

PREVALENCE OF DIABETES, HYPERTENSION AND OBESITY AMONG DOCTORS AND NURSES IN UNIVERSAL COLLEGE OF MEDICAL SCIENCES, BHAIRAHAWA, NEPAL

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ABSTRACT

INTRODUCTION

Hypertension (HTN) and diabetes mellitus (DM) both are rapidly emerging as public health problems in developing countries. Hypertension is the leading cause of cardiovascular disease and is also a major cause of disability, causing an estimated 13% of all deaths in the world. Diabetes mellitus, hypertension and obesity are very strongly associated with cardiovascular diseases all over the world.

MATERIAL AND METHODS

A cross sectional study was done among the doctors and nurses working in UCMS teaching hospital from Sep, 2020 to Feb, 2021. A total of 138 doctors and nurses were selected using a simple random sampling technique. Descriptive statistical analysis was used for the calculation of central tendency and dispersion measures. Chi-Square test was applied for categorical predictors and P value of less than 0.05 was considered as statistically significant.

RESULTS

Doctors formed 47 % while nurses formed 53% of the study population. Prevalence of hypertension was found to be 18% among doctors and 7% among nurses. Prevalence of diabetes mellitus was found to be 6% among doctors and 8% among nurses. Prevalence of obesity was found to be 47% among doctors and 48% among nurses. The overall prevalence of hypertension, diabetes mellitus and obesity was the order of 25%, 14% and 95% respectively.

CONCLUSION

These findings provide important information on prevalence of hypertension, diabetes mellitus and obesity along with its associated risk factors among doctors and nurses working in UCMS teaching hospital. Preventive health measures like low fat diet, physical activity, cessation of smoking, control of alcohol and various strategies are needed for the prevention of these cardiovascular disease among doctors and nurses working at UCMS teaching hospital.

KEYWORDS

Cardiovascular Disease, Diabetes Mellitus, Doctors, Hypertension, Nurses, Obesity

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<https://doi.org/10.3126/jucms.v11i03.61463>

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INTRODUCTION

According to the World Health Organization's recent update, diabetes, hypertension, and obesity are one of the top five contributing risk factors for cardiovascular deaths in the world.¹ Cardiovascular disease (CVD) is the number one cause of death globally, killing almost 17.9 million people every year, representing 31% of all global deaths.² Diabetes mellitus, hypertension and obesity are strongly associated with cardiovascular diseases all over the world. Doctors and nurses play a vital role in the health and welfare of the people of a nation. Health of the doctors and nurses is of paramount importance because they themselves must be healthy to perform their jobs optimally under challenging work environments. Additionally, evidence suggests that there is a strong and consistent relationship between physician's health choices and the recommendations he or she makes to his or her patients.³

Knowledge and awareness regarding CVDs and the associated risk factors is expected to be good among doctors and nurses since they have access to information. However, they are also known to have a sedentary lifestyle with high levels of stress, lack of proper rest and irregular eating habits making them highly vulnerable to Cardio-vascular diseases.

The prevalence of hypertension and diabetes in this group has not been well studied in Nepal. So this study is aimed to assess the prevalence of diabetes mellitus, hypertension and obesity among doctors and nurses working in Universal College of Medical Sciences Teaching Hospital, Bhairahawa, Nepal.

MATERIAL AND METHODS

This descriptive cross sectional study was conducted from Sep, 2020 to Feb, 2021 among doctors and nurses working in Universal College of Medical Sciences, Bhairahawa, Nepal. The study was done after getting approval from Institutional Review Committee (IRC) of Universal College of Medical Sciences (UCMS/IRC/150/20). The informed consent was obtained from all the study participants and confidentiality was maintained throughout the conduct of study.

The sample size was calculated by applying the formula,

$$\text{Sample size (n)} = Z^2pq/d^2$$

Where,

$$Z = 1.96 \text{ at } 95\% \text{ confidence level}$$

$$P = 0.36$$

$$Q = 1 - p = 0.64$$

$$d = \text{margin of error at } 8\%$$

Taking the prevalence of hypertension among doctors as 35.6% and with an absolute precision of 8%, the sample size was estimated to be 138. A total of 138 doctors and nurses were selected using a simple random sampling technique.⁴

Visiting Consultants, doctors and nurses who joined within one year of the start of data collection were excluded from the study. Pre-tested structured questionnaire was used for data collection. The anthropometric measurement like body height (BH), body weight (BW) and blood pressure (BP) were recorded of selected study population by standard technique. Blood pressure was measured by the conventional auscultatory method with an aneroid sphygmomanometer with standard sized cuff (12 × 34 cm). The blood pressure

measurement was taken in the seated position, quietly in a chair with feet on the floor and an arm support at the level of heart. Three consecutive blood pressure readings were taken from the right arm and average of them were calculated to determine single value of blood pressure.

