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Prevalence and associated factors of hypertension in selected urban and rural areas of Dhaka, Bangladesh

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Abstract
In Bangladesh, hypertension is the primary cause of death and sickness. This study investigates the prevalence and determinants of hypertension among adults in urban and rural areas of Dhaka, Bangladesh, highlighting critical demographic, socioeconomic, lifestyle, and health factors contributing to this significant public health issue. From November 2023 to January 2024, a total of three months were devoted to the investigation. Among the 251 respondents, a notable 91.9% were married, with a majority (35.1%) aged between 50 and 59, and 64.9% identified as male. A significant portion of the sample (74.3%) were Muslim, and 79.7% lived in joint families, which may influence dietary habits and stress levels. Educationally, 40.5% completed postsecondary education, and 66.5% had household incomes exceeding 15,000 BDT, indicating a relatively stable economic status. However, lifestyle factors revealed concerns, with 64.9% consuming fewer vegetables, 52.7% using excessive salt in meals, and 78.4% leading sedentary lives, despite 75.7% engaging in adequate physical activity. Additionally, 82.4% reported a family history of hypertension, reinforcing genetic predispositions. Health metrics showed that 54.1% had normal weight, and 56.6% maintained normal blood pressure levels, yet the presence of elevated blood pressure among a considerable portion of the sample indicates a need for ongoing monitoring and interventions. Overall, these findings emphasize the multifaceted nature of hypertension risk in Dhaka, necessitating targeted public health strategies to promote healthier lifestyles and improve awareness regarding hypertension management, particularly for individuals with familial predispositions and high-risk behaviors.

Keywords: Hypertension, life-style, food habits, co-morbidity, non-communicable diseases, chronic obstructive pulmonary disease, body mass index

Introduction

The worldwide epidemic [1] of hypertension is a leading cause and kidney disease [2]. An epidemiological shift is causing a change in the illness burden in Bangladesh, moving away from communicable diseases and toward non-communicable diseases (NCDs) [3-6]. Depending on where people live, the prevalence could vary even within the same country. Despite some studies showing a higher frequency in urban than rural regions [7-8]. Our search for research on hypertension in Bangladesh turned up just a single study that looked at the disease's incidence and risk factors [9, 10].

Those who live close to the coast are probably exposed to a lot of salt (sodium chloride). This can be the result of consuming more salty drinking water than is advised [11]. People are aware of the high risk of HTN-related premature mortality even though they are not concerned about the right course of treatment or preventative measures [12–14]. The incidence of hypertension is rapidly rising, especially in developing nations where life expectancy is increasing, economic conditions are improving, and epidemiological shifts are taking place [15]. Hypertension, often known as high blood pressure [16-17]. Smoking, using smokeless tobacco, consuming too much alcohol, etc. [18]. These days, most individuals are aware of the signs and symptoms of hypertension as well as the easily diagnosable and treated disorders that are linked to it [19-20]. Globalization, market-driven economics, environmental changes, and lifestyle choices are some of the main causes of the epidemiological shift that is primarily marked by non-communicable diseases (NCDs) throughout the world [21-22]. Twenty-two

main NCDs including diabetes, COPD, cancer, hypertension (HTN), and stroke/heart disease account for 68% of deaths in Bangladesh [23]. Among these, hypertension (HTN) is a developing epidemic, with a prevalence estimated to be between 15 and 20% among Bangladesh's adult population [24]. And all nations, irrespective of their financial situation, should treat this load as a serious public health issue [25]. Risk factors for hypertension that are related to lifestyle choices, such as harmful alcohol consumption, inactivity, poor food, and tobacco use, are changeable [26]. Numerous publications have appeared in regional, non-indexed journals, but it is rare and challenging to find them online. In light of this, this study attempts to provide a comprehensive overview of the prevalence and risk factors of HTN in Bangladesh [27].

Worldwide, hypertension is a severe problem with public health that impacts both developed and underdeveloped countries [28]. Non-modifiable ones like being overweight, consuming a lot of sodium, and engaging in less [29]. Since HTN typically has no symptoms, it is frequently thought of as a separate illness [30]. However, age, gender, ethnicity, excessive salt intake, being overweight or obese, being sedentary, smoking, using smokeless tobacco, consuming large amounts of alcohol, etc. are some risk factors for hypertension [31]. These days, most individuals are aware of the signs and symptoms of hypertension as well as the easily diagnosable and treated disorders that are linked to it [32]. Bangladeshi HTN data are frequently lacking, prone to statistical errors, and difficult to obtain [33]. Consequently, finding out how common hypertension is among adults is the driving force behind this research. I hope that future study will be inspired that it will serve as a great source of information.

