FREQUENCY OF CARDIOVASCULAR RISK FACTOR BETWEEN LAWYERS AND TEACHERS.

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

All authors declare no conflict of interest.

ABSTRACT

Objective: To compare the frequency of cardiovascular risk factor between lawyers and teachers.

Methodology: The study was conducted by PGMI, LRH and data was collected from lawyers and teachers working in Peshawar. Total 418 subjects were included in this study 209 from lawyers and school teachers and sampling technique was simple random.

Results: Total 418 subjects were recruited in this study. Two hundreds and nine subjects were randomly selected each from lawyers and government school teachers of districts Peshawar. Both sexes were recruited in this study. Out of 209 teachers male were 67 %(140) and female were 33 %(69) while lawyers were predominantly male 99 %(207). Out of 418 subjects 226(54.1%) were not performing any exercise, 115(27.5%) used to perform exercise < 3 times/week and 77(18.4%) used to do exercise > 3 times/week as shown in. There was no statistical significance association between diabetes, hypertension and hypercholesterolemia and profession. There was a significant association between professional categories and saturated Trans Fat intake and Exercise. There were more lawyers 37 (17.7%) who had RBS ≥140 mg/ dl than teachers19 (9.1%) and it was statistically significant p-value 0.010.

Conclusion: Obesity was common both in teachers and lawyers but more teachers had BMI$\geq$25kg/m^2.
More lawyers had RBS in diabetic ranges as compared to teachers
Hypercholesterolemia was also more common in lawyers than in teachers.

Key Words: Random blood sugar, cholesterol, diabetes, hypertension

INTRODUCTION

Ischemic heart disease is expected to increase by (120 % in women and 137 % in men) in developing countries between 1990 and 2020 which is greater than developed country (29% and 48%) respectively1. South Asia (India , Pakistan , Bangladesh, Srilanka,Nepal which makes 25% of global population but is responsible 60% of global cardiovascular disease burden2. It is important to recognize that people of South Asia develop coronary artery disease(CAD) at younger ages, die of CAD at younger age and develop higher CAD associated morbidly 3. The prevalence of CAD in rural South Asia is 3 to 4 % while in the urban area of South Asia and in those who are migrated to western country is around 10 %4.   INTERHEART study (an international case-control study examining risk factors for initial MI in 52 countries, including 12,000 cases of initial MI and 14,000 controls) that 9 modifiable risk factors (smoking, DM, lipids, central obesity, hypertension, diet, physical activity, alcohol consumption, and psychosocial factors) are responsible for more than 90% of initial cases of myocardial infarction5. There is an epidemic of diabetes in the U.S. and throughout the world6. In diabetic people the major cause of death is cardiovascular disease and almost all prospective studies have shown that   diabetes increases cardiovascular risk two to three fold7. The number of people with diabetes worldwide is projected to increase from 171 million in 2000 to 366 million by 2030 thus diabetes will reach to pandemic level by years 2030 and it is major public health care problem worldwide8. This increase in diabetes will be noticeable in developing world, where the number of diabetic people is estimated to increase from 84 million to 228 million9. Type 2 diabetes is also increasing in epidemic proportion in India ,it is most prominent in urban India where it is increasing steeply in the last decade from 8.3% in 1992, 11.6% in 1997, to 15.5% in 200510. The overall prevalence of hypertension in year 2000 was estimated to be 26.4% of the world population and it is estimated to increase by 60 % to approximately 1.56 billion   by years 202511. pooled epidemiologic studies show the prevalence of hypertension in rural India is 10 % while it is 25% in urban India12. Hypertension, the most common risk factor for CVD and it is also one of the major public health problem in Pakistan as well where its prevalence is about 18 % in people with >15 years of age and 33 % in adult age $\geq$ 45 years13. In Europe obesity is responsible for about 80% of diabetes , 55% of hypertension and 35 % of ischemic heart disease (IHD) 14. In the past 25 years obesity has increased markedly in USA reaching epidemics level and the prevalence of obesity among aged 20 to 74 years   rising from 13 to 31 %15. According to the Asian-specific BMI cutoff value of 23 kg/m2 , 25 % of Pakistani population are overweight or obese and 10.3% are   obese according to the BMI cutoff value of 27 kg/m2,16. The causative relationship between smoking and coronary heart disease (CHD) is well established, with relative risks (RRs) or odds ratios (ORs) estimated between 1.5 to 3 or higher17. The prevalence of   various form of tobacco use in Pakistan is 36.8 % (31.8 to 42.3%) as shown in different survey18. One of the most common modifiable risk factor for CVD is high cholesterol level both in western world as well as in Asian population17. The beneficial effect of physical activity on cardiovascular risk has been proved in allot of prospective studies19.

