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Prevalence And Predictors Of Hypertension In Work-Life Balance Among Healthcare Professionals

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ABSTRACT

BACKGROUND: *Work-life balance is a central issue affecting the health of employees. The success ofa person as an employee as well as a social being is determined by his/her work-life balance. Studies from many developed nations have suggested an association between Work-Life Balance and a higher prevalence of hypertension. Medicare to treat high BP, and missed days of workers. Escalating cardiovascular risk factors such as smoking, high blood pressure (BP), high-density lipoprotein (LDL) cholesterol, low-density lipoprotein (HDL) cholesterol, metabolic syndrome, and diabetes are the major risk factors associated with the increasing CVD in India.*

AIM & OBJECTIVES: *To Study the Prevalence and Predictors of Hypertension in Work-Life Balance Among Healthcare Professionals*

METHODS: *A descriptive research design was utilized for the study. The essential information was gathered through an organized survey. A sample of 260 representatives of the healthcare profession of Government Medical College & hospital Cuddalore was chosen for the research in the year 2022. Data was collected through a convenient sampling method. Information on the sociodemographic, lifestyle, dietary, and other clinical history of each of the participants was collected using a standardized questionnaire. We measured systolic and diastolic blood pressure 2 times and then calculated each patient's mean blood pressure as a measure for defining hypertension. Multiple logistic regression models were used to assess associatio[1]n hypertension.*

RESULTS: *The prevalence of hypertension was 19.2% in this study. Participants who attained higher education had higher income and those employed had higher odds of hypertension compared to those with lower education, low income, or farmers. However, the result is not statistically significant.*

CONCLUSION: *Special care should be directed to those with undiagnosed hypertension and cases with resistant hypertension. Our study calls for more attention to health education programs with special emphasis on healthy lifestyles like regular physical exercise, weight control, and quitting smoking to avoid risk factors for hypertension and better control of the disease among diagnosed and treated patients.*

KEYWORDS: *Work-life balance, BMI, stress, Hyperte0nsion, prevalence, risk factors,*

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INTRODUCTION

Hypertension usually occurs when the blood vessels have a persistently raised pressure. If the blood pressure is high, it will be more challenging for the heart to pump blood around the body. This can lead to aneurysms and weak spots in the blood vessels. [1] Furthermore, it can lead to blood clots, which can cause blood vessels to burst. If this happens in the brain, for example, it is likely to cause a stroke. A normal blood pressure for humans is defined as 120 mmHg SBP, and 80 mmHg DBP. Pre- hypertensive is defined as high normal blood pressure in the range of 120–139 mmHg for SBP, and 80–89 mmHg for DBP. An SBP of 135mmHg, and/or a DBP of 85mmHg is also considered to be a risk factor for hypertension and other diseases.[2] If hypertension remains untreated it will increase the danger of severe morbidity and mortality since it is the major risk factor for CVDs, and since hypertension usually has no symptoms, it is considered a 'silent killer'. In 2015, the global prevalence of people diagnosed with hypertension was estimated to be 900million among those who are 25 years or older. Furthermore, in 2010, hypertension was considered the leading risk factor of the global disease burden, accounting for 7% of global disability-adjusted life years.[3] Moreover, the World Health Organization has reported thatsuboptimal blood pressure is responsible for 62% of cerebrovascular diseases, and 49% of ischemic heart diseases. It has been therefore stated that suboptimal blood pressure is the number one attributable risk factor for death worldwide. In 2013, 17.3 million people were dying of cardiovascular diseases (CVDs) globally, and it is predicted that during thefirst 25 years of the 21st century, the burden of hypertension is expected to increase by 60%.[4] Excessive alcohol consumption, tobacco, high salt intake, smoking, sedentary lifestyle, and increasing BMI are potential risk factors for hypertension With the increasing urbanization and globalization in LMICs, the risk for hypertension is increasing. In Asia, several studies have reported hypertension prevalence in the context of these risk factors. Apart from that Type of work and working conditions are important due to personal development, social relations, financial security, and social status.[5] Workplaces where individuals experience stress are associated with a 50% increased risk of coronary heart disease. A study from India found the prevalence of hypertension to be 30% among males working as private employees which was almost 30%, compared to manual labor, where the prevalence was 17%. [6] In research, they found among females, the highest prevalence of those reporting homemakers, and the lowest prevalence was found among those doing manual labor work, 17.3% and 14.3%, respectively. Similar results were observed in several studies from India, where farmers and manual laborers have a lower prevalence of hypertension compared to those working in healthcare professions government jobs, or self-employed [7,8]

Objectives and Research Questions

Aim

The overall aim of this study is to assess the relationship between demographic factors, socio-economic factors, and the prevalence of hypertension Among Healthcare Professionals

Research hypothesis

1. We hypothesize that those who had attained higher education are more likely to behypertensive than those who had no formal education.
2. We hypothesize that those who had a high level of income are more likely to behypertensive than those with low income.

