

Assessment of Knowledge of Hypertension related Care, Risk Factors and Management among Registered Nurses in a Tertiary Care Hospital in Wazirabad, Pakistan

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Abstract— The single most significant preventable risk factor for early mortality in the world is hypertension. Hypertension, also referred to as high blood pressure, is a condition of the vascular regulatory system that interferes with the mechanisms that maintain normal arterial pressure. By examining senior staff nurses' knowledge of hypertension and associated risk factors, regardless of whether they have been diagnosed with hypertension, this study intends to improve primary and secondary cardiovascular disease prevention and control programs. A structured questionnaire was designed with close ended query methodology with yes/no responses and was distributed among 141 nurses. The data was analyzed via SPSS version 26 and a $p < 0.05$ was considered significant. The mean age of the population turned out to be 40.014 ± 11.34 , 100% of the participants were female and most of the participants (87.2%) were trained in hypertension management. Based upon their responses, 87.2% of the nurses were found to possess accurate information regarding hypertension. Conclusively, there is a need to address the presence of incorrect information among nursing staff of cardiology hospitals in Pakistan and increased awareness about hypertension can lead to efficient management of patients and betterment of nursing care and services.

Index Terms— Hypertension, Knowledge, Tertiary Hospital, Pakistan, Nurse, Training, Blood pressure

1 INTRODUCTION

THIS The single most significant preventable risk factor for early mortality in the world is hypertension [1,2] This raises the risk of peripheral vascular disease, heart attacks, ischemic strokes, heart failure, aortic aneurysms, diffuse atherosclerosis, chronic kidney disease, and pulmonary embolism, among other cardiovascular issues [1,2].

Hypertension, also referred to as high blood pressure, is a condition of the vascular regulatory system that interferes with the mechanisms that maintain normal arterial pressure. The renin-angiotensin-aldosterone system, commonly known as the renal pressor system, the extracellular fluid volume, and the central nervous system are the primary regulators (CNS). In many developing countries that are experiencing an epidemiological shift from infectious to noncommunicable and chronic diseases, it has grown to be a substantial issue [3].

Additionally thought to increase the incidence of dementia and cognitive decline is hypertension. High blood pressure can also cause hypertension retinopathy and hypertensive nephropathy, which are two additional problems [4,5] Around one billion people, or about 22 percent of the world's population, have hypertension, according to studies [6]. Men are far more likely than women to develop hypertension, and it tends to get worse as they get older. It is widespread in countries with high, middle, and poor incomes [6-8].

One of the South-Asian countries, Bangladesh has made great strides in the fight against some of the deadliest communicable diseases in the world, which are also the diseases with the double burden. Despite this, the surveillance technology in place has not been used correctly. According to a study, hypertension, which affects between 15% and 20% of Bangladesh's adult population, is one of these significant risks to public health. This

condition is on the increase as an epidemic. It is the most significant risk factor that may be changed for cardiovascular disease and a variety of other conditions, including heart failure, renal failure, etc. [9].

It is possible to change certain lifestyle risk factors to lessen the chance of developing hypertension. The most important ones are consuming too much alcohol, eating poorly, and smoking cigarettes [10,11].

The rise of hypertension and other cardiovascular diseases is a public health issue [12]. A cost-effective use of health care to address newly emerging chronic diseases is of particular importance in impoverished nations. This is because the burden of these communicable diseases is greater than that of the previously recognized diseases [3].

By examining staff nurses' knowledge of hypertension and associated risk factors, this study intends to improve primary and secondary cardiovascular disease prevention and control programs. Based on the presumption that aware hypertensive nurses were more likely to have been exposed to more information, health care, and personal experience regarding hypertension, the comparison of knowledge between nurses who were aware of being hypertensive and nurses who were unaware of being hypertensive was made. For this purpose, 141 nurses from a tertiary care cardiology hospital were provided with a questionnaire to assess their knowledge about hypertension.

AIMS OF THE STUDY

The aim of this study was to assess the knowledge of nursing staff in a tertiary care cardiology hospital in Punjab province of Pakistan.