Materials and Methods

The study was conducted among men and women over the age of 30 residing in rural Gazipur districts and the southern part of Dhaka city, covering both slum and non-slum communities. A cross-sectional study design was employed over a period of three months, from November 2023 to January 2024. The target population consisted of adult residents of selected urban and rural areas in Bangladesh. The inclusion criteria encompassed Bangladeshi residents who were available during data collection, while those who were unavailable, declined participation, or were seriously ill were excluded. The sample size was calculated using the formula $N=Z^2pq/d^2$, with a prevalence rate of 36.9% reported by Hasan (2021) and a 95% confidence interval, resulting in a required sample size of 358. However, due to time constraints, 251 participants were selected through purposeful sampling. Data collection involved a structured survey assessing demographic data, lifestyle behaviors, and medical histories related to hypertension. Physical health assessments, including blood pressure, BMI, and waist circumference measurements, were conducted by trained healthcare personnel. Additionally, secondary data sources, such as regional health reports and hospital records, were reviewed to provide contextual insights. The questionnaire comprised four sections: physical measurements, behavioral risk factors, metabolic risk variables, and sociodemographic information. Participants' blood pressure, height, weight, waist circumference, and BMI were recorded, while behavioral risk factors such as diet, physical activity, and tobacco use were assessed with the aid of visual display cards to improve comprehension. Metabolic risk variables, including blood sugar and cholesterol levels, were also documented based on self-reported clinical data. The sociodemographic section captured age, gender, education, income, and healthcare access to analyze their impact on hypertension risk. Data management involved verifying accuracy, correcting inconsistencies, and inputting data into a computer. Analysis was conducted using SPSS, with results presented in frequency tables, graphs, and charts, utilizing descriptive statistics such as mean, standard deviation, and percentages. Ethical considerations included obtaining written consent from participants, securing authorization from local authorities, and ensuring respondents were informed about the study's academic purpose before participation.

Results

Table 1: Distribution of the respondents by sociodemographic Characteristic, (N=251)

Age (in year)	Number	Percentage
31-39	34	13.5
40-49	68	27.1
50-59	88	35.1
≥ 60	61	24.3
Total	251	100
Gender		
Male	163	64.9
Female	88	35.1
Religion		
Muslim		74.3
Hindu		21.6
Christian		4.1
Type of Family		
Nuclear family		79.7
Joint family		20.30
Marital Status		
Married		91.9
Unmarried		8.1
Residence		
Rural area		48.6
Urban area		51.4
Educational qualification		
No education	14	5.4
Primary education	37	14.9
Secondary education	98	39.2
Higher education	101	40.5
Occupation		
Housewife	44	17.6
Service holder	115	45.9
Others	92	36.5
Monthly family income		
<10000 BDT	32	12.7
10000-15000 BDT	52	20.7
>15000 BDT	167	66.5

Table 2: Distribution by fruit and vegetable consumption (N=251)

A diet rich in fruits and vegetables	Number	percent
>5 servings per day	88	35.1
<5 servings per day	163	64.9
Total	251	100

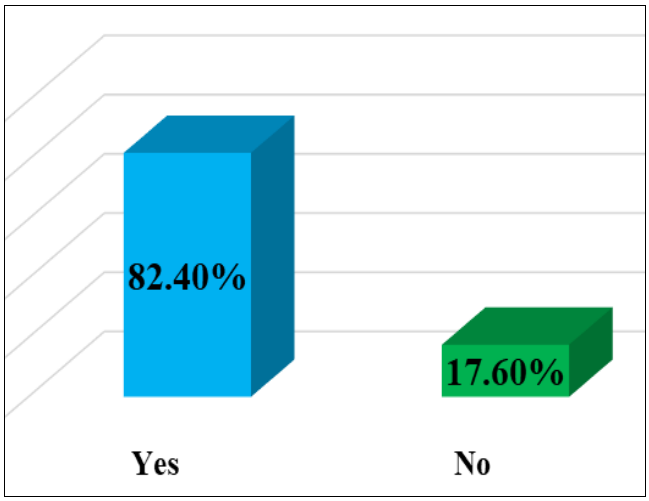

Fig 1: Distribution of the respondents by history of hypertension (N=251)

Table 3: Distribution of the respondents by others behavior risk factors (N=251)