The rationale behind our study was to find out the cardiovascular risk factors among lawyers and teachers of district Peshawar

OBJECTIVE OF THE STUDY

To compare the frequency of hypertension, diabetes mellitus, hypercholesterolemia, tobacco use, family history of CAD, saturated trans fat intake (ghee, hydrogenated butter) obesity, physical inactivity in the government school teachers and in lawyers of district Peshawar.

METHODOLOGY

The study was conducted by PGMI, Lady Reading Hospital and data was collected from lawyers and teachers working in Peshawar.

Data was entered and analyzed using SPSS version 17. Frequency and percentage was calculated for all variables like gender, profession, hypertension, diabetes mellitus, hypercholesterolemia, tobacco use, saturated Trans Fat intake etc. and these frequencies and percentages was presented through graphs. Chisquare / Fischer exact test was applied to compare the difference between target value and observed value. Mean and standard deviation was computed for normally distributed variables. Independent Sample t-test/Mann-Whitney U test was applied to check difference between quantitative independent variables like Age, Height, Weight and duration of job in years and categorical variable i.e. Profession categories.

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RESULTS

Total 418 subjects were recruited in this study. Two

**Table 1: Proportion of Profession categories according to saturated
Trans Fat intake and Exercise and statistical significance association between these variables.**

Profession Categories		
Teachers N(%)	Lawyers N(%)	P-value
Saturated Trans Fat Consumption		
No	78.(37.3) 98(46.9)	
< 4 day/week	65(31.1) 68(32.5)	0.027
> 4 day/week	66(31.6) 43(20.6)	
Excerise		
No Excercise	97(46.4)	129(61.7)	
< 3 times /week	69(33.0)	46(22.0)	0.006
> 3 times /week	43(20.6)	34(146.3)	

Figure 1: Percentage distribution of Profession according to Exercise categories
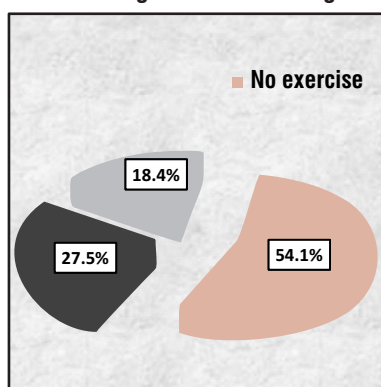

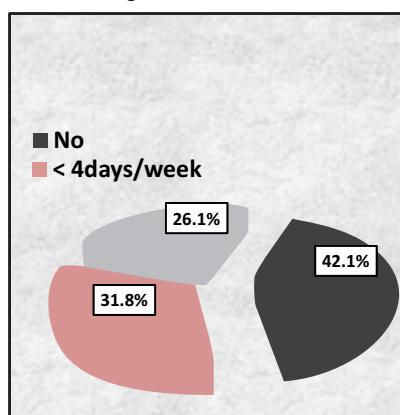**Figure 2: Percentage distribution of Profession according to Saturated Fat intake**

