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Knowledge and Attitudes Toward Hypertension Prevention Among Hospitalized patients in Dhaka, Bangladesh

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ABSTRACT

Hypertension is a major public health problem and an important risk factor for cardiovascular and renal diseases. Adequate patient knowledge and positive attitudes are essential for prevention and control. To assess knowledge and attitudes regarding risk factors and preventive measures of hypertension among admitted patients in a tertiary hospital in Dhaka, Bangladesh. A hospital-based cross-sectional study was conducted at Dhaka Medical College Hospital from December 2021 to February 2022 among 243 admitted patients selected by purposive sampling. Data were collected using a pretested semi-structured questionnaire through face-to-face interviews. Data were analyzed using SPSS version 23. Descriptive statistics were used. Most respondents demonstrated poor knowledge regarding hypertension (66.3%), while only 6.2% had good knowledge. Positive preventive attitudes were observed in 28.4% of respondents. Limited awareness was found regarding normal blood pressure levels, symptoms, causes, and prevention strategies. Knowledge and preventive attitudes regarding hypertension were suboptimal among admitted patients. Targeted education and awareness programs are needed to improve prevention and control.

1. Introduction

Hypertension is one of the most prevalent non-communicable diseases (NCDs) worldwide and a leading risk factor for cardiovascular diseases, stroke, heart failure, and chronic kidney disease. It is often referred to as a “silent killer” because many affected individuals remain asymptomatic until severe complications arise (WHO, 2013; Ibrahim & Damasceno, 2012). Globally, the burden of hypertension continues to rise, particularly in low- and middle-income countries (LMICs), where awareness, treatment, and control rates remain suboptimal (Twagirumukiza et al., 2011).

Hypertension is commonly defined as systolic blood pressure ≥140 mmHg and/or diastolic blood pressure ≥90 mmHg, or the current use of antihypertensive medication. It is broadly classified into primary (essential) hypertension, which accounts for approximately 90–95% of cases and has no identifiable cause, and secondary hypertension, which results from underlying conditions such as renal, endocrine, or vascular disorders (Carretero & Oparil, 2000; Cunha et al., 2010).

Multiple risk factors contribute to the development of hypertension. Modifiable factors include unhealthy diet (particularly high salt intake), obesity, physical inactivity, tobacco use, excessive alcohol consumption, and psychosocial stress. Non-modifiable factors include age, genetic predisposition, and family history (Aung et al., 2012; Sabouhi et al., 2011). Rapid urbanization, lifestyle transitions, and dietary changes have further accelerated the prevalence of hypertension in developing countries (Heller & Kishore, 2017).

In Bangladesh, the epidemiological transition from communicable to non-communicable diseases has led to a growing burden of hypertension. Despite progress in primary healthcare, awareness and control of hypertension remain inadequate due to low health literacy, delayed diagnosis, poor adherence to treatment, and limited access to preventive services (Rawal et al., 2021). These challenges are particularly evident among socioeconomically disadvantaged populations.

Knowledge and attitudes regarding hypertension play a critical role in its prevention and management. Individuals with adequate knowledge about risk factors, complications, and preventive measures are more likely to engage in healthy behaviors, seek early diagnosis, and adhere to treatment regimens. Conversely, poor knowledge

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and negative attitudes can contribute to delayed care-seeking, poor compliance, and increased risk of complications (Oliveria et al., 2005; Viera et al., 2008).

Evidence from various developing countries indicates that inadequate knowledge and suboptimal preventive attitudes toward hypertension are common among patients. For instance, studies have shown that limited awareness of blood pressure levels, risk factors, and lifestyle modifications significantly hinders effective disease control (Chimberengwa & Naidoo, 2019; Legido-Quigley et al., 2015). Furthermore, socio-demographic factors such as age, education, and income have been found to influence knowledge and attitudes related to hypertension and its complications (Sa'adeh et al., 2013).

Despite the growing burden of hypertension in Bangladesh, there is limited evidence assessing knowledge and attitudes among hospitalized patients, who often represent a high-risk group with existing comorbidities. Understanding their level of awareness and perceptions is essential for designing targeted educational interventions and improving prevention strategies within healthcare settings.

Therefore, this study was conducted to assess the knowledge and attitudes regarding risk factors and preventive measures of hypertension among admitted patients attending a tertiary care hospital in Dhaka, Bangladesh.

