

## IMPACT OF COUNSELING ON LIFESTYLE MODIFICATION AND HYPERTENSION KNOWLEDGE AND BELIEFS AMONG PARTICIPANTS OF A COMMUNITY-BASED PROGRAM IN CHARSAZZA, KHYBER PAKHTUNKHWA, PAKISTAN

Waqar Ahmad<sup>\*1</sup>, Uzair Khan<sup>2</sup>, Fawad Ahmad<sup>3</sup>, Lubna Gul<sup>4</sup>, Shayan<sup>5</sup>, Syed Khalid<sup>6</sup>, Safa Waheed<sup>7</sup>, Arifa Khan<sup>8</sup>, Shahid Iqbal<sup>9</sup>, Syed Shahkar Nasir<sup>10</sup>

<sup>1</sup>Lecturer, Farabi College of Nursing, Charsadda, Pakistan

<sup>2,3,10</sup>Bsn graduate, Farabi college of nursing, charsadda

<sup>4</sup>Bsn graduate, GCON KTH

<sup>5</sup>Bsn graduate, Global health college of Nursing And Allied Health sciences Peshawar

<sup>6</sup>Bsn graduate, Rehman college of nursing

<sup>7</sup>Bsn graduate, post graduate college of nursing

<sup>8</sup>Bsn graduate, postgraduate college of nursing Hyatabad Peshawar

<sup>9</sup>Bsn graduate, Farabi College of Nursing Health and science Charsdda

<sup>1</sup>waqarabrar33@gmail.com, <sup>2</sup>uk297087@gmail.com, <sup>3</sup>fawadahmad888280@gmail.com, <sup>4</sup>lubnakhazadgul@gmail.com, <sup>5</sup>shayanafridi162@gamil.com, <sup>6</sup>syedkhalid0302@gmail.com, <sup>7</sup>safa03431500877@gmail.com, <sup>8</sup>arfakhann041@gmail.com, <sup>9</sup>shahid22909090@gmail.com, <sup>10</sup>malikshahkar7@gmail.com

DOI: <https://doi.org/10.5281/zenodo.17990541>

### Keywords

Hypertension, Blood Pressure Control, Patient Education, Lifestyle Modification, Medical Staff Interaction.

### Article History

Received: 19 October 2025

Accepted: 30 November 2025

Published: 19 December 2025

Copyright @Author

Corresponding Author: \*

Waqar Ahmad

### Abstract

*Background:* Hypertension remains a significant global health challenge, requiring both medical intervention and lifestyle modifications for effective management. This study aimed to assess the demographic profile, knowledge levels, and self-reported health behaviors of individuals living with high blood pressure.

*Methodology:* A quantitative descriptive study was conducted with a sample of 50 respondents. Data was collected through surveys focusing on demographic factors (age and gender), current blood pressure control status, interactions with medical staff, and patients' knowledge and beliefs regarding hypertension management.

*Results:* The study population was predominantly under the age of 50 (98%), with a nearly equal gender distribution (48% male, 52% female). Findings revealed that 50% of participants reported their blood pressure was not currently controlled. While a majority of participants received advice from medical staff regarding diet (64%) and physical activity (64%), a significant gap remains, with 44% reporting they were not taught how to measure their own blood pressure. Knowledge levels varied: 66% correctly identified that salt consumption raises blood pressure, but 40% incorrectly believed that being overweight does not affect blood pressure. Furthermore, 60% of respondents mistakenly believed that medication is the only treatment necessary for hypertension. Regarding lifestyle, 56% reported exercising regularly, while 22% identified as regular smokers.

*Conclusion:* The findings suggest that while there is moderate awareness of hypertension risks, significant misconceptions exist regarding the role of lifestyle

*factors versus medication. There is a critical need for enhanced patient education, particularly concerning self-monitoring and the multifaceted nature of blood pressure control, to improve clinical outcomes for hypertensive patients.*

## INTRODUCTION

Hypertension is a highly prevalent chronic condition and a major contributor to the global disease burden, affecting approximately 1.39 billion people worldwide and causing 10.4 million premature deaths annually (Gömleksiz et al., 2025). With nearly 32% of adults aged 30–79 years living with hypertension, its effective management has become increasingly crucial. Importantly, evidence indicates that adequate knowledge about hypertension plays a vital role in controlling blood pressure, improving treatment adherence, and encouraging regular physical activity among hypertensive individuals (Gömleksiz et al., 2025).

Moreover, hypertension remains a leading global health concern, with high blood pressure accounting for 13% of total deaths and 7% of disabilities worldwide (Jafari et al., 2016). Often referred to as a “silent killer,” it typically progresses without noticeable symptoms until severe complications—such as stroke, myocardial infarction, or renal failure—develop (Zahra et al.). The situation in Pakistan is particularly alarming, where approximately one-third of the adult population is affected, and a significant proportion of cases remain undiagnosed or poorly managed (Zahra et al.).

Globally, an estimated 1.39 billion adults aged 20 years and above have hypertension, with an equal distribution between men and women (694 million each) (Kebede et al.). Notably, the burden of hypertension is disproportionately higher in low- and middle-income countries, where 1.04 billion individuals are affected, compared to 349 million in high-income regions (Kebede et al.). Age-related patterns also differ: while older adults (60+ years) bear the greatest burden in high-income nations, middle-aged individuals (40–59 years) are more commonly affected in low- and middle-income countries (Kebede et al.).

Lifestyle modification remains a cornerstone of hypertension prevention and management. Strong evidence supports its effectiveness in lowering blood pressure (Koirala et al.). Key components include smoking cessation, weight reduction, adherence to a

balanced diet, and regular physical activity (Koirala et al.). However, despite its proven benefits, adherence to these non-pharmacological recommendations continues to be a major challenge, with many patients struggling to comply consistently (Koirala et al.).

This study aimed to assess the knowledge and beliefs of hypertensive patients regarding disease management and determine whether patients participating in community-based programs have received counseling on lifestyle modifications, including physical activity and general behavioral advice.

### Objective:

To assess the impact of lifestyle-modification counseling on the knowledge, beliefs, and management practices of hypertensive patients attending a community-based screening and management program in Charsadda, KPK, Pakistan.

### Research questions:

1. What are the beliefs and perceptions of hypertensive patients about hypertension and its management?
2. What lifestyle modification practices (diet, physical activity, smoking cessation, weight control) are adopted by hypertensive patients after receiving counseling?

## MATERIALS AND METHODS

### Study Design

A prospective crossover study was conducted.

### Study Setting

The study was carried out in Charsadda, Khyber Pakhtunkhwa (KPK), Pakistan.

### Study Duration

The total duration of the study was nine (9) months following approval from the Institutional Review Board (IRB).

### Sample Size

The sample size consisted of 50 participants.

**Sampling Technique**

A random sampling technique was employed to ensure randomization, whereby each member of the population had an equal chance of being selected.

**Sample Selection**

**Inclusion Criteria**

Both male and female participants  
 Patients diagnosed with hypertension  
 Residents of the designated rural community

**Exclusion Criteria**

Hypertensive patients with visual or hearing impairments, severe psychological illness, cardiac disease, or renal disease  
 Pregnant women, including those with pre-eclampsia or eclampsia  
 Postmenopausal women

Participants who had already attended seminars or workshops on hypertension

Participants with 75% or higher levels of knowledge, treatment adherence, or quality of life at baseline

**Research Instruments**

A total of five instruments were used for data collection:

1. Socio-demographic and medical characteristics
2. Patient questionnaire
3. Patients reported knowledge about HTN and its management
4. Patients Belief
5. Patients health behaviors

**Statistical Analysis**

Data were analyzed using SPSS version 26. A p-value < 0.05 was considered statistically significant.

**Result**

**age in years**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 40	28	56.0	56.0	56.0
	40-50	21	42.0	42.0	98.0
	>60	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

**gender of respondents**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	24	48.0	48.0	48.0
	female	26	52.0	52.0	100.0
	Total	50	100.0	100.0	

**blood pressure measurement**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	mean systolic bp	37	74.0	74.0	74.0
	mean diastolic bp	13	26.0	26.0	100.0
	Total	50	100.0	100.0	

is your bp currently controlled

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	24	48.0	48.0	48.0
	no	25	50.0	50.0	98.0
	sometimes	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

did medical staff discuss smoking cessation with you

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	26	52.0	52.0	52.0
	no	23	46.0	46.0	98.0
	not applicabile	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

did medical staff recomanded physical activity to you

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	32	64.0	64.0	64.0
	no	18	36.0	36.0	100.0
	Total	50	100.0	100.0	

did medical staff talk with you about following a sutible diet

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	32	64.0	64.0	64.0
	no	18	36.0	36.0	100.0
	Total	50	100.0	100.0	

did medical staff discuss weight control with you

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	29	58.0	58.0	58.0
	no	21	42.0	42.0	100.0
	Total	50	100.0	100.0	

did medical staff explain the risks and complaints of high blood pressure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	26	52.0	52.0	52.0

	no	24	48.0	48.0	100.0
	Total	50	100.0	100.0	

did your physican explains sign of worsening health related conditions to you

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	28	56.0	56.0	56.0
	no	22	44.0	44.0	100.0
	Total	50	100.0	100.0	

did medical staff teach you how to measure blood pressure of yourself

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	28	56.0	56.0	56.0
	no	22	44.0	44.0	100.0
	Total	50	100.0	100.0	

unblanced bloodpressure damage blood vessels and leads to heartattack and stroke

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	true	33	66.0	66.0	66.0
	false	17	34.0	34.0	100.0
	Total	50	100.0	100.0	

being overweight doesnot effect bloodpressure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	true	20	40.0	40.0	40.0
	false	30	60.0	60.0	100.0
	Total	50	100.0	100.0	

salf consumption raises blood pressure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	true	33	66.0	66.0	66.0
	false	17	34.0	34.0	100.0
	Total	50	100.0	100.0	

