Original Research Article

Assessment of Nurses' Knowledge Regarding the Risk Factors of Hypertension at Shaheed Ziaur Rahman Medical College Hospital, Bogura, Bangladesh

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Abstract

Background: Hypertension, Known as an increase in the blood pressure, the blood vessels have raised pressure. Hypertension is a big universal health problem affecting one in three adults, and its mortality rate is 1,000 deaths per day. According to the World Health Organization, more than 80% of deaths from hypertension and related cardiovascular diseases currently arise in low and middle-income countries and are predominately common among persons of low socio-economic status. Risk factors of hypertension are not well studied in adults, and public awareness of hypertension in countries undergoing epidemiological transition is dismal. High blood pressure is one of the most important modifiable risk factors for stroke, with the risk of stroke increasing continuously with increasing levels of blood pressure [1]. ***Objective:*** The aim was to assess nurses' knowledge regarding risk factors of hypertension at Shaheed Ziaur Rahman Medical College Hospital, Bogura, Bangladesh. ***Methodology:*** This descriptive cross-sectional study design was used, and a sample size of 110 that was a purposive sampling technique followed those who met the inclusion criteria to assess the nurse's knowledge regarding risk factors of hypertension. The study was conducted from July 2021 to December 2021. The instruments for data collection were a semi-structured questionnaire composed of two parts: Demographic variables and knowledge-based information on risk factors of hypertension. ***Results:*** The findings of the present study revealed that the demographic characteristics of the highest 52.73% were within 31-40 years; 77.22% were female; 89.09% were Islam; 83.64% were married; 46.36% were diploma in nursing and average knowledge score 42% were the moderate level of knowledge regarding the risk factors of hypertension. ***Conclusion:*** Hypertension is an important health problem in both urban and rural areas of Bangladesh. The emergence of hypertension and other cardiovascular diseases is strongly related to various risk factors. The finding of the present study was that the level of knowledge about the risk factors of hypertension was 42% moderate level of individuals.
Keywords: Knowledge, Hypertension, and Risk factors.

INTRODUCTION

Hypertension, known as an increase in the blood pressure, the blood vessels have raised pressure. Hypertension is a big universal health problem affecting one in three adults, and its mortality rate is 1,000 deaths per day [1]. Hypertension is becoming a major public health burden globally because of its higher morbidity, mortality, disability, and financial burden, mainly among adults who have a productive life. It is the main and very important modifiable risk issue for cardiovascular problems, stroke, renal problems, and retinopathy. Hypertension, the most common incidentally diagnosed chronic disease, is a major risk factor for cerebrovascular

accidents as well as coronary heart diseases, with two-thirds of all cerebrovascular accidents attributable to poor hypertension control. Together with other cardiovascular diseases, these public health problems are strongly linked to urbanization, aging populations, westernized socio- economic sedentary lifestyles promoting excessive salt and smoking obesity, as well as lack of physical exercise [2]. According to the World Health Organization, more than 80% of deaths from Hypertension and related cardiovascular diseases currently arise in low and middle-income countries and are predominately common among persons of low socio-economic status. The presence of Hypertension more than doubles the risk for coronary heart disease, including acute myocardial infarction and sudden death, and more than triples the risk of congestive heart failure and strokes. Obesity, unhealthy diet, diabetes mellitus, excessive alcohol intake, physical inactivity, and smoking are considered risk factors for Hypertension [3]. Risk factors of Hypertension are not well studied in adults, and public awareness of Hypertension in countries undergoing epidemiological transition is dismal. High blood pressure is a burning issue now in developing countries. It is the top cause of mortality. Prevention is always desirable, but it is difficult where there is poor awareness, attitude, and practices. High blood pressure is one of the most important modifiable risk factors for stroke, with the risk of stroke increasing continuously with increasing levels of blood pressure. This increased risk is found in levels above 115/75 mm Hg. The prevalence of Hypertension increases with increasing age, and Hypertension is more common in men than in women in all groups [4]. On the other hand, common risk factors of Hypertension are ageing, hereditary, obesity, weight gain, high sodium intake, low calcium and potassium intake, alcohol consumption, psychological stress, and low physical activity [1]. This risk is evident even in childhood, with elevated blood pressure predicting Hypertension in adulthood, and adverse effects of elevated blood pressure in childhood on vascular structure and function, especially left ventricular hypertrophy, is already apparent in youth [5]. Hypertension contributes to about 13% of global deaths, acts as a risk factor for other diseases, boosts the risk of cardiovascular morbidity, and increases mortality in diabetic patients. However, fortunately, it can be prevented [1]. Hypertension is a major contributor to the global disease burden. It poses an important public health challenge to economically developing and developed countries, including Asia [6]. With a growing problem of Hypertension worldwide, there is a concern that Hypertension in young adults may also be on the rise and that cases are not detected because of inadequate screening in this age group [1]. Early detection and adequate prevention strategies with proper treatment and control pay high attention to reducing the disease burden. However, the normal levels of both systolic and diastolic blood pressure are particularly important for the efficient function of vital organs such as the heart, brain, and kidneys and for overall health and well-being [1].