2. Materials and Methods

2.1. Study area

This study was conducted in Dhaka Medical College Hospital (DMCH), a tertiary-level hospital located in the heart of Dhaka City, Bangladesh. DMCH was selected due to its accessibility and wide range of clinical departments, including cardiology, nephrology, medicine, surgery, pediatrics, obstetrics, and gynecology. The hospital has a high patient turnover, with approximately 40-45 deliveries per day and about 1300 deliveries per month in the obstetrics unit, reflecting its large service capacity.

The study was conducted over a period of three months, from December 2021 to February 2022.

2.2. Study population and design

The study population consisted of admitted patients from different wards of Dhaka Medical College Hospital during the study period.

A descriptive cross-sectional study design was used. This design allows collection of data at a single point in time from a selected population to assess knowledge and attitudes regarding hypertension.

2.3. Sample size estimation

The sample size was calculated using the standard formula:
$n = z^2pq / d^2$
Where:
n = desired sample size
z = 1.96 at 95% confidence level
p = prevalence of hypertension = 34.7% (0.347) (Kibria et al., 2021)
$q = 1 - p = 0.653$
d = margin of error = 0.05
$n = (1.96)^2 \times 0.347 \times 0.653 / (0.05)^2$
$n = 3.84 \times 0.226 / 0.0025$
$n = 0.868 / 0.0025$
$n = 347.2 \approx 348$

Thus, the calculated sample size was 348. However, due to time and resource limitations, only 243 respondents were included in the study.

2.4. Data collection

Data were collected using a pre-tested, semi-structured, interviewer-administered questionnaire. The questionnaire was initially prepared in English, translated into Bangla, and then back-translated to ensure accuracy. It was pre-tested, refined, and finalized before data collection. Data collectors were trained by the investigator to ensure consistency.

2.5. Data analysis

Collected data were checked, verified, and edited for consistency before analysis. Data were analyzed using SPSS version 23.0. Results were presented using tables, charts, and graphs for better interpretation.

2.6. Ethical consideration

Written informed consent was taken from all participants before data collection. Confidentiality and anonymity of respondents were strictly maintained. Administrative permission was obtained from the concerned authorities of Dhaka Medical College Hospital.

3. Results

3.1 Socio-demographic Characteristics of Respondents

A total of 243 respondents participated in this study. The socio-demographic profile of the participants is summarized in Table 1. More than half of the respondents (52.7%) were aged over 60 years, with a mean age of 47.31 ± 7.01 years. The majority were male (68.3%), resided in rural areas (67.9%), and were of Muslim faith (85.4%). Regarding marital status, 79.2% were married. Educational attainment was relatively low, with 39.9% being illiterate and only 7.8% having a graduation degree or higher. Occupationally, day laborers (29.2%) and businessmen (18.5%) formed the largest groups. Over half of the respondents (54.3%) reported a monthly family income of less than 30,000 BDT, with a mean income of 34,714.31 ± 3,147.05 BDT.

Table 1: Socio-demographic profile of respondents (n=243)

Variable	Category	Frequency (n)	Percentage (%)
Age (Years)	<40	33	13.6
	40-50	82	33.7
	>60	128	52.7
Gender	Male	166	68.3
	Female	77	31.7
Residence	Rural	165	67.9
	Urban	78	32.1
Religion	Muslim	208	85.4
	Hindu	33	13.7
	Christian	2	0.9
Marital Status	Married	192	79.2
	Widow	42	17.4
	Unmarried	9	3.4
Education Status	Illiterate	97	39.9
	Primary	54	22.2
	SSC	43	17.7
	HSC	34	13.9
	Graduation or above	19	7.8
Occupation	Day labor	71	29.2
	Business	45	18.5
	Private job	43	17.7
	Public job	33	13.6
	Housewife	29	11.9
	Others	22	9.1
Monthly Income (BDT)	<30,000	132	54.3
	30,000-40,000	85	34.9
	>40,000	26	10.7

3.2 Lifestyle and behavioral factors

Behavioral risk factors were prevalent among the study population. Nearly three-quarters of the respondents (73.6%) had a history of smoking. In contrast, alcohol consumption was relatively low, with only 12.2% of respondents reporting its use.

3.3 Knowledge regarding hypertension

The participants' knowledge regarding hypertension was generally poor. Table 2 consolidates various aspects of hypertension knowledge. Only 7.8% correctly defined high blood pressure as the force of blood pushing against vessel walls, while 46.9% admitted they did not know the term. Similarly, 74.9% were unaware of normal blood pressure values, and 46.1% could not identify any symptoms.

