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Original research article

Study of factors in association with hypertension, among the employees of Kakatiya University Warangal district, India

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Abstract

Background and Objectives: The investigator is aimed to know the, socio-demographic factors, and to study the various risk factors associated with hypertension, and determine the prevalence of hypertension, among Kakathiya University Employees, at Warangal District, India. Also, aimed to address and educate about CNCD's diseases 'like hypertension in the community and its early identification, treatment and advice, appropriate preventive and primitive measures among the university employees.

Methodology: A Cross sectional study was conducted among Kakathiya University Employees, at Warangal District, India, between June 2013 to April 2014. Where the investigator included employees 576 i.e. study population, after excluding the 259, of total employees i.e. 835A Pre structured & Pre tested questionnaire was used to assessthe factors associated with Hypertension, such as, sociodemographic factors (age, gender, education. occupation, marital status, type of family and size of family) and various other life style risk factors (obesity, smoking, alcohol, physical activity, diet, sleeping hours, mode of vehicle for transport, weekly working hours, and co-morbidity factors (family history, diabetes, CVD's); Measuring the Height, Weight and BP (according to JNC&WG-ASH classification). The collected data was statistically analyzed by using EXCEL 2007 version & SPSS 16.0.

Results: In the present study, the investigator found following results; among total study population 297 (51.6%), are hypertensives, among them 96 (16.7%) are hypertension grade 1, and 48.4% were normotensives. Among the hypertensives majority of the hypertension is observed with, following study groups; age group 51 to 60 134 (23.4%), male population are 220 (38.1%), Hindureligion 219(38%), post graduates 116(20.1%), fourth class employees 83(14.4%),married people 247 (42.9%), third generation type of family 118 (20.8%),family size> 6 persons/family 112 (19.4.%),obesity grade 1 people 126 (22.2%), non-smokers 215 (37.3%), alcoholics164 (28.4%),mixed diet consumer's 269(46.7%),additional salt intakeuser's 200(34.8%), sleeping hours <8hrs 29(50.5%), lack of physical activity239(41.4%),mode of vehicle for transport i.e. scooter users 139 (24.2%), employees with weekly working hours >48hrs 166(28.8%), people without family history 172(29.8%), history of diabetics 154(26.8%) and history of CVD's 204(35.4%) respectively.

Conclusions

The investigator draws the following conclusions from the research participants' data. 51.6% have hypertension.Socio-demographic risk factors such as age 51 to 60, male gender, illiterates, post grads, married persons, third generation type of family, size of the family, and religion were statistically significant (p<0.05), whereas religion was not. Lifestyle risk factors-obesity grade 1, non-smokers, alcoholics, sleeping hours <8 hrs, not doing physical activity, weekly working hours >48hrs-were statistically significant (p<0.05), while diet, additional salt intake and scooter use were not significant. Co-morbidity risks DM and CVDs were statistically significant (p<0.05), although family history was not significant.

Keywords: Risk factors, hypertension, height, weight and BP, CVD

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Introduction

We live in a world that is changing very quickly in the twenty-first century. The same potent forces are shaping human health all around the planet[1]. The same health problems are becoming more prevalent in both resource-rich and resource-poor nations[1]. In addition to being one of the health transitions that have occurred the fastest, chronic non-communicable diseases (CNCDs) now account for the majority of global public health challenges, especially in low-and middle-income countries (LMIC's) like India where infectious diseases have historically received more attention[2].

Increasing use of motorized transportation, sedentary occupations like trade and office work, and dietary and personal life style behavior factors like too much calorie and insufficient fruit and vegetable intake, excessive alcohol use, and tobacco use all have an impact on university employees. These lifestyle changes that promote CNCDs have been linked to urbanization, industrialization, and globalization[2]. Diabetes and cancer, which account for a significant portion of the burden of NCDs and cardiovascular diseases (CVDs), which have the highest mortality and morbidity among the other CNCDs, also have common risk factors associated to lifestyle[2].According to the WHR (World Health Report) 1999 estimates, among the CNCD's, CVD's together contributed to 59% of global mortality, totaling 31.7 million deaths and 43% of the global burden of disease in 1998. Additionally, nearly one-third of the adult population has high blood pressure, and in the SEAR, HTN is responsible for nearly 1.5 million annual deaths[3].In SA in 2000, it was projected that HTN was responsible for 46,888 deaths, or 9% of all deaths and 390,860 DALYs, or 2.4% of all DALYs. In general, high blood pressure was responsible for 50% of stroke, 42% of IHD, 72% of HTN illness, and 22% of the burden of other CVD in adult males and females (30+ years)[3].

36 million, or 63%, of the 57 million deaths worldwide in 2008 were caused by CNCDs. Cardiovascular illnesses, malignancies, diabetes, and chronic lung diseases are the four main CNCDs. Nearly 80% of CNCD deaths are caused by these diseases, and their burden is growing disproportionately among populations and lower-income nations. About 29% of deaths in LMICs occurred before the age of 60, totaling 29 million[4].