Hypertension is the most known significant risk factor causing untimely death due to cardiovascular and cerebrovascular problems [3]. Community-based studies have shown inadequate knowledge, poor attitude, and practice among patients with Hypertension. Such level of knowledge, attitude, and practice affect the control of high blood pressure despite appropriate treatment. Therefore, healthcare professionals must not only diagnose and treat patients with Hypertension but also create awareness about prevention and management strategies to decrease the prevalence and complications of Hypertension. Hence, the researcher was interested in assessing the knowledge and perception of Hypertension among hypertensive patients [3].

METHODOLOGY & MATERIALS
A descriptive cross-sectional study design was used in this study. The study was conducted at Shaheed Ziaur Rahman Medical College Hospital, Bogura. All nurses who work at Shaheed Ziaur Rahman Medical College Hospital, Bogura, were selected as a population for this study. The study lasted one year, from July/2021 to December/2021. The sample was selected from the total population in the cardiology department, medicine department, and nephrology department in the selected hospital. Ethical approval was obtained from the ethics committee of Bogura Nursing College, Bogura, Bangladesh.

Inclusion Criteria
- Nurses who work at the selected area in the hospital.
- Nurses who were willing to participate.
- Respondents who were available on duty during the data collection period.

Exclusion Criteria
- Nurses who were not willing to participate.
- Respondents who were not available during the data collection period.
- Nurses who work less than at least 6 months in the selected wards in the hospital.

Sampling Technique
A purposive sampling technique was followed for the completion of collecting data for this study. The researchers prepared a Semi-structured questionnaire according to the objectives and variables of the study. Research instruments consisted of three parts for collecting data. Part A covered the demographic information about the respondents, and part B contained a related questionnaire on the risk factors of hypertension. The questionnaire was pretested on 10 respondents at 250 Bedded Mohammad Ali Hospital, Bogura, in a medicine department and surgery department. A pilot study of the questionnaire was done for research instrument development and to check the validity, reliability, and acceptability of the questionnaire. Then, an expert teacher made necessary corrections and modifications.

Data Collection and Analysis

Researchers collected data after getting an approval letter from Bogura Nursing College, Bogura, and researchers met with the Hospital Director and Nursing superintendent, then explained the purpose of this study of educational requirements. After obtaining permission, researchers asked for the cooperation of authority. Then, they explained the purpose of the study and asked for consent as their willingness. Researchers provided them with questionnaires and explained how to complete the questionnaire based on their understanding. Before data collection, the researchers obtained written consent from the respondents. The investigators collected data through a semi-structured questionnaire and face-to-face interviews with the respondents. Data was collected for 3 days (morning and evening). Collected data was checked, organized, coded, edited, and analyzed manually and computer-assisted by the researcher. The results were interpreted using descriptive statistics like- frequency, percentage, and mean with the help of a scientific calculator. The important variables were considered and analyzed to fulfill the study's objectives. The results were calculated from the tabulated column. After the interpretation of data, the study findings were presented by table and graph (bar chart, pie chart, etc).

