

HOW FREQUENT ARE CARDIOVASCULAR RISK FACTORS IN LAWYERS?

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Contribution

All the authors contributed significantly to the research that resulted in the submitted manuscript.

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ABSTRACT

Objective: The aim of this study was to know the frequency of CVD risk factors in lawyers of Peshawar.

Methodology: Data for this study was derived from Peshawar Heart study (PHS). PHS is big trial which is being conducted by Cardiology Department Lady Reading Hospital, Peshawar to determine various cardiovascular risk factors in various occupational groups of Peshawar.

Results: A total of 252 lawyers from district Peshawar were recruited in PHS. Male were 249(98.6%) while 03(1.2%) were female. Mean age was 41.37 ± 9.93 years (range 25 to 79 years). Mean duration of practicing was 13.09 ± 10.95 years. Mean duration of regular exercise was 17.02 ± 29.30 minutes and 84 (33.3%) were doing regular exercise and 168(66.7%) were not performing exercise. Out of 252 lawyers 57(22.6%) were cigarette smokers, 12(4.6%) were naswar addicts. Mean BMI was 27.86 ± 4.1 Kg/m² and 64.3%(162) had their BMI ≥ 27 kg/m². Mean cholesterol was 182.38 ± 28.70 mg/dl and 42.5%(107) had their cholesterol ≥ 180 mg/dl. Mean RBS of lawyers was 113.78 ± 48.74 mg/dl and 16.7%(42) had their RBS of ≥ 140 mg/dl. Mean systolic blood pressure and mean diastolic blood pressure were 134.09 ± 19.05 mmHg and 87.66 ± 11.71 mmHg respectively and 38.5%(97) had their systolic ≥ 140 mmHg and 58.7%(148) had their diastolic blood pressure ≥ 90 mmHg respectively. Out 252 lawyers 24.6%(62) had positive family history of (CAD).

Conclusion: Most of the lawyers were obese, indulged in tobacco use, had their RBS and total cholesterol elevated, as well as high systolic and diastolic blood pressure.

Key Words: RBS, Cholesterol, Systolic and Diastolic blood pressure, Tobacco use.

INTRODUCTION

At the beginning of the 20th century, cardiovascular disease (CVD) was responsible for fewer than 10% of all deaths worldwide, today, that figure is about 30% with 80% of the burden now occurring in the developing countries.¹ In developing countries, CVD causes twice as many deaths as HIV, malaria, and tuberculosis.² Between 1990 and 2020, coronary heart disease (CHD) alone is anticipated to increase by 120% for women and 137% for men in developing countries, in comparison with age related increases of between 30% and 60% in developed countries.³ Given the nearly \$400 billion in direct and indirect annual costs related to cardiovascular disease (CVD) in united state in 2006, the economic implication of this problem are equally important for sustainability of many developing countries.⁴

This is further compounded by the fact that such a high proportion of CVD burden occurs among adults of working age in developing countries. This can lead to large impact on a developing country's economic viability. The potential loss due to early CVD was evaluated in recent report A Race against Time.⁵ The Indian subcontinent (including India, Pakistan, Bangladesh, Sri Lanka, and Nepal) is home to 20 % of the world's population and may be one the regions with highest burden of CVD in the world. The Indian subcontinent suffers from a tremendous loss of productive working years due to CVD.⁶ CVD has been reported to be the leading cause of morbidity and mortality in the world including Pakistan. Life-style related risk factors are associated with increased risks of cardiovascular disease. Since individual's life-style can be changed, these factors are regarded as modifiable. Lack of exercise can be regarded as an example of life-style related risk factor for CVD there are many risk factors associated with CVD.⁷

The major risk factors, tobacco use, alcohol use, high blood pressure (hypertension), high cholesterol, obesity, physical inactivity, unhealthy diets, have a high prevalence across the world.⁸ Most Studies of the relation between work and socioeconomic groups and ischemic heart disease were performed in western populations and to extent to which their findings hold in Asian population is largely unknown.^{9,10}

The aim of this study was to know the frequency of cardiovascular risk factors in lawyers of Peshawar and device a strategy for prevention of CVD.

METHODOLOGY

This was a cross-sectional study involving lawyers (working at district courts and high court Peshawar) recruited in Peshawar Heart Study (PHS). Data on lawyers recruited in Peshawar Heart Study was analyzed for frequency of cardiovascular disease (CVD risk factors like diabetes (DM), hypertension, smoking, obesity, hypercholesterolemia,

physical inactivity, family history CAD, etc.