Table 2: knowledge of hypertension definition, normal values, and symptoms (n=243)

Knowledge Area	Category	Frequency (n)	Percentage (%)
Definition of HTN	Force of blood pushing against vessel walls	19	7.8
	High level of stress/tension	67	27.6
	Rapid pulse/rising blood	43	17.7
	Don't know	114	46.9
Normal Blood Pressure	≤ 120/80 mmHg	36	14.8
	121/81 to 139/89 mmHg	13	5.3
	140/90 to 160/100 mmHg	12	4.9
	Don't know	182	74.9
Symptoms of HTN	Headache, Dizziness, Tiredness	62	25.5
	Chest tension/Difficulty breathing	46	18.9
	No symptoms	23	9.5
	Don't know	112	46.1

Knowledge regarding the causes, dangerous effects, and prevention of hypertension among those who claimed to have knowledge (n=91, n=103, and n=77 respectively) is presented in Table 3. Smoking (97.8%) and excessive tension (91.2%) were the most recognized causes. The most cited dangerous effect was death (93.2%), followed by heart problems (69.9%). Regarding prevention, giving up smoking (80.5%) and reducing salt intake (79.2%) were the most frequently identified measures.

Table 3: Knowledge of causes, effects, and prevention

Category	Specific Factor	Frequency (n)	Percentage (%)
Causes (n=91)	Smoking	89	97.8
	Excessive tension	83	91.2
	Excessive salt intake	77	84.6
	Alcohol consumption	72	79.1
	Excessive weight gain	63	69.2
Effects (n=103)	Can lead to death	96	93.2
	Heart problems	72	69.9
	Organ destruction (Heart, Brain, Kidney)	69	66.9
	Stroke	61	59.2
	Diabetes	56	54.5
Prevention (n=77)	Giving up smoking	62	80.5
	Avoid excessive salt	61	79.2
	Moderate exercise	55	71.4
	Reducing caffeine intake	42	54.5
	Reducing alcohol intake	33	42.9

The primary source of information regarding hypertension was health workers (48.1%), followed by relatives (18.5%) and friends (16.1%). Overall, 66.3% of respondents had a poor level of knowledge, while only 6.2% demonstrated good knowledge (Table 4).

Table 4: Sources of information and overall knowledge level (n=243)

Variable	Category	Frequency (n)	Percentage (%)
Source of Info	Health worker	117	48.1
	Relative	45	18.5
	Friend	39	16.1
	Pharmacy	26	10.7
	Others	16	6.6
Knowledge Level	Poor	161	66.3
	Moderate	67	27.6
	Good	15	6.2
	Excellent	0	0.0

3.4 Attitude regarding hypertension

The attitude towards hypertension prevention was largely negative. As shown in Table 5, a significant majority did not believe regular exercise (81.5%) or salt reduction (60.5%) were necessary for a healthy life or hypertension prevention. Furthermore, 72.8% did not think hypertension was preventable. However, about half of the respondents recognized the importance of regular blood pressure checks (51.1%) and medication adherence (50.6%).

Table 5: Preventive attitude regarding hypertension (n=243)

Statement	Yes n (%)	No n (%)
Regular exercise is necessary for a healthy life	45 (18.5)	198 (81.5)
High blood pressure is preventable	66 (27.2)	177 (72.8)
Reducing salt intake prevents hypertension	96 (39.5)	147 (60.5)
Regular blood pressure checking is important	124 (51.1)	119 (48.9)
Keeping in touch with physicians is important	86 (35.4)	157 (64.6)
Regular medication is important for HTN	123 (50.6)	120 (49.4)
Lifestyle changes can help prevent HTN	88 (36.2)	155 (63.8)

Among those who did not believe lifestyle changes could prevent hypertension (n=155), 46.5% attributed the condition to hereditary factors. Overall, 71.6% of respondents exhibited a negative

attitude toward hypertension prevention, while only 28.4% had a positive attitude.

3.5 Health-seeking behavior and concern

When suspecting high blood pressure, the most common reaction was to visit a hospital (33.1%), followed by visiting a pharmacy (21.3%) or taking rest (19.3%). Only 12.9% reported taking anti-hypertensive medication immediately. Despite the general lack of knowledge, 71.3% of respondents reported being "very serious" about their health when informed of their hypertension status by a healthcare professional.

4. Discussion

A descriptive cross-sectional study was conducted among 243 admitted patients in a selected hospital in Dhaka City to assess knowledge and attitudes regarding hypertension risk factors and preventive measures using a pretested semi-structured interviewer-administered questionnaire. Data were analyzed using SPSS.

