Original Article

A Study on Cardiovascular Risk and Lifestyle Behaviors among teaching Doctors of Prakasam District, Andhra Pradesh

Spandana Pamidi[1], Parthasarathy Naidana[2], Bhaskari Kolli[3]

[1]Assistant Professor, Dept. of Community Medicine, Government Medical College, Ongole, Prakasam district, Andhra Pradesh, Pincode, [2]Professor & HOD, Dept. of Community Medicine, ASRAMS, Eluru, Andhra Pradesh, [3]Associate Professor, Dept. of Community Medicine, Government Medical College, Ongole, Prakasam district, Andhra Pradesh.

How to cite this article: Spandana Pamidi, Parthasarathy Naidana, Bhaskari Kolli. A Study on Cardiovascular Risk and Lifestyle Behaviors among teaching Doctors of Prakasam District, Andhra Pradesh. Indian Journal of Public Health Research and Development / Vol. 15 No. 4, October-December 2024.

Abstract

Context: Globally, around 17.9 million people annually die due to CVDs, followed by cancers (9.3 million), respiratory diseases (4.1 million), and diabetes (2 million).The cause of heart attacks and strokes are due to combination of risk factors- tobacco use, unhealthy diet, obesity, physical inactivity, alcohol use, hypertension, diabetes and hyperlipidaemia. Most cardiovascular diseases can be prevented by addressing these behavioural risk factors.

Objectives: 1) To know the life style approach of doctors working in various departments in the institute.

2) To assess cardiovascular risk behaviour of these subjects and to make them alert in preserving their health.

Material and Methods: A cross-sectional study was carried out amongst teaching staff of Government Medical College & General Hospital, Ongole, Prakasam district, Andhra Pradesh during the period of August to October 2023. The study was performed 91 teaching staff. A pre – designed, pretested, semi structured questionnaire was used for collecting details on socio-demographic profile, lifestyle related details like diet and physical activity, habits and existing co-morbidities.

Results: Majority participants were female 50 (54.9%). The mean age of mean age of female was 37.4 ± 10.22 and male was 42.61 ± 9.54 years. The mean weight (78.90 ± 10.81) and Mean BMI (28.22±4.24) were above the normal range among the male participants. History of hypertension was more common in the 45-54 age group which signifies that age is one of the most important risk factors. History of diabetes mellitus was more in the 45-54 age group followed by 35-44 age group. In the 35-44 age group the high prevalence of diabetes is due to family history of diabetes.

Conclusions: This study showed a high prevalence of cardiovascular risk factors and signifies the importance of health awareness among the staff members regarding the various cardiovascular risk factors.

Key-words: Teaching staff, Cardiovascular risk factors, Lifestyle behaviour.

Corresponding Author: Spandana Pamidi, Assistant Professor, Dept. of Community Medicine, Government Medical College, Ongole, Prakasam district, Andhra Pradesh.

E-mail: spandana.pamidi@gmail.com

Submission date: January 1, 2024 **Revision date:** Febuary 22, 2024 **Published date: September 20 , 2024**

This is an Open Access journal, and articles are distributed under a Creative Commons license- CC BY-NC 4.0 DEED. This license permits the use, distribution, and reproduction of the work in any medium, provided that proper citation is given to the original work and its source. It allows for attribution, non-commercial use, and the creation of derivative work.

Introduction

With the rapid development of the world economy and the resulting profound changes in lifestyle, the incidence of NCDs is continuing to rise. In particular the burden of Cardio Vascular Disease (CVD) continues to increase each year.[1]

Major four NCDs namely cardiovascular diseases (CVD), chronic respiratory diseases (CRD), cancers and Diabetes account for more than 80% of the total premature NCD deaths. Globally, around 17.9 million people annually die due to CVDs, followed by cancers (9.3 million), respiratory diseases (4.1 million), and diabetes (2 million).[2] More than four out of five CVD deaths are due to heart attacks and strokes, and one third of these deaths occur prematurely in people under 70 years of age.[3] In 2021, 20.5 million people died from a cardiovascular condition, a figure that accounted for around one-third of all global deaths and was a significant increase from the 12.1 million CVD deaths recorded in 1990.[4]