Statement	Yes, N%	No, N%
Add extra salt in your diet	132 (52.7)	119 (47.3)
Tobacco consumption	92 (36.5)	159 (63.5)
Sedentary life style	54 (21.6)	197 (78.4)
Over-stress	227 (90.5)	24 (9.5)
Total	251	100

Table 4: Distribution of the respondents by metabolic risk factors (N=251)

BMI	Number	Percent
Obese	112	44.6
Normal	136	54.1
Underweight	4	1.4
Total	251	100

Table 5: Distribution of the respondents by metabolic risk factors (N=251)

Blood pressure	Number	Percent
Low blood pressure	63	25.1
Normal	142	56.6
High blood pressure	46	18.3
Total	251	100

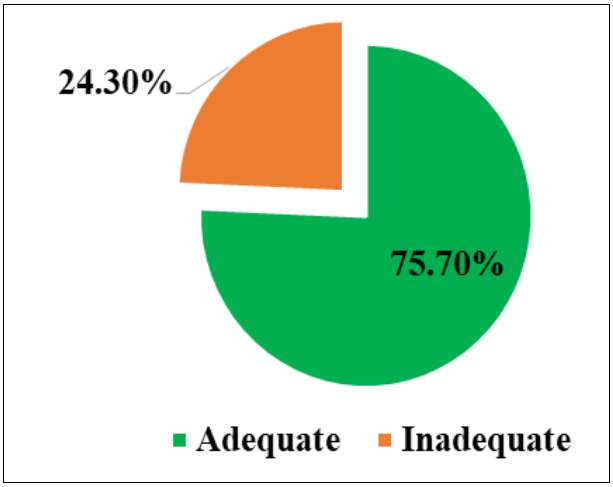

Fig 2: Distribution of the respondents by physical exercise (N=251)

Table 6: Association between hypertension and age of the respondents (N=251)

Age (in year)	Hypertension		Total	Ch-square, P-Value
	Yes	No		
31-39	30(11.9)	4(1.6)	34(13.5)	
40-49	60(23.9)	8(3.2)	68(27.1)	p=0.00
50-59	78(31.1)	10(3.9)	88(35.1)	X^2=5.120
≥ 60	39(15.5)	22(8.8)	61(24.3)	
Total	207(82.5)	44(17.5)	251(100)	

Discussion

The distribution of respondents by age reveals that a significant proportion, 35.1%, were between 50 and 59 years, followed by 27.1% aged 40 to 49, 24.3% aged 60 or older, and 13.5% between 31 and 39 years. Age appears to correlate strongly with hypertension prevalence, with the highest incidence of hypertension in the 50-59 age group. The chi-square analysis (X^2 = 5.120, P=0.00) indicates a statistically significant relationship between age and hypertension status, suggesting that as individuals age, the risk of hypertension rises markedly, a trend often observed in epidemiological studies. This association aligns with findings in other studies, such as those conducted by Hay S. *et al*., which also demonstrated a strong age-hypertension linkage [22]. Males constituted the majority of the sample (64.9%), with females comprising 35.1%. The study population predominantly identified as Muslim (74.3%), with smaller percentages identifying as Hindu (21.6%) and Christian (4.1%). Family structure shows a trend toward joint family living, with 79.7% of respondents living in joint families, which could influence lifestyle and health behaviors, particularly in dietary habits and stress management. Education levels varied: 40.5% completed primary education, 39.2% had secondary education, 14.9% reached higher education, and 5.4% had no formal education, suggesting a spectrum of health literacy and awareness that may impact health outcomes. Employment status showed that 45.9% were housewives, 36.5% were in service roles, and 17.6% engaged in other occupations, with income also varying: 66.5% had a monthly family income of over 15,000 BDT, while others had more limited financial resources [23]. Regarding lifestyle behaviors, 35.1% of respondents consumed vegetables regularly, 75.7% engaged in adequate physical activity, and 24.3% were physically inactive, pointing to variations in lifestyle that might affect hypertension risk. A significant majority, 52.7%, reported adjusting their salt intake to manage blood pressure, and 63.5% refrained from tobacco use. Nonetheless, 78.4% led sedentary lifestyles, and 90.5% reported experiencing high levels of stress, which are critical factors known to exacerbate hypertension. This sedentary trend is particularly concerning as physical inactivity is a well-established risk factor for hypertension, cardiovascular disease, and metabolic disorders [24]. The weight status of respondents indicates that 54.1% had normal weight, 44.6% were classified as obese, and only 1.4% were underweight. Obesity, present in nearly half of the respondents, is an independent risk factor for hypertension and may contribute to the high prevalence observed. Blood pressure classifications among respondents show that 56.6% had normal blood pressure, 25.1% had low blood pressure (hypotension), and 18.3% had elevated