RESEARCH QUESTION 1- Are you aware of normal blood

pressure measurement?

RESEARCH QUESTION 2- Are you aware of the blood pressure level which indicates the presence of hypertension?

RESEARCH QUESTION 3- Are you aware of the fact that hypertension leads to cardiovascular disease?

RESEARCH QUESTION 4- Are you trained formally for blood pressure measurement?

RESEARCH QUESTION 5- Are you trained in nursing care of patients suffering from hypertension?

RESEARCH QUESTION 6- Are you aware that elevating the head of bed and bed rest are vital to ensure proper care of hypertensive patients?

RESEARCH QUESTION 7- Are you aware of the fact that the management of hypertension in a proper way can effectively reduce hypertension-related morbidity and mortality?

RESEARCH QUESTION 8- Are you aware of the risk factors of hypertension?

2 LITERATURE REVIEW

The effects of hypertension globally

Based on data from 135 population-based studies that included 968,419 adults from 90 countries, we calculated that the global age-standardized prevalence of hypertension in 2010 was 31.1% (95% confidence interval [CI]: 30.0-32.2%). This condition is defined as systolic BP140 mmHg, diastolic BP90 mmHg, and/or current use of an antihypertensive medication. In order to arrive at this estimate, data from 135 population-based 3. In general, men (31.9%) had a slightly higher age-standardized prevalence of hypertension than did women (30%). 3, and HICs (28.5%) had a lower rate than LMICs (31.5%) [6]. Moreover, no statistically significant difference existed between the two groups. In contrast, Eastern Europe and Central Asia had the highest (39% prevalence) and South Asia had the lowest (26.4%) rates of male hypertension. Women's hypertension was most prevalent (36.3%) in Sub-Saharan Africa, whereas it was least prevalent (25.5%) in HICs. These regional variances in the incidence of hypertension are probably influenced by variations in the prevalence of risk factors for hypertension, such as obesity, a poor diet, and insufficient physical exercise [6,13].

Burden of CVD

A substantial worldwide burden of cardiovascular disease and early death is linked to excessive blood pressure. In 2015, it was predicted that 10.7 million deaths from all causes were related to a systolic blood pressure of 110-115 mm Hg (19.2% of all deaths), while 7.8 million deaths from all causes were predicted to be linked to a systolic blood pressure of 140 mm Hg (14.0% of all deaths). The most common causes of death associated with systolic BP 110-115 mmHg were ischemic heart disease (4.9 million, or 54.5% of ischemic heart disease deaths), ischemic stroke (1.5 million, or 50.0% of ischemic stroke deaths), and hemorrhagic stroke (2.0 million, or 58.3% of hemorrhagic stroke deaths). 3.6 million deaths (representing 40.1% of all deaths from IHD), 1.1 million deaths (representing 38.1% of all deaths from ischemic stroke), and 1.4 million deaths (representing 42.5% of all deaths from hemorrhagic stroke) were directly linked to having a systolic blood pressure of less than 140 mmHg. The estimated total number of CVD and BP-related deaths grew significantly between 1990 and 2015, especially in

low- and middle-income nations. This trend is commensurate with the rise in the prevalence of hypertension [14]. Promoting the use of efficient antihypertensive medications should be a key goal for global public health in order to decrease the number of fatalities and illnesses brought on by high blood pressure.

Risk factors for hypertension

Blood pressure (BP) levels and the prevalence of hypertension start to rise in both men and women at the age of 42. Women's blood pressure rises more quickly with each passing decade even if men have higher blood pressure at younger ages than women. Women had higher mean blood pressure and a higher prevalence of hypertension at the age of 60 than did men. Additionally important determinants in the development of hypertension are race and ethnicity. The main causes of racial and ethnic disparities in mean blood pressure and the prevalence of hypertension are therefore likely to be sociodemographic, environmental, and behavioral factors [15]. Additionally, a number of modifiable risk factors, including high salt intake, low potassium intake, alcohol use, obesity, inactivity, and a poor diet, are linked to an increased risk of hypertension.