However, despite these effective strategies, CVD remains one of the most serious threats to human life and health and is the first or second leading cause of death in most countries of the world.[5,6] One analysis about WHO global health estimates data in 2012 showed that CVD has become the single most important and largest cause of non-communicable disease (NCD) deaths worldwide at over 50% over the last two decades, and it is set to remain the most significant global health burden for decades to come.[7]

Studies show that compared to the people of European ancestry, CVD affects Indians at least a decade earlier and in their most productive midlife years.[3] CVD prevalence appears to be most closely associated to a country's epidemiological transition stage, particularly when high disease rates in middle age persist into later life. As per Global burden of disease study 2010, the age-standardized CVD death rate of 272 per 100 000 population in India is higher than the global average of 235 per 100 000 population.[8]

CVD mortality rates vary significantly by age and gender. The WHO's India report shows that age-adjusted CVD mortality rates are higher for men than women (349 per 100,000 among men and 265 per 100,000 among women).[9] These rates are two to three times higher as compared to those in the United States, where mortality rate for men are 170 per 100,000 and 108 per 100,000 among women.[10] In India, more than 10.5 million deaths occur annually, and it was reported that CVD led to 20.3% of these deaths in men and 16.9% of all deaths in women.[11]

A global CVD epidemic is rapidly evolving, with the burden of disease shifting. CVD currently kills twice as many people in developing countries as it does in developed countries. Conventional risk factors account for the great majority of CVD cases.[12]

Age plays a vital role in the deterioration of cardiovascular functionality, resulting in an increased risk of cardiovascular disease (CVD) in older adults.[3] However, sex differences are also frequently perceived in aging adults regarding both onset and prevalence of CVD.[13] Diabetes is a major predisposing factor for developing CVD in the aging population.[14] DCM (diabetic cardiomyopathy) describes heart disease, which develops primarily due to diabetes.[15] Adults with diabetes historically have a higher prevalence rate of CVD than adults without diabetes.[16]

Some epidemiological evidence also indicates that CVD is associated with behavioral risk factors like smoking, alcohol use, low physical activity levels, and insufficient vegetable and fruit intake. In elderly persons, hypertension has been found to be an independent risk factor for acute myocardial infarction and stroke.[17] There is substantial epidemiologic evidence for the familial aggregation of CVD. Researchers from the Framingham Study reported that having CVD in at least one parent doubled the 8-year risk of CVD among men and increased the risk among women by 70%.[18]

Therefore, studying the risk factors and disease burden of CVD has practical significance for the prevention and control of CVD.

- Doctors often busy with restoring health of their patients and may neglect their own health.

- The present study was conducted to assess the cardiovascular diseases risk behaviour among the doctors working at ASRAMS.

Despite the high CVD related mortality and morbidity and established national plans, the CVD risk factors surveillance data are limited. The identification of these cardiovascular risk factors in a medical institute where one naturally expects a high level of awareness and commitment to preventive care will be one-way of reducing the burden of cardiovascular diseases among the population in the future. No studies exist on cardiovascular risk factors in Prakasam district, so we undertook this study to determine the prevalence of cardiovascular risk factors amongst teaching staff of Government Medical College and Hospital, Ongole, Prakasam district, Andhra Pradesh.

Objectives:

1. To know the life style approach of doctors working in various departments in the institute.
2. To assess cardiovascular risk behaviour of these subjects and to make them alert in preserving their health

Material and Methods

An institution based analytical cross-sectional study was carried out amongst teaching staff of Government Medical College and Hospital, Ongole, Prakasam district, Andhra Pradesh during the period of August 2023 to October 2023. Purposive sampling was used. There were total 126 fulltime teaching staffs who were working in our institute. All teaching staff aged more than 30 years was included in the study. Total number of staff who was more than 30 years of age was 109. The study was carried out amongst 91 teaching staff as 18 denied participating; response rate was 83.48%.A Predesigned, Pretested, Semi-structured Questionnaire based on 'WHO STEPS APPROACH' which was self administered by the subjects was used.