Aims & Objectives

Aims: The investigator is aimed to know the, influence of various factors, in association with hypertension, among Kakathiya University Employees, at Warangal District, India.Also, aimed to address educate about NCD's 'like hypertension in the community, its early identification, treatment and advice appropriate preventive and primitive measures among the university employees,

Objectives

1. To know the Socio-Demographic Factors in association with hypertension.
2. To Study the influence of Various Risk Factors associated with Hypertension, among the university employees.
3. To know the Prevalence of the Hypertension, among the university employees.

Materials and Methods

It is a cross sectional study. The study was carried out over period of 11 months. i.e., since 1st June 2013 to 30th April. 2014.Study of Factors in Association with Hypertension, among Kakathiya University Employees, at Warangal District, India**.** The total population is 835, among them the investigator included 576 i.e. study population and excluded 259 employees, for following reasons like other chronic diseases e.g: congenital cardiovascular, cerebrovascular, renal and endocrinal diseases; also, excluded employees those transferred, on earn or medical leave (EL or ML),died, under punishment like suspension; although excluded those had smoking and alcohol consumption before the 2hrs of the health check-up, to rule out the ambulatory rise of the blood pressure. The investigator included rest of all the employees those are working in the present university during the study period, i.e. sample size is 576, and categorized as: Professor (70); Assoc prof (82); Assist prof (129); Tutors(76); Clerical staff(120);Fourth class employees(99).

Statistical Analysis

Statistical analysis was performed using Excel'07and Statistical Package of Social Sciences (SPSS) version 16.0. For analytical purpose the employees were grouped into, hypertensives and normotensives. Chi square was used for categorical variables P value of less than 0.05 was considered to indicate statistical significance.

ISSN:0975-3583,0976-2833 VOL14, ISSUE06,2023

Results

Table 1: Distribution of the study population of Hypertension Status by according to JNC7 & WG-ASH classification 2003

Study Population	Frequency
Hypertension	297(51.6%)
Normotension	279(48.4%)
Total	576(100.0%)

In the present study the investigator observed that, among the study population those belongs to 'hypertension' group are 297 (51.6%).

Table 2: Distribution of the study population by their of BP range, according to JNC7 & WG-ASH classification of HTN 2003

BP Range	Study population
Normal(SBP90-119&DBP60-79)	279(48.4%)
Pre Hypertension(SBP130-139&DBP80-89)	82(14.2%)
Hypertension Grade1(SBP140-159&DBP90-99)	96(16.7%)
Hypertension Grade 2(SBP>160&DBP>100)	77(13.4%)
Isolated Systolic Hypertension(SBP>140&DBP<90)	42(7.3%)
Total	576(100.0%)

In the present study the investigator observed that, the study population according to their B.P range, majority of the university employees are belongs hypertension grades no 1, i.e. 96 (16.7%).

Table 3: Distribution of the study population according to their Age

Age	Hypertension	Normotension	Total
31 to 40yrs	35 (6%)	142 (24.7%)	177 (30.7%)
41 to 50yrs	128(22.2%)	87(15.1%)	215 (37.3%)
51 to 60yrs	134(23.4%)	50 (8.6%)	184 (32.0%)
Total	297(51.6%)	279(48.4%)	576 (100%)

X^2 =20.8; p<0.05.

In the present study the investigator observed that, the study population, according to their 'age' category, among hypertensive's, majority of the population i.e.134 (23.4%) is seen with the age group of 51 to 60, which is statistically significant.

Table 4: Distribution of the study population according to the Gender

Gender	Hypertension	Normotension	Total
Male	220 (38.1%)	184 (31.9%)	404 (70%)
Female	77 (13.5%)	95 (16.5%)	172 (30%)
Total	297 (51.6%)	279 (48.4%)	576 (100%)

X^2 = 4.5; p<0.05

In the present study the investigator observed that, the study population, according to their 'gender' category, among hypertensives, majority of the study population is seen with 'male' population i.e.220 (38.1%), which is statistically significant.

Table 5: Distribution of the study population according to Religion

Religion	Hypertension	Normotension	Total
Hindu	219 (38%)	193 (33.5%)	412 (71.5%)
Christian	41 (7.1%)	48 (8.4%)	89 (15.5%)
Muslim	33 (5.9%)	32 (5.5%)	65 (11.4%)
Others	4 (0.6%)	6 (1%)	10 (1.6%)
Total	297 (51.6%)	279 (48.4%)	576 (100%)

X^2=1.4; P=>0.05.