METHODS: A descriptive research design was utilized for the study. The essential information was gathered through an organized survey. A sample of 260 representatives of the healthcare profession of Government Medical College & hospital Cuddalore was chosen for the research in the year 2022. Data was collected through a convenient sampling method. Information on the sociodemographic, lifestyle, dietary, and other clinical history of each of the participants was collected using a standardized questionnaire. We measured systolic and diastolic blood pressure 2 times and then calculated each patient's mean blood pressure as a measure for defining hypertension. Multiple logistic regression models were used to assess association hypertension. All eligible participants were given oral information about the study objectives

and were enrolled after giving informed consent. A standardized questionnaire was used to collect data on sociodemographic characteristics, lifestyle factors, diet, and medical history. The questionnaire was adopted from the standardized and validated Non-Communicable Disease Risk Factors: STEPS Survey WHO 2013. Clinical instruments included a blood pressure monitor (GT - 702 Fully Automatic Arm Style Digital Blood Pressure Monitor), to measure blood pressure two times at least 15 minutes apart, before and after the interview. The mean value of the first and second measurements was used for the analysis. The total time of the interviews, including clinical measurements varied from 15 minutes to 30 minutes.

Selection of Cases

Inclusion Criteria:
1. All healthcare professional workers
2. Patients consenting to the study

Exclusion Criteria:
1. Complicated/Unregulated Blood pressure
2. Pregnancy
3. Angina
4. Hypertensive emergency

Measures

The questionnaire included information on sociodemographic characteristics such as age, gender, marital status, ethnicity, education, income, land ownership, and occupation. Additionally, we collected anthropometric data such as height and weight, and lifestyle factors including alcohol intake, diet, physical activity, and smoking. Body mass index (BMI): The body mass index of the participants measured using the "BOSCH Electronic scale PPW4201" was calculated as weight in kilograms divided by height in meters squared. The participants were then categorized as either underweight (< 18.5 kg/m^2), normal (18.5 – 24.9 kg/m^2), overweight (25.0 – 25.9 kg/m^2), or obese (≥ 30.0 kg/m^2)

Outcome Variable

The research Supervisor measured the blood pressure two times in a sitting posture over loose clothing using the GT-702 blood pressure machine. We ensured the participants had been sitting in a resting position for at least 15 minutes before the second measurement. Hypertension was defined as a systolic blood pressure of 140 mmHg, or higher and/or diastolic blood pressure of 90 mmHg or higher, or under hypertensive medication within the last two weeks of the interview

Statistical analysis

Descriptive statistics of sociodemographic, lifestyle, and dietary factors were summarized. The means and standard deviations were calculated for continuous variables, while numbers and percentages were calculated for categorical variables. To assess whether sociodemographic, socioeconomic factors, lifestyle, and dietary factors differ between normotensive and hypertensive groups, chi-square tests were performed, and a t-test was used for continuous variables. A multivariable logistic regression model was used to calculate the odds ratio and the corresponding 95% confidence interval to assess the association between hypertension and socioeconomic factors. A two-tailed p-value of less than or equal to 0.05 was statistically significant. Statistical analysis was performed using SPSS version 24

Results

Table 1. Distribution of Sociodemographic Characteristics of Study Participants

Sociodemographic Characteristics	Male (n=134)	Female (n=126)	Total (n=260)
	n (%)	n (%)	n (%)
Hypertensive	32 (23.9)	18 (14.3)	50 (19.2)
Age groups in years			
18-34	34 (25.4)	43 (34.1)	77 (29.6)
35-49	44 (32.8)	44 (34.9)	88 (33.8)
50-65	23 (18.1)	32 (23.9)	55 (21.2)
66 and over	16 (12.7)	24 (17.9)	40 (15.4)
Age in years, Mean (SD)	43 (15.9)	48 (16.7)	45 (16.4)
Marital status			
Unmarried	15 (11.2)	23 (18.3)	38 (14.6)
Married	119 (88.8)	103 (81.7)	222 (85.4)
Ethnicity, n (%)			
Others	25 (18.7)	27 (21.4)	52 (20)