Inclusion criteria: Data was collected from only those faculty members who were available in their respective departments on two successive visits with a three days interval, and those who were willing to participate in the study. Exclusion criteria: Teaching faculty with past history of heart disease.

Methodology

Permission from head of institution and clearance from institutional ethics committee was obtained. Informed consent was taken from the participants prior to the data collection. Each participant was invited to fill a data form which included information such as age, gender, department, highest level of education, previous history of hypertension or diabetes, known family history of hypertension or diabetes, eating habits, there lifestyle, history of alcohol or cigarette smoking, recent total cholesterol and HDL cholesterol values. History of smoking including duration and number of pack per year was obtained. The data was analysed using Statistical Package for Social Sciences (SPSS) (22.0 IBM, trial version). Normality was established using Kolmogrov Smirnov test (p value >0.05). Statistical analysis was done by using appropriate statistical tests like frequencies, mean, standard deviation and chi square test was used to find association. P value < 0.05 was considered as statistically significant.

Findings:

The results of this study are discussed here,

Table 1: Age and gender wise distribution of study subjects

Age (in years)	Female (%)	Male (%)	Total
25-34	23 (74.19)	08 (25.80)	31
35-44	14 (45.16)	17 (54.83)	31
45-54	11 (52.38)	10 (47.61)	21
55-64	02 (25.00)	06 (75.00)	08
Total	50 (54.9)	41 (45.1)	91

It has been observed from Table 1 that majority of the study participants were female 50 (54.9%) followed by male 41 (45.1%).

Table 2: Distribution of study subjects according to gender and risk factors.

Variable	Female(n=50) Mean±SD	Male(n=41) Mean ± SD	P value
Age	37.4 ± 10.22	42.61 ± 9.54	0.015
Mean height	158.64 ± 5.94	167.4 ± 6.78	0.000
Mean weight	67.56 ± 13.03	78.90 ± 10.81	0.000
Mean BMI	26.87 ± 5.17	28.22 ± 4.24	0.182

It was seen from Table 2 that the mean age of female was 37.4 ± 10.22 and male was 42.61 ± 9.54 years. The mean weight (78.90 ± 10.81) and Mean BMI (28.22±4.24) were above the normal range among the male participants. The mean height, mean weight and mean BMI values were higher in the males compared to females. The difference was statistically significant.

Table 3: Distribution of Subjects According to Gender and Presence of Risk Factors

Risk Factor	Female (n=50) N(%)	Male (n=41) N(%)	Total	p value
Family history of Hypertension	35 (74.47)	12 (25.53)	47	0.44
Family history of DM	29 (70.73)	12 (29.27)	41	1.00
H/O HTN	7 (43.75)	9 (56.25)	16	0.321
H/O DM	3 (25)	9 (75)	12	0.032
H/O Smoking	0	5(100)	5	NA
H/O Alcohol	0	7(100)	7	NA
Total Cholesterol >200	2 (50)	2 (50)	4	0.56
HDL <40	8 (50)	8 (50)	16	0.537
BMI ≥30	12 (48)	13(52)	25	0.412

Table 4: Distribution of Subjects According to Age and Presence of Risk Factors.