In the present study the investigator observed that, the study population according to their category of 'religion', among hypertensives, majority of the population, i.e.219 (38%) is seen with 'Hindu' religion,

Table 6: Distribution of the study population according to Education

Education	Hypertension	Normotension	Total
Post-graduation	116 (20.1%)	165 (28.6%)	281 (48.7%)

ISSN:0975-3583,0976-2833 VOL14, ISSUE06,2023

Graduation	99 (17.2%)	71 (12.3%)	170 (29.5%)
Intermediate	12 (2.2%)	9 (1.5%)	21 (3.7%)
SSC	26 (4.6%)	10 (1.8%)	36 (6.4%)
Secondary School	17 (2.9%)	7 (1.3%)	24 (4.2%)
Primary school	16 (2.7%)	14 (2.4%)	30 (5.1%)
Illiterate	11 (1.9%)	3 (0.5%)	14 (2.4%)
Total	297 (51.6%)	279 (48.4%)	576 (100%)

X^2=12.6; P= <0.05.

In the present study the investigator observed that the study population according to their category of 'educational levels', among hypertensive's, majority of the population i.e.116 (20.1%) are seen with 'post-graduation' group, which is statistically significant.

Table 7: Distribution of the study population according to Occupation

Occupation	Hypertension	Normotension	Total
Professor's (80,000 &>)	39 (6.7%)	31 (5.3%)	70 (12%)
Assoc. prof's. (60,000 to 1,20,000)	50 (8.8%)	32 (5.6%)	82 (14.3%)
Assist prof's (40,000 to 80,000)	39 (6.7%)	90 (15.6%)	129 (22.4%)
Tutor's (35,000 to 60,000)	28 (4.9%)	48 (8.3%)	76 (13.2%)
Clerical staff (15,000 to 45,000)	58 (10.1%)	41 (7.2%)	99 (17.3%)
IV class (10,000 to 25,000)	83 (14.4%)	37 (6.4%)	120 (20.8%)
Total	297 (51.6%)	279 (48.4%)	576 (100%)

X^2:=5.8; p<0.05.

In the present study the investigator observed that the study population according to their category of 'occupation', among hypertensive's, majority of the population i.e.83 (14.4%) are seen with 'fourth class employees' group, which is statistically significant.

Table 8: Distribution of the study population according to Marital Status

Marital Status	Hypertension	Normotension	Total
Married	247 (42.9%)	250 (43.4%)	497 (86.3%)
Unmarried	4 (0.8%)	14 (2.4%)	18(3.2%)
Widow/Divorced	46 (7.9%)	15 (2.6%)	61 (10.5%)
Total	297 (51.6%)	279(48.4%)	576 (100%)

X^2=.4.2; p<0.05.

In the present study the investigator observed that the study population according to their category of 'marital status' among hypertensive's, majority of the population i.e.247(42.9%), are seen with 'married' group. which is statistically significant.

Table 9: Distribution of the study population according to Type of Family

Type of Family	Hypertension	Normotension	Total
Nuclear	110 (19.1%)	161(28%)	271(47.1%)
Joint	69 (11.9%)	59 (10.2%)	128(22.1%)
Three generation	118 (20.6%)	59 (10.2%)	177 (30.8%)
Total	297 (51.6%)	279 (48.4%)	576 (100%)

X^2= 16.7; p<0.05.

In the present study the investigator is observed that the study population according to their category of 'type of family' among hypertensive's, majority of the population i.e. 118 (20.6%) are seen with 'third generation group' group, which is statistically significant.

Table 10: Distribution of the study population according to Family Size

Size of the Family	Hypertension	Normotension	Total
1to2 Persons/Family	9(1.6%)	11 (1.9%)	20 (3.5%)
2to4 Persons/Family	85 (14.8%)	109 (18.9%)	194 (33.7%)
4to6 Persons/Family	91 (15.8%)	106 (18.4%)	197 (34.2%)
>6 Persons/Family	112 (19.4%)	53 (9.2%)	165 (28.6%)
Total	297 (51.6%)	279 (48.4%)	576 (100%)

X^2=2.1; P= >0.05

In the present study the investigator observed that the study population according to their category of 'family size' among hypertensives, majority of the population i.e. 112 (19.4%) are seen with 'family size > 6 persons per family' group.

ISSN:0975-3583,0976-2833 VOL14, ISSUE06,2023

Table 11: Distribution of the study population according to BMI (Body Mass Index)

BMI	Hypertension	Normotension	Total
Normal(18.50to24.99)	29 (5.1%)	94 (16.3%)	123 (21.4%)
Pre Obesity(25.00to29.99)	107 (18.5%)	38 (6.6%)	145 (25.1%)
Obesity Grade1(30.00to34.99)	128 (22.2%)	140 (24.4%)	268(46.6%)
Obesity Grade2(35.00to39.99)	27 (4.7%)	5 (0.8%)	32 (5.5%)
Obesity Grade3(40.00&>)	6 (1.1%)	2 (0.3%)	8 (1.4%)
Total	297 (51.6%)	279 (48.4%)	576 (100%)

X^2=4.9; P=<0.05.

In the present study the investigator observed that the study population according to their category of 'BMI' among hypertensives, majority of the population i.e. 128(22.2%), are seen with 'obesity grade-1' group, which is statistically significant.