The control of hypertension in the community

Antihypertensive drugs and dietary changes have been demonstrated to lower blood pressure and the risk of cardiovascular disease in randomized clinical trials [6]. Despite the effectiveness of these medications, a very small percentage of people have managed hypertension, especially in LMICs [6]. In 2010, just 13.8% of people with hypertension had achieved BP control, 36.9% of people with hypertension were receiving therapy, and 45.6% of people with hypertension were aware of their disease (defined as systolic BP 140 mmHg and diastolic BP 90 mmHg). These figures are based on the most recent global estimates that are available. Additionally, nearly twice as many people were aware they had hypertension and were receiving treatment for it than in LMICs. Additionally, four times as many people had their blood pressure under control as in LMICs, where it was just 7.7% in 2010 [6]

3. METHODS

3.1 Study Design

A quantitative descriptive study design was used in this research

3.2 Study Setting

The study was carried out at Chaudhry Pervaiz Elahi Institute of Cardiology (C.P.E.I.C), Wazirabad

3.3 Inclusion Criteria

- Data was collected from nurses working at C.P.E.I.C.
- Nurses between the age 25-60 years
- With a bachelors or a diploma in nursing
- Willing to be a part of the study population

3.4 Study Sample

3.5 Data Collection

A structured questionnaire was designed with close ended query methodology with yes/no responses. The structure of the questionnaire was inspired by a published paper investigating

the hypertension related knowledge of nurses in Dubai and Bangladesh [3,9]. The questionnaire is designed to provide us information about the demographics of the study population in the first part and then questioning is done in the later part about hypertension patients, their management, nursing care and risk factors consisting of total 8 questions.

3.6. Ethical Considerations

The participants of the study were well presented and explained in their convenient language (English/Urdu/Punjabi) about the details of the research study and the purpose behind it. The data of the participants was kept confidential and only shared with the persons directly involved in conducting this research.

3.7. Data Analysis

The data was analyzed via SPSS version 26. Numeric variables like age were processed via one sample t-test to assess the mean and standard deviation. Nominal variables (qualitative) were assessed by frequency and percentages. A P<0.05 was considered significant.

3.8. Study Duration

The study took approximately six months until its completion

4 RESULTS

Demographic data of the participants

One sample t-test was employed to compute the mean age of the participants in the study. The mean age of the population turned out to be 40.0142 ± 11.34 (p<0.05). The inclusion criteria of the study also specified that participants aged between 25 and 60 years were included in this study. Furthermore, the participants were also divided into different age groups based on 4 age categories as specified in the following table. It shows that most of the population belonged to 30-39 years of age followed by 25-29 and 50-59 years of age respectively.

Table 1 Division of study participants in age groups

Age Groups			
		Frequency	Percent
Valid	25-29	36	25.5
	30-39	36	25.5
	40-49	33	23.4
	50-60	36	25.5
	Total	141	100.0

The participants were also divided based on their marital status. It was observed that majority of the participants married i.e., 77.3% followed by unmarried i.e., 22.7%

Table 2 Division of study participants based on their marital status

Marital Status			
		Frequency	Percent
Valid	Unmarried	32	22.7
	Married	109	77.3
	Total	141	100.0

The qualifications of the participants were also used to sort them. It was observed that most of the participants had a BSc in Nursing (62.4%) followed by a diploma in nursing (37.6%)

Table 3 Division of participants based on their qualifications

Qualifications		
		Percent
		Frequency

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Consecutive sampling technique was employed. Data was collected from 141 registered nurses.

Valid	Bachelor's in nursing	15	10.6%
	Diploma in Nursing	126	89.3%
	Total	141	100.0

The participants of the study were further divided into different categories based upon their years of experience. They were divided in 5 categories as shown in the table below.

Table 4 Division of participants based on their experience

Experience			
		Frequency	Percent
Valid	1-5 years	20	14.2
	6-10 years	35	24.8
	10-15 years	24	17.0
	15-20 years	41	29.1
	20-25 years	21	14.9
	Total	141	100.0

The nurses were further divided into categories based upon the fact that either they had received hypertension training or not during their professional career.