Risk Factor	25-34	35-44	45-54	55-64	Total	p value
Family H/o Hypertension	21(44.68)	13(27.65)	5(10.63)	8(17.01)	47	0.40
Family H/o Diabetes Mellitus	19(46.34)	13(31.70)	3(7.31)	6(14.62)	41	0.68
H/O Hypertension	0	5(31.25)	7(43.75)	4(25)	16	0.000
H/O Diabetes Mellitus	0	4(33.33)	5(41.66)	3(25)	12	0.004
H/O Smoking	0	4(80)	1(20)	0	5	0.47
H/O Alcohol	0	5(71.42)	2(28.57)	0	7	0.05
Total cholesterol >200	0	1(25)	3(75)	0	4	0.16
HDL <40	5(31.25)	5(31.25)	3(18.75)	3(18.75)	16	0.004
BMI ≥ 30	6(24)	10(40)	6(24)	3(12)	25	0.58

It was observed from Table 3 that family history of hypertension, family history of DM were more in females and all other risk factors were more commonly present among the males than the females. It was noticed from Table 4 that family h/o hypertension, family h/o DM were more in the 25-34 years age group followed by 35- 44 years age group. In lipid profile, the raised total cholesterol was more commonly seen in 45 -54 age group and reduced HDL was more commonly seen in 25-34 and 35-44 years age group equally. History of hypertension was more common in the 45-54 age group which signifies that age is one of the most important risk factor. History of diabetes mellitus was more in the 45-54 age group followed by 35-44 age group. In the 35-44 age group the high prevalence of diabetes is due to family history of diabetes.

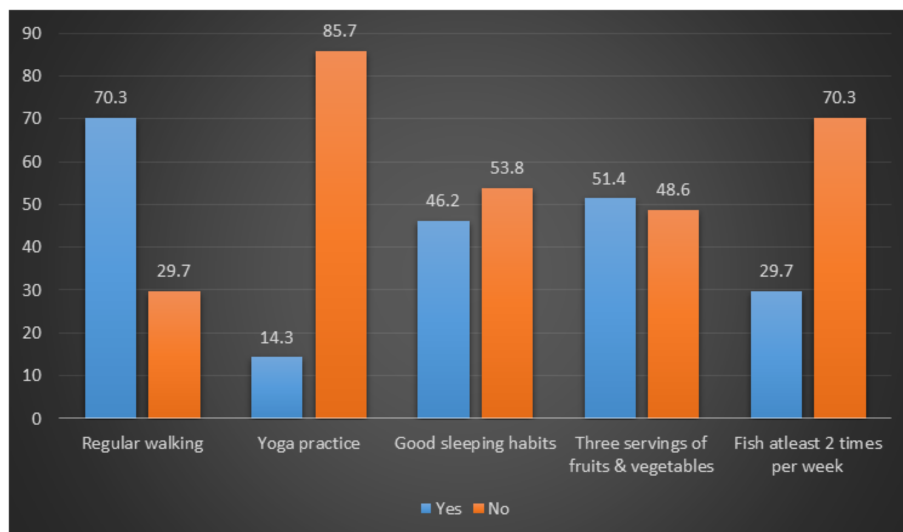

Fig. 1: The behavioral factors of the participants

Fig.1 shows that among the study participants, 70.3% of the study participants go for regular walking and only 14.3% of the study participants are practicing yoga. Good sleeping habits present in 46.2% of the participants. Three servings of fruits and vegetables are taken by 46.2% and atleast 2 times of fish per week was taken by only 29.7% of the study participants.

Discussion

The global burden of disease is shifting from infectious diseases to non-communicable diseases (NCDs.) and this shift in the pattern of diseases from communicable to non-communicable is occurring at a faster rate in developing countries than in industrialized nations. It has also been suggested that about 70% of the total increase of worldwide prevalence of CVD in the next decade will come from developing nations. India at present is facing double burden of both communicable and non communicable diseases.[19]

In the present study, most of the teaching staffs were in the middle age and the mean age was (39.75.±10.20) which was similar to studies done by Muneshwar SN et al was (40.88±12.44) and Sharma et al was (43.3±9.5).[19,20] Our study showed a high prevalence of cardiovascular risk factors which included family history of hypertension, family history of DM, history of hypertension, history of DM, HDL <40, Total cholesterol>200,BMI≥30, history of cigarette smoking, history of alcohol, increased mean weight and mean BMI.