Table 12: Distribution of the study population according to Current Smoking

Current Smoking	Hypertension	Normotension	Total
Present	82 (14.3%)	33 (5.7%)	115 (20%)
Absent	215 (37.3%)	246 (42.7%)	461 (80%)
Total	297 (51.6%)	279 (48.4%)	576 (100%)

X^2= 22.3; p<0.05.

In the present study the investigator observed that the study population according to their category of 'smoking status' among hypertensives, majority of the population i.e.215 (37.3%) are seen with 'nonsmokers', which is statistically significant.

Table 13: Distribution of the study population according to Alcohol Consumption

Alcohol Consumption	Hypertension	Normotension	Total
Present	164 (28.4%)	100 (17.4%)	264 (45.8%)
Absent	133 (23.2%)	179 (31.0%)	312 (54.2%)
Total	297 (51.6%)	279 (48.4%)	576 (100%)

X^2=21.7; P=<0.05.

In the present study the investigator observed that the study population according to their category of 'alcohol consumption' among hypertensives, majority of the people i.e.164(28.4%), are seen with 'consuming alcohol' group, which is statistically significant.

Table 14: Distribution of the study population according to Type of Diet

Type of Diet	Hypertension	Norm tension	Total
Vegetarian Diet	28 (4.9%)	36 (6.3%)	64 (11.2%)
Mixed Diet	269 (46.7%)	243 (42.1%)	512 (88.8%)
Total	297 (51.6%)	279 (48.4%)	576 (100%)

X^2 =1.7; P= >0.05.

In the present study the investigator observed that the study population according to their category of 'diet' among hypertensives, majority of the population, i.e.269 (46.7%), are seen among 'mixed diet' group.

Table 15: Distribution of the study population according to Additional Salt Intake

Additional Salt Intake	Hypertension	Normotension	Total
Using	200 (34.8%)	194 (33.6%)	394 (68.4%)
Not Using	97 (16.8%)	85 (14.8%)	182 (31.6%)
Total	297 (51.6%)	279 (48.4%)	576 (100%)

X^2=.0.3; P= >0.05.

In the present study the investigator observed that the study population according to their category of 'additional salt intake' among hypertensives, majority of the population i.e.200 (34.8%). are seen among 'additional salt' using group.

Table 16: Distribution of the study population according to Sleeping Hours/Day

Sleeping Hours/Day	Hypertension	Normotension	Total
<8hrs/Day	291 (50.5%)	221 (38.3%)	512 (88.8%)
>8hrs/Day	6 (1.1%)	58 (10.1%)	64 (11.2%)
Total	297 (51.6%)	279(48.4%)	576 (100%)

X^2 = 51.2; P=<0.05.

ISSN:0975-3583,0976-2833 VOL14, ISSUE06,2023

In the present study the investigator observed that the study population according to their category of 'sleeping hours' among hypertensives, majority of the population i.e. 291 (50.5%), are seen with 'sleeping less than 8 hrs' group, which is statistically significant.

Table 17: Distribution of the study population according to Physical Activity

Physical Activity	Hypertension	Normotension	Total
Doing	58 (10.2%)	96 (16.7%)	154(26.9%)
Not Doing	239 (41.4%)	183 (31.7%)	422 (73.1%)
Total	297 (51.6%)	279 (48.4%)	576 (100%)

X^2=473.7; p<0.05

In the present study the investigator observed that the study population according to their category of 'physical activity' among hypertensives, majority of the population's. 239 (41.4%), are seen with 'not doing physical exercise' group, which is statistically significant.

Table 18: Distribution of the study population according to Mode of Vehicle for Transport

Mode of Vehicle for Transport:	Hypertension	Nrmotension	Total
City Bus	77 (13.4%)	65 (11.2%)	142 (24.6%)
Scooter	139 (24.2%)	105 (18.3%)	244 (42.5%)
Car	81 (14%)	109 (18.9%)	190 (32.9%)
Total	297 (51.6%)	279 (48.4%)	576 (100%)

X^2 =1.2; P= >0.05

Results: In the present study the investigator observed that the study population according to their category of 'mode of vehicle for transport' among hypertensives, majority of the population. i.e.139 (24.2%), are seen with 'those using scooter for transport' group, which is statistically significant.

Table 19: Distribution of the study population according to Working Hours/Week

Working Hours/Week	Hypertension	Norm tension	Total
48 hrs/WeeK	131 (22.8%)	151 (26.2%)	282 (49%)
>48 hrs/WeeK	166 (28.8%)	128 (22.2%)	294 (51%)
Total	297 (51.6%)	279 (48.4%)	576 (100%)

X^2 =5.7; P=<0.05.

In the present study the investigator observed that the study population according to their category of 'working hours/week'' among hypertensive's, majority of the population. i.e.166 (28.8%), are seen with employees those are working '48 hrs/week', which is statistically significant.

