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Barriers To Optimal Blood Pressure Control Among Adult Hypertensive Patients: Assessment Of Compliance To Treatment

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Abstract

Background: Hypertension is often silent killer and responsible for roughly half of all strokes and ischemic heart diseases, and it is the leading cause of death worldwide, presenting a challenge to healthcare. So this study was carried out to assess compliance of patients to treatment and find the barriers to optimal Blood Pressure control.

Objectives: To assess the compliance of hypertensive patients towards treatment and to identify barriers that affects the normal blood pressure.

Methods: Descriptive cross-sectional was carried out at out-Patient department of Sheikh Zayed Hospital and completed in 06 months. Convenience sampling technique was used with sample size of 97. A modify questionnaire was used for data collection and analyzed by Chi-Square test to find the significance between a categorical variables.

Result: The finding of this study concluded that most of the patients were females, aged 39 to 50, married, primary level of education and were non-smoker. Regarding to patients compliance toward treatment (64.9%) with good compliance; while (35.1%) participants with poor. The reported mean and standard deviation was 17.87±5.31 with P <0.05.

Conclusion: According to this study major of the patients were with a good compliance toward treatment. Furthermore, barriers that affect the optimal blood pressure control were they forget to get the next appointment; they eat fast food and miss scheduled appointments reported. Study suggested that those who visit Sheikh Zayed Hospital OPD should receive a reminder for their next appointment and diet planner.

Introduction

Blood pressure is one of the most commonly measured functions in physiology and medicine, and it has emerged as a key variable in recent psychological, physiological and behavioral medicine studies. Normal blood pressure is defined as 120/80mmHg, while hypertension is defined as Systolic blood pressure greater than 140mmHg Kleindorfer et al. (2021). Blood pressure control is poor in hypertensive patients due to poor health-seeking behavior, poor

medication adherence, financial burden, and other factors (Oseni et al., 2021).
However according to the American College of Cardiology (ACC) and American Heart Association (AHA) blood pressure (BP) guideline 2017, systolic blood pressure (SBP) of 120 mm Hg to 129 mm Hg and diastolic blood pressure (DBP) less than 80 mm Hg, and stage 1 hypertension as SBP of 130 mm Hg to 139 mm Hg or DBP of 80 mm Hg to 89 mm Hg. These updated blood pressure definitions stated that lowered the BP thresholds for hypertensive patients because if alterations occur from 130/80 to 140/90 and this alterations persist for a month, the prevalence of hypertension among young adults increases from 2-folds to 3-folds (Yano et al., 2018).
Furthermore, primary and secondary hypertension can also be distinguished. Primary hypertension is frequently caused by unhealthy lifestyle choices and the ageing process. When the underlying cause of these patients hypertension is addressed, their blood pressure usually returns to normal. Other factors, such as an underlying health condition, can cause secondary hypertension. Primary hypertension accounts for approximately 95% of all Hypertension cases. Secondary hypertension affects nearly 5% of hypertensive patients (Fuchs & Whelton, 2020).
Hypertension is often asymptomatic and is known as the "silent killer." It is responsible for roughly half of all strokes and ischemic heart diseases, and it is the leading cause of death worldwide, presenting a challenge to healthcare. Furthermore, the researchers discovered that patients with uncontrolled hypertension have higher levels of serum uric acid, which contributes to an increase in the incidence of cardiovascular complications. Patients with poorly controlled blood pressure were more likely to have morbidity and died at a higher rate. Risk factor clustering is common among hypertensive patients. This contributes to an increase in morbidity and preventable healthcare costs (Abu-El-Noor et al., 2020).
Globally, about two-thirds of people in low- and middle-income countries have hypertension, and it is the cause of more than 7 million deaths each year (Mishra, 2022). According to a 2017 Indian study, one billion adults, or nearly 22% of the world's population, have hypertension (Boro & Banerjee, 2022)
Pakistan is a low middle income country with an estimated 221.7 million population making up the world’s sixth biggest country by population. One in four adults in Pakistan is living with hypertension. About 59% deaths in Pakistan are caused by non-communicable diseases where cardiovascular disease is the leading cause with hypertension accounting for 200,000 deaths per year. In addition to the increasing risk of morbidity and mortality as a result of growing prevalence of hypertension, and its consequent complications; financial burden on patients, their families, and national economy is also affected (Rijal et al., 2018).
Uncontrollable hypertension and its co morbidities increase the overall treatment cost, thereby affecting the affordability of the patient and their families. Direct and indirect health care cost for hypertension in Pakistan is around PKR 19789.88 (US$ 201.21) and PKR 11990.90 (US$ 121.92) respectively (Murphy et al., 2020). Such huge numbers indicate that hypertension treatment has imposed a high burden on the pocket of common man and is the major reason for treatment non-adherence (Aslam et al., 2018).
According to world health organization the compliance or adherence to treatment mean the extent to which a person’s Behavior, taking medication, following a diet, and/or Executing lifestyle changes, corresponds with agreed Recommendations from a healthcare provider. Compliance includes three major Components: initiation of therapy, the extent to which the Patient adheres to the prescribed regimen and persistence or discontinuation, describing the continuing medication for more than one year (Burnier & Egan, 2019).
Additionally, according to the National Health Survey of Pakistan, hypertension affects 18% of adults and 33% of adults over the age of 45. Similarly, according to another report, 18% of Pakistanis suffer from hypertension, with every third person over the age of 40 becoming increasingly vulnerable to a variety of diseases. It was also stated that only half of those