In the present study, obesity was found in 27.47% subjects. Mean BMI was 28.22±4.24 in males and 26.87±5.17 in females. Mean weight was 76.2±12.9 kg in males and 58.38±6.88 kg in females. The findings that the mean BMI was more in males compared to females, are similar to findings in the study done by Muneshwar SN et al (Mean BMI was 27.02±4.44 in males and 23.81±2.58 in females). Study done by Sharma et al showed a high prevalence of obesity 77.3%, central obesity in males 80.1% and 80.7% in females.[19]

The substantially high prevalence of overweight and obesity as per India specific guidelines may be owing to the sedentary life-style and desk job of administrative employees who formed a major portion of the study population. Doctors who are supposed to be role models to the society with their health conscious behavior were found to be neglecting their own health in this study. This indicates a pressing need to initiate health promotion and disease prevention programmes at local, state and national level.

Our study showed hypercholesterolemia in 4.39%, low HDL in 17.58% which were much lower than the other studies done by Muneshwar SN et al and Sharma et al.[19,20]

The prevalence of cigarette smoking was in 5.49% among males and none of the women smoke which was similar to Sabale et al was (6.2%) and was lower than Muneshwar SN et al was (8.45%), Sharma et al was (12.8%). [19,20,21] The habit of alcohol consumption was seen in 7.69% which was similar to Muneshwar SN et al was 7.04% and higher than Sharma et al was (2.6%) as the study included only the habit of heavy drinking.[19,20]

Conclusion

The mean BMI values were higher in the males compared to females.History of hypertension was more common in the older age group which signifies that age is one of the most important risk factor. History of diabetes mellitus was seen equally in the aged and the younger age groups. In the younger age group (35-44 years) the high prevalence was due to family history of diabetes. Doctors who are supposed to be role models to the society with their health conscious behavior were found to be neglecting their own health in this study. There is a need for emphasis on lifestyle modifying behaviour to the doctors such as promotion of healthy eating habits, yoga, meditation, etc which will help to maintain good health.

Our study, though it has a limitation of small sample, encourages the need of similar studies across the health institutions of the country to generate a knowledge base regarding CVDs and to formulate a National health education strategy accordingly.

There are no Conflict of interest.

Source of funding: Self

Ethical Clearance: Institutional ethics committee approval was obtained for the studyS.No. – IEC/GMC-OGL/98/2023 from Institutional Ethical Committee of Government Medical College & General Hospital, Ongole in its meeting held on 25/11/2023 and informed consent was obtained from the study participants.

References

1. Wang H, Naghavi M, Allen C, Barber RM, Bhutta ZA, Carter A, et al. Global, regional, and national life expectancy, all-cause mortality, and cause-specific mortality for 249 causes of death, 1980–2015: a systematic analysis for the Global Burden of Disease Study 2015. The Lancet. 2016 Oct;388(10053):1459–544.
2. World Health Organization. Noncommunicable Diseases [Internet]. World Health Organization. 2023. Available from: https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases
3. Kundu J, Kundu S. Cardiovascular disease (CVD) and its associated risk factors among older adults in India: Evidence from LASI Wave 1. Clinical Epidemiology and Global Health. 2022 Jan;13:100937.
4. Cesare MD, Bixby H. World Heart Report 2023: Confronting the Worlds Number One Killer. Fox E, editor. World Heart Federation; 2023.
5. Naghavi M, Abajobir AA, Abbafati C, Abbas KM, Abd-Allah F, Abera SF, et al. Global, regional, and national age-sex specific mortality for 264 causes of death, 1980–2016: a systematic analysis for the Global Burden of Disease Study 2016. The Lancet [Internet]. 2017 Sep;390(10100):1151–210. Available from: https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(17)32152-9/fulltext
6. Roth GA, Abate D, Abate KH, Abay SM, Abbafati C, Abbasi N, et al. Global, regional, and national age-sex-specific mortality for 282 causes of death in 195 countries and territories, 1980–2017: a systematic analysis for the Global Burden of Disease Study 2017. The Lancet [Internet]. 2018 Nov;392(10159):1736–88. Available from: https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)32203-7/fulltext
7. McAloon CJ, Boylan LM, Hamborg T, Stallard N, Osman F, Lim PB, et al. The changing face of cardiovascular disease 2000–2012: An analysis of the