Table 20: Distribution of the study population according to Family History

Family history	Hypertension	Norm tension	Total
Absent	172 (29.8%)	158(27.4%)	330 (57.2%)
paternal	59(10.3%)	43 (7.4%)	102 (17.7%)
maternal	32 (5.6%)	52 (9.0%)	84 (14.6%)
both	34 (5.9%)	26 (4.6%)	60 (10.5%)
Total	297 (51.6%)	279 (48.4%)	576 (100%)

X^2= 0.3; P= >0.05.

In the present study the investigator observed that the study population according to their category of 'family history' among hypertensives, majority of the population i.e.172 (29.8%), are seen among 'absent' of family history.

Table 21: Distribution of the study population according to History of DM

History of DM	Hypertension	Normotension	Total
Present	154 (26.8%)	38 (6.6%)	192 (33.4%)
Absent	143 (24.8%)	241 (41.8%)	384 (66.6%)
Total	297 (51.6%)	279 (48.4%)	576 (100%)

X^2 = 94.6; P=<0.05.

In the present study the investigator is observed that the study population according to their category of 'diabetes mellitus history' among hypertensives, more subjects i.e. 154(26.8%), are seen with 'diabetes' group, which is statistically significant.

ISSN:0975-3583,0976-2833 VOL14, ISSUE06,2023

Table 22: Distribution of the study population according to History of CVD (Cardio Vascular Diseases)

History of CVD	Hypertension	Normotension	Total
Present	93 (16.2%)	11 (1.9%)	104 (18.1%)
Absent	204(35.4%)	268 (46.5%)	472 (82.9%)
Total	297 (51.6%)	279 (48.4%)	576 (100%)

$X^2 = 72.3$; P=<0.05.

In the present study the investigator observed that the study population according to their category of 'history of cardio vascular diseases' among hypertensives, majority of the population i.e.204(35.4%)are seen with 'not having history of cardio vascular disease's', which is statistically significant.

Discussion

I. Findings Regarding Socio Demographic Factors

1. Findings regarding Age and Hypertension

In the present study the investigator found, among the hypertensives, majority of the study population, seen with age group of51 to 60 i.e.134 (23.4%).

The similar findings were noted in a study conducted by M. C. Stone*et al.*[5]; The influence of age, sex and other risk factors on Hypertension; found that the age-related rise is not inevitable in all patient and that those with higher pressures at about 30 years of age have greater rises of pressure with age, whatever produces raised blood pressure levels in young patients tends to induce a steeper rise of pressure with age. In another study conducted by, Lisa Cohen, Gary C. Curran, Sc.D.*et al.*[6];Age has an impact on the relationship between lifestyle factors and the risk of developing hypertension; as people get older and the prevalence of hypertension rises, the proportion of incident hypertension attributed to modifiable lifestyle factors decreases.

2. Findings regarding Gender and Hypertension

In the present study the investigator found, among the hypertensives, majority of the study population, seen with male' population i.e. 220(38.1%).

The similar findings were noted in study done by Raghvendra K. Dubeya,B, Suzanne Oparil *et al.*[7]; Sex hormones and hypertension; shows that, man is having higher chances of suffering with hypertension than pre and post-menopausal women. In another study by A V Ng, R Callister, D G Johnson *et al.*[8];Age and gender influence muscle sympathetic nerve activity at rest in healthy humans; also reviews man is having high sympathetic activity than female, which allows increasing vascular tone and increasing the blood pressure.

3. Findings regardingEducation and Hypertension

In the present study the investigator found, among the hypertensive's, majority of the studypopulation, seen with, post-graduation group i.e. 116(20.1%) and the investigator is also found more number of hypertensive's among those belongs to, Illiterate,primary and secondary level of education,i.e. 78.5%,53.3% and 54.1% when compare with in their individual population, i.e.14,30 and 24 respectively.

There was a direct correlation between higher educational status and hypertension in the early stages of the epidemiological transition, according to similar findings also found in the study by Mrunal S. Shetye, &*et al.*[9]titled Prevalence, Awareness, Treatment and Control of Hypertension between the Elderly in Bangladesh and India. The Linkage of Education to Blood Pressure Findings on 40,000 Employed Chicagoans by Alan R. Dyer, Ph.D., Jeremiah Stamler, M.D., *et al.*[10]found that blood pressure is oppositely related to education level in young adult and middle-aged white American men and women.

The findings of the present study do not agree with those of other studies by Rajeev Gupta, V P Gupta, N S Ahluwalia, *et al.*[11]titled "Educational Status, Coronary Heart Disease, and Coronary Risk Factor Prevalence in a Rural Population of India". These studies found that coronary heart disease and the coronary risk factors smoking and hypertension are more common in rural areas of India among those with less education. In a related study by Y Wang, J Chen *et al.*[12],"Education as a significant risk factor for the occurrence of hypertension and elevated blood pressure in Chinese men and women"it was discovered that higher levels of education resulted in the lowest risks and blood pressures. In addition, it was discovered that higher levels of education were linked to lower risks of hypertension in urban populations.

