

Risk Factors for Cardiovascular Diseases Among Office Workers

Abida Sultana, Sayema Awais, Maqsood Hayat

Department of Community Medicine, Rawalpindi Medical College, Rawalpindi.

Abstract

Background : To measure the frequency of the risk factors for cardiovascular disease (CVD) among office workers and to assess the relationship between the demographic characteristics and the risk factors.

Methods: In this cross-sectional study a 20-item questionnaire especially designed for this study was distributed using non-probability convenience sampling. The variables included demographic characteristics, lifestyle behaviours and family history of the subjects - factors that have been identified as risk factors, both modifiable and non-modifiable, for cardiovascular diseases.

Results: Among the participants in our study, the frequency of smoking, hypertension, diabetes and angina/myocardial infarction was found to be 19%, 24%, 9% and 7%, respectively. Risk factors that turned out to be important among office workers were age, family history, high cholesterol levels and occupational stress.

Conclusion: Among office workers, the risk of CVDs caused by occupational stress is relatively higher since their jobs demand strict obligations and meeting of deadlines.

Key words: Cardiovascular Diseases, Office workers, Risk factors.

Introduction

Cardiovascular disease has been identified as the most common cause of death worldwide. In 2012, as many as 17.5 million people succumbed to death as a consequence of cardiovascular diseases (CVDs) accounting for 31% of deaths globally. 80% of these deaths were documented in the developing countries.¹ CVDs are also responsible for loss of 18% of DALYs (Disability-Adjusted Life Years) in the developed world and 10% loss of DALYs in countries with low/middle income.²

Moreover, among South Asians, coronary heart disease (CHD) and cardiovascular mortality is higher when compared with Europeans.³ In SAARC countries, the prevalence of hypertension, in particular, has been documented to be greater than the global average⁴. Moreover, in Pakistan, 19% of deaths

are attributed to CVD.⁵ Latest studies have shown that among Pakistanis, the prevalence of hypertension is around 25%^{4, 6} and the prevalence of diabetes is 9.5%.⁶ CVDs are dependent upon a combination of risk factors both modifiable and non-modifiable which include age, gender, weight, lack of physical activity, family history of cardiovascular disease, serum cholesterol level, coexisting diabetes mellitus, smoking and preexisting vascular diseases.⁷

White collar/office workers face more psychosocial demands as opposed to blue collar workers who are challenged physically in their respective fields.⁸ Long working hours leading to lack of physical activity have been related to a higher chance of developing CVDs. Office hours longer than 48 hours a week are positively associated with obesity and inversely associated with HDL-cholesterol.⁹ According to a study done in Ghana physical inactivity and the raised BMI among young adults predisposes to CVDs.¹⁰ Work-related factors are also important determinants in the development of CVDs as shown in a study comparing professional chefs and office workers.¹¹ Office workers were found to have greater prevalence of hypertension (37.5%) than the chefs but the chefs were found to have overweight/obesity (58.3%) as one of the most frequent risk factor observed among them.¹²

Subjects and Methods

This is a cross-sectional study in which data was collected from 15th to 21st of April, 2015 from 100 office workers employed in the offices of Islamabad and Rawalpindi. Non-probability convenience sampling was used. A 20-item semi-structured questionnaire was used to assess the frequency of risk factors for cardiovascular diseases. The questionnaire was specifically designed for this study and distributed among the office workers. Ethical obligations were fulfilled by obtaining informed consent from the participants and ensuring confidentiality.

The questionnaire included demographic details, family history, past history regarding diabetes, hypertension, hypercholesterolemia and MI. Lifestyle factors that were investigated included physical inactivity, smoking, dietary preference for home-made food and occupational stress. Those who smoked even

a single cigarette daily were categorized as smokers while those who had never smoked or had quit smoking 5 or more than 5 years ago were classified as non-smokers. Those who had a BMI of 25-29.9 were classified as Overweight and those with a BMI of 30 or more were declared obese as per the recommendations of WHO. Data analysis was done using the SPSS version 20.0. The proportion of office workers having different risk factors was calculated. Then using cross tabs, the relationship of each factor was assessed with demographic characteristics and with the diagnosis of CVD was assessed keeping level of significance at 95% and a p value < 0.05.