RESULT

The surveyed population exhibited diverse demographics in Table 1. A significant portion, 52.73%, fell between 31 and 40, while 20% were 30 or younger, and 27.27% were above 40. The average age of the respondents was 37.5 years. Regarding gender, 22.73% were male, while the majority, constituting 77.27%, were female. Religion-wise, 89.09% identified as Islam, 9.09% as Hindu, and 1.82% as Christian. Marital status varied widely; 83.64% were married, whereas 16.36% were unmarried. Regarding educational qualifications, 46.36% held diplomas in nursing, 42.73% had BSc degrees in nursing or Public Health Nursing (PHN), and 10.91% possessed Master's degrees in Nursing (MSN) or Public Health (MPH). Residential distribution showed 84.55% residing in urban areas and 15.45% in rural regions. Additionally, regarding length of service, 72.73% had served for ten years or less, 16.36% between 11 and 20 years, and 10.91% for over 20 years. This diverse demographic snapshot paints a vivid picture of the surveyed population, illustrating their age ranges, gender distribution, religious affiliations, marital statuses, educational achievements, residential locations, and lengths of service. The provided data highlights critical responses from the respondents regarding their knowledge of the meaning, cause, and clinical features of hypertension in Table 2. According to the data, an overwhelming 97% of respondents answered affirmatively, indicating a good understanding of the risk factors associated with hypertension. Specifically, 80% correctly identified persistently elevated blood pressure above 140/90 mm Hg as a sign of hypertension, while

7.27% believed it was above 120/110 mm Hg. Additionally, 10.91% recognized suddenly raised blood pressure exceeding 140 mm Hg, and a small percentage (1.82%) thought it was above 90 mm Hg. In terms of the causes of hypertension, 70.91% of respondents identified overweight as a significant factor, followed by 14.55% attributing it to an unhealthy diet, 10.91% to physical inactivity, and a minority (3.64%) considering heredity as a cause. Regarding clinical features, 70% associated headaches with hypertension, while 20% linked dizziness, 5.45% palpitations, and 4.55% blurring of vision to the condition. The data presented in Table 3 illustrates the respondents' perceptions of hypertension risk factors and associated complications. A significant 59.09% of participants identified smoking as a critical risk factor, whereas 8.18% linked it to obesity, 5.45% to stress, and 27.27% to heredity. Concerning specific dietary factors, 81.82% indicated excessive salt intake, 8.18% cited cow's meat/mutton consumption, 7.27% referred to alcohol, and 2.73% mentioned soft drinks/carbonated beverages as contributors to hypertension. Additionally, regarding non-modifiable risk factors, 80.91% recognized genetic factors, 1.82% considered triglyceride levels, 16.36% cited congenital diseases, and 0.91% referenced cholesterol levels as influential factors in hypertension. When addressing complications linked to uncontrolled hypertension, 63.64% of respondents identified stroke, 5.45% mentioned hypertensive retinopathy, 14.55% referred to chronic renal failure, and 16.36% pointed to myocardial infarction. The data provided in Table 4 highlights various hypertension-related aspects among the respondents. Regarding measurement positions for blood pressure, 70% indicated a preference for the sitting or supine position, 5.45% for the left lateral position, 20% for Fowler's position, and 4.55% for the correct lateral position. Regarding medication, 27.27% reported using Amlodipine, 59.09% opted for Losartan potassium, 7.27% relied on Ayurvedic remedies, and 6.36% chose Homeopathic treatments for managing hypertension. Regarding the duration of hypertension diagnosis, 69.09% reported a diagnosis of less than five years, 4.55% between 5-9 years, 18.18% between 10-14 years, and 8.18% between 15-19 years. In describing their lifestyles, 41.82% identified as sedentary, 20% as non-sedentary, 27.27% as heavy workers, and 10.91% as moderate workers. Regarding preventive measures, 7.27% emphasized controlling blood pressure, 65.45% emphasized avoiding tobacco, Jarda, Gul, and alcohol, 10.91% stressed being free from tension and anxiety, and 14.55% emphasized regular exercise in reducing the risk of hypertension. Lastly, 50.91% recommended maintaining dietary habits, 13.64% suggested maintaining a regular sleeping pattern, 27.27% advocated for a healthy lifestyle, and 8.18% encouraged increased physical activity to prevent hypertension. Figure 1 indicates that 29% of respondents demonstrated a high level of knowledge about hypertension risk factors, while 42% exhibited a moderate level of knowledge. Additionally, 29% showed a low level of