**physical exercise reduces blood pressure**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	true	30	60.0	60.0	60.0
	false	20	40.0	40.0	100.0
	Total	50	100.0	100.0	

**medication is all that is needed to treat hypertention**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	true	30	60.0	60.0	60.0
	false	20	40.0	40.0	100.0
	Total	50	100.0	100.0	

**i believe that medication reduces hypertention and help me to feel better**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	34	68.0	68.0	68.0
	no	16	32.0	32.0	100.0
	Total	50	100.0	100.0	

**i believe that blanced diet reduces hypertention and help me to feels better**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	37	74.0	75.5	75.5
	no	12	24.0	24.5	100.0
	Total	49	98.0	100.0	
Missing	System	1	2.0		
Total		50	100.0		

**a hypertention patients should be treated constantly weather his or her health improves**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	31	62.0	62.0	62.0
	no	19	38.0	38.0	100.0
	Total	50	100.0	100.0	

**i believe that it is possible to controll my blood pressure**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	38	76.0	76.0	76.0
	no	12	24.0	24.0	100.0
	Total	50	100.0	100.0	

**do you excersie regularly**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	28	56.0	57.1	57.1
	no	21	42.0	42.9	100.0
	Total	49	98.0	100.0	
Missing	System	1	2.0		
Total		50	100.0		

**do you smoke regularly**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	11	22.0	22.0	22.0
	no	39	78.0	78.0	100.0
	Total	50	100.0	100.0	

**do you consume alcohol**

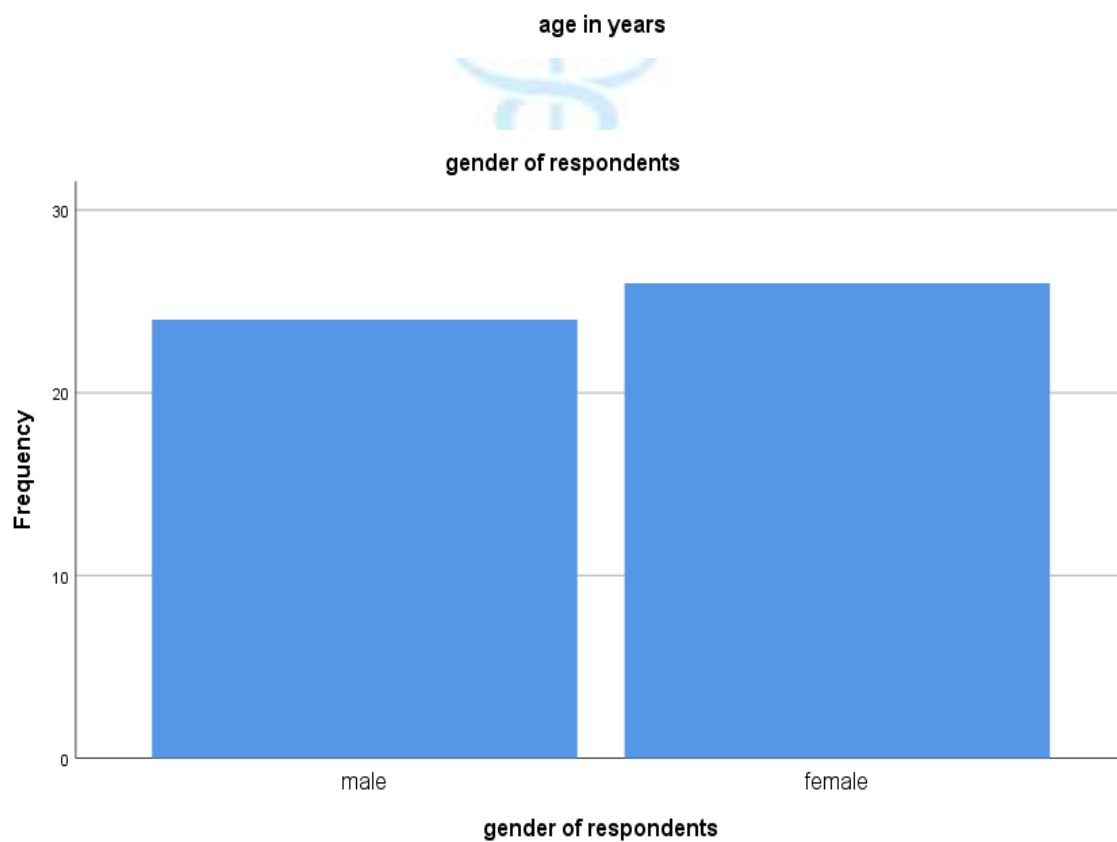
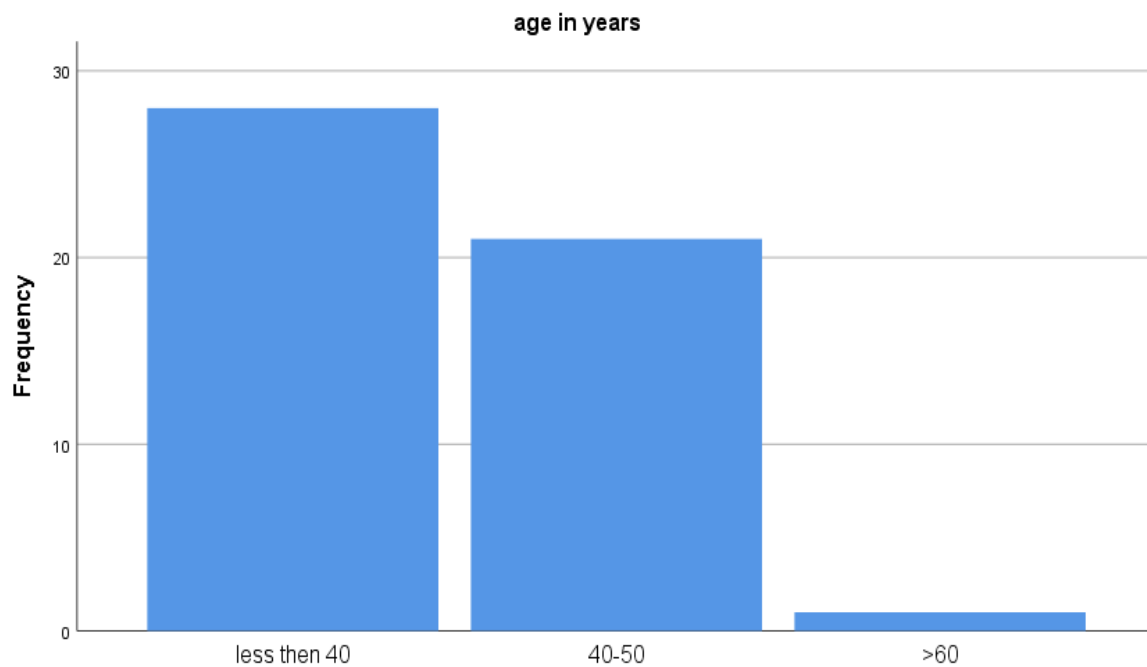
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	8	16.0	16.0	16.0
	no	42	84.0	84.0	100.0
	Total	50	100.0	100.0	

