kept confidential. Approval was taken from the university research committee and subsequently study was financially supported by Deanship of Research at KFUPM, Saudi Arabia. Descriptive statistics using appropriate measures of central tendency were used to assess the demographic characteristics of the sample and to describe overall knowledge of CVD among the participants; frequencies, percentage, mean and standard deviation were used to report results and to make meaningful analysis and interpretation of findings. T test was used to find any difference on knowledge of CVD between low risk and high risk group in teachers. SPSS version 16 was used for analysis of data.

3. Results

The health profile of the university teachers was presented through (Table 1). Data were presented in frequency and percentage.

Table 1. Presents the health profile of the university teachers

S. No	Variable	Teachers (n = 87)	
		n	%
2.	**Weight Perception**		
	Acceptable	49	**56**
	Overweight	36	**41**
	Underweight	2	**2**
3.	**Health Perception**		
	Excellent	11	**12**
	Very Good	37	**43**
	Good	27	**31**
	Fair	11	**13**
	Poor	1	**1**
4.	**Physical Fitness Perception**		
	Excellent	3	**3**
	Very Good	24	**28**
	Good	44	**51**
	Fair	8	**9**
	Poor	8	**9**
5.	**Current Smoking Status**		
	Every Day	4	**5**
	Some Days	3	**3**
	Not At all	80	**92**
6.	**Rating Risk of Cardiovascular Disease**		
	Same as Other	46	**53**
	Slightly	23	**26**
	High	7	**8**
	Very High	2	**2**
8.	**Having hypertension**	**23**	**26**
9.	**Having high cholesterol**	**25**	**29**
10.	**Have discuss prevention of CVD with their doctor**	**50**	**58**
11.	**Are aware of cardiovascular disease risk factors**	**50**	**58**
12.	**Perceived their weight as "right" for their health**	**39**	**45**
13.	**Overweight as per self-reported BMI**	**64**	**74**

It was interesting to know that majority of teachers (87%) reported their health status and physical fitness status from very good to fair. It was found that 66 (76%) teachers did not report any history of illness. Only Two (2%) participant perceive themselves as underweight, Forty nine (56%) as acceptable or healthy weight whereas Thirty six (41%) perceive themselves as overweight. Forty eight (55%) teachers feel that they don't have right weight for their health while Thirty nine (45%) feels that they are right weight for their health. Twenty three (26%) teachers said that they have been told that their blood pressure was high and Seventy two (83%) teachers reported they were not taking any medication for high blood pressure. Sixty three (72%) teachers had checked their blood pressure and Forty four (51%) checked their cholesterol in past 12 months. Majority of teachers; Sixty nine (79%) did not smoke 100 cigarettes in their life. Forty six (53%) teachers rated their risk of CVD same as others, Fifty (57%) teachers said that they are well informed about the risk factors of Cardiovascular Disease, Thirty eight (44%) teachers got information about Cardiovascular Disease by talking to doctors, Fifty six (57%) teachers said that they never discuss about prevention of CVD with doctor or health personnel.

3.1 Life Style Risk Factors and Knowledge of Cardiovascular Disease

The number of risk factors were combined together to determine whether a person was having a low risk of heart disease or high risk of having heart disease. According to American heart association, controllable risk factors for heart disease include tobacco smoke, both first and second hand smoke, high blood cholesterol, high blood pressure, physical inactivity, being overweight or obese, consumption of a substantial amount of alcohol and having uncontrolled diabetes mellitus[13].

Table 2. Descriptive statistics: Knowledge of Cardiovascular Disease and risk factors

No. of Risk Factor	N	Mean	SD
0	25	76.9600	15.20000
1	24	68.8333	17.37481
2	23	71.8261	17.82657
3	7	74.8571	13.40931
4	7	80.5714	16.39977
5	1	84.0000	

Therefore, we examined following risk factors; BMI, history of heart disease, having been told by health personnel or doctor that their blood pressure or cholesterol was high, not exercising in past month and status of being current smoker. It was seen that 25 (29%) teachers had no risk for cardiovascular disease, 24 (28%) had only one risk factor for heart disease and 38 (44%) had two or more risk factors of heart disease. (Table 2).

The number of risk factors were combined together to constitute two groups; low risk for heart disease (≤ 1) and high risk for heart disease (>1). These two groups were then compared with each other to examine whether they differ in knowledge of Cardiovascular Diseases and was there any effect of knowledge of Cardiovascular Disease on life style risk factors. An independent ttest was used to find any significance difference. Results were presented in Table 3.