Results

The sample consisted of 100 office workers. The participants included 89 % males and 11% females. In age profile 35 % were 25-35 years of age, 15% were 36-45 yrs, 34 % fell in the 46-55 yrs age bracket and 16% were above 55 yrs or older. 51 % of the office workers had been working in an office for 20 or less than 20 years and 49% had more than 20 years of work experience in an office. 25 % of them earned more than Rs. 100,000/month while the majority (39%) had a monthly salary of Rs. 50-100,000. 36 % was earning less than Rs. 20,000/month. Most of the office workers had always been non-smokers (76%). 5 % had quit smoking within the last 5 years and 19% were smokers. Nineteen percent of the office workers were found to be obese with a BMI of 30 or above while 38% were found to be overweight (BMI = 25-29.9). 10% had been diagnosed with diabetes mellitus whereas hypertension and hypercholesterolemia were found among 24% of the participants. 9% of the office workers in our study had already had an attack of Angina/ Myocardial Infarction. 43% of the participants exercised regularly while 56% reported that they did not exercise regularly. Sitting hours for the majority (48%) ranged from 6-8 hours and for 34% more than 8 hours and 18 % reported less than 6 hours of sitting as a routine. 75% brought home-made food for lunch whereas only 25% ordered food from restaurants. 13% reported a lot of stress due to their job obligations whereas 15 % attributed no stress to their jobs. (Table 1). Regarding family history of Hypertension, DM and Angina/ MI, 19% reported that none of the disease ran in their families, 20% reported family history of all of them (Table 2). When cross tabulation was done, significant relationship was found between increasing age and the prevalence of diabetes mellitus (p= 0.013), hypertension (p=0.000), Angina/ MI (p=0.010) and high cholesterol levels (p= 0.000). Also significant was the prevalence of diabetes with increasing salary indicating that diabetes is increasingly prevalent with

improving socioeconomic status--in the case of this study with increasing monthly salary (p = 0.019). Hypertension was found to be associated with positive family history (p= 0.007), with obesity (p=0.028) and with occupational stress (p= 0.011). High cholesterol levels were also found to have a significant association with positive family history of CVDs (p= 0.030).

Table 1. Occupational stress reported by office workers

A lot of stress	13%
Moderate stress	35%
Mild Stress	37%
No Stress	15%

Table 2. Risk factors in family history of office workers

Family History of	
Hypertension	19%
Diabetes Mellitus	20%
Angina/Myocardial Infarction	7%
All of the above	20%
>1	14%
None of the above	19%

Discussion:

In our study, we found that 19% of the office workers were smokers while the prevalence of current cigarette smokers in Pakistani population is 13.1% according to the latest data available from WHO.¹³ In a study on young adults in Pakistani university students, smoking prevalence was found to be 23% with a preponderance of males.¹⁴ Our study, therefore, highlights that office workers are smoking more than the general population. In our study, 20% office workers were found to be obese. Recent trends in Pakistan show that one third of the population falls in the obese category and when compared with the global trends (37% obesity), this shows lower prevalence of obesity among the office workers.¹⁵ In terms of obesity, 20% of the subjects in our study were found to be obese and more than one third were found to be overweight. A study done in Iran on adult male population of the Fars province reported that of their total subjects 33% were overweight and 1 in every 10 was obese.¹⁶ The difference can be due to the difference in lifestyle between different cultures. Regarding hypertension, in our study population 24% of participants were found to have hypertension which is almost the same as the prevalence of hypertension in the general Pakistani population (25%).⁴ Among the office workers, occupational stress had a strong relationship with hypertension (p=0.011). Similar study done in Serbia, involving middle-aged (35-60)

men and women, revealed a significant correlation between increasing occupational stress and increase in arterial hypertension.¹⁷ A study in Poland comparing women working in different fields found that particularly among women office workers, the increase in stress at the workplace was associated with increasing hypertension.¹⁸

Socioeconomic status (SES) had a strong relationship with the prevalence of diabetes ($p=0.019$). Subjects who belonged to a higher SES were more likely to develop diabetes than those who belonged to lower SES.²⁰ However, our results were in contrast to a study done in Korea where they found an inverse relation between SES and prevalence of diabetes.²¹ This comparison highlights that the lifestyle factors prevalent in the higher social strata in the sub-continent influence the development of diabetes consequent upon the socioeconomic factors whereas other cultures may have different lifestyles in lower SES and thus different patterns of disease may appear in different social classes.

Conclusion

1. Majority of office workers had the same or lower prevalence of risk factors of CVD as the general Pakistani population. The most important risk factors were smoking, age, family history and occupational stress.
2. Workplace wellness programs are an important strategy to prevent the major shared risk factors for CVD including cigarette smoking, obesity, hypertension, hypercholesterolemia, physical inactivity, and diabetes.
3. Anti-smoking campaigns should be initiated. Adoption of a physically active lifestyle should be encouraged. Stress management/reduction techniques should be taught. Screening programmes and early treatment should be part of the package offered to office workers.
4. Ensuring access to healthy foods, encouraging weight management programmes as well as changes in the work environment to reduce stress have to be included in the employer's responsibilities.

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