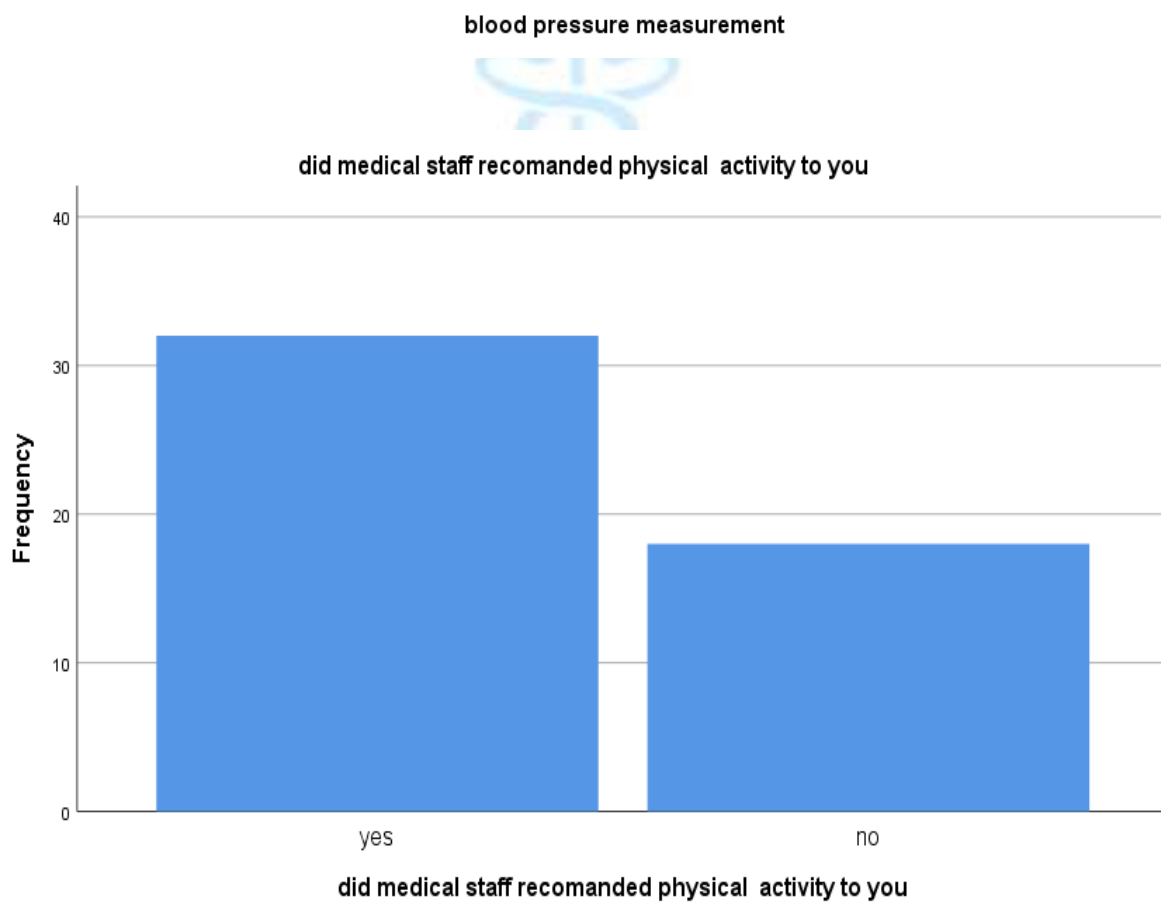
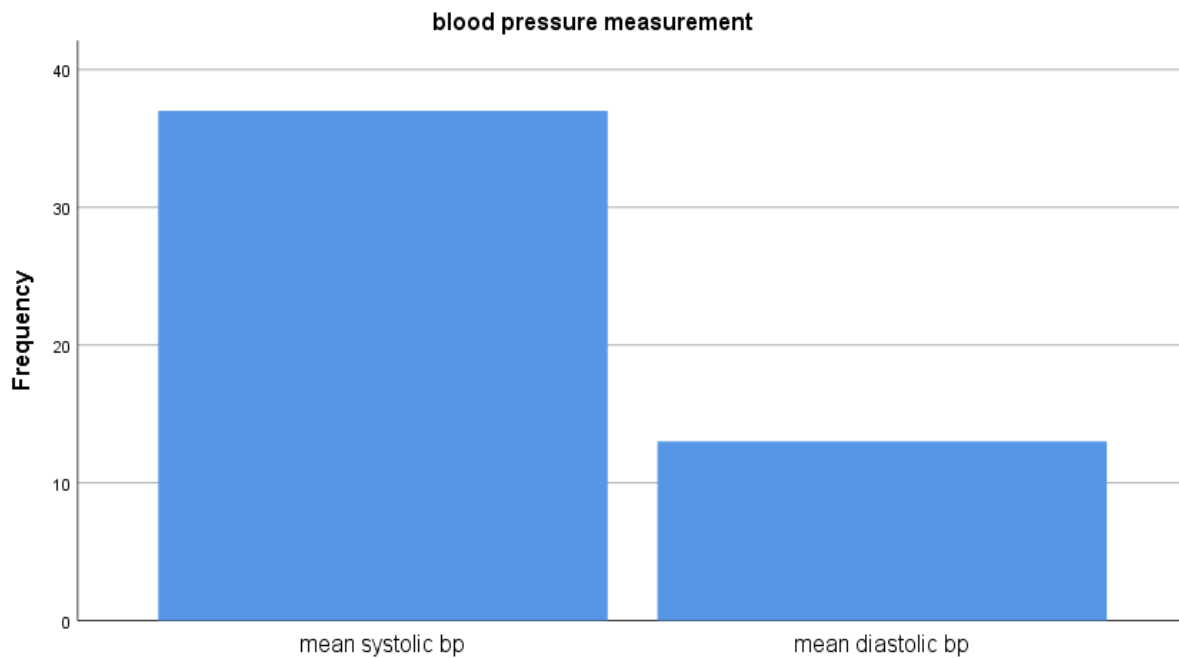
**how would you describe your salt intake**

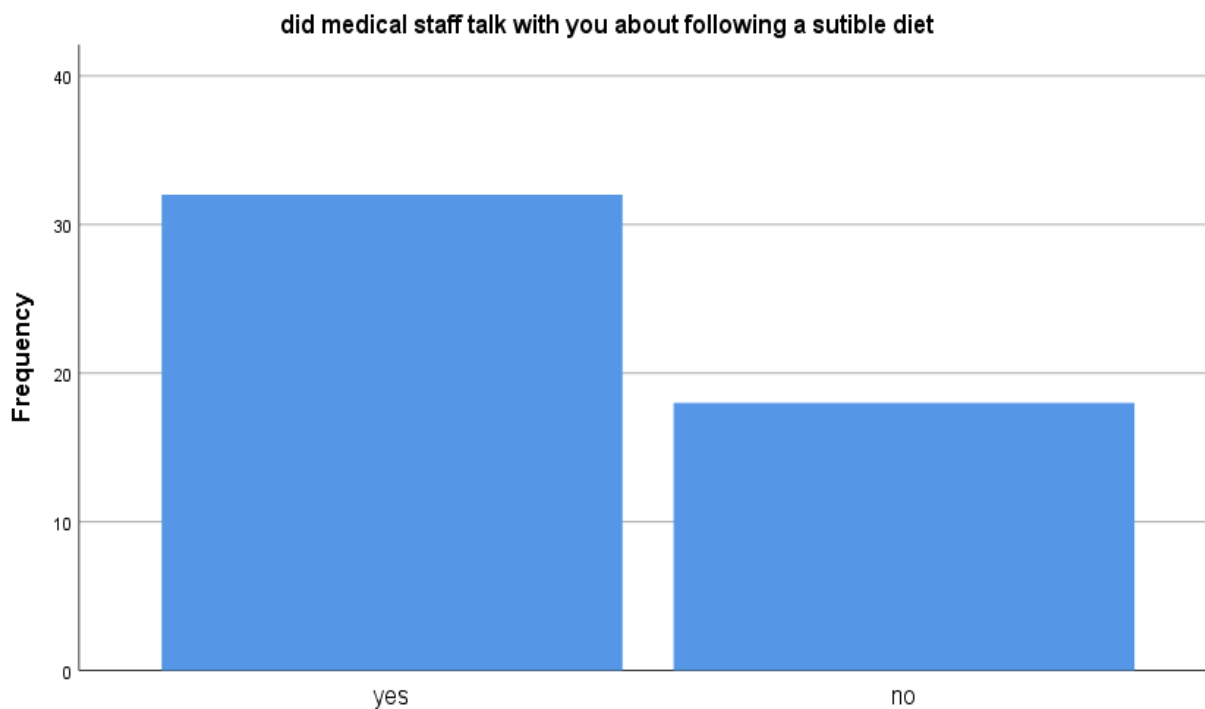
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	20	40.0	40.0	40.0
	no	30	60.0	60.0	100.0
	Total	50	100.0	100.0	

**are you vegetarian or non vegetarian**

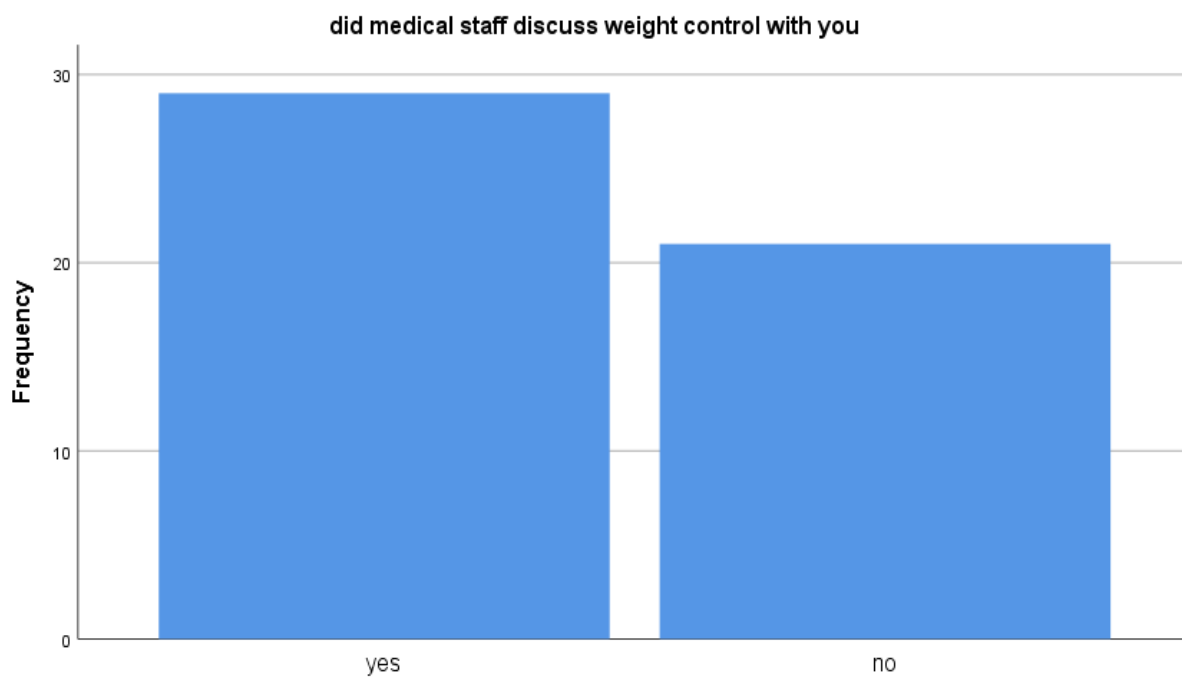
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	27	54.0	54.0	54.0
	no	23	46.0	46.0	100.0
	Total	50	100.0	100.0	