4. Findings regarding Occupation and Hypertension

In the present study the investigator found, among the hypertensives, majority of the study population, seen were, 'fourth class employees 'group i.e. 83(14.4%).

Similar results were found in a study by Briana Mezzo, Karri N. Kershaw *et al.*[13] titled "Job Stress, Workplace Discrimination, and Hypertension among Older Workers: The Health and Retirement". This study also revealed that there was no connection between reports of workplace discrimination and blood

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pressure, hypertension, or poor blood pressure, and that job stress was specifically associated with older workers and those who made low wages. Influence of Lifestyle, Coping and Work Stress on Blood Pressure in Men and Women by Thalina L. Lindquist *et al*.[14] found that resting blood pressure levels are not determined directly by job stress but may be influence indirectly by adaptive or maladaptive coping mechanisms that determine dietary as well as lifestyle habits known for their direct effects on blood pressure control.

Similar results were discovered in the study by Julian e. Keel, Drip, Herman A. Tyrone, MD, *et al*.[15], titled Hypertension: Effects of Social Class and Racial Admixture. They discovered that the risk of developing hypertension was three to four times higher in low social class study participants than in higher social class participants. In a related study, Eric us C AN M Gilberts, Marinas J C W J Arnold *et al*.[16] (Hypertension and determinants of blood pressure with special regards to socioeconomic status in a rural south Indian community) discovered that elderly and overweight people of high socioeconomic class are at risk for developing hypertension.

5. Findings regarding Marital Status and Hypertension

In the current investigation, the researcher discovered that 247 (42.9%) hypertensives made up the vast majority of the study's population. Are spouses of patients with hypertension at a greater risk of getting hypertension?Julia Hip isle, Cox, Mike Pringle, *et al*.[17] reported similar results. A population-based case-control study revealed that patients with spouses who have hypertension have a double the risk of developing the condition compared to patients without the condition. This is consistent with a common environment among patients with spouses who do not have hypertension. Married couples' risk of same disease: a cross sectional study by Carol Coupland *et al*.[18] found that risk participants were significantly more likely to have asthma, depressive disorders, hypertension, hyperlipidaemia, or peptic ulcer disease if their marital partner had the same disease, with the increased risks being at least 70%. Similar results were discovered in the study by Julian e. Keel, Drip, Herman A. Tyrone, MD, *et al*.[15], titled Hypertension: Effects of Social Class and Racial Admixture. They discovered that the risk of developing hypertension was three to four times higher in low social class study participants than in higher social class participants. In a related study, Eric us C AN M Gilberts, Marinas J C W J Arnold *et al*.[16] (Hypertension and determinants of blood pressure alongside special reference to social and economic status in a rural south Indian community) discovered that elderly and overweight people of high socioeconomic class are at risk for developing hypertension.

Impacts of Marriage Status and Transition on Hypertension in Chinese Women: A Longitudinal Study, March 2005; and other studies by Haijiang Wang *et al*.[19]; the current study is distinct from those investigations. Haijiang Wang discovered that married Chinese women have a lower risk of acquiring hypertension. Compared to single, divorced, widowed, or separated women. In a related study by Juliane Holt Lustand Ph.D., Wendy Bremingham B.S., (MS 4), *et al*.[20] titled "Impact of Marital Status, Relationship Quality, and Network Social Support on Ambulatory Blood Pressure and Mental Health," it was discovered that married people experience higher levels of life satisfaction (SWL) and lower blood pressure than single people.

II. Findings Regarding Various Risk Factors

1. Findings Regarding Body Mass Index (BMI) and Hypertension

In the current study, the researcher discovered that more hypertensives belonged to the "obesity grade 1" group-128 people-who had hypertension than the other groups-32 people and 8 people, respectively. The researcher also discovered that there were more hypertensives among those who belonged to the "obesity grade 2" and "obesity grade 3" groups-84.3% and 75%-than in their respective individual populations.

Pre-hypertension and hypertension were substantially correlated with higher BMI, according to findings that were comparable to those from a study by Yasin I Tayem *et al*.[21] titled "Prevalence and associated risks of obesity and hypertension in students at a central university in the West Bank". Obesity and hypertension: The issue is more complicated than we believed, by Krzyszt of Narkiewicz *et al*. [22] revealed that obesity is an independent risk factor for the onset and progression of hypertension, cardiovascular disease, and chronic renal disease.

