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A STUDY OF RISK FACTOR SCORE OF LIFE-STYLE DISEASES AMONG THE STAFF OF A PRIVATE MEDICAL COLLEGE OF JAIPUR

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ABSTRACT: BACKGROUND: With the changing lifestyles and dietary habits, the health of the world is now dominated by non-communicable diseases such as diabetes, obesity, cardiovascular diseases and cancer. These are commonly linked to risk factors associated with the life style of an individual like tobacco use, unhealthy diet, physical inactivity, obesity, high blood pressure. These diseases can be modified by just adopting healthy lifestyle habits. **STUDY OBJECTIVE:** To assess the risk factors score (tobacco, alcohol, diet, physical activity, BMI, blood pressure, etc.) of non-communicable diseases in the staff of a private medical college of Jaipur. **STUDY DESIGN:** Hospital-based Cross-sectional study. **SETTING:** A private medical college of Jaipur district. Sample Population: Staff members including all the doctors, nurses, laboratory technicians and class three workers were interviewed using the pre-designed schedule. **DURATION OF STUDY:** 2 months (July – September), 2010. **RESULTS:** Of all the risk factors the maximum (i.e. 37 respondents (20.5%)) had 4 risk factors. In the 40-49 yrs age group majority of respondents (i.e. 18 and 18) had the risk factor score of 4 and 5, in 50-59 years, majority (i.e. 12 respondents) had 4 and in ≥60 yrs majority (i.e. 8 respondents) had 7 risk factors.
KEYWORDS: Medical and paramedical staff, non-communicable diseases, risk factor score.

INTRODUCTION: A study of risk factor score of life-style diseases among the staff of a private medical college of Jaipur Globally, non-communicable diseases (NCDs) account for almost 58.5% of deaths and for 45.9% of the global burden of disease are projected to account for 73% of deaths and 60% disease burden by 2020.[1] Progressive aging of the population, improving socio-economic conditions and changed lifestyles have caused an increase in the non-communicable diseases.

These are linked by common risk factors related to lifestyle like tobacco use, unhealthy diet, physical inactivity, obesity, high blood pressure, and cholesterol and glucose levels. These risk factors are measurable and largely modifiable and thus continuing surveillance of the levels and patterns of risk factors is of fundamental importance to planning and evaluating preventive activities in the control of NCDs.[2]

The WHO global NCDs risk factor surveillance project was launched with the aim to provide standardized materials and tools for collection of risk specific health data which predict the major chronic diseases. The STEP wise approach to surveillance of NCDs risk factors offers a simple and flexible approach.

Demonstration projects to evaluate the feasibility of implementing the STEP wise approach have been completed in some countries (WHO, SEA Network for NCD risk factors, 2002).[3] In this document, the risk factors for the development of NCD (tobacco, alcohol, diet, physical activity, BMI, blood pressure, dietary habit, diabetes) in the staff of a private medical college had been studied.

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MATERIALS AND METHODS: A cross-sectional study was undertaken on Medical and paramedical staff. The total staff in the hospital and college was 540 but due to limitation of manpower and time every third staff member was interviewed, So a total of 180 members were taken in the study with in the duration of 2 months (July – September), 2010. Random sampling technique was used. A list of all the staff members including all the doctors, nurses, laboratory technicians and class three workers was made. The first member was selected by the last digit of the currency note after which every third member from the list was interviewed.

The selected individuals were explained about the purpose and methods of the study and an appropriate written consent was taken before starting of interview. Interviews were taken in accordance to the WHO Steps I questionnaire and the data of the sample population was thus collected. The study was conducted among the medical and the paramedical staff in Jaipur. A sequential method has been formed by the WHO under STEPS for the surveillance of NCD risk factors which focuses on three levels for risk factor assessment:

Step I: Based on face to face interview based on the questionnaire for risk factors.
Step II: Based on simple physical measurements.
Step III: Based on Biochemical measurement for risk factor assessment.

The study basically focused on Step I approach, information about tobacco and alcohol intake, diet and physical activity. Enquiry into history of hypertension and diabetes has also been done. The study questionnaire of WHO Steps I[4] was modified according to the local language and measurements. In the study, community has been divided into the following, based on the WHO STEPS manual:

1. Current daily smokers were considered as those who were currently smoking cigarettes, bidis or hookah daily.
2. Current daily smokeless tobacco users have been defined as those who had currently been using chewable tobacco products, gutka, naswar, khaini or zarda paan daily.
3. Current alcohol drinkers have been defined as those who reported to be consuming alcohol within the past one year.
4. One standard drink is equivalent to be consuming one standard bottle of beer (285ml), one measure of spirits (30ml), one medium glass of wine (120ml).
5. One serving of vegetable has been considered to be 1 cup of raw green leafy vegetables.
6. One serving of fruit has been considered as 1 medium sized apple, banana or orange or the equivalent amount of fruit juice.
7. Physical inactivity has been considered as less than 10 minutes of work at a stretch, during leisure, work or transport.
8. Body Mass Index (BMI) has been calculated by dividing the weight (kilogram) by the height (meter).
9. Overweight has been taken as a BMI of 25-30.
10. Obesity has been taken as a BMI of > 30.
11. Waist Hip ratio (WHR) if measured more than 0.95 in males and 0.85 in females will be considered as obese.
12. Hypertension has been defined as a Blood Pressure > 140/90 or currently on anti-hypertensive drugs.

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Standard procedure in accordance to STEP's protocol for anthropometric measure has been used. The risk factor score was calculated on the basis of History of Hypertension, History of diabetes, History of CHD, Regular smoker, Regular alcohol intake, BMI>24.9, Vegetable & fruits<5, Diabetic, Hypertensive, Physically Inactive. Every factor was given one point score.

OBSERVATIONS: A total of 107 men and 73 women were included in our study that were practicing doctors, professors and other teaching staff, nurses and laboratory technicians. Among both male and female maximum were from the age group of 40 to 49 i.e. 53 males and 37 females. Table 1 depicts that more than half (55.6%) were non-tobacco user and nearly one-third (33.9%) were using smoked tobacco. 13% of 50-59 years, 11.1% of 40-49 years and 5.6% of ≥60 years were having the intake of tobacco products like gutka, khaini etc.

Maximum (57.8%) were non-alcoholic, 23.3%were ever used alcohol while 18.9% are current alcohol user. Current alcohol users were maximum in 50-59 years age group i.e. 24.1%. Physically inactive were taken as the respondents who were doing less than 10 minutes of exercise or yoga or work by the purpose of exercise. Inactivity was highest amongst the age group above 60 i.e. 38.9 %. The age group most considerate about daily work out was found to be of 40-49 yrs with a 72% people being involved.

Those having BMI between25-30 were categorized overweight while those above 30 were taken to be obese. Men were generally found to be more obese in all the age groups as compared to females. The highest percentages of overweight subjects were in the age group of 40-49 yrs with 73.3%. Those who were under medication for hypertension or had ever been on such medication or reported blood pressure without any exercise in the sitting position to be above 140/90 were considered to be hypertensive. Overall the age group above 60 had the highest incidence of hypertensive individuals that is 19.4%. The prevalence of hypertension grew with age from 13.3% in 40-49 yr population to 19.4% in the >60yr population.

Those participants who consumed less than 5 servings of vegetables and fruits per day were said to have an inappropriate diet. It was seen that with age the dietary intake improved being maximum in the above 60 yrs age group i.e. 58.3% had an appropriate diet. Those respondents who had been tested and confirmed of having diabetes in the past were considered diabetic whether on medication or not. A maximum of 37% of respondents of the 50-59 age group population had been confirmed of diabetes. The difference between all age groups was found to be significant.

Table 2 illustrates that of all the risk factors the maximum (i.e. 37 respondent (20.5%)) laid with 4 risk factors. Of which maximum (i.e. 18) were in the age group of 40-49yrs. In 40-49 yrs age group majority (i.e. 18 and 18 respectively) had the risk factor score of 4 and 5 followed by a risk factor score of 2 and 3 i.e. 10 and 10 respondents. 4 respondents were found to have all the 10 risk factors of which 3 were of the 40-49 yr and one was more than 60 yrs. While it was observed that none of the respondents aged more 60 yrs had less than 2 risk factors.

DISCUSSION: In our study it was found that the highest tobacco smoking population was that in the ≥60 yrs age group while it is in between 40-50 as compared to that of Krishnan et al[4] in rural Haryana. Ever Tobacco smoking in males was found in 33.9% which was higher as compared to other[2,4,5,6] studies this might be attributable to the higher living standards and lifestyle. Rate of smokeless tobacco (10.6%) was higher than most studies but lower than in urban areas of Kolkata.[5]

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Alcohol Consumption was 23.3% which was very low as compared to the study in urban settlement in Ludhiana[6] but higher than most [4,7] of the studies in rural areas. The highest alcohol consumption (24.1%) had been recorded by the 50-59 yrs age group while it was in 30-40 years age group in other studies. It was found that a majority of the people carried out some sort of physical exercise daily i.e. 65.6%. Those studies in urban areas of Delhi, [8] reported a physical activity of less than 50%.