Table 5 Division of participants based on their hypertension training

Training on Hypertension			
		Frequency	Percent
Valid	Yes	123	87.2
	No	18	12.8
	Total	141	100.0

Participants response to questions

After completion of demographic information, the second part of the questionnaire included 8 questions with yes/no responses. The participant's response to these questions are summarized in Table 6.

Table 6 Participant's response to eight questions related to hypertension assessing their knowledge regarding hypertension

S#	Statement	Yes	No
1.	Are you aware of normal blood pressure measurement?	95.7%	4.3%
2.	Are you aware of the blood pressure level which indicates the	82.3%	17.7%

	presence of hypertension?		
3.	Are you aware that hypertension leads to cardiovascular diseases?	55.3%	44.7%
4.	Are you formally trained for blood pressure measurement?	95.7%	4.3%
5.	Are you trained in nursing care of patients suffering from hypertension?	87.2%	12.8%
6.	Are you aware that elevating the head of bed and bed rest are vital to ensure proper care of hypertensive patients?	91.5%	8.5%
7.	Are you aware of the fact that the management of hypertension in a proper way can effectively reduce hypertension-related morbidity and mortality?	93.6%	6.4%
8.	Are you aware of the risk factors of hypertension?	78.7%	21.3%

Assessment of correct knowledge of participants regarding hypertension

Based upon the responses to the hypertension-related questions, we assessed the participants that whether they had accurate information on hypertension or not. This assessment is shown in the following table.

Table 7 Score distribution of patients based upon their knowledge of hypertension

Score distribution of participants based upon their knowledge of hypertension			
		Frequency	Percent
Valid	Correct	123	87.2
	Incorrect	18	12.8
	Total	141	100.0

5 DISCUSSION

In this study, 141 nurses were enrolled in a survey-questionnaire study where they were assessed based upon their knowledge of hypertension and management of hypertension

patients. The most important parameter that was assessed was the educational level of the nurses and in our study, majority of the participants had a diploma in nursing followed by a bachelor's degree. This observation is contrary to another study carried out in Bangladesh [9], which showed that majority of the participants had a bachelor's degree.

Apart from education the mean age of our study population was 40.01 ± 11.3 as well as 100% of the respondents were female. This observation is also in accordance with similar studies conducted in Dubai and Bangladesh [3,9]. A case study of nursing profession recently conducted made the argument that nursing in Pakistan is a female dominated profession and men are quite hesitant to join this profession. There are more number of nursing seats and colleges for women in Pakistan as well [16], which justifies the presence of 100% females in our study population. The next important figure was that 87.2% of the nurses involved in this study claimed that they had undergone extensive training regarding hypertension specifically. This number can be justified by the fact that our study population was specifically obtained from a cardiology hospital where such trainings are often conducted.

Based upon the results from the questionnaire, it can be argued that a huge majority of the nurses were trained to measure blood pressure and a majority of them also were aware of the fact that blood pressure is indicative of hypertension, as is established in literature [17,18]. One concerning figure was obtained in response to the questioning related to awareness regarding hypertension leading towards cardiovascular diseases and only 55.3% of the participants were aware of this crucial fact.

Proper nursing care and management of hypertension patients can lead to decreased morbidity and mortality [19,20]. Upon investigation of awareness of the importance of nursing care of hypertension patients, an 87.2% of the participants were aware of this reality whereas 91.5% were aware in general that elevation of head and bed rest are crucial for proper care of hypertensive patients. Moreover, 93.6% of the participants were aware that effective management of hypertension can reduce morbidity and mortality.

In the end, based on the responses of the participants it was concluded that 87.2% of the participants possessed accurate knowledge of hypertension and only 12.8% had either no or incorrect knowledge of hypertension.

6 CONCLUSION

Based upon our questionnaire survey, we can argue that a significant majority of nurses working in cardiology hospitals in Punjab are aware of the hypertension related nursing care and management and possess accurate knowledge regarding this topic.

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