



Socioeconomic Status and its Relation to Hypertension

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Received: April 2021

Accepted: May 2021

Abstract

Background: Coronary and cardiovascular diseases are one of the major causes of mortality worldwide. Cardiovascular diseases have many causes and risk factors, and one of the primary risk factors is hypertension, more commonly known as high blood pressure. It is one of the ailments with no clear symptoms or a cure. As a result, it is often diagnosed in the severe stage, with severe symptoms. Among many other factors, socioeconomic factors are one of the causes of hypertension. But the exact relation between socioeconomic status and hypertension has not been found, as many studies show conflicting results. The present study tried to focus on the socioeconomic status of our country and its relation to hypertension.

Aim of the study: The aim of the study was to observe the effects of socioeconomic status and hypertension.

Methods: This was a cross-sectional observational study conducted at the Department of Cardiology, Colonel Malek Medical College, Manikganj, Bangladesh during the period of January 2020 to December 2020 with 80 patients showing stage II and above hypertension. The patients were made aware of the study, and properly informed consent was taken from the patients about using their personal data for the study. Ethical approval was collected from the respected authority.

Result: The male: female ratio was 3:5. 25% of the participants were unmarried and 75% were married. The youngest participant present in the study was 35 years old, and the oldest was 73 years old. 10% of the participants were from the youngest age group of 35-39 years. 37.5% of the participants were older than 60 years. 70% of the participants were from rural areas, and only 30% were from urban localities. Among the participants, 48.75% were illiterate, and a higher level of education was only present in 6.25% of the participants.

Conclusion: The current study showed a higher prevalence of hypertension in the female population. Hypertension prevalence was inversely proportional to education and directly proportional to income. Rural areas had a much higher prevalence of hypertension compared to urban areas, and many of the socioeconomic factors were theorized to affect the mental health and stress level of the participants.

Keywords: Hypertension, Hypertensive, High blood pressure, Literacy, Mental stress

INTRODUCTION

Cardiovascular diseases are the main cause of death in almost all developed countries. And even in developing countries, the limited amount of information available suggests that a similar epidemic is apparent if the current trends go on. Although treatment of patients with symptoms of cardiovascular diseases is an important part of battling such diseases, that alone can't help much as sudden death is often the first manifestation of heart-related diseases. And even when the treatment is available, they are often used as a palliative measure, rather than curing the disease. Deaths because of coronary and cardiovascular diseases peaked in the 1960s, but ever since then, many developed countries celebrated the fact that scientific advancements led to a decrease in cardiovascular mortality rates. Despite that, there were 7.3 million deaths worldwide just in the year 2001, as a cause of coronary heart diseases.^[1] The rates of death were much higher in developing and underdeveloped countries. This might be because of the difference in risk factors between developing and developed countries. But one of the major risk factors commonly available all around the world is hypertension, more commonly known as high blood pressure. Blood pressure is the amount of force someone's blood exerts against the walls of their blood vessels.^[2] It is one of the major chronic diseases that have no cure. It is only controllable via medicine, so hypertension patients have to take certain medications and certain practices for the rest of their lives. Another important thing to notice is that hypertension is often undiagnosed in many patients, as it often has no particular symptoms. So, without routine medical check-

ups, hypertension often remains undiagnosed in many patients. Even in developed countries like the USA, almost half the adult population has high blood pressure.^[2] Hypertension is divided into 3 sub-categories, and they are stage I hypertension (130-139/80-89 mm Hg), stage II hypertension ($\geq 140/\geq 90$ mm Hg), and hypertensive crisis (180/120 mm Hg). The world health organization has reported that diastolic blood pressure above 115 mm Hg is responsible for 62% of cerebrovascular disease and 49 percent of ischemic heart disease.^[3] It has also been recognized to be responsible for stroke, chronic kidney disease, and end-stage renal disease alongside heart diseases.^[4,5] It is also ranked third as a cause of DALY (Disability Adjusted LifeStyles).^[6] Hypertension can be caused by many factors, and these factors can differ greatly depending on age, sex, and locality.^[7] In many epidemiological studies, factors such as early life experiences, socioeconomic status, age, sex, race, dietary habits, alcohol consumption, physical activity, and various environmental agents have been recognized as influencing blood pressure.^[8,9] The current study was conducted to find the relationship between hypertension and the socioeconomic status of the patients.

OBJECTIVES:

General Objective:

- To understand the effects of hypertension

Specific Objective:

- To observe the relation between socioeconomic status and hypertension



MATERIALS & METHODS

This was a cross-sectional observational study conducted at the Department of Cardiology, Colonel Malek Medical College, Manikganj, Bangladesh during the period of January 2020 to December 2020. For this study, 170 patients were interviewed in the initial stages, and after following the inclusion and exclusion criteria, 80 patients were selected among the patients admitted with high blood pressure through referrals from other departments and those showing stage II and above hypertension while having regular check-ups. The patients were made aware of the study, and properly informed consent was taken from the patients about using their personal data for the study. Ethical approval was collected from the respected authority.