Figure 3: Frequency Distribution of Profession according to Hypertension, Diabetes Mellitus and Hypercholesterolemia
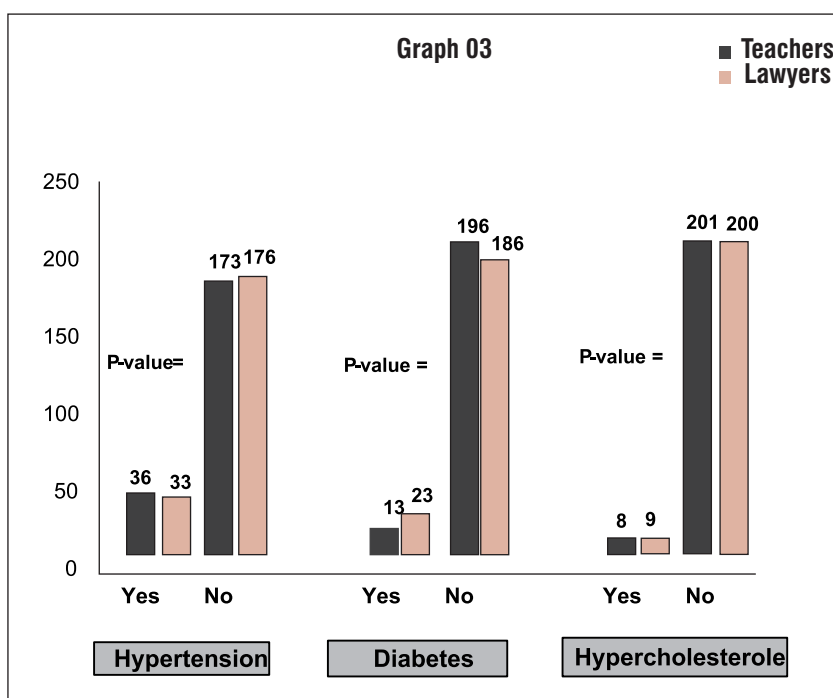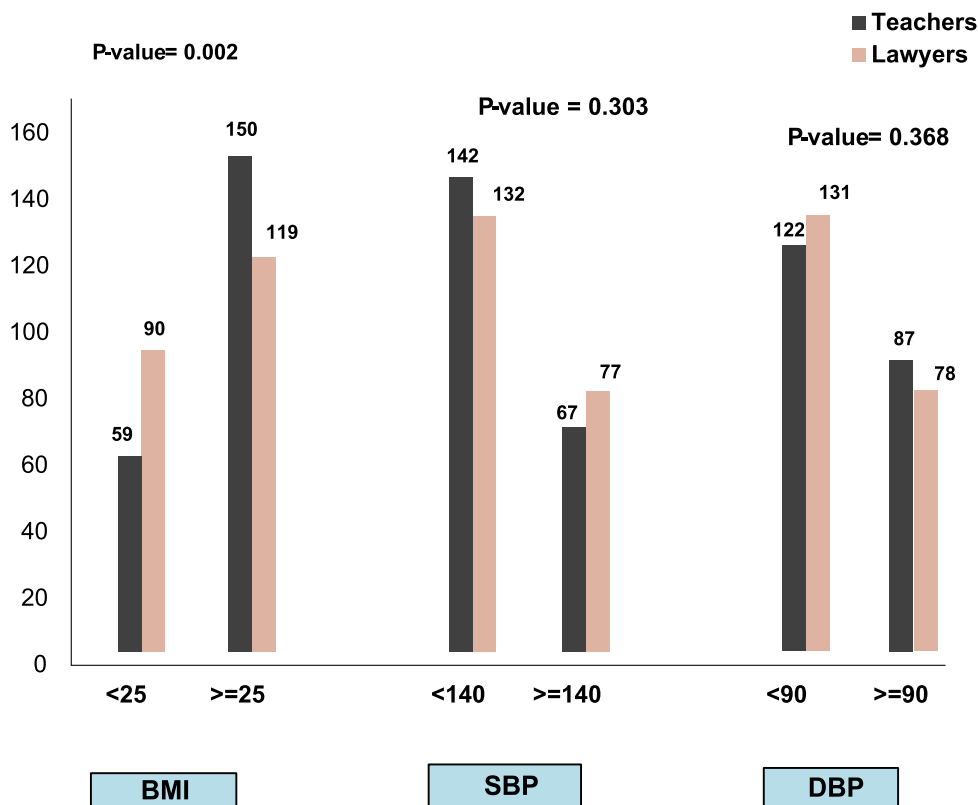
Figure 4: Frequency distribution of Profession according to BMI, SBP and DBP

hundreds and nine subjects were randomly selected each from lawyers and government school teachers of districts Peshawar. Both sexes were recruited in this study. Out of 209 teachers male were 67 %(140) and female were 33 %(69) while lawyers were predominantly male 99 %(207) . The mean age of the teachers was 41.84±9.7 years while mean age of the lawyers was 41.19±12 years. Mean duration of job of the teachers was 17.62±10.09 years and mean duration of job of lawyers was 13.42±10.77 years. While overall in both groups the gender distribution was male 347(83%) and female were 71(17%). Out of 418 subjects 226(54.1%) were not performing any exercise, 115(27.5%) used to perform exercise < 3 times/week and 77(18.4%) used to do exercise > 3 times/week as shown in .