knowledge regarding these risk factors among the surveyed population.

Table 1: Demographical characteristics of the study population (n=110).

Characteristics	Frequency (n)	Percentage (%)
Age group (years)		
≤ 30	22	20.00
31-40	58	52.73
>40	30	27.27
Gender		
Male	25	22.73
Female	85	77.27
Religion		
Islam	98	89.09
Hindu	10	9.09
Christian	2	1.82
Marital status		
Married	92	83.64
Unmarried	18	16.36
Professional educational qualification.		
diploma in nursing	51	46.36
BSc in nursing/PHN	47	42.73
MSN/MPH	12	10.91
Residential area		
Urban	93	84.55
Rural	17	15.45
Length of service (years)		
≤ 10	80	72.73
11-20	18	16.36
>20	12	10.91

Table 2: Distribution of the study population based on the knowledge of meaning, cause, and clinical features of hypertension (n=110).

Variables	Frequency (n)	Percentage (%)
Meaning of hypertension		
Persistence raises of BP above 140/90 mm of Hg	88	80.00
Persistence rises of BP above 120/110 mm of Hg	8	7.27
Suddenly raised BP>140 mm of Hg	12	10.91
Suddenly raised BP>90 mm of Hg	2	1.82
Causes of hypertension		
Unhealthy diet	16	14.55
Overweight	78	70.91
Physical inactivity	12	10.91
Heredity	4	3.64
Clinical features of hypertension		
Dizziness	22	20.00
Headache	77	70.00
Palpitation	6	5.45
Blaring of vision	5	4.55

Table 3: Distribution of the study population based on the knowledge of risk factors, food habits, and complications of hypertension (n=110).

Variables	Frequency (n)	Percentage (%)
Risk factors of hypertension		
Smoking	65	59.09
Obesity	9	8.18
Stress	6	5.45
Heredity	30	27.27

Variables	Frequency (n)	Percentage (%)
Food increases the risk of hypertension		
Salted food/intake of extra salt	90	81.82
Cow's meat/ mutton	9	8.18
Alcohol	8	7.27
Soft drink /carbonated beverage	3	2.73
Non-modifiable risk factors of hypertension		
Genetic factor	89	80.91
Triglyceride level	2	1.82
Congenital disease	18	16.36
Cholesterol level	1	0.91
Complication of hypertension		
Stroke	70	63.64
Hypertensive retinopathy	6	5.45
Chronic renal failure	16	14.55
Myocardial infarction	18	16.36

Table 4: Distribution of the study population based on the knowledge of clinical features of hypertension (n=110).

