ORIGINAL RESEARCH

Assessment of risk factors of cardiovascular diseases

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Received: 13 November, 2013 Accepted: 16 December, 2013

ABSTRACT

Background: In India, the prevalence of coronary heart disease has increased from 4% to 11% among urban populations during the last five decades. The present study was conducted to assess risk factors of cardiovascular diseases in the study population. **Materials & Methods:** 128 patients aged >30 years of both genders were provided with a pre-made, semi-structured questionnaire. The risk factors for physical activity and food patternextracted from the standard Integrated Disease Surveillance Program questionnaire was used. **Results:** Out of 128 patients, 63 were males and 65 were females. Physical activity low risk was seen in 11 males and 9 females, moderate risk in 25 males and 21 females and high risk in 27 males and 35 females. Diet score was low risk in 47 males and 41 females and high risk in 16 males and 24 females. There were 58 illiterates and 70 literates. 30 illiterates and 28 literates had high risk physical score. 35 illiterates and 53 literates had low risk diet score. **Conclusion:** The study population had a high prevalence of cardiovascular disease risk factors, with obesity (56%) and hypertension (46%) being the most notable, according to WHO guidelines. The literate group were found to have a significantly higher prevalence of a high-risk dietary pattern. Health education regarding cardiovascular disease prevention was provided to each respondent.

Keywords: Cardiovascular diseases, Diet score, Physical activity score

INTRODUCTION

With 16.7 million deaths, or 29.2% of all deaths worldwide in 2003, cardiovascular disease is the world's largest cause of death.[1] Although many developed nations have seen a more than 50% decrease in heart attack mortality since the 1960s, low- and middle-income countries—which include the majority of Asian countries—now account for 80% of all deaths worldwide from cardiovascular disease.[2] In India, the prevalence of coronary heart disease has increased from 4% to 11% among urban populations during the last five decades.[3]The potential consequence of this trend on one of Asia's fastest-growing economies makes it more concerning.[4]

Cardiovascular disease is the primary cause of death in India. However, it has been discovered that cardiovascular disease ranks third overall in terms of disease burden, with infectious and parasitic diseases and unintentional injuries coming in first and second, respectively.[5]Coronary heart disease mortality in India increased from 1.17 million in 1990 to 1.59 million in 2000. An urban prevalence of roughly 10% in individuals aged ≥35 is a reliable estimate based on multiple studies, albeit the prevalence varies by site, age group investigated, and diagnostic criteria utilized.[6]Over time, the prevalence of many risk factors for CVD is also likely to increase in developing countries due to higher levels of smoking, overweight, diabetes and high blood pressure. A range of factors contribute to this trend including the impact of industrialization, urbanization, globalization and affluence.[7]The present study was conducted to assess risk factors of cardiovascular diseasesin the study population.

MATERIALS & METHODS

The study was carried out on 128 patients aged >30 years of both genders. All gave their written consent to participate in the study.

Data such as name, age, gender etc. was recorded. A pre-made, semi-structured questionnaire wasused. A weighing machine, a measuring tape, a Mercury sphygmomanometer was used for measurements. The risk factors for physical activity and food pattern, which were extracted from the standard Integrated Disease Surveillance Program questionnaire was used.

These risk factors' prevalence and correlation with other sociodemographic parameters, including age, sex, and literacy level were examined.Results thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 128		
Gender	**Male**	**Female**
Number	63	65

Table I shows that out of 128 patients, 63 were males and 65 were females.

Table II Physical activity score

Physical activity score	Male	Female	P value
7-8 (low risk)	11	9	0.91
9-10 (moderate risk)	25	21	
11-12 (high risk)	27	35	

Table II shows that physical activity low risk was seen in 11 males and 9 females, moderate risk in 25 males and 21 females and high risk in 27 males and 35 females. The difference was non- significant (P> 0.05).

Table III Diet score

Diet score	Male	Female	P value
1-2 (low risk)	47	41	0.53
3-4 (high risk)	16	24	

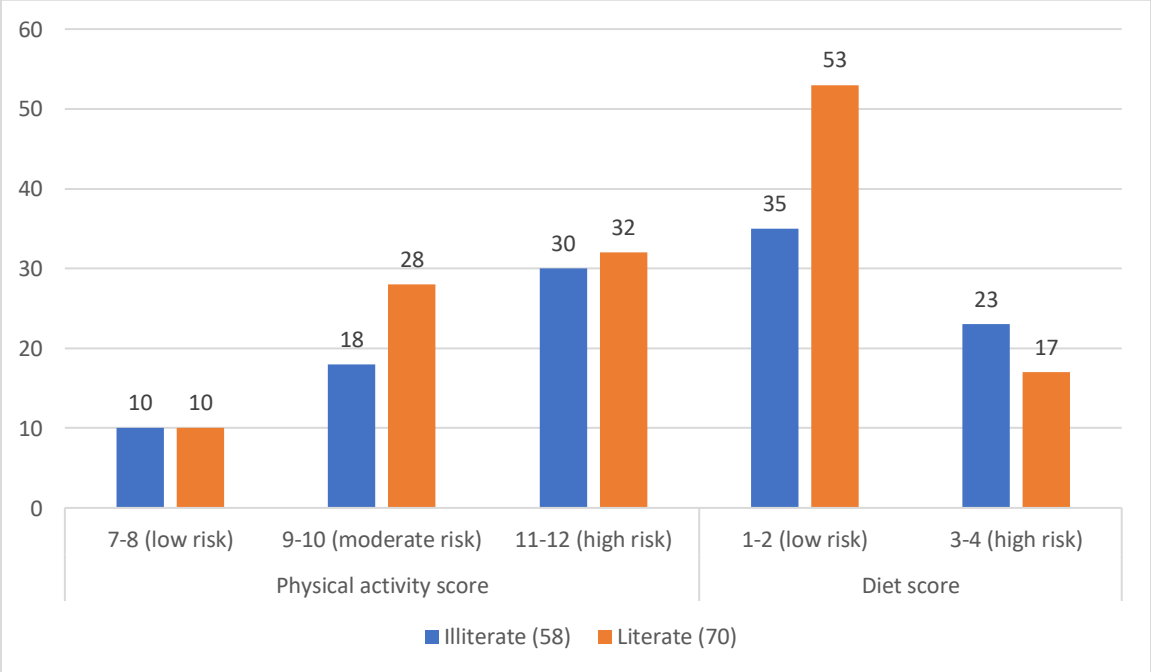
Table III shows that diet score was low risk in 47 males and 41 females and high risk in 16 males and 24 females. The difference was non- significant (P> 0.05).