The present study showed that most respondents were aged >60 years (52.7%), followed by 40–50 years (33.7%) and <40 years (13.6%), with a mean age of 47.31 ± 7.01 years. Males predominated (68.3%), and most participants were from rural areas (67.9%). The majority were Muslim (85.4%) and married (79.2%). Regarding education, 39.9% were illiterate, and only 7.8% had graduation or higher qualifications. Most respondents were day laborers (29.2%), and over half (54.3%) had a monthly income below 30,000 BDT. These findings are comparable with WHO reports indicating a higher burden of hypertension-related risk factors among low-income and less-educated populations (WHO, 2009).

In this study, 73.6% of respondents were smokers, while only 12.2% reported alcohol consumption. Nearly half (46.9%) did not know the meaning of hypertension, and only 7.8% correctly identified it. Similarly, knowledge of normal blood pressure was poor (74.9% unaware). These findings are inconsistent with Lewington et al., who reported better awareness in other populations (Lewington, 2002).

Regarding symptoms and causes, 46.1% and 62.6% of respondents, respectively, lacked knowledge, although some recognized headache, dizziness, stress, obesity, and smoking as related factors. Similar patterns of poor awareness have been reported by WHO (2014).

More than half of respondents (57.6%) were unaware of the complications of hypertension, although others correctly identified serious outcomes such as heart disease, stroke, organ damage, and death. Knowledge about prevention was also low (68.3% unaware), although some respondents identified lifestyle modifications such as smoking cessation, salt reduction, and exercise. These findings differ from El-Saharty et al., who reported comparatively higher awareness in similar settings (El-Saharty et al., 2013).

The main source of information was health workers (48.1%), followed by relatives and friends. Overall, 66.3% of respondents had poor knowledge, while only 6.2% demonstrated good knowledge. This aligns with findings by Krishnan et al., who reported similarly low awareness in comparable populations (Krishnan et al., 2013).

Attitudinal findings revealed that a large proportion of respondents held negative views regarding preventive practices, including regular exercise, salt restriction, BP monitoring, and physician follow-up. Overall, 71.6% showed a negative attitude toward hypertension prevention, although 50.6% demonstrated some positive attitudes toward preventive measures. Only 36.2% believed lifestyle modification could prevent hypertension, while the majority attributed the condition to hereditary or unavoidable factors.

Regarding health-seeking behavior, 33.1% visited hospitals when symptomatic, while others sought pharmacy advice, rested, or self-medicated. After receiving medical advice, most respondents (71.3%) became more serious about their health. Overall, negative attitudes toward hypertension prevention were predominant. These findings differ from Oliveria et al., who reported more proactive health-seeking behavior in their study population (Oliveria et al., 2005).

5. Conclusion

The study revealed that 66.3% of respondents had poor knowledge regarding hypertension, and only 28.4% demonstrated a positive attitude toward its prevention. These findings highlight significant gaps in awareness and preventive practices among

the study population. Misconceptions, particularly the belief that “tension” is a primary cause of hypertension, should be specifically addressed by health workers. There is also a need to strengthen public understanding that unhealthy lifestyle behaviors such as high salt intake, smoking, alcohol consumption, physical inactivity, and poor diet are major modifiable risk factors, in addition to genetic influences. Therefore, targeted health education focusing on lifestyle modification should be prioritized as a key strategy for hypertension prevention and control in this population.

Recommendations

1. Public education on the prevention and control of hypertension should be prioritized to improve awareness of its risk factors and complications.
2. Lifestyle modification strategies should be promoted to empower individuals to take responsibility for their own health, including healthy diet, physical activity, and smoking cessation.
3. A national health promotion program focusing on salt reduction should be implemented as a cost-effective intervention with long-term public health benefits.
4. Special emphasis should be given to educating women, as their knowledge can positively influence family and community health behaviors.
5. Further large-scale studies are recommended to better understand hypertension-related knowledge, attitudes, and practices across diverse populations in Bangladesh.

Limitation of the study

This study was conducted at only at Dhaka Medical College hospital Dhaka Bangladesh. Therefore, the findings of the study cannot be generalized for all settings. There were some limitations to conduct the study like area only a selected tertiary level hospital, inadequate information due to limited knowledge of the respondents. Limitations include the sample size also for the time being only 243 samples were included. The sampling technique used in the study was purposive, which had more chances of bias.

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