The participants were considered as hypertensive if any of the following conditions were met - average Systolic Blood Pressure (SBP) >140 mm Hg or Diastolic Blood pressure (DBP) > 90 mm Hg or if they have used antihypertensive drugs (JNC 7 Criteria). Blood Sugar was measured by GOD/-POD (Glucose oxidase/Peroxidase) method for the diagnosis of Diabetes., If fasting blood sugar level was more than 126 mg/dl and postprandial more than 200mg/dl, they were considered as diabetic. Previous history of Diabetes was considered to be diabetic.

The height and weight were measured using the standard criteria. Height was measured using a non-stretchable measuring tape, with an accuracy of 0.1 cm, standing against a wall bare footed; weight was measured using an electronic weighing scale with an error of ±0.1 kg. Body Mass Index (BMI) was calculated as weight (Kg) divided by height in (m²). BMI is classified as (≥23: obesity) and <23 (Normal) as per the criteria given by WHO for Asian population.

RESULTS

Mean age of study population was 37.90(±8.069) years. Mean age of doctor and nurse were 39.45 (±8.01) and 36.76(±7.88) respectively. Doctors formed 47 % while nurse formed 53% of the study population.

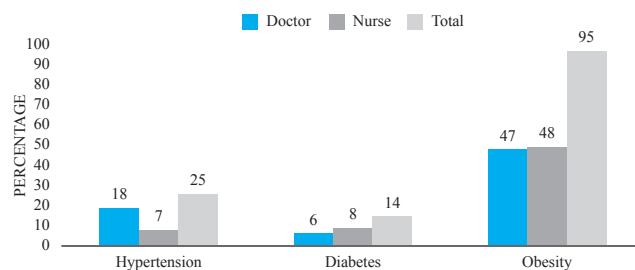


Figure 1. Prevalence of hypertension, diabetes mellitus and obesity

Prevalence of hypertension was found to be 25%. Mean systolic and diastolic pressures were found to be 115.42 (±15.57) mm of hg and 74.33 (±10.61) mm of hg respectively. Among doctors, the prevalence of hypertension was 18% while among nurses it was 7% and this difference was found to be statistically significant ($p=0.006$).

Prevalence of diabetes mellitus was found to be 14%. Mean random blood glucose value was found to be 98.47 mg/dl. The prevalence of diabetes mellitus found to be 6% among doctors while among nurse it was 8% and this difference was not statistically significant ($p=0.614$).

Mean height, mean weight and mean body mass index (BMI) values were found to be 160.72 (±10.11) cm, 65.50 (±13.52) kg and 25.30 (±4.2) respectively. Prevalence of obesity was found to be 95%, 47% and 48% in the overall study population, among doctors and among nurses respectively. The difference in the prevalence of obesity between doctors and nurses was not found to be statistically significant.

Table 1. Associated factors of hypertension diabetes and obesity in the study population

Variables	Frequency	Hypertension		Diabetes		Obesity		
		n (%)	P Value	n (%)	P Value	n (%)	P Value	
Age group	<=38	75	9 (12)	0.042*	6 (8)	0.363	46 (61.3)	0.038
	>38	63	16 (25.4)		8 (12.7)		49 (77.8)	
Gender	Male	58	17 (29.3)	0.004*	5 (8.6)	0.614	42 (72.4)	0.44
	Female	80	8 (10)		9 (11.2)		53 (66.2)	
Smoking	Yes	27	9 (33.3)	0.002*	5 (18.5)	0.108	14 (51.9)	0.034*
	No	111	16 (14.4)		9 (8.1)		81 (73)	
Alcohol	Yes	55	13 (23.6)	0.176	6 (10.9)	0.809	40 (72.7)	0.422
	No	83	12 (14.5)		8 (9.6)		55 (66.3)	
Physical activity	Yes	24	6 (25)	0.335	5 (20.8)	0.056	14 (58.3)	0.222
	No	114	19 (16.7)		9 (7.9)		81 (71.1)	

* Significant at 5%

The prevalence of hypertension was moderately higher in age greater than 38 years than age less and equal to 38 years and the differences of the prevalence rate between these age groups were found statistically significant ($p=0.042$). The prevalence of hypertension was also significantly higher in male than female and the differences of the prevalence rate observed between male and female were found statistically significant ($p=0.004$).

The higher proportion of hypertension was seen in non-smoker as compared to smoker and the differences of the prevalence rate observed between smoker and nonsmoker were found to be statistically significant ($p=0.002$).