Data on demographic, lifestyle, socioeconomic and health related variable were collected using questionnaire validated in Urdu a national language of Pakistan. Physicians at mobile examination centre performed a standard physical examination that included two blood pressure reading obtained in the sitting position, from right arm, 20 minute apart, using mercury sphygmomanometer. Trained technician performed anthropometric examination. Weight (wt) and height (ht) were recorded when a subject was in light cloths and without shoes. Body mass index (BMI) was calculated as wt in kilogram divided by height in meter square. Waist circumference was measured (to the nearest 0.1 cm) at the highest point of iliac crest, while hip circumference was measured over the maximal gluteal protuberance as viewed from lateral position. History regarding physical activity was obtained. History regarding ghee (trans saturated fat) intake was taken. Similarly family history of CAD in first degree relative was taken. Non fasting blood chemistry including blood glucose and cholesterol were studied using the reflotron multiphase biochemical analyzer. A 12 lead ECG was recorded of each subject. Hypertension was defined as a mean systolic blood pressure (BP) of ≥ 140 mmHg or diastolic BP ≥ 90 measured 20 minute apart, on 2 separate occasion or taking antihypertensive medication.¹¹ Diabetes was defined as random blood glucose of ≥ 140 mg/dl or those with known history of diabetes.¹² Hypercholesterolemia was defined as random blood cholesterol of ≥ 180 mg/dl or taking medications for elevated chelsterol.¹² Overweight was defined as subject having BMI of ≥ 23 kg/m.² and ≤ 26 kg/m.² while obesity was defined as subject was having BMI of ≥ 27 kg/m.² or waist circumference of ≥ 80 cm for women and ≥ 90 cm for men.^{12,13} Exercise was defined by the following activity as walking or running etc for at least 20 minute at least 3 times a week.¹¹ Tobacco use was defined according to current use of cigarette or beddies or huqqa (tobacco in water or chewing tobacco or snuffing tobacco while ex smoker were define those who has quitted smoking one year back.¹¹ Cardiovascular (CVD) was defined as if they had coronary artery disease (CAD) defined as self report of physician's diagnosis of angina pectoris or myocardial infarction (MI) silent myocardial infarction (defined as the presence of major Q waves by Minnesota criteria in the absence of as history of myocardial infarction) , coronary artery bypass grafting (CABG), percutaneous coronary intervention or cerebrovascular accident (CVA) defined by history of stroke.¹⁴ Family history of coronary artery disease (CAD) was considered positive if first degree relative had suffered CAD at age men ≤ 45 years and women ≤ 50 years.

For data analysis SPSS version 15 was used. Mean \pm SD was used for age distribution and for continuous variables like height, weight, age, BMI, cholesterol and blood sugar,

mean±SD was calculated. For categorical variables like ethnicity, gender, marital status and tobacco use, proportions was used. The descriptive analysis was done for demographic, socioeconomic, family history, physical and behavioral characteristics.

RESULTS

A total of 252 lawyers from district Peshawar were recruited in Peshawar Heart Study (PHS). Male were 249(98.6%) while only three (1.2%) were female. Their mean age was 41.37±9.93 years (range 25 to 79 years). Mean duration of practicing law was 13.09±10.95 years (range 1 to 53 years). Mean duration of regular exercise was 17.02±29.30 minutes and 84(33.3%) were doing regular exercise and 168 (66.7%) were not performing any exercise. Those who used to do exercise 24.3%(61) used to do walking, 1.6%(4) bicycling, 5.2%(13) jogging and 1.6%(4) weight lifting. Main reason for not doing exercise was lack of time.

Out of 252 lawyers 57(22.6 %) were addicted to cigarette, 12 (4.6%) were addicted to naswar and 13(5.2%) were ex-

smokers. Alcohol addicts were 8(3.2%). Mean BMI was 27.86±4.1Kg/m² and 64.3%(162) had their BMI ≥27kg/m². Mean waist circumference was 96.17±13.026 cm (range 61 to 192) and 75.40 %(190) had their waist circumference ≥ 90cm thus obese by waist circumference. Mean cholesterol was 182.38±28.70 mg/dl and 42.5 %(107) had their cholesterol ≥ 180mg/dl. Only 02(0.8%) were aware about raised cholesterol and were taking medication. Mean RBS of lawyers was 113.78±48.74 mg/dl and 16.7%(42) had their RBS of ≥ 140 mg/dl. Twenty(7.9%) were known diabetic and were taking anti-diabetic medication. Mean systolic blood pressure and mean diastolic blood pressure were 134.09±19.05mmHg and 87.66±11.71mmHg respectively and 38.5 %(97) had their systolic ≥ 140mmHg and 58.7%(148) had their diastolic blood pressure ≥ 90mmHg respectively. Out of 252 lawyers 27(10.7%) were known hypertensive and were taking medication for hyper-tension. Out 252 lawyers 24.60%(62) had positive family history of coronary artery disease (CAD). Table 1 summarizes the risk factors in lawyers and Table 2 shows the current medical status of lawyers.