Table 1 presents the demographic characteristics, socioeconomic variables, and lifestyle characteristics by gender. There were 51.5% males and 48.5% females in this study, with a mean age of 43 and 48, respectively. The majority of the participants were between 18 to 49 years old. Additionally, the majority of the participants were married and belonged to the Brahmin/Chhetri castes In comparison to the female population, more males were hypertensive. Furthermore, more males consume tobacco and alcoholic beverages. Additionally, more males have had their blood pressure measured, whereas slightly more females are considered overweight or obese.

Table 2. Distribution of Lifestyle Characteristics of Study Participants

Lifestyle factors	Male (n=134)	Female (n=126)	Total (n=260)
Tobacco intake			
Never	29 (21.6)	79 (62.7)	108 (41.5)
Current	51 (38.1)	9 (7.1)	60 (23.1)
Former	54 (40.3)	38 (30.2)	92 (35.4)
Alcohol/weekly			
Never	82 (61.2)	113 (89.7)	195 (75)
Low (<1glass/week)	6 (4.5)	4 (3.2)	10 (3.8)
Moderate (1-3 glass/week)	13 (9.7)	1 (0.8)	14 (5.4)
High (>3 glasses/week)	33 (24.6)	8 (6.3)	41 (15.8)
Salty sauce consumption			
Little	28 (20.9)	24 (19)	52 (20)
Just the right amount	70 (52.2)	63 (50)	133 (51.2)

Table:2 A Higher proportion of participants with higher education was also found among the hypertensive, whereas a higher proportion of the normotensive reported no formal schooling. The majority of hypertensive were employed whereas the major work category among normotensive participants was farming. Moreover, about 84% of the hypertensive participants meet the WHO recommendation (METmin/week of 600 or more) of being physical active. Lower intake of fruits and vegetables, and higher intake of processed food were also more common among the hypertensive compared to normotensive. Higher proportions of hypertensive compared to normotensive are former smokers and moderate drinkers. In addition, hypertensives were more likely to be overweight and obese than normotensive participants (p=<0.01). Moreover, 28.6% of the hypertensive have not been told they have raised blood pressure and were therefore unaware of their condition.

Table 3. Clinical History of Characteristics of Study Participants

	Normotensive n = 210	**Hypertensive n = 50**	**P-value**
Clinical history			
Measured blood pressure			
Never	38 (18.1)	8 (16)	0.73
Yes	172 (81.9)	42 (84)	
Been told of raised blood pressure			
Never	151 (87.8)	12 (28.6)	**<0.001**
Yes	21 (12.2)	30 (71.4)	
Anthropometric measures			
BMI groups			
Underweight	32 (15.2)	4 (8)	**<0.001**
Normal weight	138 (65.7)	22 (44)	
Overweight	33 (15.7)	19 (38)	
Obese	7 (3.3)	5 (10)	
BMI Kg/m^2, mean (SD)	21.9 (3.54)	24.9 (4.37)	

Table :3 Individuals with higher educational attainment had also higher odds of having hypertension, compared with those with no formal education (OR model 1, 1.60, 95% CI, 0.67-3.80); After adjustments for income, occupation, age, sex, marital status, ethnicity, tobacco intake, alcohol consumption, diet, physical activity, and salt consumption, the OR increased (OR model 3, 3.31, 95% CI, 0.84-13.06). We observed a linear trend of increased hypertension with each higher category of education (Pfor linear trend=0.04) In comparison with unemployed individuals, those who were employed had higher odds of being hypertensive (OR model 1, 1.58, 95% CI, and 0.70-3.56); however, the association was not statistically significant. After further adjusting for income, education, age, sex, marital status, ethnicity, tobacco intake, alcohol

consumption, diet, physical activity, and salt consumption, the odds ratio was slightly stronger 0.95, 95% CI, 0.34 – 2.70).