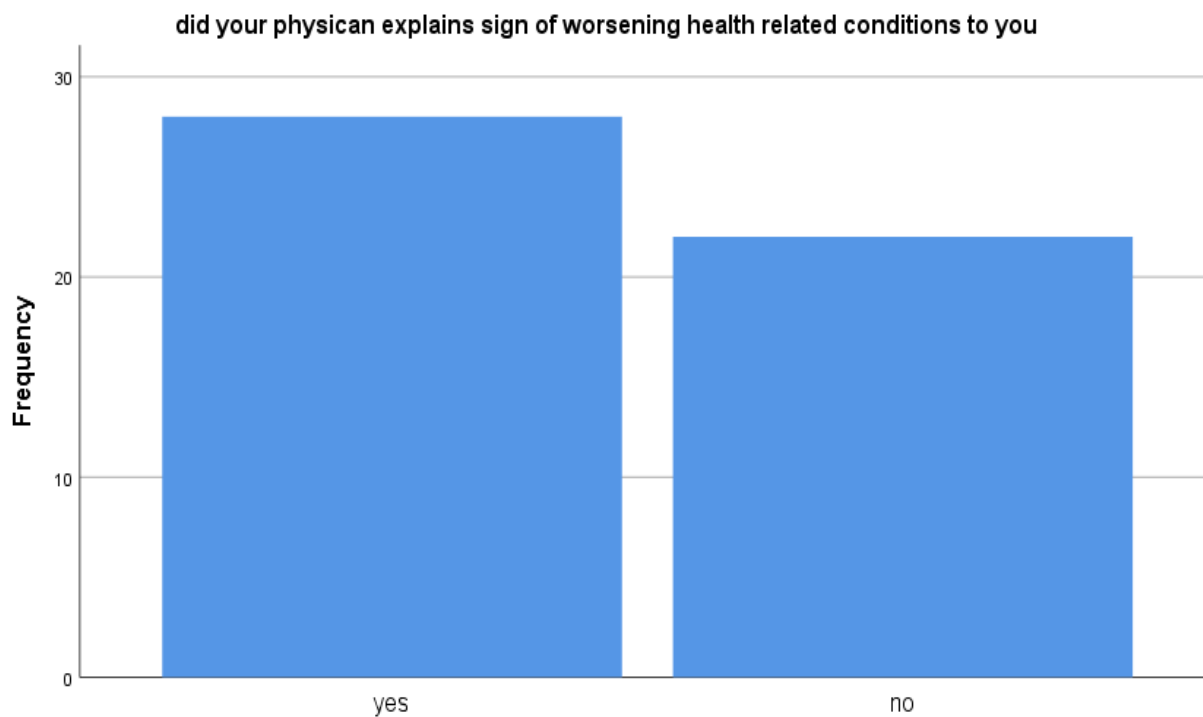




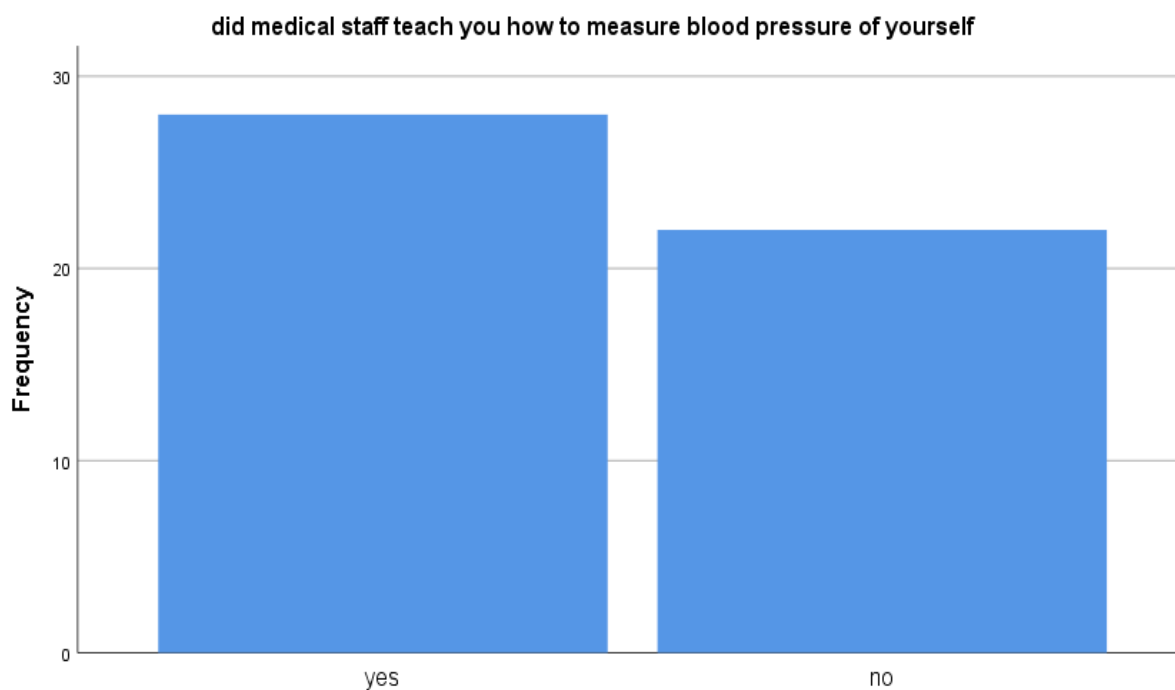
did medical staff talk with you about following a sutible diet



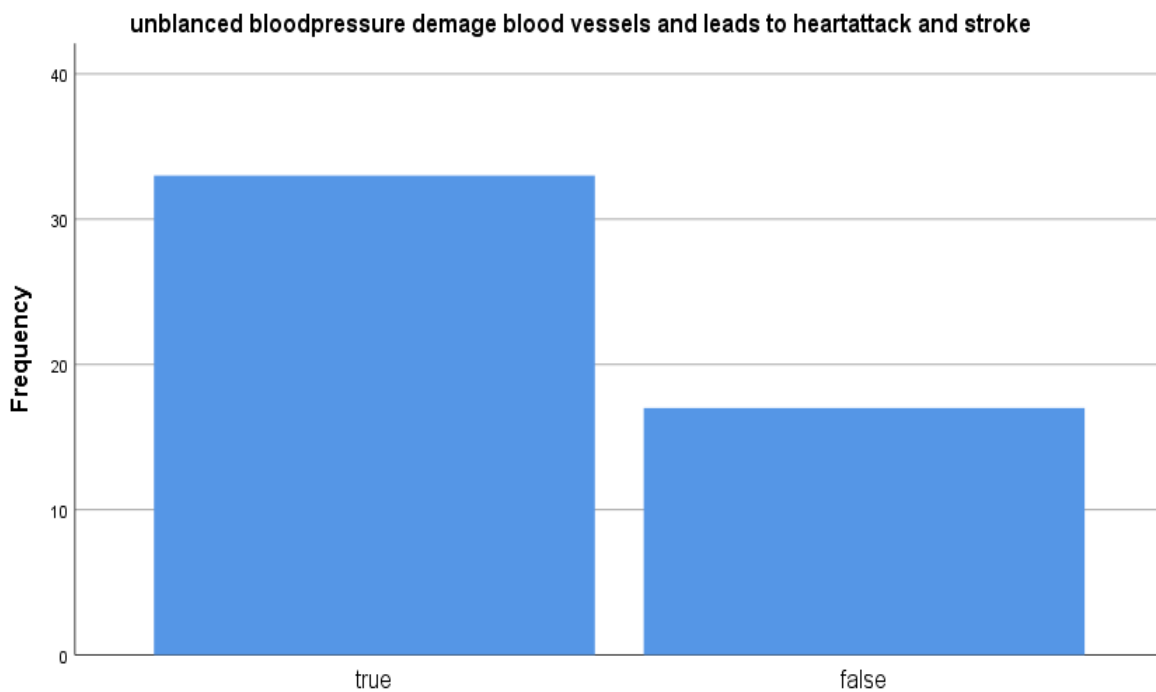
did medical staff discuss weight control with you