In most of the studies physical activity was found to be the highest in age group 30-44 while in our study it was found to be highest in 50-59 yrs group. Our study showed that 70.6% were overweight. This is very high as compared to other studies which can be directly attributed to the high standard of living of the participant population. Also 3.3% people were obese which is lower than that found in the study in Ludhiana.[6]

The studies showed that female were more prone to hypertension than the male which was contradictory to that by Subburam[9] in Tamil Nadu. It was found to be most prevalent among the age group above 60 yrs of age contradictory to the study by Subburam.[9] The results showed that in our study males has better intake of fruits and vegetables as compared to the females which was also found by Krishnan et al It is also seen that the dietary pattern increases with the increase in age as mentioned by Deb Soumya.[5]

The study showed that the risk factors among males and females did not have a very significant difference though the males had a higher prevalence which is similar to the result by Deb Soumya[5]. The risk factors were highest in the age group between 50 and 59 while Deb Soumya[5] found it to be in the age group above 60 yrs. Reduction of morbidity and premature mortality due to non-communicable disease is attainable, which requires vigorous action at all levels – primary prevention to treatment and rehabilitation as well as involvement of multiple sectors.

Interventions applied during the advanced stages of the disease usually have a limited impact and are less cost effective. Therefore prevention is a more feasible option for low resource countries. The study had been taken up to assess the prevalence of risk factors of non-communicable diseases among the medical staff and which could thus give information for future Programmes and help in spreading awareness about the lifestyle modifications required.

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Risk Factors		40-49 yrs	50-59 yrs	≥60 yrs	Total
*Tobacco use	Smoked Tobacco	28(31.1)	19(35.2)	14(38.8)	61(33.9)
	Smokeless Tobacco	10(11.1)	7(13.0)	2(5.6)	19(10.6)
	Non-Tobacco user	52(57.8)	28(51.9)	20 (55.6)	100(55.6)
+Alcohol use	Ever alcohol use	19(21.1)	13(24.1)	10(27.8)	42(23.3)
	Current alcohol use	16(17.8)	13(24.1)	5(13.9)	34(18.9)
	Non-alcoholic	55(61.1)	28(51.8)	21(58.3)	104(57.8)
†Physically Active	Active	57(57)	39(72.2)	22(61.1)	118(65.6)
	Inactive	33(33)	15(27.8)	14(38.9)	62(34.4)
@BMI	< 24.9	22(24.4)	12(22.2)	13(36.1)	47(26.1)
	25-30	66(73.3)	40(73)	21(58.3)	127(70.6)
	>30	2(2.2)	2(3.7)	2(5.6)	6(3.3)
**Hypertension	Hypertensive	12(13.3)	8(14.8)	7(19.4)	27(15)
	Non-hypertensive	78(86.7)	46(85.2)	29(80.6)	153(85)
#Diet	Inappropriate diet	39(43.3)	23(42.6)	15(41.7)	77(42.8)
	Appropriate diet	51(56.7)	31(57.4)	21(58.3)	103(57.2)
$Diabetes	Diabetics	14(15.6)	20(37)	10(27.8)	44(24.4)
	Non diabetics	76(84.4)	34(73)	26(72.2)	136(75.6)
Total		**90 (100)**	**54(100)**	**36(100)**	**180(100)**
Percentages in parenthesis *X^2=1.886;df=4, p>0.05; +X^2=2.315;df=4, p>0.05; †X^2=1.575; df=2,p>0.05; @X^2=3.632;df=2, p>0.05; **X^2=0.755;df=2, p>0.05; #X^2=0.03;df=2, p>0.05; $$X^2$=8.703; df =2,p<0.05					

Table 1: Risk factors of Lifestyle diseases in different age groups

Risk Factor Score	40-49 yrs	50-59 yrs	≥60 yrs	Total
0	3(3.3)	2(3.7)	0	5(2.8)
1	5(5.6)	2(3.7)	0	7(3.9)
2	10(11.1)	4(7.4)	2(5.6)	16(8.9)
3	10(11.1)	3(5.6)	2(5.6)	15(8.3)
4	18(20)	12(22.2)	7(19.4)	37(20.6)
5	18(20)	10(18.5)	5(13.5)	33(18.3)
6	9(10)	7(13)	3(8.3)	19(10.6)
7	6(6.7)	7(13)	8(22.2)	21(11.7)
8	5(5.6)	5(9.2)	6(16.7)	16(8.9)

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9	4(4.4)	2(3.7)	2(5.6)	8(4.4)
10	3(3.3)	0	1(2.8)	3(1.7)
Total	**90 (100)**	**54(100)**	**36(100)**	**180(100)**
X^2**=18.164; df =20, p>0.05; Percentages in parenthesis**				
Table 2: Risk factors score of Lifestyle diseases in different age groups				

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