The level of physical activity among doctors and nurses were not satisfactory. About 82.60 % of study population did not perform physical activity regularly i.e. morning walk less than 150min /week. The prevalence of obesity was significantly higher in respondent not performing physical activity.

DISCUSSION

In the present study prevalence of hypertension was found to be 25%. This is in concordance with a hypertension prevalence study conducted in Tamil nadu where the prevalence of hypertension was 21.6% in similar study population.⁵ Also, Fanghanel salmon G et al reported that the prevalence of hypertension was 22.2% among health care workers.⁶ Kurtal S et al reported that the prevalence of hypertension was 13.5% among physician working at university hospital.⁷

The prevalence of diabetes mellitus was found to be 15.6%. Sharma et al in their study among tertiary hospital employees which was similar to the present study.⁸ Gupta A et al in their study among physicians reported that the prevalence of diabetes was 9.4% among males and 12.9% among females.⁹ Also, Ramachandran A et al in their study among general population in urban area found the prevalence of diabetes to be 12.1%. The prevalence was higher in the present study since the study population comprised of doctors and nurses who probably get themselves investigated more often.

The present study has revealed a substantially high prevalence of obesity BMI > 23(95%). Sharma D et al in their study also found the prevalence of obesity to be 80% among tertiary hospital employees.¹⁰ The substantially high prevalence of obesity as per Asian population guideline may

be owing to the sedentary life style and lack of physical activity among the study population. The high prevalence of obesity among highly educated study population of a tertiary care hospital suggests serious lack of awareness regarding physical activity and diet.¹¹ This indicates a pressing need to initiate health promotion and disease prevention programme at local, provincial and national level. The level of physical activity among doctors and nurses were not satisfactory. Only about 17.39 % of study population were doing the physical activity which was markedly lower than what is reported by American studies.

CONCLUSION

The prevalence of hypertension was found to be significantly higher among doctors (18%) as compared to nurse (7%). The prevalence of obesity was significantly higher (96%) among study population. Doctors (47%) and nurses (48%) comprises almost equal proportion for significantly higher prevalence rate of obesity among the study population. The prevalence of critical risk factors for cardiovascular disease that includes hypertension (25%), Diabetes mellitus (14%) and obesity (95%) is high among doctors and nurses and hence it is a cause for concern.

ACKNOWLEDGEMENT

The financial assistance for conduct of the study was provided by Universal College of Medical Sciences Teaching Hospital, Bhairahawa. I gratefully acknowledge the cooperation of all the doctors and nurses who participated in the study.

CONFLICT OF INTEREST

None

REFERENCES

1. World Health Organization. Global status report on Non Communicable Diseases 2014. Geneva Switzerland.
2. World Health Organization: Global Health risks; Mortality and Burden of disease attributable to Selected Major Risks. Geneva: World Health Organization Press; 2009.
3. Report from the American Heart Association. Heart Disease and Stroke statistics – 2015.
4. Ramachandran A, Snehalatha C, Yamuna A, Murugesan N. High prevalence of cardiometabolic risk factors among young physicians in India. The Journal of the Association of Physicians of India. 2008 Jan;56, 17–20.
5. Hedge SK, Kumar G, Balaji R, et al. Prevalence of Diabetes, Hypertension and Obesity among Doctors and Nurses in a Medical College Hospital in Tamil Nadu, India. National Journal of Research in Community Medicine. 2015; 4:235-239.
6. Fanghanel-Salmón G, et al. The prevalence of risk factors for coronary disease in workers of the Hospital

General de México. *Salud Publica Mex.* 1997 Sep-Oct; 39(5): 427-32. Spanish.

7. Kurtul S, Ak FK, Türk M. The prevalence of hypertension and influencing factors among the employees of a university hospital. *African Health Sciences.* 2020 Dec; 20(4):1725-1733.
8. 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-Aug; 64(4):356-63.
9. Gupta A, Gupta R, Lal B, Singh AK, Kothari K. Prevalence of coronary risk factors among Indian physicians. *The Journal of the Association of Physicians of India.* 2001 Dec; 49:1148-52.
10. Sharma SK, Ghimire A, Radhakrishnan J, Thapa L, Shrestha NR. Prevalence of hypertension, obesity, diabetes, and metabolic syndrome in Nepal. *International Journal of Hypertension.* 2011; 821971.
11. Al Alwan I, Badri M, Al-Ghamdi M, Aljarbou A, Alotabi H, Tamim H. Prevalence of Self-reported Cardiovascular Risk Factors among Saudi Physicians: A Comparative Study. *International Journal of Health Sciences.* 2013; 7(1), 3–13.