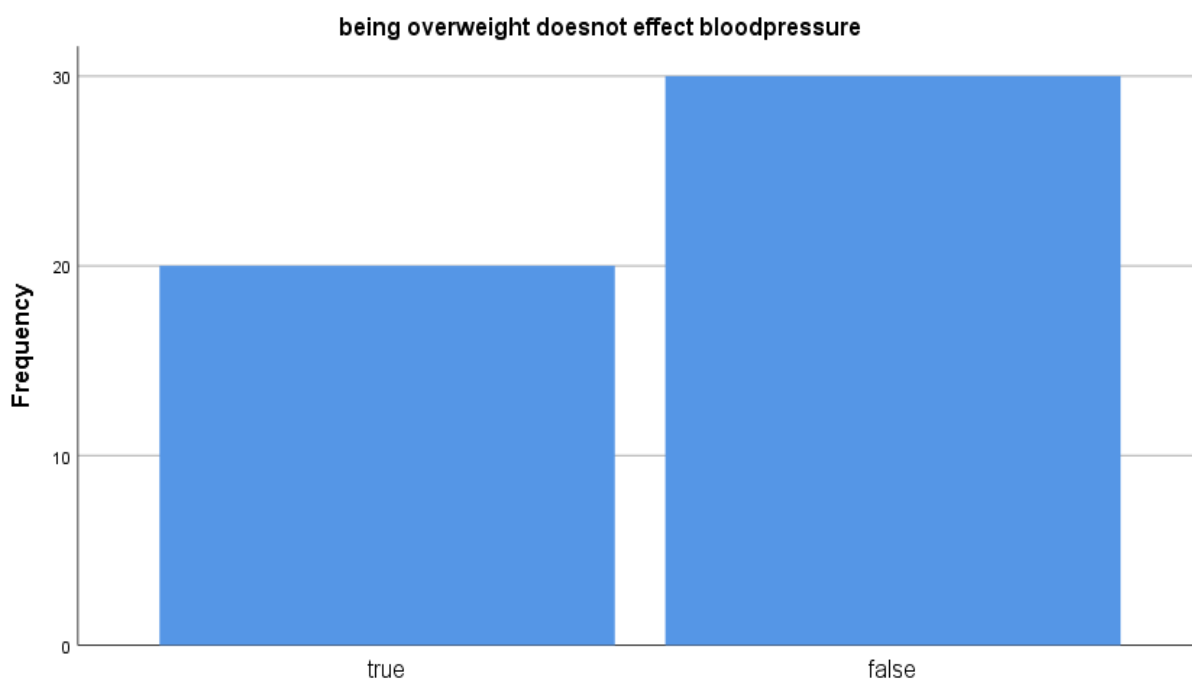
did your physican explains sign of worsening health related conditions to you



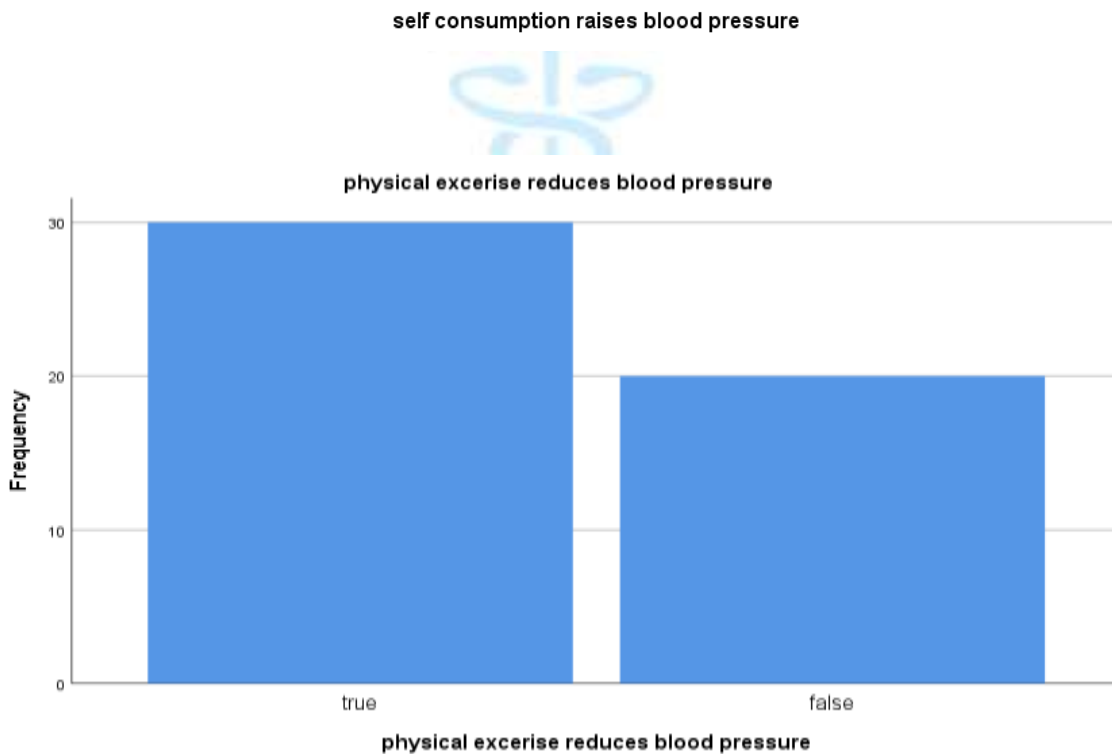
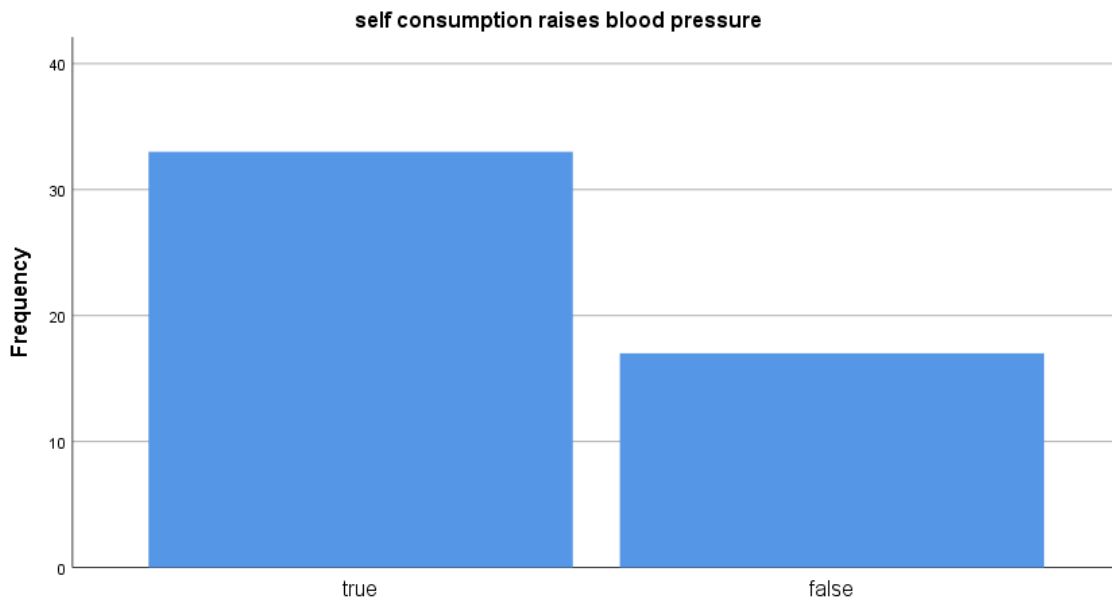
did medical staff teach you how to measure blood pressure of yourself