Table 3. Comparison of knowledge of Cardiovascular Disease between low and high risk group

Group	N	Mean	SD	t	df	p
Low Risk Group	49	72.9796	16.64393	-.372	85	.711
High Risk Group	38	74.3158	16.60040			

There was no significance difference between low and high risk groups on knowledge of heart disease (t = -.372, p = .711). The mean HDFQ scores for low risk group were (72.97) while high risk group was (74.31). Although there is no significance difference between two groups, high risk group mean is higher than low risk group. From the results it was evident that greater awareness and knowledge of heart disease does not affect life style or risk factors of heart disease. It is interesting to know higher mean knowledge score in high risk group.

4. Discussion

Majority of teachers in the university perceive their physical fitness and health as good or above. It was surprising to know that more percentage of teachers perceive their physical fitness as good or above and this perception was highest in oldest age group. Nearly 40% of teachers perceive their body mass as overweight and yet majority of them perceive their health and fitness level as good. In spite of perceiving weight as acceptable by 50% teachers, majority of them do not feel they have right

weight for their health. This shows poor perception of body mass and health by teachers. This may have serious implications, as obesity is an important determinant of Coronary Heart Disease and overweight and obesity are highly prevalent in Saudi Arabia[14]. Despite falling in high risk category, 74% of such teachers perceive their health as good or above whereas 67% of such high risk group teachers perceive their health as good or above. It was again clearly showing misperception of teachers towards their general health. Teachers falling in low risk category were quite accurate in perceiving their health. Most of the teachers (96%) perceive their health as good or above. Higher risk groups teachers were unable to perceive their heath correctly which needs attention. Quite a large number of teachers had never checked their blood cholesterol. This is despite the fact that most of the participants have good understanding and knowledge of blood cholesterol. All the teachers who had hypertension are overweight and only half of them were involved in physical activity. A study done by Ibrahim et al. also revealed a higher prevalence of overweight and obesity among male (47.2%) at King Abdul Aziz University students in Saudi Arabia[15]. In spite of that 78% perceive their health as good or above. Out of 25 teachers who had high cholesterol, 88% were overweight and yet 76% perceive their health as good or above. Nearly 70% of them are involved in physical activities. Teachers did not perceive their health correctly. It was pleasing to know that majority of teachers did not smoked 100 cigarettes in their life. This reaffirms their awareness and knowledge about smoking, where they have identified smoking as one of the risk factor for heart disease. Only 21% teachers smoked 100 cigarettes or more which is similar to national trend of Saudi Arabia. According to study done by Bassiony, prevalence of current smoking among Saudi population ranges from 2.4 – 52.3% and was prevalent in all age groups[16].

4.1 Awareness towards Cardiovascular Disease

More than half of the teachers have rated that they are at same risk of Cardiovascular Disease as others. It was quite alarming because one fourth of teachers feel that they are at slightly higher risk of Cardiovascular Diseases. Majority of teachers agreed that they are not well informed about the risk of Cardiovascular Diseases. Only half of the university teachers had discussed with their doctor how to prevent Cardiovascular Disease. These findings indicate overall lack of access to information about Cardiovascular Disease. Coronary Heart Disease constitutes one of the main health problems in Saudi Arabia, representing the third most common cause of hospital-based mortality second to accident and senility[7]. Therefore, our finding assumes more significance and there is urgent need to have communication between teachers and physician with regard to prevention of Cardiovascular Disease.

4.2 Lifestyle and Knowledge of Cardiovascular disease

Improved general awareness is associated with greater personal awareness and increased actions to lower CVD risk[17]. Knowledge related to heart disease has been associated with health promotion behaviours[18,19]. The analysis of results revealed that there is no significant relationship between knowledge and awareness of Cardiovascular Disease and lifestyle habits. The higher risk group in teachers was seen to have more knowledge of Cardiovascular Disease than low risk group. Therefore, greater knowledge of Cardiovascular Disease does not affect the lifestyle and risk behaviour of teachers in the university. Possessing more knowledge does not indicate that people will be more involved in health promoting lifestyle and behaviour. McNeil and Artinian also found that there was no relationship between knowledge of cardiovascular risk factors and risk-reducing behaviours[20]. There was another study which found that knowledge does not necessarily lead to risk-reducing behaviour[21]. Almost half of the teachers are having two or more risk factors For Cardiovascular Disease, which is not consistent with their knowledge of Cardiovascular Disease. Our results were in line with other studies where perception of their heart disease was not related to their knowledge about heart disease risk[14]. Our study has few limitations, the sample size was not large enough. There could be possible differences between the teachers response compared to those teachers who did not respond. The results are just indicative and cannot be generalised to targeted population. We are unable to include the female participants because of cultural limitation and university being restricted to male teachers only.

5. Conclusion

There was no relation between knowledge of Cardiovascular Disease, lifestyle habits and risk factors in

teachers; teachers misperceived their general health and body mass; higher risk groups teachers were unable to perceive their heath correctly.