world health organisation global health estimates data. International Journal of Cardiology. 2016 Dec;224:256–64.

8. Prabhakaran D, Jeemon P, Roy A. Cardiovascular Diseases in India. Circulation. 2016 Apr 19;133(16):1605–20.
9. Kumar AS, Sinha N. Cardiovascular disease in India: a 360 degree overview. medical journal armed forces india. 2020 Jan 1;76(1):1-3.
10. World Health Organization. Global status report on alcohol and health 2018. World Health Organization; 2019 Feb 14.
11. Gupta R, Mohan I, Narula J. Trends in coronary heart disease epidemiology in India. Annals of global health. 2016 Mar 1;82(2):307-15.
12. Gaziano TA. Cardiovascular disease in the developing world and its cost-effective management. Circulation. 2005 Dec 6;112(23):3547-53.
13. Garcia M, Mulvagh SL, Bairey Merz CN, Buring JE, Manson JE. Cardiovascular disease in women: clinical perspectives. Circulation research. 2016 Apr 15;118(8):1273-93.
14. Halter JB, Musi N, McFarland Horne F, Crandall JP, Goldberg A, Harkless L, Hazzard WR, Huang ES, Kirkman MS, Plutzky J, Schmader KE. Diabetes and cardiovascular disease in older adults: current status and future directions. Diabetes. 2014 Aug 1;63(8):2578-89.
15. Toedebusch R, Belenchia A, Pulakat L. Diabetic cardiomyopathy: impact of biological sex on disease development and molecular signatures. Frontiers in physiology. 2018 May 3;9:453.
16. Coalition TE. Diabetes mellitus, fasting blood glucose concentration, and risk of vascular disease: a collaborative meta-analysis of 102 prospective studies. Journal of Vascular Surgery. 2011 Feb 1;53(2):548-9.
17. O'donnell MJ, Xavier D, Liu L, Zhang H, Chin SL, Rao-Melacini P, Rangarajan S, Islam S, Pais P, McQueen MJ, Mondo C. Risk factors for ischaemic and intracerebral haemorrhagic stroke in 22 countries (the INTERSTROKE study): a case-control study. The Lancet. 2010 Jul 10;376(9735):112-23.
18. Lloyd-Jones DM, Nam BH, D'Agostino Sr RB, Levy D, Murabito JM, Wang TJ, Wilson PW, O'Donnell CJ. Parental cardiovascular disease as a risk factor for cardiovascular disease in middle-aged adults: a prospective study of parents and offspring. Jama. 2004 May 12;291(18):2204-11.
19. Sharma D, Vatsa M, Lakshmy R, Narang R, Bahl VK, Gupta SK. Study of cardiovascular risk factors among tertiary hospital employees and their families. indian heart journal. 2012 Jul 1;64(4):356-63.
20. Muneshwar S, Shafee M, Giri PA, Gangwal PR, Doctor S. Prevalence of cardiovascular risk factors amongst teaching staff of IIMSR medical college, Badnapur, Jalna, Maharashtra. International Journal of Community Medicine and Public Health. 2017 Oct;4(10):3877-81.
21. Sabale R, Irani N, Jatoo ZA. Assessment for Risk Factors of Non-communicable Diseases in Employees (Teaching and Non-Teaching) Working in Medical College, Maharashtra. Journal of Medical science and clinical research. 2016;4(11):14190-6.