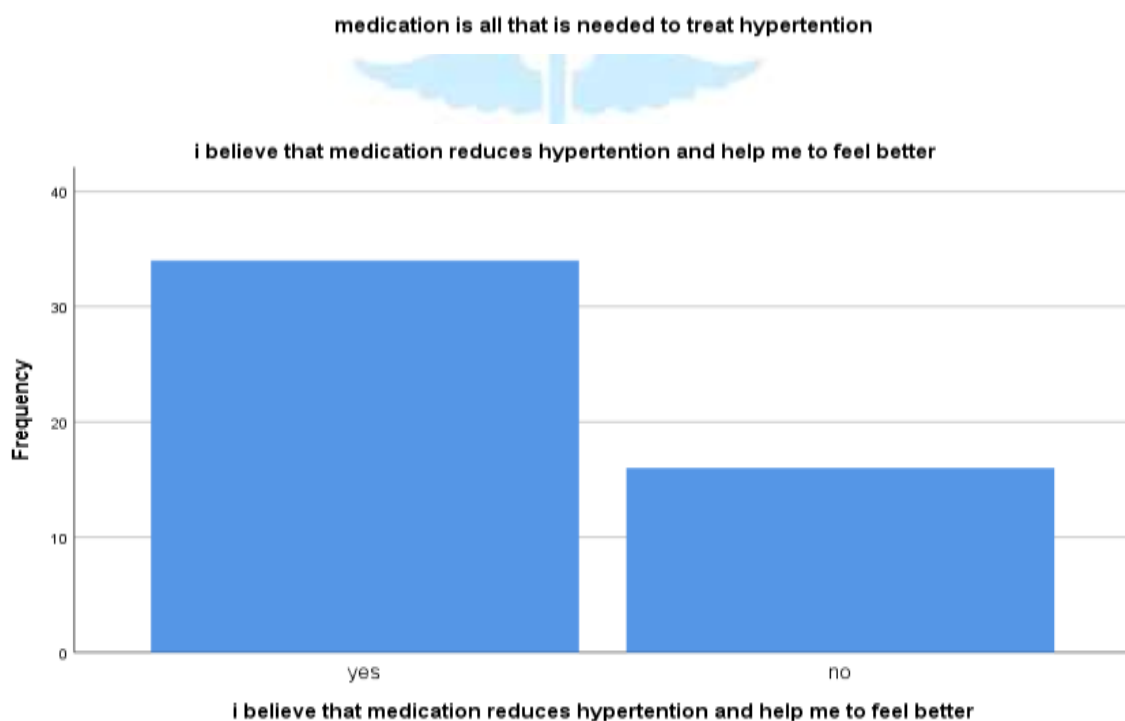
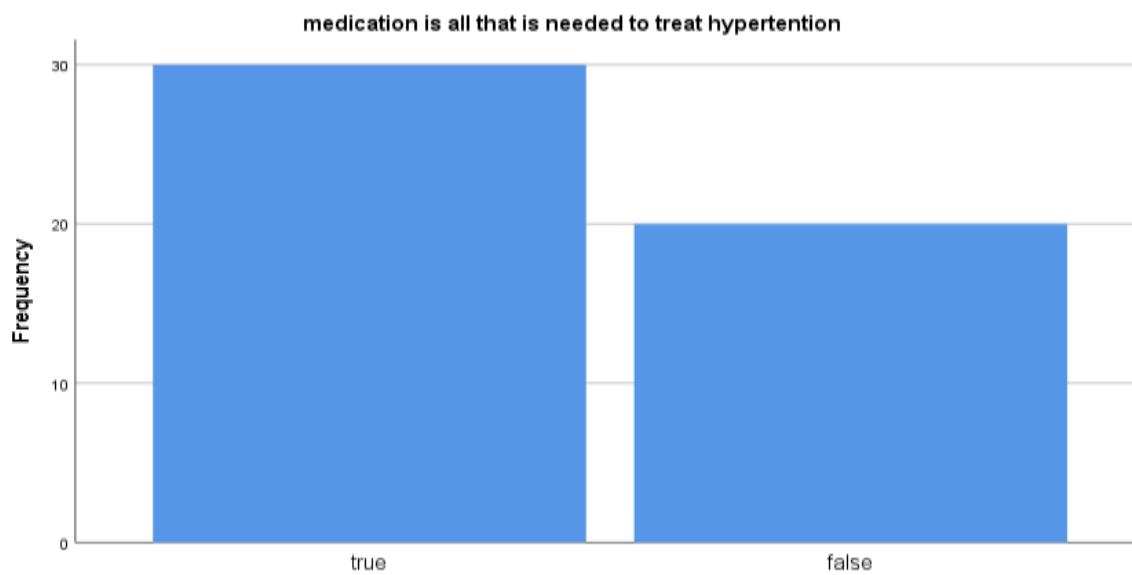


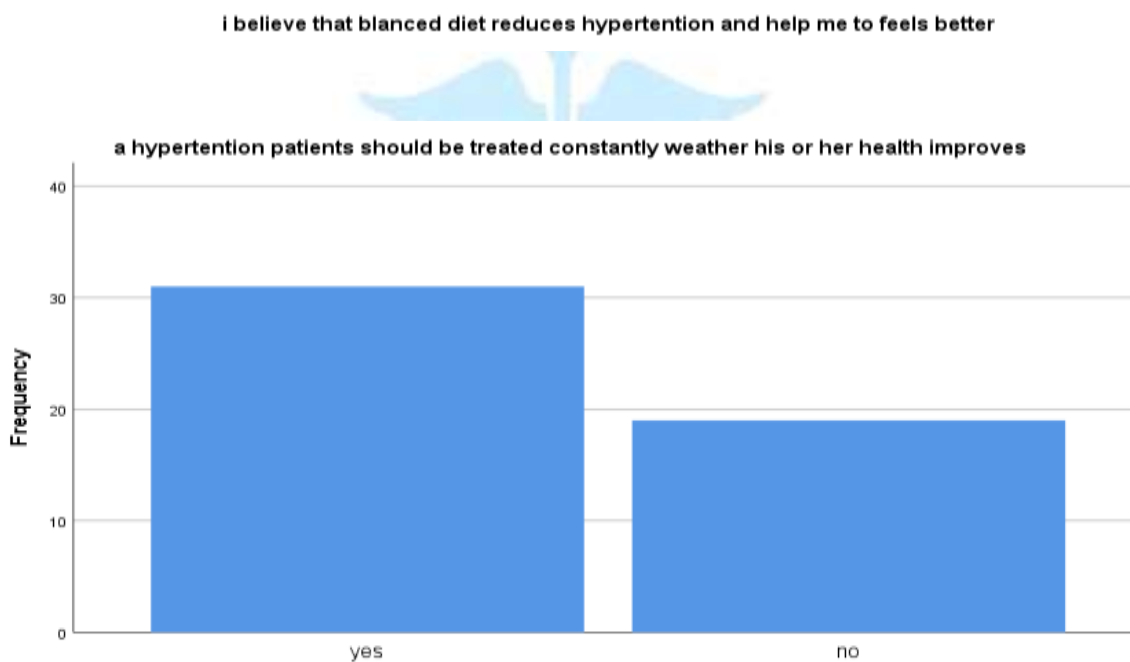
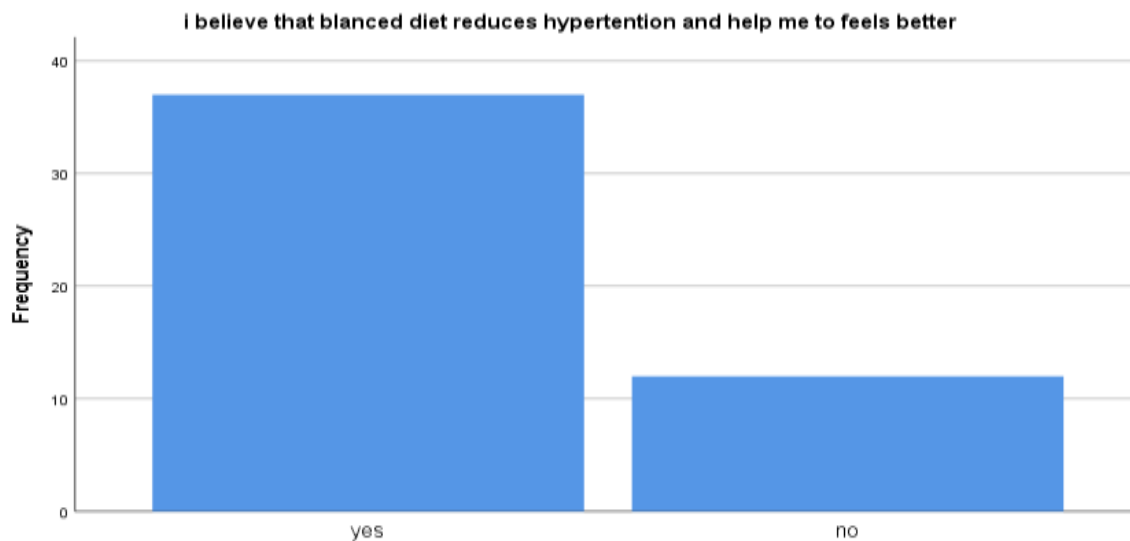
unblanced bloodpressure damage blood vessels and leads to heartattack and stroke