Variables	Frequency (n)	Percentage (%)
Measurement position of blood pressure		
Sitting or supine position	77	70.00
Left lateral position	6	5.45
Fowler's position	22	20.00
Right lateral position	5	4.55
Medication for hypertension		
Amlodipine	30	27.27
Losartan potassium	65	59.09
Ayurvedic	8	7.27
Homeopathic	7	6.36
Diagnosis duration of hypertension (Years)		
Less than 5 years	76	69.09
5-9 years	5	4.55
10-14 years	20	18.18
15-19 years	9	8.18
Type of lifestyle		
Sedentary	46	41.82
Non-sedentary	22	20.00
Heavy worker	30	27.27
Moderate	12	10.91
Preventive measures for risk of hypertension		
Control BP	8	7.27
Avoid tobacco, Jarda, Gul, Alcohol	72	65.45
Free from tension and anxiety	12	10.91
Regular exercise	16	14.55
Steps to prevent hypertension		
Maintain dietary habit	56	50.91
Maintain sleeping pattern and rest	15	13.64
Healthy lifestyle	30	27.27
Increased Physical activity	9	8.18
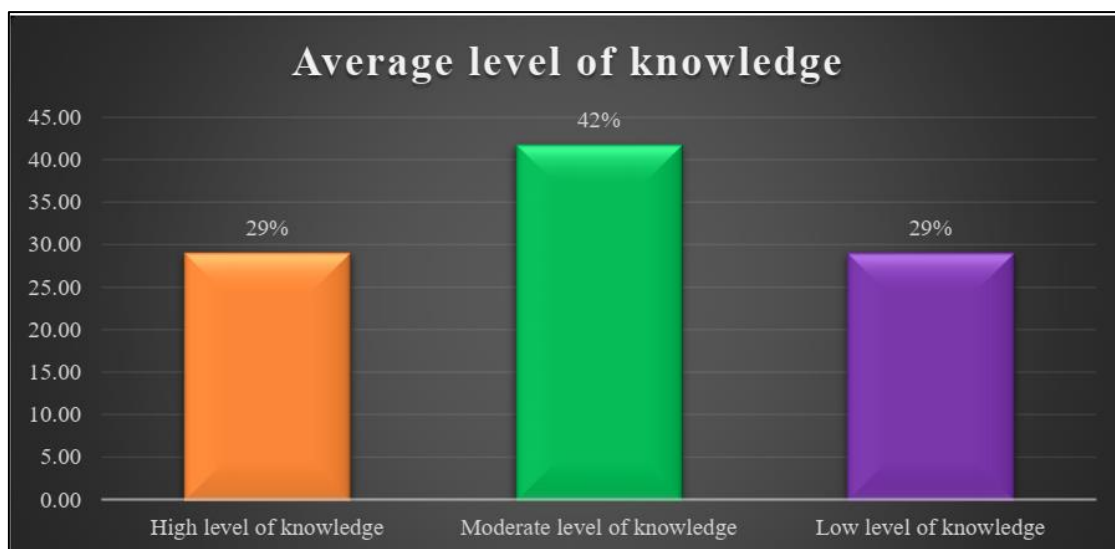
Figure 1: Average level of knowledge of the study population.

DISCUSSION

The purpose of this descriptive cross-sectional study was to assess the level of nurses' knowledge of risk factors regarding hypertension at Shaheed Ziaur Rahman Medical College Hospital, Bogura. This chapter summarizes the study, findings about those previously reported in the literature, and discussion. In addition, the suggestions for nursing practice and recommendations for future research were also addressed. The present study findings revealed that the socio-demographic characteristics of the highest 53% were within 31-40 years; 77% were female; 89% were Islam; 84% were married; 76% were HSC; 46% were diploma in nursing; 85% were urban area, and 73% were within ≤ 10 yrs of the length of service among the respondents. According to Escobar and Marino (2016), the age range of the group under 30 years showed a lower level of knowledge than the rest [7]. The higher the age, the higher the knowledge about the disease, a result similar to that reported in the literature. This may be because older people go to health centers more often, and the highest prevalence of hypertension is in older adults. Other studies have found a lower level of knowledge in patients over 60 years old [8]. No relationship was found between sex or educational level and the knowledge about hypertension. However, in different studies, the female sex and a higher level of education have been associated with better knowledge about hypertension. BMI was also not associated with a higher level of knowledge; no previous studies considered this relationship [9]. In regard to knowledge related current study findings revealed that the 97% were answered the option of Yes, and 3% were answered the option of No for the knowledge on idea about the risk factors of Hypertension; 80% were answered the option of Persistence raises of blood pressure above 140/90 mm of Hg, 7% were answered the option of Persistence rises of blood pressure above 120/110 mm of Hg, 11% were answered the option of Suddenly raised of BP>140 mm of Hg and rest of 2% were answered Suddenly raised of BP>90 mm of Hg for