Table 1: Cardiovascular Risk Factors in Lawyers

Risk Factors	Frequency	Percentages
Diabetes	42	16.7 %
Hypertension		
(Systolic BP ≥ 140mmHg)	97	38.5 %
(Diastolic BP ≥ 90mmHg)	148	58.7 %
Tobacco use	57	22.6 %
Obesity	162	64.3 %
Hypercholesterolemia	42	16.7 %
Physical inactivity	168	66.7%
Positive family history	62	24.60%

Table 2: Current Medical Status (n=252)

Disease	Frequency	Percentage
Hypertensive	27	10.7%
Diabetics	20	7.9 %
CAD	06	2.4%
Hypercholesterolemia	02	0.8%

DISCUSSION

In INTERHEART study, Yusuf et al identified 09 risk factors which were responsible for acute myocardial infarction in >90 % of cases.¹⁴

In our study mean BMI was $27.86 \pm 4.1 \text{ kg/m}^2$. Using Asian specific definition of overweight and obesity 64.3% of our study population was obese. A study conducted by Jaffar et al, showed that 25% of the Pakistani population were obese using Asian specific BMI cutoff value $\geq 25 \text{ kg/m}^2$.¹² The higher prevalence of obesity in our study may be because we conducted the study in group with sedentary life style. This revised BMI threshold for defining obesity and overweight have been challenged by critics in subpopulation on the ground that these thresholds may not be associated with adverse outcomes.^{15,16} However data for Chinese subjects aged 40 years or over revealed a U shaped association of BMI with 10-years all cause mortality rates, with the least risk of death at BMI of less than 21 kg/m^2 in men and less than 22 kg/m^2 among women.¹⁷ Jaffar et al, have also found an independent association between a BMI of ≥ 23 and the presence of hypertension, diabetes and serum cholesterol concentration.¹²

In present study we defined diabetes as RBS $\geq 140 \text{ mg/dl}$ or those who were known diabetics and taking medication for diabetes. This definition was based on old criteria and diverged from the recent standard criterion of fasting blood sugar of $\geq 126 \text{ mg/dl}$.¹⁸ Using this definition in our study 16.7% (42) were diabetic. The frequency of diabetes in our study is comparable with that of study conducted by the Diabetes Epidemiology Study Group in India (DESI) in several urban city of India, in which the prevalence of diabetes in Mumbai was 9.3%, in Delhi 11.6, in Calcutta 11.7%, in Bangalore 12.4%, in Chennai 13.5%, and in Hyderabad 16.6%.¹⁹ The prevalence of diabetes in Pakistan was 11.47% in people aged above 25 years acquired through survey conducted in 04 province of Pakistan, thus our result is comparable.²⁰

In our study, 38.5% had systolic hypertension, 58.7% diastolic hypertension, and known hypertensive taking antihypertensive medications were 10.7 %. Wolf-Maier et al, the prevalence of hypertension was found to be 37.7% in Italy, 38.4% in Sweden 41.7% in England, 48.7% in Finland, 46.8% in Spain, and 55.3% in Germany.²¹ The result of our study can be compared with this study of Wolf-Maier. Similarly Pooled epidemiological studies show the average prevalence of hypertension in India is 25% in urban and 10% in rural population.²² The National Health Survey of Pakistan (NHSP) conducted during 1990 to 1994 highlighted the magnitude of the burden of hypertension in Pakistan and according to this survey hypertension was shown to affect 18% of adults >15 years and 33% of adults >45 years; however, <3% had their BP controlled to 140/90 mm Hg or

below.²³ Thus our study can be compared to this national representative study of Pakistan.

In present study 42.5% had their cholesterol $\geq 180 \text{ mg/dl}$ and 0.8% was already on medication for hypercholesterolemia. Iqbal et al, conducted study in Karachi in which they showed that 31% people were having hypercholesterolemia.²⁴ Similar study was conducted by Ishaq et al, in which 37% people were having hypercholesterolemia.²⁵ Thus the result of hypercholesterolemia in this study can be compared with other study conducted in Pakistan.

Physical inactivity is of major importance in public health because it is highly prevalent and potentially modifiable.²⁶ The current guidelines on cardiovascular prevention recommend at least 30 minutes of moderate intensity physical activity on five or more days of the week or 20 minutes of vigorous exercise on three days of the week.²⁷ In our study 33.3% of subjects used to do regular exercise while 66.7% were not performing any kind of exercise. Barnes et al, and Stamatakis et al, stated that an estimated 60% of global population is failing to meet the amount of physical activity as advised in guidelines.^{28,29}

In present study 24.60% lawyers had positive family history for CAD. A reported "family history" of premature cardiovascular disease (CVD) is an independent risk factor for CVD and has been a recommended risk stratification marker in US guidelines for hypertension and hyperlipidemia treatment.^{30,31}

We also asked for the use of different form of tobacco and found that 22.6% were addicted to cigarette and 4.6% were addicted to naswar. According to CDC the prevalence of smoking among young adults ages 18 to 24 years old is >26%, the highest of any adult age group in the United States.³² A recent national survey conducted by Reddy and his colleagues revealed that more than 25% of adolescents aged 13 to 15 years in India had used tobacco, and 17% reported current use.³³ The prevalence of tobacco use is 36.9% (31.8%-42.3%) in Pakistan in different surveys.^{34,35} Qureshi et al, showed that 18.8% doctors were current smokers and 4.3% were addicted to Naswar.³⁶ Tobacco use in our study is comparable in other international and national surveys.

CONCLUSION

Most of the lawyers were obese, indulged in tobacco use, had their RBS and total cholesterol elevated, as well as high systolic and diastolic blood pressure. Thus cardiovascular risk factors were common in lawyers.

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