Inclusion Criteria:

- Patients older than 30 years
- Patients belonging to Stage II and above hypertension groups

Exclusion Criteria:

- Patients less than 30 years old
- Patients belonging to Stage I Hypertension and normal blood pressure groups

- Patients unable to share necessary information
- Mentally unstable

RESULTS

Among the 80 participants, only 30 were male, and the remaining 50 were female. The male: female ratio was 3:5. 25% of the participants were unmarried and 75% were married. The youngest participant present in the study was 35 years old, and the oldest was 73 years old. 10% of the participants were from the youngest age group of 35-39 years. 15% of the participants were from the age group of 45-49 years, and 18.75% of the participants belonged to the age group of 60-64 years. The age group of ≥ 65 years of age also had 18.75% of the participants. 70% of the participants were from rural areas, and only 30% were from urban localities. Among the participants, 48.75% were illiterate, and a primary level of education was present in 30% of the participants. 15% had received secondary education, and higher levels of education were only present in 6.25% of the participants.

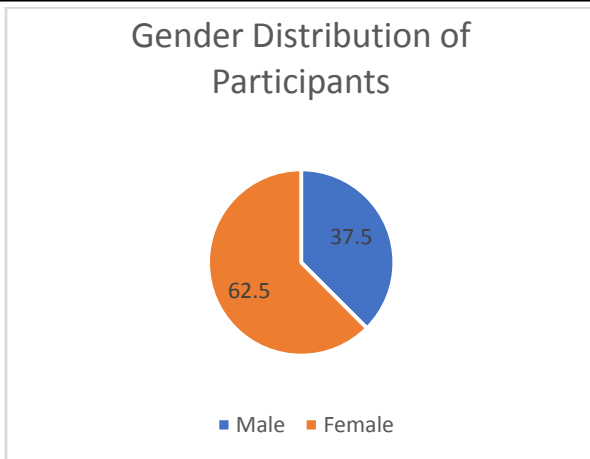


Fig. I: Gender Distribution of the participants (n=80)
 62.5% of the participants were female, and only 37.5% were male. The male: female ratio was 3:5

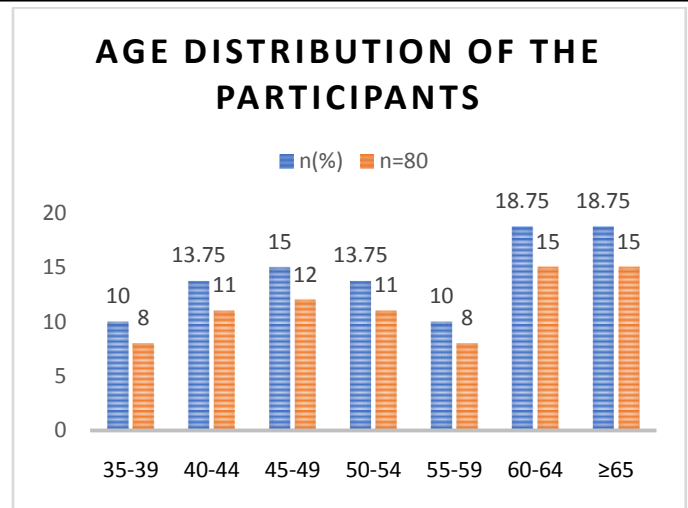


Fig. III: Age Distribution of the participants (n=80)
 The youngest participant present in the study was 35 years old, and the oldest was 73 years old. The majority of the participants belonged to older age groups. 10% of the participants were from the youngest age group of 35-39 years. 40-44 years age range and 50-54 years age range both had 13.75% of the participants. 15% of the participants were from the age group of 45-49 years, having the second-highest number of participants. 18.75% of the participants belonged to the age group of 60-64 years, and ≥65 years of age also had 18.75% of the participants.

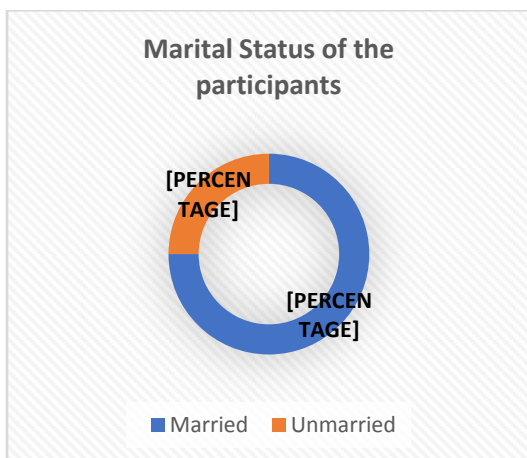


Fig. II: Marital Status of the participants (n=80)
 Only 1/4th of the participants were unmarried at the time of the study. The remaining 75% were married.

Table I: Education level of the participants (n=80)

Education	n(%)	n=80
No Education	48.75	39
Primary Education	30	24
Secondary Education	15	12
Higher Education	6.25	5

The majority of the participants had not received a basic education. Among the participants, 48.75% were illiterate, and a primary level of education was present in 30% of the participants. 15% had received secondary education, and a higher level of education was only present in 6.25% of the participants.