In 418 subjects 273 (65.3 %) were not addicted to any type of tobacco, 105(25.1%) were smokers and 39(9.1%) were addicted to naswar and 1 person were using both cigarette and naswar. In our study 269(64.4%) persons were having BMI ≥25 kg/m2   and 149(35.6%) were having BMI of < 25kg/m2.. Out of 418 persons 176 (42.1%) persons were not taking any saturated fats and 133 (31.8%) were using saturated fat < 4days/week and 109 (26.1%) were taking saturated fats > 4days/week as shown in In our study

177(42.3%) people were having positive family history for CAD, 69(16.5%) were known hypertensive, 36(8.3%) were known diabetic and 17(4.1%) were having hypercholesterolemia. In this study 144 (34.4%) subjects were having systolic blood pressure of ≥140 mmHg and 165(39.5%) subjects were having diastolic blood pressure of ≥90 mmHg.Out of 418 persons 56 (31.6%) were having RBS of ≥140mg/dl and 143(34.2) people were having their cholesterol ≥180mg/dl.There was no statistical significance association between diabetes, hypertension and hypercholesterolemia and profession shown in Graph 3.There was a significant association between Professional categories and saturated Trans Fat intake and Exercise as shown in Table 01.There was a significant association between Profession categories and Body Mass Index but the association was not significant between professional categories and SBP and DSP as shown in Graph 4

DISCUSSION

To my knowledge this is the first kind of study that has been conducted to find out the cardiovascular risk factors in teachers and lawyers, two important groups of society.

In our study overall 226(54.1) subjects were not performing

any of exercise but when the two groups were compared it was found that more lawyers 129(61.7%) were not performing exercise as compared to teachers 97(46.4%) with P-value 0.006. Similarly in study by Stamatakes and et al stated that an estimated 60 % of global population is failing to meet the amount of physical activity as advised in guidelines[20], almost the same percentage of subject were physically inactive. Out of 418 persons 105(25.1%) were smokers, and 39(9.3%) were addicted to naswar. In teachers cigarette smokers were 11 %(23) and naswar users (snuff) were 6 %(14) while in lawyers the cigarette smokers were 39.3% (82) and naswar addicts were 12 %(25). Thus in our study tobacco use was less in teachers as compared to lawyers and it may that teachers belong to noble profession that usually forbids other from using tobacco. 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, and17% reported current use[21]. The prevalence of tobacco use is 36.9 %(31.8%-42.3) in Pakistan in different surveys[22]. In this study 269(64.4%) subject were having BMI$\geq$25kg/m2 but more lawyers 150(71.8%) had BMI $\geq$25kg/m2 then teachers 119(56.9%) with significant P-value 0.002. A study conducted by Tazeen Jaffar and colleagues showed that 25% of the Pakistani population was obese using Asian specific BMI cutoff value $\geq$25 kg/m2 [23]. In our study obesity defined by Asian specific BMI cutoff value was high in comparison with that of Tahzeen Jaffar but it may be due to small number and specific population. In our study out of 418 peoples 17(4.1%) were known hypercholesterolimic and 143(34.2%) were random blood cholesterol (RBC) of$\geq$ 180 mg/dl. When both the groups were compared it was found that more lawyers 86(41.1%) than teachers 57(27.3%) were having RBC of $\geq$ 180 mg/dl with P-value 0.003. A study conducted by Ishaq and colleagues found 37% people were having hypercholesterolemia[24]. out of 418 subjects 69(16.5%) were known hypertensive and 144(34.4%) were having SBP of $\geq$140mmHg and 165(39.5%) had DBP of $\geq$90mmHg. But when both groups were compared there was no statistically significant difference between the lawyers and teachers. 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[25]. Thus our study can be compared to this national representative study of Pakistan.

In this study out of 418 subjects 36(8.6%) were known diabetic and 56(13.4%) had their RBS of $\geq$140mg/dl. The prevalence of Diabetes in Pakistan was 11.47% in people aged above 25 years acquired through survey conducted in 4 province of Pakistan thus our result is comparable[26].

CONLUSION

Obesity was common both in teachers and lawyers but more teachers have their BMI$\geq$25kg/m^2. More lawyers had RBS in diabetic ranges as compared to teachers. Hypercholesterolemia was more common in lawyers than in teachers. Elevated systolic and diastolic blood pressure was common in both teachers and lawyers. More lawyers had sedentary life style than teachers. Consumption of saturated fat intake was more in teachers than lawyer.

REFERENCES

1. Murray CJL, Lopez AD, Eds. The Global Burden of Disease: A Comprehensive Assessment of Mortality and Disability from Diseases, Injuries, and Risk Factors in 1990 and Projected to 2020. Boston, Mass: Harvard School of Public Health; 1996.

2. Singh N, Gupta M. Clinical characteristics of South Asian patients hospitalized with heart failure. Ethn Dis. 2005; 15: 615–619.

3. Palaniappan L, Wang Y, Fortmann SP. Coronary heart disease mortality for six ethnic groups in California, 1990–2000. Ann Epidemiol. 2004; 14: 499–506.