meaning of hypertension; 15% were answered the option of Unhealthy diet, 70% were answered the option of Overweight, 11% were answered the option of Physical inactivity and rest of 4% were answered of Heredity for causes of hypertension; 20% were answered the option of Dizziness, 70% were answered the option of Headache, 5% were answered the option of Palpitation and rest of 5% were answered of Blaring of vision for clinical feature of hypertension; 60% were answered the option of Smoking, 8% were answered the option of Obesity, 5% were answered the option of Stress and rest of 27% were answered of Heredity for risk factor of hypertension; 82% were answered the option of Salted food / intake extra salt, 8% were answered the option of Cow's meat/ mutton, 7% were answered the option of Alcohol and rest of 3% were answered of Soft drink /carbonated beverage for kinds of food increase risk of hypertension; 81% were answered the option of Genetic factor, 2% were answered the option of Triglyceride level, 16% were answered the option of Congenital disease and rest of 1% were answered of Cholesterol level for non-modifiable risk factor of hypertension; 64% were answered the option of Stroke, 5% were answered the option of Hypertensive retinopathy, 15% were answered the option of Chronic renal failure and rest of 16% were answered of Myocardial infarction for complication associated with un-control hypertension; 70% were answered the option of Sitting or supine position, 5% were answered the option of Left lateral position, 20% were answered the option of Fowler's position and rest of 5% were answered of Right lateral position for measurement position o blood pressure; 28% were answered the option of Amlodipine, 59% were answered the option of Losartan potassium, 7% were answered the option of Ayurvedic and rest of 6% were answered of Homeopathic for medication is use to treatment of hypertension; 69% were answered the option of Less than 5 yrs, 5% were answered the option of 5-9 years, 18% were answered the option of 10-14 years and rest of 8% were answered of 15-19 years for

the duration of diagnosis of hypertension; 42% were answered the option of Sedentary, 20% were answered the option of Non sedentary, 27% were answered the option of Heavy worker and rest of 11% were answered of Moderate for the type of lifestyle they do lead; 7% were answered the option of Control BP, 67% were answered the option of Avoid tobacco, Jarda, Gul, Alcohol, 11% were answered the option of Free from tension and anxiety and rest of 15% were answered of Regular exercise for the preventive measure in risk of hypertension; 51% were answered the option of Maintain dietary habit, 14% were answered the option of Maintain sleeping pattern and rest, 27% were answered the option of Healthy lifestyle and rest of 7% were answered of Increased Physical activity for the step you can to prevent hypertension among the respondents. The average level of knowledge reading the risk factors of hypertension was 29% high level, 42% moderate level, and 29% low level of respondents in the current study. Study findings observed no significant association between the risk factors index and knowledge about reasons, consequences, and preventive measures of hypertension. From the findings, it could be inferred that knowledge alone was not sufficient either to control health risk factors or to adopt health-promoting behaviors. Even though knowledge is an important determinant of changing behavior or lifestyle, there might have been other factors that played an important role in transferring knowledge to practice. Al Deagi *et al*., (2015) found that sufficient awareness about diabetes is associated with poor adherence to recommendations, and gaining knowledge related to diabetes was insufficient to increase adherence to diabetes treatment [10]. Klepac (2016) found that individuals did not undertake health-related behavior if they lacked at least a minimum amount of health motivation and knowledge [11]. It is established that a higher level of knowledge about the disease leads to better self-care and compliance with treatment or management. There was, however, an inconsistency between knowledge of the disease and complying with drug therapy and disease management. Thus, there was a discrepancy between knowledge and practice, which meant that despite knowing what needed to be done, participants did not act accordingly. This is because while knowledge has a rational element, adherence involves many variables, such as emotional, social, biological, and cultural factors. Aubert *et al*., (2008) reported that most people had enough knowledge, but only a few were motivated and wished and attempted to have a change. Very few had translated it into practice, whereby actively engaging in a new behavior [12]. There are various reasons for having low outcome expectations on chronic disease control and reluctance to adopt healthy lifestyles. A study finding showed that behavioral risk factors such as smoking, fruit and vegetable consumption, body mass index, and age group significantly predicted the odds of hypertension. These findings were similar to those reported by Awino *et al*., (2016), Laxmaiah *et al*., (2015) and Mahmood *et al*., (2011) found that age, education, obesity, smoking, and