resting blood pressure. This distribution suggests that while a majority fall within a normal range, a sizable proportion are either at risk of or already experiencing hypertension [25]. This study's findings are comparable to those reported by Koly KN *et al*. [23] and Yusuf S *et al*., [25] reinforcing the observed patterns. These studies similarly emphasize age, lifestyle, and socioeconomic factors as determinants of hypertension prevalence. For example, high stress, physical inactivity, and sedentary lifestyles, combined with limited economic resources and educational disparities, are recurring factors that contribute to the hypertension burden. This study, therefore, adds to the body of evidence highlighting these social and lifestyle dimensions in hypertension risk. However this study demonstrates that hypertension prevalence is closely associated with age, gender, socioeconomic status, lifestyle behaviors, and family structure. It underscores the need for targeted interventions focusing on lifestyle modifications, particularly for older adults, males, and individuals with lower socioeconomic status. By addressing high-stress levels, promoting physical activity, and encouraging dietary modifications such as reduced salt intake, health interventions could mitigate hypertension risk among high-risk groups identified in this study.

Conclusion

This study showed that respondents' family histories of hypertension, poor eating habits, and varied degrees of physical inactivity were all common. In addition, sedentary habits, stress, and salt consumption are highly prevalent among the responders. Significant differences are also seen in the distribution. While some results are consistent with earlier research, significant variations point to particular traits or circumstances within the study population, suggesting possible areas for focused treatments or additional research.

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Conflict of Interest

Not available

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References

1. Reddy KS, Katan MB. Diet, nutrition and the prevention of hypertension and cardiovascular diseases. Public health nutrition. 2004 Feb;7(1a):167-86.
2. Mills KT, Stefanescu A, He J. The global epidemiology of hypertension. Nature Reviews Nephrology. 2020 Apr;16(4):223-237.
3. Sarki AM, Nduka CU, Stranges S, Kandala NB, Uthman OA. Prevalence of hypertension in low-and middle-income countries: A systematic review and meta-analysis. Medicine. 2015 Dec;94(50).
4. Sherlock LP, Beard J, Minicuci N, Ebrahim S, Chatterji S. Hypertension among older adults in low-and middle-income countries: prevalence, awareness and control. International journal of epidemiology. 2014 Feb 1;43(1):116-128.
5. Khanam F, Hossain MB, Mistry SK, Afsana K, Rahman M. Prevalence and risk factors of cardiovascular diseases among Bangladeshi adults: findings from a cross-sectional study. Journal of epidemiology and global health. 2019 Sep;9(3):176.
6. Tomitani N, Hoshide S, Buranakitjaroen P, Chia YC, Park S, Chen CH, *et al*. Regional differences in office and self-measured home heart rates in Asian hypertensive patients: AsiaBP@ Home study. The Journal of Clinical Hypertension. 2021 Mar;23(3):606-613.
7. Lamri L, Gripiotis E, Ferrario A. Diabetes in Algeria and challenges for health policy: a literature review of prevalence, cost, management and outcomes of diabetes and its complications. Globalization and health. 2014 Dec;10(1):1-4.
8. World Health Organization, Public Health Agency of Canada, Canada. Public Health Agency of Canada. Preventing chronic diseases: A vital investment. World Health Organization, 2005 Sep 28.
9. Mistry SK, Hossain M, Parvez M, Gupta RD, Arora A. Prevalence and determinants of hypertension among urban slum dwellers in Bangladesh. BMC Public Health. 2022 Dec;22(1):1-2.
10. Hasan M, Khan MS, Sutradhar I, Hossain MM, Hossaine M, Yoshimura Y, *et al*. Prevalence and associated factors of hypertension in selected urban and rural areas of Dhaka, Bangladesh: Findings from SHASTO baseline survey. BMJ open. 2021 Jan 1;11(1):e038975.
11. Smyth PP, Burns R, Huang RJ, Hoffman T, Mullan K, Graham U, *et al*. Does iodine gas released from seaweed contribute to dietary iodine intake? Environmental geochemistry and health. 2011 Aug; 33:389-397.
12. Cooper RS, Rotimi CN, Kaufman JS, Muna WF, Mensah GA. Hypertension treatment and control in sub-Saharan Africa: The epidemiological basis for policy. BMJ. 1998 Feb 14;316(7131):614-617.
13. Devi P, Rao M, Sigamani A, Faruqui A, Jose M, Gupta R, *et al*. Prevalence, risk factors and awareness of hypertension in India: A systematic review. Journal of human hypertension. 2013 May;27(5):281-287.
14. Chinyere OI, Mwuese UP, Ara BI. Prevalence and awareness of hypertension amongst staff and students of a tertiary institution in Nigeria. Global Advanced Research Journal of Medicine and Medical Science. 2015;4(1):061-066.
15. Diaz A, Ferrante D. Trends in prevalence of hypertension in Argentina in the last 25 years: A systematic review of observational studies. Revista Panamericana de Salud Pública. 2015;38:496-503.
16. Das S, Mia MN, Hanifi SM, Hoque S, Bhuiya A. Health literacy in a community with low levels of education: Findings from Chakaria, a rural area of Bangladesh. BMC Public Health. 2017 Dec;17:1-0.
17. Gradman AH, Alfayoumi F. From left ventricular hypertrophy to congestive heart failure: Management of hypertensive heart disease. Progress in cardiovascular diseases. 2006 Mar 1;48(5):326-341.