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7. References

1. Mendis S, Puska P, Norrving B. Global Atlas on Cardiovascular Disease Prevention and Control. World Health Organization. Heart Federation. 2011. p. 55.
2. BeLue R, Okoror TA, Iwelunmor J, Taylor KD, Degboe AN, Agyemang C, Ogedegbe G. An overview of cardiovascular risk factor burden in sub- Saharan African countries: A socio-cultural perspective. Globallization and Health. 2009 Sep; 5(10):1–10.
3. Okpechi IG, Chukwuonye IJ, Tiffin N, Madukwe OO, Onyeonoro UU, Umeizudike TI, Ogah OS. Blood pressure gradients and cardiovascular risk factors in urban and rural populations in Abia state South Eastern Nigeria using the WHO STEPwise Approach. PLoS One. 2013 Sep; 8(9):e73403.
4. Mabry RM, Reeves MM, Eakin EG, Owen N. Evidence of physical activity participation among men and women in the countries of the gulf cooperation council: A review. Obesity Reviews. 2010 Jun; 11(6):457– 64.
5. Gaziano TA, Bitton A, Anand S, Abrahams-Gessel S, Murphy A. Growing epidemic of Coronary Heart Disease in low- and middle-income countries. Current Problems Cardiology. 2010 Feb; 35(2):72–115.
6. WHO. Non-Communicable Diseases Country Profiles 2011. World Health Organization Geneva, Switzerland; 2011.
7. Kumosani TA, Alama, MN, Iyer A. Cardiovascular Diseases in Saudi Arabia. Prime Research on Medicine. 2011 Apr; 1(10):1–6.
8. Thilagamani S, Mageshwari SU. Risk appraisal for Cardiovascular Disease among selected young adult women in Coimbatore. Indian Journal of Science and Technology. 2010 Jun; 3(6):672–5.
9. Wagner JP, Lacey K, Abbott G, Groot M, Chyun D. Knowledge of heart disease risk in a multicultural community sample of people with diabetes. Annals of Behavioral Medicine. 2006 Jun; 31(3):224–30.
10. Wagner JP, Lacey K, Abbott G. Knowledge of heart disease risk among Spanish speakers with diabetes: The role of interpreters in the medical encounter. Ethnicity Disease. 2005; 15(4):679–84.
11. Wagner JP, Lacey K, Chyun D, Abbott G. Development of a questionnaire to measure heart disease risk knowledge in people with diabetes: the Heart Disease Fact Questionnaire. Patient Education Counselling. 2005 Jul; 58(1):82–7.
12. Centre for Disease Control and Prevention (CDC). Behavioural risk factor surveillance survey questionnaire. 2011. Available from: http://www.cdc.gov/brfss. 2007
13. American Heart Association. Risk factors and Coronary Heart Disease. 2013. Available from
14. http://www.americanheart.org/presenter.jhtml?identifier=4726
15. Jiles R, Hughes E, Murphy W, Flowers N, McCracken M, Roberts H, Ochner M, Balluz L, Mokdad A, Elam-Evans L, Giles W. Surveillance for certain health behaviours among states and selected local areas - Behavioural Risk factor Surveillance System: United States; 2003. MMWR Surveillance Summaries. 2005; 54(8):1-116.
16. Ibrahim K, Mahnashi M, Al-Dhaheri A, Al-Zahrani B, Al-Wadie E, Aljabri M, Al-Shanketi R, Al-Shehri R, Al-Sayes FM, Bashawri J. Risk factors of Coronary Heart Disease among medical students in King Abdulaziz University, Jeddah, Saudi Arabia. BMC Public Health. 2014; 14(1):411.
17. Bassiony MM. Smoking in Saudi Arabia. Saudi Medical Journal. 2009 Jul; 30(7):876–81.
18. Mosca L, Jones WK, King KB, Ouyang P, Redberg RF, Hill MN. Awareness, perception and knowledge of heart disease risk and prevention among women in United States. Archives of Family Medicine. 2000 Jun; 9(6):506–15.
19. Mosca L, Mochari H, Christian AH, Berra K, Taubert K, Mills T, Burdick KA, Simpson SL. National study of women's awareness, preventive action and barriers to cardiovascular health. Circulation. 2006 Jan; 113(4):525–34.
20. Thanavero JL, Moore SM, Anthony M, Narsavage G, Delicath T. Predictors of health promotion behavior in women without a prior history of Coronary Heart Disease. Applied Nursing Research. 2006 Aug; 19(3):149–55.
21. Oliver-McNeil S, Artinian NT. Women's perceptions of personal cardiovascular risk and their risk-reducing behaviors. American Journal of Critical Care. 2002 May; 11(3):221–7.
22. Avis NE, McKinlay JB, Smith KW. Is cardiovascular risk factor knowledge sufficient to influence behavior? American Journal of Preventive Medicine. 1990 May-Jun; 6(3):137–44.