alcohol consumption were predictors of hypertension, similarly, Ganesh *et al*., (2015) also found that factors such as higher age group, current use of alcohol, less than 7 servings of fruits in a week, moderate stress level, and waist circumference more than 90 cm were associated with higher prevalence of hypertension [13- 16]. Headaches, dizziness, and nervousness are the main clinical manifestations that patients associate erroneously with elevations in their blood pressure. It is important to emphasize to patients that HTN does not have specific symptoms that allow it to be easily detected. When unnoticed, as Marin *et al*., (2016) point out, it prevents many from complying with the prescribed therapeutic guidelines by mistakenly believing that not having symptoms means they enjoy an optimal state of health [17]. About prevention measures, the majority agreed that reducing salt intake, losing weight, exercising regularly, and increasing the consumption of fruits and vegetables helps reduce blood pressure figures similar to those found in the literature. Most answered correctly about the consequences of maintaining high blood pressure levels, with myocardial infarction being the most successful among participants. Almost two-thirds were correct in that high blood pressure can cause blindness, and 30% in that hypertension does not increase the risk of lung cancer, a percentage similar to that of a study in Columbia and lower than that found in the United States (41.9%). According to studies carried out in Colombia, Spain, Brazil, and the United States, most patients have some knowledge of HTN, but there is still considerable ignorance about it [18].

Limitations of the Study

There was a small sample size. This is a small representation of nurses' at Shaheed Ziaur Rahman Medical College Hospital, Bogura, and, as such, the study's results may be limited to one particular area. The small sample size and selecting samples only from the limited population at Shaheed Ziaur Rahman Medical College Hospital, Bogura, were the limitations of our study. Thus, large-scale studies with larger sample sizes selected purposively from all parts of society are recommended to obtain more generalizable results for further study in the health sector.

CONCLUSION AND RECOMMENDATIONS

In conclusion, the level of knowledge about the risk factors of hypertension was 42% moderate level of individuals, while knowledge was an important determinant of changing behavior or lifestyle. Hypertension is an important health problem in both urban and rural areas of Bangladesh. Studies worldwide have reported deficiencies in the knowledge of hypertension in patients who suffer from it. It is universally under-diagnosed or inadequately treated, resulting in extensive target organ damage and premature death. Future research should focus on bringing down the associated risk factors and preventing hypertension. The emergence of hypertension and other cardiovascular diseases are strongly related to various risk factors such

as aging of the population, family history, socioeconomic changes that favor a sedentary lifestyle, obesity, smoking, alcohol consumption, unhealthy dietary habits, and stress.

Based on the Study Results, The Recommendations Were Made:

1. The study can be replicated on a large sample to validate and generalize the findings.
2. The study can be conducted in different settings, like the national level.
3. The level of nurses' knowledge was assessed.
4. A comparative study can be conducted to assess the nurses' knowledge regarding the risk factors of hypertension at Shaheed Ziaur Rahman Medical College Hospital, Bogura.
5. There is a need to improve knowledge and positive practices to the risk factors of hypertension. This can be achieved by providing educational and motivational activities and improvement in nursing services, which are needed to promote the health and prevention of hypertension and its consequences.
6. A similar study can be undertaken on a large scale.

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