Table IV Physical activity score and Diet score based on education level

Score	Value	Illiterate (58)	Literate (70)	P value
Physical activity score	7-8 (low risk)	10	10	0.88
	9-10 (moderate risk)	18	28	
	11-12 (high risk)	30	32	
Diet score	1-2 (low risk)	35	53	0.75
	3-4 (high risk)	23	17	

Table IV, graph I shows that there were 58 illiterates and 70 literates. 30 illiterates and 28 literates had high risk physical score. 35 illiterates and 53 literates had low risk diet score.

Graph I Physical activity score and Diet score based on education level



DISCUSSION

Cardiovascular disease (CVD) is predicted to be the most common cause of death globally, including in India, by 2026. The prevalence of CVD and its risk factors are high in migrant people of Asian Indian origin compared with the host population.[8] The growing burden of CVD4 is due to the increasing prevalence of cardiovascular risk factors such as diabetes, hypertension, dyslipidaemia, overweight or obesity, physical inactivity and use of tobacco.[9] It is known that CVD occurs at least a decade earlier in Asian Indians comparedwith Europeans.[10] India also perhaps suffers the highest loss in potentially productive years of life, as deaths due to CVD in persons in the age group of 35–64 years is high.[11]The present study was conducted to assess risk factors of cardiovascular diseases in the study population.

We found that out of 128 patients, 63 were males and 65 were females.We found that physical activity low risk was seen in 11 males and 9 females, moderate risk in 25 males and 21 females and high risk in 27 males and 35 females. Deb S et al[12] in their study, the highest physical activity score obtained by the study population was 12 out of maximum possible score of 14. Ideally, a score of 0 signified a minimum risk for cardiovascular disease but unfortunately, the minimum score that could be attained by the study participants was 7. In the 30ñ39 year old group, only 27% of thestudy population practiced high-risk physical activity. On the other hand, in the geriatric age group (>60 yrs),a majority (83%) of the study population practiced a high-risk physical activity pattern (P=0.0028). Besides, a high-risk physical activity pattern was practiced more by the literate and higher income group as compared with the illiterate and the relatively lower income group (66% vs. 51% and 72% vs. 49%, respectively). The number of females practicing high-risk physical activity was also slightly more when compared with males (61% vs. 58%). With regard to the dietary score, the lowest score obtained by the study population was 1 while the highest score secured was 4 (the minimum and maximum obtainable scores were 0 and 4, respectively).

We found that diet score was low risk in 47 males and 41 females and high risk in 16 males and 24 females. We found that there were 58 illiterates and 70 literates. 30 illiterates and 28 literates had high risk physical score. 35 illiterates and 53 literates had low risk diet score. Prabhakaran et al[13]conducted a cross-sectional survey among all employees aged 20-59 years of a large industry near Delhi (n=2935), to evaluate their cardiovascular risk profile--by employing a structured questionnaire and clinical and biochemical estimations. The presence of coronary heart disease was ascertained by evidence of its treatment, Rose angina questionnaire and Minnesota coded electrocardiograms. The results for 2122 men, in whom complete information was available, are reported here. The mean age was 42 years and 90% of the men were below 50 years of age. The prevalence of major CVD risk factors (95% CI) was: hypertension 30% (28%-32%), diabetes 15% (14%-17%), high serum total cholesterol/HDL ratio (> or = 4.5) 62% (60%-64%) and current smoking 36% (34%-38%). Forty-seven per cent of the respondents had at least two of these risk factors. Another 44% (95% CI: 42%-46%) had pre-hypertension (INC VII criteria) and 37% (95% CI: 35%-39%) had evidence of either impaired fasting glucose or impaired glucose tolerance. Thirty-five per cent (95% CI: 33%-37%) of the individuals were overweight (BMI > or = 25 kg/m2) while 43% (95% CI: 40%-45%) had central obesity (waist circumference >90 cm). The metabolic syndrome was present in 28%-35% of the individuals depending on the diagnostic criteria used. The prevalence of several risk factors and the metabolic syndrome was high with increasing age, BMI and waist circumference. A third of those who had hypertension (31.5%) and diabetes (31%) were aware of their status. Among those aware, adequate control of blood pressure and blood glucose was present in only 38% of those with hypertension and 31% of those with diabetes, respectively. Coronary heart disease was present in 7.3% of the individuals while 0.3% had a history of stroke.

The shortcoming of the study is small sample size.

CONCLUSION

Authors found that study population had a high prevalence of cardiovascular disease risk factors, with obesity (56%) and hypertension (46%) being the most notable, according to WHO guidelines. The literate group were found to have a significantly higher prevalence of a high-risk dietary pattern. Health education regarding cardiovascular disease prevention was provided to each respondent.

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