2. Findings Regarding Smoking and Hypertension

In the current investigation, the researcher discovered that 215 (37.3%) of the hypertensives in the study population belonged to the "nonsmokers" group. In the study by Paola Primatesta, EmanuelaFalaschetti *et al*.[23] titled Association across Smoking and Blood Pressure Proof from the Health Survey for England, similar results were also discovered. Many patients reported quitting smoking in the past few months when they complained of having hypertension, which may have contributed to the above finding.A minor independent chronic effect of smoking on blood pressure was discovered. When lifestyle and other confounding factors were taken into account, Y Okubo, T Miyamoto, *et al.'s* study an association between smoking habits and blood pressure in normotensive Japanese men [24] found no significant dose-effect relationships between smoking amount and blood pressure. The results of the

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current study differ with those of other investigations by F. Abaci, Z. Kanpur, *et al*.[25], Correlation among Cigarette Smoking and Blood Pressure and Pulse Pressure among Teachers Residing in Shiraz, Southern Iran, which discovered that smokers are more likely than non-smokers to have pre-HTN. A Prospective Study of Cigarette Smoking and Risk of Incident Hypertension in Women by Thomas S. Bowman, J. Michael Gazing, *et al*.[26] found a weak association between cigarette smoking and an increased risk of developing hypertension in women, with the association being strongest in those who smoke at least 15 cigarettes per day.

3. Findings Regarding Alcohol and Hypertension

In the current investigation, the researcher discovered that 164 (28.1%) hypertensives were identified to make up the bulk of the study population.

The study by also came to similar conclusions. Flavour According to Danni Fuchs, Lloyd E. *et al*.[28], the Atherosclerosis Risk in Communities study's findings on alcohol intake and the incidence of hypertension are in line with the idea that excessive alcohol consumption is a separate risk factor for hypertension. The Community Norms of the Alcohol Usage and Blood Pressure: Tecumseh, Michigan study by Ernest Hamburg, Freidan Osborne, *et al*.[28] found that for both men and women, the highest levels of reported alcohol consumption were linked to the highest levels of (age and weight adjusted) blood pressure.

4. Findings RegardingDiet and Hypertension

In the current investigation, the researcher discovered that 269 (46.7%) hypertensives made up the majority of the study population. Comparative study of vegetarian and non-vegetarian food on blood pressure, serum sodium and chloride from two different geographical locations [29] found similar results, finding that the vegetarian diet has a major preventive role to lower BMI and blood pressure in comparison to protein-rich non-vegetarian diet. In a related study, Low Blood Pressure in Vegetarians, Impacts of Specific Food and Nutrients, conducted by Frank M. Sacks, Edward H. Khass, *et al*.[30], it was discovered that vegetarians have lower blood pressure than non-vegetarians.

5. Findings Regarding Additional Salt Intake and Hypertension

In the present study the investigator found, among the hypertensives, majority of the study population, seen with ‘consuming additional salt intake’ group i.e. 200(34.7%). The similar findings also found in the study conducted by, RadhikaG &Sathya RM *et al*.[31]; In the study Dietary salt consumption and hypertension in an urban south Indian population-[CURES-53], the researchers discovered that rising salt intake is linked to a higher risk of hypertension, even after controlling for relevant confounders. In a different study by Nancy R. Cook, Jeffrey A. Cutler, *et al*., entitled "Long Term Effects of Dietary Salt decrease on Cardiovascular Disease Outcomes: Observational Follow-Up of the Trials of Hypertension Prevention (TOHP Sodium Reduction)", they discovered that reducing sodium intake, which has been previously shown to lower blood pressure, may also lower the long-term risk of cardiovascular events.

6. Findings Regarding Sleeping Hours/Day and Hypertension

In the present study the investigator found, among the hypertensive’s, majority of the study population, seen with ‘sleeping < 8 hours’ group i.e. 291(50.5%).

Connections of short sleep duration with hypertension and prehypertension among Lithuanian children and adolescents: a cross-sectional study, which found a similar pattern of results, found that prehypertension and hypertension were linked with short sleep time among Lithuanian children and adolescents aged 12 to 15 years. The association between sleep and blood pressure in the CARDIA sleep study, carried out by Kristan L. Knusten, Eva Van Kauter *et al*.[34], indicated that shorter sleep duration and consolidation predicts higher BP values and unfavorable variations in BP.

The results of the current study are not comparable to those of other studies conducted by Wasim A. Shaikh, Minal Patel and colleagues[35]. In their study, Connection of Sleep Duration alongside Arterial Blood Pressure Profile of Gujarati Indian Adolescents, they discovered that, despite significantly increasing adiposity and cardiovascular reactivity to stress, inadequate nighttime sleep duration (7 hrs) has no impact on the blood pressure profile of Gujarati Indian adolescents in the age group 16-19 years. InêsPaciência, Henrique Barros, *et al.* study "Association between sleep duration and blood pressure in adolescents" [36] revealed no correlation between sleep duration and blood pressure in male adolescents. Both sexes showed a positive correlation between sleep duration and blood pressure, however after controlling for potential confounders, only female adolescents showed a statistically significant correlation.