18. Pinto IC, Martins D. Prevalence and risk factors of arterial hypertension: A literature review. Journal of Cardiovascular Medicine and Therapeutics. 2017;1(2):1-7.
19. Townsend R, O'Brien P, Khalil A. Current best practice in the management of hypertensive disorders in pregnancy. Integrated blood pressure control. 2016 Jul 27:79-94.
20. Aubert L, Bovet P, Gervasoni JP, Rwebogora A, Waeber B, Paccaud F. Knowledge, attitudes, and practices on hypertension in a country in epidemiological transition. Hypertension. 1998 May;31(5):1136-1145.
21. McMichael AJ, Beaglehole R. The changing global context of public health. The Lancet. 2000 Aug 5;356(9228):495-499.
22. Hay S, Gething P, Cooper C, Darby S, Ali R, Bennett D, *et al*. Global, regional, and national life expectancy, all-cause mortality, and cause-specific mortality for 249 causes of death, 1980-2015: A systematic analysis for the Global Burden of Disease Study 2015. Lancet. 2016 Oct 1;388(10053).
23. World Health Organization. Noncommunicable diseases in the South-East Asia Region, 2011: Situation and response.
24. Koly KN, Biswas T, Islam A. Increasing prevalence of hypertension in Bangladesh: A review. Cardiovascular Journal. 2015 Aug 28;8(1):59-64.
25. Sarafidis PA, Bakris GL. Microalbuminuria and chronic kidney disease as risk factors for cardiovascular disease. Nephrology Dialysis Transplantation. 2006 Sep 1;21(9):2366-74.
26. Yusuf S, Hawken S, Ôunpuu S, Dans T, Avezum A, Lanas F, *et al*. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): Case-control study. The lancet. 2004 Sep 11;364(9438):937-952.
27. Koly KN, Biswas T, Islam A. Increasing prevalence of hypertension in Bangladesh: A review. Cardiovascular Journal. 2015 Aug 28;8(1):59-64.
28. Lawson CA, Zaccardi F, Squire I, Okhai H, Davies M, Huang W, *et al*. Risk factors for heart failure: 20-year population-based trends by sex, socioeconomic status, and ethnicity. Circulation: Heart Failure. 2020 Feb;13(2):e006472.
29. Zavala GA, Chowdhury HA, Muliyala PK, Appuhamy K, Aslam F, Huque R, *et al*. Prevalence of physical health conditions and health risk behaviours in people with severe mental illness in South Asia: Multi-country cross-sectional survey. BJ Psych Open. 2023 Mar;9(2):e43.
30. Oduwole AA, Ladapo TA, Fajolu IB, Ekure EN, Adeniyi OF. Obesity and elevated blood pressure among adolescents in Lagos, Nigeria: A cross-sectional study. BMC Public Health. 2012 Dec;12:1-6.
31. Sawicka K, Szczyrek M, Jastrzebska I, Prasal M, Zwolak A, Daniluk J. Hypertension-the silent killer. Journal of Pre-Clinical and Clinical Research. 2011;5(2).
32. Townsend R, O'Brien P, Khalil A. Current best practice in the management of hypertensive disorders in pregnancy. Integrated blood pressure control. 2016 Jul 27:79-94.
33. Biswas T, Islam SM, Islam A. Prevention of hypertension in Bangladesh: A review. Cardiovascular Journal. 2015 Feb 16;7(2):137-144.

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