DISCUSSION

Following JNC-7, JNC-8and WHO definition of hypertension, the prevalence of hypertension in the present study was 23%. Around 33% of the population had blood pressure in the normal range and 47% of the population had pre-hypertension. The findings of the study are comparable to WHO estimates which gives a 23% prevalence of hypertension in India. Prevalence of hypertension and pre-hypertension is high in the present study which supports the increasing trend in the rural communities of India which are under the epidemiological transition. The prevalence of hypertension in rural areas was 20%. The prevalence rates of the present study differed from those given by the Office of the Register General of India (10%) and WHO (22.6%).[9] Depending on the rural areas selected and the methodology used other researchers have found a prevalence of hypertension in rural Indian areas ranging from 7% to19 %. Isolated systolic hypertension, an elevation in systolic but not diastolic pressure, is the most prevalent type of hypertension in those aged 50 or over, occurring either denovoor as a development after a long period of systolic-diastolic hypertension with or without treatment. [10] It is known from various studies that rising blood pressure is associated with increased cardiovascular risk. The present study found increasing age to be an important modifiable risk factor for the development of hypertension. The prevalence of hypertension was 3.7% in the age group of 20–29 years, which increased to 72. 2% for people aged ≥ 70 years. There was a sharp increase in the prevalence of hypertension after the age of 50 years. The increase in blood pressure with age was found to be similar in both the urban and rural areas of social health care workers.[11] The main reason for the increase in blood pressure with an increase in age is that arteries and arterioles become less elastic due to the rosclerotic changes as people age advances. Changes in lifestyle and stress are also important contributors. Almost all the studies done to identify the risk factors of hypertension have inferred that age is a significant risk factor for the development of hypertension. The prevalence of hypertension was 15.38% for the age group 25–39 years which increased to 72% for the age group> 70 years. Gender differences in hypertension emerge in early adulthood. Our results provide new insights into the origins of gender disparities in both hypertension status and hypertension awareness in several ways. [12] The gender disparities in hypertension status observed during adulthood are already evident when men and women are in their twenties, with women far less likely to be hypertensive compared to men. In the present study, males had a higher prevalence of hypertension compared to females. [13] The prevalence of hypertension was 24% in males and 20% in females, but this difference was found to be statistically significant. In urban areas, the prevalence of hypertension was 40% in males and 13.3% in females. In the rural areas, the prevalence of hypertension was 24% in males and 16% in females.[14] A large number of epidemiological studies have inferred that the prevalence of hypertension is higher in males as compared to females. This is because; during adolescence and middle-aged males have higher blood pressure compared to females. pressure. Later in life this difference diminishes mainly because of the postmenopausal changes.[15] In the present study though there is a difference in the prevalence of hypertension in males and females it is not statistically significant, this is most probably because there were more post-menopausal women involved in the study. Variations in the extent of hypertension in the abovementioned studies may be due to disparity in settings, attributes of study subjects, and differences in time frame.[16] In India, Primary Health Care facilities happen to be the first point of contact of the population with health services. This is also valid for the detection and management of NCDs in general and hypertension in particular. The findings of this study provide significant inputs for prevention, screening, and focused attention of subjects from rural India. Well, a representative sample of adults and the use of pretested and validated tools stands out to be the strength of the study.[17] However, the cross-sectional nature of the survey only provides the burden of hypertension at a point in time. The study focuses only on the rural adult population; thus, nation-based estimates are desirable. [18]A large community-based study including both rural and urban populations is required to ascertain the exact prevalence and predictors of hypertension in the community. Social desirability bias may have led to over or under-reporting related to tobacco and alcohol. This study reflects three out of ten study subjects as hypertensive; subjects in higher age range, from lower

socioeconomic class, tobacco consumers, and with high waist circumference as well as WHR as predictors for hypertension. [19] The study refutes the age-old concept that hypertension is not a major problem in rural India. There is a big chunk of the population unaware of their hypertension status. The findings of the study give the message that the focus should shift from expensive tertiary care to primary healthcare settings for combating lifelong management of hypertension.[20]

CONCLUSION

We observed no clear evidence of a positive association between SES and hypertension; however, future studies are required to reproduce our findings with a larger sample. Three out of ten subjects were hypertensive. Advancing age, tobacco dependence, socioeconomic adversities, and high central obesity predisposed individuals to hypertension. These findings call for targeted attention for maximum risk reduction in terms of dietary modification, optimum nutrition, and increased physical activity for curbing hypertension in rural subjects. Nevertheless, this study has provided results that may be used for cost-effective interventions, such as raising awareness and implementing blood pressure control for all patients visiting the health clinic. This is cost-effective and can detect potential hypertension conditions. By detecting hypertension, more people will be able to undergo lifestyle changes or use medicines to decrease blood pressure before potential diseases occur, such as hearth disease and stroke.

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