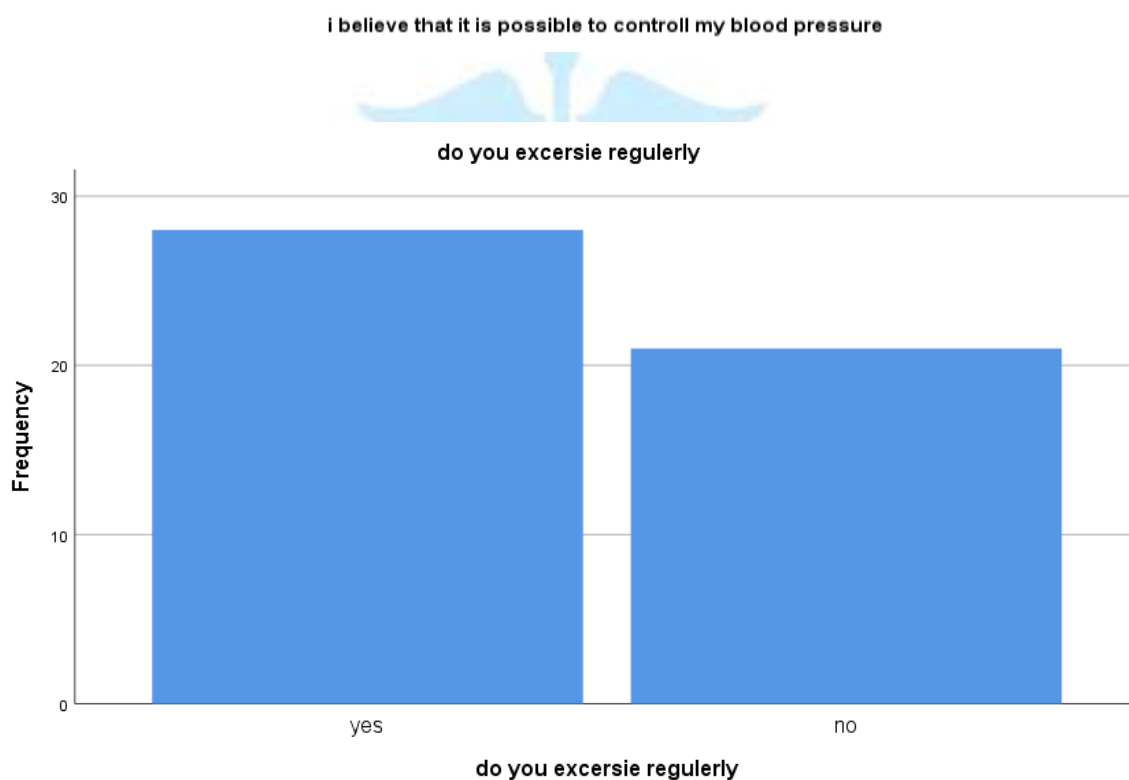
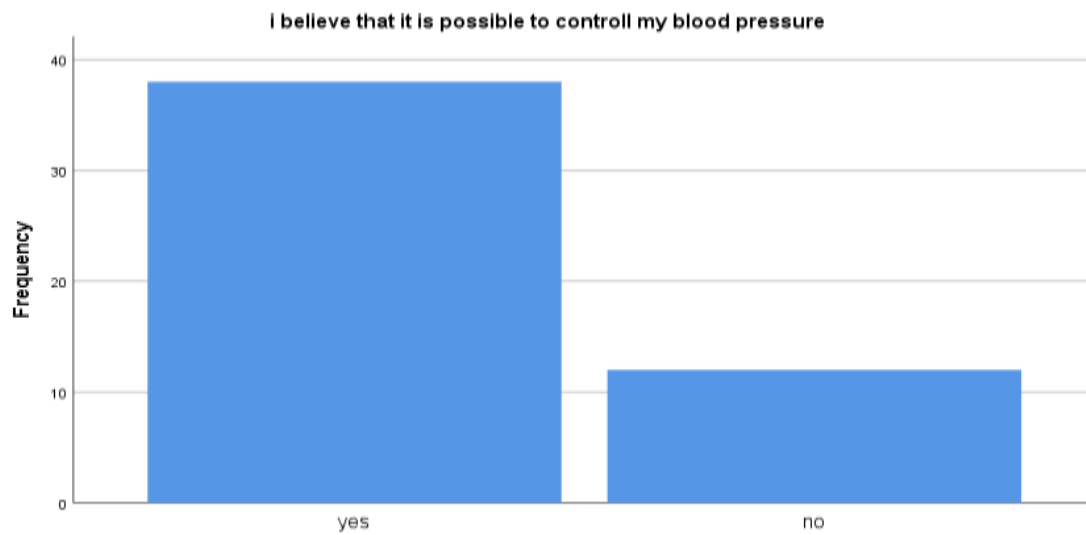
being overweight doesnot effect bloodpressure

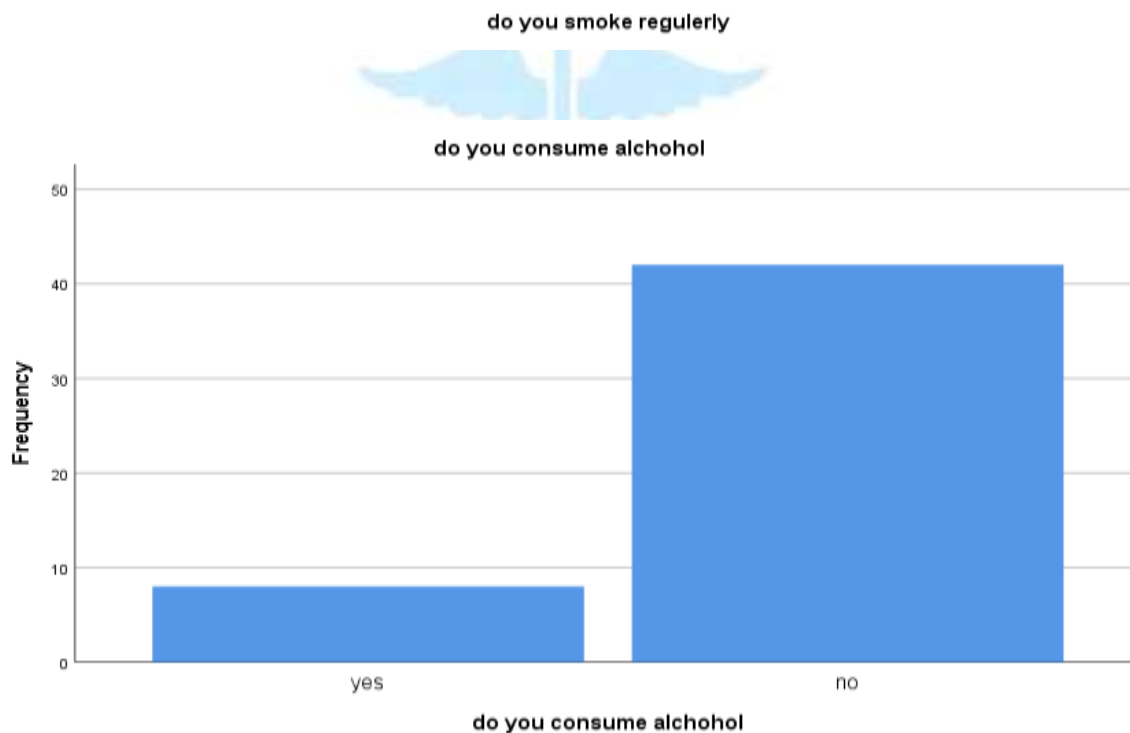
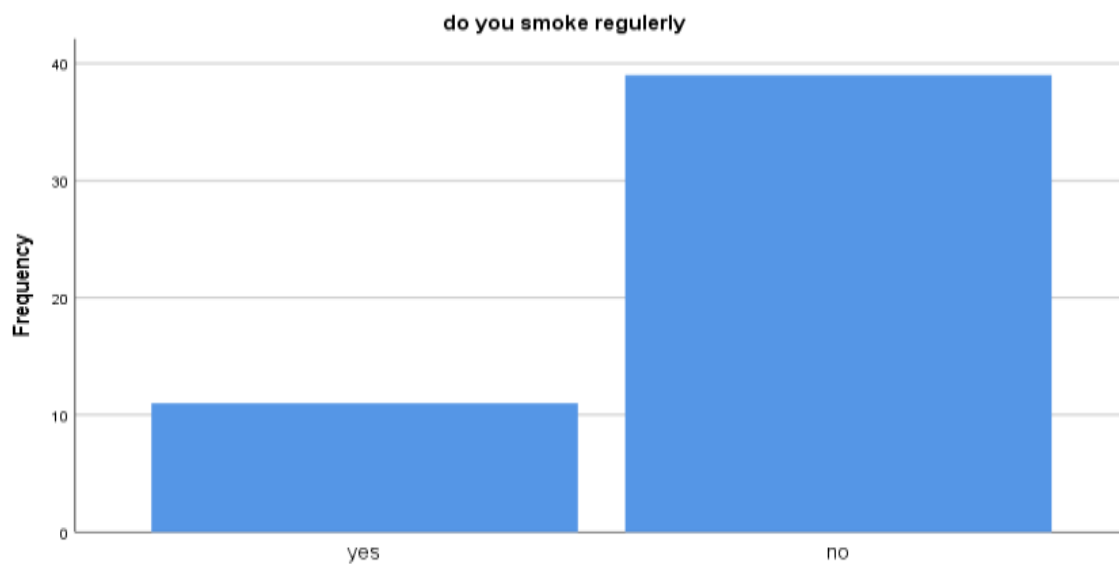


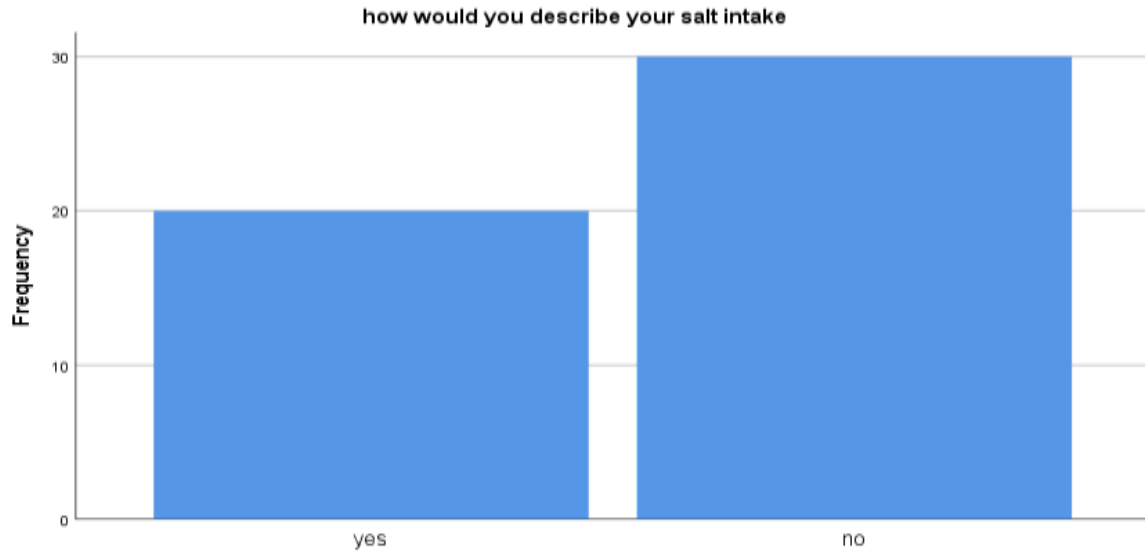




**a hypertention patients should be treated constantly weather his or her health improves**







### Discussion

This discussion highlights the major findings of the hypertension survey, focusing on respondent characteristics, clinical status, health education, knowledge and beliefs, and lifestyle practices related to hypertension management.