4. Shanthirani CS, Pradeepa R, Deepa R, Premalatha G, Saroja R, Mohan V. Prevalence and risk factors of hypertension in a selected South Indian Population- the Chennai Urban Population study. Journal of Associated Physician of India. 2003 ;51:20-27

5. Yusuf S, Hawken S, Ounpuu S, Dans T, Avezum A, Lanas F, McQueen M, Budaj A, Pais P, Varigos J, Lisheng L; INTERHEART Study Investigators. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study. Lancet. 2004; 364: 937–952

6. Zimmet P, Alberti KG, Shaw J: Global and societal implications of the diabetes epidemic. Nature 414: 782–787, 2001.

7. Howard BV, Best LG, Galloway JM; et al. Coronary heart disease risk equivalence in diabetes depends on concomitant risk factors. Diabetes Care. 2006;29(2):391-397

8. Wild S, Roglic G, Green A, Sicree R, King H. Global prevalence of diabetes: estimates for the year 2000 and projections for 2030. Diabetes Care 2004;27:1047-1053

9. International Diabetes Federation: Diabetes Atlas 2003. Brussels, International Diabetes Federation, 2003

10. Mohan V, Deepa M, Deepa R, Shanthirani CS, Farooq S, Ganesan A, Datta M: Secular trends in the prevalence of diabetes and impaired glucose tolerance in urban South India--the Chennai Urban Rural Epidemiology Study (CURES-17).Diabetologia 2006;49(6):1175-1178.

11. Kearney PM, Whelton M, Reynolds K, Whelton PK, He J.

Global burden of hypertension: Analysis of worldwide data. Lancet. 2005;365:217–23

12. Todkar SS, Gujarathi VV, Tapare VS. Period prevalence and sociodemographic factors of hypertension in rural Maharashtra: A cross-sectional study. Indian J Community Med 2009;34:183-7

13. Jafar TH, Islam M, Poulter N, et al. Children in South Asia have higher body mass adjusted blood pressure levels than white children in the United States: a comparative study. Circulation 2005; 111:1291–7.

14. Banegas JR, López-García E, Gutiérrez-Fisac JL, Guallar-Castillón P, Rodríguez-Artalejo F: A simple estimate of mortality attributable to excess weight in the European Union. Eur J Clin Nutr 2003; 57:201–8.

15. Gregg EW, Cheng YJ, Cadwell BL, Imperatore G, Williams DE, Flegal KM, et al. Secular trends in cardiovascular disease risk factors according to body mass index in US adults. JAMA. 2005;293(15):1868–74

16. Jafar TH, Chaturvedi N, Pappas G. Prevalence of overweight and obesity and their association with hypertension and diabetes mellitus in an Indo-Asian population. CMAJ2006; 175:1071–7.

17. Critchley JA, Capewell S. Mortality risk reduction associated with smoking cessation in patients with coronary heart disease: a systematic review. JAMA.2003; 290(1):86-97.

18. Maher R, Devji S. Prevalence of smoking among Karachi population. J Pak Med Assoc 2002;53:250-3.

19. Critchley JA, Capewell S. Mortality risk reduction associated with smoking cessation in patients with coronary heart disease: a systematic review. JAMA.2003;290(1):86-97.

20. Stamatakis E, Ekelund U, Wareham NJ. Temporal trends in physical activity in England: the Health Survey for England 1991 to 2004. Prev Med 2007;45:416–23

21. Reddy KS, Gupta PC. Report on Tobacco Control in India. New Delhi: Ministry of Health and Family Welfare, Government of India; 2004.

22. Nasir K, Rehan N. Epidemology of cigarette smoking in Pakistan. Addiction 2001;96:1847-54.

23. Jafar TH, Chaturvedi N, Pappas G. Prevalence of overweight and obesity and their association with hypertension and diabetes mellitus in an Indo-Asian population. CMAJ2006; 175:1071–7.

24. Ishaq M, Beg MS, Ansari SA, et al. Coronary artery disease risk profiles at a specialized tertiary care center in Pakistan. Pakistan J Cardiol 2003;14:61-8.

25 Jafar TH, Levey AS, Jafary FH, White F, Gul A, Rahbar MH, et al. Ethnic subgroup differences in hypertension in Pakistan. J Hypertens 2003;21: 905-12.

26. Shera AS,Jawad F,Basit A.Dibaetes related knowledge,Attitude and Practices of Family Physians IN Pakistan.J.Pak.Med.Assoc 2002;52:465-9.