**Table II:** Locality of the participants (n=80)

Locality	n(%)	n=80
Rural	70	56
Urban	30	24

70% of the participants were from rural areas, and only 30% were from urban localities.

Table III: Income Level of the participants (n=80)

Financial Status	n(%)	n=80
Lowest Income Level	13.75	11
Low Income Level	16.25	13
Middle Income Level	17.5	14
High Income Level	22.5	18
Highest Income Level	30	24

Among the participants, the highest income level was observed in a majority of the participants, as 30% belonged to this group. 22.5% were from high-income families, 17.5% were from middle-income households, 16.25 were from low-income levels, and 13.75% were from the lowest income levels.

DISCUSSION

Among the many risks of cardiovascular diseases, hypertension or high blood pressure is one of the major risk factors. It is an ailment with no cures, so patients suffering from hypertension have to live the rest of their life continuing on medicines. It is ranked third as a cause of disability-adjusted lifestyle in patients. One of the dangerous things about hypertension is that it has no particular symptoms, so it often remains undiagnosed in many patients throughout their life.^[2] The only way to battle this is by regular medical check-ups, which is not achievable for everyone in developing and developed countries. Even in the US, almost half of the adult population has hypertension.^[2] Hypertension can be caused by many factors such as urbanization, unhealthy dietary habits, age, sex, etc. Many studies have been conducted on the impact of socioeconomic status on hypertension patients, but the results reported from several studies have been conflicting.^[10] This might be because

of differences in nationality, race, locality, and environmental factors, so the present study was conducted to see the correlation between hypertension and socioeconomic status in our country. In the present study, we only included those with blood pressure levels of 140/90 mm Hg and above. The present study had 62.5% female and only 37.5% were male. This was quite similar to another Bangladeshi study,^[11] and even worldwide, the prevalence of hypertension is much higher in the female population compared to the male population.^[10-13] This is, however different from some other findings where menopause was a variable and the prevalence of hypertension was much higher in obese men compared to the women.^[14,15] Studies have found that before the age of 50, high blood pressure is more common in men, but after 50, this starts to reverse gradually. This is attributed to the elevated sympathetic nerve activity in older women. It is also hypothesized that autonomic support of blood pressure is higher in women after menopause.^[24] Marital status was another



factor considered in the current study. 3/4th of the study population were married, and only 20 participants were unmarried. The mental stress of supporting a family and other family problems might be a cause of this high prevalence of hypertension in married participants. Mental stress has been globally recognized as a causal factor for hypertension.^[16,17] Another important risk factor for hypertension was old age. In our study, the majority of the participants belonged to the older age groups. 18.75% of the participants belonged to the age group of 60-64, and another 18.75% were from the older than 64 age group. Very few participants belonged to the youngest age group, as only 8 participants were from the age of 35-39 years. This is similar to findings of other studies, where the rate of hypertension incidence increased along with age. ^[11,18,19] Although hypertension can occur in young adults as well, a much higher prevalence has been observed in the elderly, especially those older than 60 years.^[18] During our study, the majority of the older age patients belonged to the hypertensive stage of hypertension. Education level was another deciding factor in the current study. Among the 80 participants, literacy rates were really low, and almost half (48.75%) of the participants had not received any basic education. The incidence of hypertension dropped the higher the education level was. This was similar to other studies where high blood pressure has been directly linked to illiteracy. ^[10,20] This might be because of the lack of awareness and knowledge regarding high blood pressure in those with little education, when compared to the basic knowledge someone well educated might have regarding health and welfare. Another cause might be the difference in dietary habits

among different groups with different education levels. The minority of the participants (30%) were from urban areas, and 70% were from rural localities, where regular check-ups are near impossible. Lack of proper awareness regarding any medical problems and the habit of overly relying on OTC medicines may be another contributor to this factor. This is also related to the education level, a majority of the illiterate population came from rural areas. This was also supported by other studies with similar results.^[20] The present study also focused on the financial status of the patients and divided the participants into 5 different groups based on their income level. The prevalence of hypertension was directly proportional to the level of income, which was similar to other studies in different countries.^[21-23] This may be another factor influenced by stress, as patients with high income need to be concerned about how to invest and protect their wealth, whereas many low- and middle-income families only need to care about spending their income in their day to day lives. Many of the participants became wealthy through family inheritance and business, and very few became wealthy through jobs. Hypertension or high blood pressure can affect people of all ages, but much care needs to be taken for those of old age. It is especially important as hypertension has no cure, and can have many long-term effects on the body. One of the major causes of hypertension is mental pressure, but hypertension can also greatly increase mental pressure, leading to an unsatisfactory lifestyle. This is more apparent in developing countries like ours where the best medical help is still not available to the general public, and any long-term disease can greatly influence one's lifestyle.



CONCLUSION

The current study showed a higher prevalence of hypertension in the female population. Hypertension prevalence was inversely proportional to education and directly proportional to income. Rural areas had a much higher prevalence of hypertension compared to urban areas, and many of the socioeconomic factors were theorized to affect the mental health and stress level of the participants.

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Source of Support: Nil, Conflict of Interest: None declared