### Demographics and Clinical Context

The study included 50 respondents, with females representing a slightly higher proportion (52.0%) than males (48.0%). Most participants were relatively young, as more than half (56.0%) were under 40 years of age, while 42.0% were between 40 and 50 years. Only a very small proportion (2.0%) were above 60 years, indicating limited representation of older adults. Regarding clinical parameters, the

majority of recorded blood pressure measurements were mean systolic BP (74.0%), while mean diastolic BP accounted for 26.0%. Importantly, half of the respondents (50.0%) reported that their blood pressure was not controlled, whereas 48.0% stated it was controlled and 2.0% reported intermittent control, suggesting suboptimal BP management in a considerable proportion of patients.

### Health Education and Counseling

The findings indicate that many respondents received counseling on essential lifestyle modifications. Physical activity and dietary advice were the most commonly addressed topics, with 64.0% of respondents reporting recommendations for each. Counseling related to weight control was reported by 58.0% of participants, while smoking cessation was discussed with 52.0%. In addition, more than half of the respondents reported receiving explanations regarding the risks and complications of hypertension (52.0%) and the signs of worsening health conditions (56.0%). Teaching patients to measure their own blood pressure was reported by 56.0% of respondents, reflecting moderate emphasis on self-monitoring practices.

### Knowledge and Beliefs about Hypertension

Overall, respondents demonstrated relatively good knowledge regarding hypertension and its associated risks. A majority (66.0%) correctly recognized that uncontrolled blood pressure can damage blood vessels and lead to serious outcomes such as heart attack and stroke. Similarly, 66.0% acknowledged the role of salt intake in raising blood pressure, and 60.0% were aware of the BP-lowering benefits of physical activity. Most respondents (60.0%) correctly rejected the misconception that being overweight does not affect blood pressure. However, a notable proportion (60.0%) believed that medication alone is sufficient to treat hypertension, indicating a gap in understanding the importance of lifestyle modification alongside pharmacological therapy.

In terms of personal beliefs, a large majority (76.0%) believed that they are capable of controlling their blood pressure. Confidence in treatment effectiveness was also high, with 68.0% believing in the benefits of antihypertensive medication and

74.0% recognizing the positive role of a balanced diet. Additionally, 62.0% believed that continuous treatment is necessary even when symptoms improve, reflecting an awareness of the chronic nature of hypertension.

### Lifestyle Habits

Lifestyle practices among respondents showed both positive trends and areas for improvement. More than half (57.1%) reported exercising regularly, which supports better BP control. The prevalence of smoking and alcohol consumption was relatively low, with 78.0% of respondents reporting that they do not smoke regularly and 84.0% stating they do not consume alcohol. Dietary habits also appeared favorable, as 60.0% reported a non-high-salt diet, and 54.0% identified as vegetarian. These findings suggest generally healthy lifestyle behaviors among participants, although consistent reinforcement and counseling remain necessary to address misconceptions and improve overall blood pressure control.

### Discussion of Hypertension Findings

The study reveals a significant challenge in blood pressure management, as 50.0% of respondents reported that their condition is currently uncontrolled. This finding is consistent with global evidence showing that hypertension control remains suboptimal, particularly in low- and middle-income countries (World Health Organization [WHO], 2021). This issue is especially concerning given that the study population is relatively young, with 56.0% under 40 years and 42.0% between 40–50 years of age. Early onset and poor control of hypertension increase the lifetime risk of cardiovascular morbidity and mortality (Mills et al., 2020).

Although medical staff provided relatively high levels of counseling on physical activity (64.0%), diet (64.0%), and weight control (58.0%), a critical gap in patient understanding persists. Notably, 60.0% of respondents incorrectly believed that medication alone is sufficient to manage hypertension. Similar misconceptions have been reported in previous studies, which emphasize that lifestyle modification is a core component of effective hypertension management alongside pharmacotherapy (Whelton et al., 2018).

Encouragingly, most respondents demonstrated partial knowledge of lifestyle-related risk factors, with 66.0% recognizing that excessive salt intake increases blood pressure and 60.0% acknowledging the beneficial role of physical activity. These findings align with evidence indicating that dietary sodium reduction and regular exercise significantly contribute to blood pressure control (WHO, 2021; Carey et al., 2018).

On a positive note, respondents showed high self-efficacy, with 76.0% believing that blood pressure can be controlled. High self-efficacy has been associated with improved adherence to both medication and lifestyle recommendations (Bosworth et al., 2019). Additionally, participants reported relatively healthy baseline behaviors, including low alcohol consumption (84.0%) and low regular smoking rates (78.0%), which may serve as protective factors against cardiovascular complications (Mills et al., 2020).

### Key Recommendations

#### Intensify Clinical Follow-up:

Targeted interventions should prioritize the 50.0% of patients with uncontrolled blood pressure by identifying barriers to medication adherence and lifestyle modification, as recommended by international hypertension management guidelines (Whelton et al., 2018).

#### Correct Treatment Myths:

Focused patient education is needed to correct the misconception held by 60.0% of respondents that medication alone is sufficient, reinforcing that lifestyle modification is essential for optimal blood pressure control (Carey et al., 2018).

#### Enhance Risk Education:

As only 52.0% of participants reported receiving explanations about the risks of hypertension, healthcare providers should more clearly link blood pressure control to the prevention of cardiovascular events such as heart attack and stroke (WHO, 2021).

#### Standardize Self-Monitoring:

Building on the 56.0% of patients who already know how to measure their blood pressure, the introduction of structured home blood pressure monitoring logs may improve patient engagement and clinical outcomes (Bosworth et al., 2019).

### Limitations

The findings of this survey should be interpreted in light of several limitations. The small sample size (N = 50) restricts the generalizability of the results to the broader hypertensive population. Additionally, reliance on self-reported data introduces potential recall and social desirability bias, which may affect the accuracy of reported behaviors and counseling experiences (Althubaiti, 2016). The absence of objective clinical measures, such as recorded blood pressure readings and verified medication adherence, limits the ability to fully explain the observed rate of uncontrolled hypertension. Furthermore, the use of subjective categories for variables such as salt intake reduces measurement precision and may affect data validity.

### REFERENCES

- Gömleksiz, M., Gömleksiz, M. R., Gelen, Ş., Uzal, E. S., & Yakar, B. (2025). Effectiveness of a knowledge level of hypertension on blood pressure control, treatment adherence, and physical activity of hypertensive individuals. *The Journal of Clinical Hypertension*, *27*(1), e14958. (link unavailable)
- Oyewole, O. M., Oloruntemi, O., Ojewole, F., & Oyewole, M. O. (2019). Effect of a training programme on knowledge and practice of lifestyle modification among hypertensive patients attending out-patient clinics in Lagos.
- Althubaiti, A. (2016). Information bias in health research: Definition, pitfalls, and adjustment methods. *Journal of Multidisciplinary Healthcare*, *9*, 211–217. (link unavailable)
- Bosworth, H. B., Powers, B. J., & Oddone, E. Z. (2017). Patient self-management support: Novel strategies in hypertension and heart disease. *Cardiology Clinics*, *35*(2), 263–275. (link unavailable)
- Carey, R. M., & Whelton, P. K. (2021). Prevention, detection, evaluation, and management of high blood pressure in adults: Synopsis of the 2017 ACC/AHA hypertension guideline. *Annals of Internal Medicine*, *174*(3), 403–404. (link unavailable)
- World Health Organization. (2023). *Hypertension*. Retrieved from (link unavailable)

7. Whelton, P. K., Carey, R. M., Aronow, W. S., Casey, D. E., Collins, K. J., Dennison Himmelfarb, C., DePalma, S. M., Gidding, S., Jamerson, K. A., Jones, D. W., MacLaughlin, E. J., Muntner, P., Ovbigele, B., Smith, S. C., Spencer, C. C., Stafford, R. S., Taler, S. J., Thomas, R. J., Williams, K. A., & Wright, J. T. (2018). 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA guideline for the prevention, detection, evaluation, and management of high blood pressure in adults. *Journal of the American College of Cardiology*, *71*(19), e127–e248.
8. Kandel, B., et al. (2018). Counseling on Life Style Modification and Knowledge and Belief of Hypertension and its Management Among Hypertensive Patients Visiting Community Based Screening and Management Program in Eastern Nepal. *Journal of Chitwan Medical College*.
9. Fatima, M., Zahra, R., Farwa, U., Sarwar, M., & Nawaz, B. (2024). Knowledge and practice of hypertension patient on lifestyle modification in tertiary care hospital Lahore. *Biological and Clinical Sciences Research Journal*.
10. Sugra Majeed, Muhammad A'zal, & Kabir Ozigi. (2023). Effect of Community Based Program on the Knowledge, Treatment Adherence and Quality of Hypertensive Adults Through Precede Proceed Model. *PJMHS*. doi: (link unavailable)