7. Findings Regarding Physical Activity and Hypertension

In the present study the investigator found, among the hypertensives, majority of the study population, seen with ‘not doing physical activity’ group i.e. 239(41.4%). The similar findings also found in the study conducted by Adware L Oyeyemi,OlumideAdeyemi *et al*.[37];Low levels of health-improving

ISSN:0975-3583,0976-2833 VOL14, ISSUE06,2023

physical activity in the working population of Nigeria were associated with increased BMI, waist circumference, and blood pressure, according to a study linking physical exercise to cardiovascular risk factors in an urban population of Nigerian adults.High prevalence rates of sedentary habits in our midst, ranging from 47% to 63% of the population, were revealed in a related study by Tatiana Valverde da Conceiço, FabianoAlves Gomes, *et al*.[38]; Blood Pressure Levels and the Relationship with Cardiovascular Risk Factors for Employees of the University of Brasilia, a Brazilian Public University.

8. Findings Regarding Diabetes and Hypertension

In the present study the investigator found, among the hypertensives, majority of the study population, seen with 'having diabetes 'group i.e. 154(26.8%).

The Association of systolic blood pressure with macrovascular and microvascular complications of type 2 diabetes (UKPDS 36) prospective observational study, conducted by epidemiologist Amanda Adler, Irene M. Stratton, &*et al*.[39] found that elevated blood pressure was strongly associated with the risk of diabetic complications in patients with type 2 diabetes. The risk of complications was discovered in another study by I. M. Stratton, C., A. Cull, A.I. Adler *et al*.[40]: Additive effects of glycaemia and blood pressure exposure on risk of complications in type 2 diabetes: a prospective observational study (UKPDS 75). Hyperglycemia and hypertension are linked to type 2 diabetes both singly and in combination. Prevalence of Microalbuminuria in Non-Diabetic Hypertensive Patients Attended by Portuguese GPs[42] found that, in routine practice, determination of microalbuminuria in hypertensive patients is still under-utilized, despite several studies showing microscopic albuminuria to be an important cardiovascular risk factor in patients with or without diabetes. The current study's findings are not similar to those of Jorge Polónia, José Carmona *et al*.[41]. Another similar study by S.M. Haffner, M.P. Stern, *et al*.[43]found that non-diabetic subjects with microalbuminuria have a worse pattern for cardiovascular risk factors than non-diabetic subjects without microalbuminuria. This suggests that microalbuminuria may serve as an indicator for increased cardiovascular risk factors in non-diabetic subjects.

9. Findings Regarding CVD and Hypertension

In the present study the investigator found, am among the hypertensives, majority of the study population, seen among 'not having cardio vascular diseases history group i.e.204(35.4%). According to many studies revealed that, cardio vascular disease is a consequence of 'hypertension', so that could be a reason high number of groups those doesn't have cardio vascular diseases history in the present study.

High-normal blood pressure is linked to an increased risk of cardiovascular disease, according to findings from a study by Ramachandran S. V. Asan M.D., Martin *et al*.[44] titled "Impact of high-normal blood pressure on the chance of cardiovascular disease". Prevalence of Heart Disease and Stroke Risk Factors in Persons Having Prehypertension in the United States, 1999-2001 by Kurt J. Greenlund, Janet B. Croft, *et al*.[45] found that the relationship between blood pressure and the risk of cardiovascular disease is graded and continuous.

III. Findings Regarding Prevalence of Hypertension

In the present study the prevalence of Hypertension is 51.6% among university employees.

Prevalence of Hypertension and its Associated Factors among University Staff, a study by SomayehAminizadeh, Salmiah Md. Said *et. al*.[46] indicated that the prevalence of hypertension and pre-hypertension is high among university staff. The Prevalence of Cardiovascular Disease Risk Factorsamong Employees in the Kingdom of Bahrain by AbdulhussainAbdulabbas Abdulla Alajmi *et al*.[47] found that the high prevalence of CVD risk factors among participating employees reflected alarming public health concerns and a future health demand. Similar results were obtained in the study Hypertension among Employees of a University General Hospital by DecioMionJr, Angela M, *et al*.*[48]*, which revealed a significant prevalence of hypertension among urban Rewa city residents, which was found to be 21.3%.

Conclusion

With the above-mentioned results, the investigator come to following conclusions, among the study participants. The percentage of hypertension is 51.6%.; Socio-demographic risk factors i.e. age group 51 to 60, male gender, illiterates, post graduates, married people, third generation type of family; size of the family; were statistically significant i.e. $p<0.05$; and religion, were statistically not significant i.e. $p>0.05$. Life style related risk factors; population with obesity grade 1, nonsmokers, alcoholics, sleeping hours<8hrs, not doing physical activity, weekly working hours >48hrs; were statistically significant i.e. $p<0.05$ and diet, additional salt intake, mode of vehicle transport i.e. scooter users, were not statistically significant i.e. $p>0.05$. Co-morbidity risk factors DM, CVD's are were statistically significant i.e. $p<0.05$ and family history is not statistically significant i.e. $p>0.05$.

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