diagnosed with hypertension were ever treated, and that only half of those diagnosed were ever treated. As a result, only 12.5% of hypertension cases were adequately managed. There is a scarcity of data in some remote areas, such as Baluchistan, but the control rate is likely to worsen. About 18% of population is being affected by Hypertension (Riaz et al., 2021). However, most of the studies in Pakistan reveal that Hypertension is an important healthcare issue in current era.

Hypertension is not only a leading public health issue but also considered as stimulator of cardiovascular complications. Similarly, reported data of Pakistan is so far much less of hypertension prevalence surveys which indicate rapidly rising prevalence over time and need of effective prevention. Pakistan is a developing nation with a high prevalence of communicable and non-communicable diseases.

As a result, the purpose of this cross-sectional study is to identify and analyze various barriers to optimal hypertension control among adult patients visiting to outpatient department of Sheikh Zayed Hospital Rahim Yar Khan, Punjab. Furthermore, this study will identify the compliance gap and the barriers to optimal blood pressure control. This result can serve as a reference for public health policy.

OBJECTIVES

1. To assess the compliance of Hypertensive patients towards treatment.
2. To identify barriers that affects the normal blood pressure.

RESEARCH QUESTIONS

1. What is the compliance of hypertensive patients towards treatment?
2. What are the barriers which affects the normal blood pressure control?

MATERIAL AND METHODS

A descriptive cross-sectional design was selected for this study. This study was carried out at Sheikh Zayed Hospital, Rahim Yar Khan in the Out-Patient department (OPD). Current study was completed in six months after approval for data collection. Convenience sampling technique was used in this study to recruit adult patients diagnosed with Hypertension. The calculated sample size was 97 based on the population size (N) of 150 patients diagnosed with hypertension who visit Sheikh Zayed Hospital OPD each week. The estimated % frequency of outcome factor in the population (p) was 46.2%, which corresponds to the prevalence rate of hypertension in Pakistan (Basit et al., 2020), with 95% confidence limits and a margin of error (d) of 5%. The following formula was used though open EPI software to calculate sample size:

- n = [DEFF*Np(1-p)]/ [(d2/Z21-α/2*(N-1)+p*(1-p)]
- Population size (N) : 150
- Confidence Interval (α): 95%
- Proportion/prevalence: 46.2%Sample Size: n =97
- Margin of error (d):5%

Inclusion Criteria:

- Both gender (Male and Female).
- Patients had age 18-45 years.
- Patients diagnosed with Hypertension.
- Patients had Blood Pressure Greater than 130/80 mmHg.
- Patients on Regular check-up.
- Patients on Hypertensive medication.

Exclusion Criteria:

- Patients had Psychiatric disorders.
- Admitted Patients in Hospital.
- Patients who were not willing to participate.

Equipment/Tool: Hypertension Questionnaire consists of two parts:

- Socio-demographic data
- Questions regarding High Blood Pressure
- This tool was adopted from study of Ul Islam et al. (2021b) "Barriers to Optimal Blood Pressure Control among Adult Hypertensive Patients; Assessment of Compliance toward Treatment." having 10 questions. Participants will be allowed 30 minutes to fill the questionnaire.

ETHICAL CONSIDERATIONS

The rules and regulations set by the ethical committee of FIMS College of Nursing and Health Sciences Dargai, Malakand were followed while conducting the research and the rights of the research participants were respected.

- Written informed consent (attached) was taken from all the participants.
- All information and data collection were kept confidential.
- Participants were remained anonymous throughout the study.
- The subjects were informed that there were no disadvantages or risks on the procedure of the study.
- They were also informed that they were free to withdraw at any time during the process of the study.
- There were no any known risks associated with this research.
- This study was to identify the compliance gap and the barriers to optimal blood pressure control. This result can serve as a reference for public health policy.
- We were done everything to protect their privacy. We assurance them that their identity were not be revealed in any publication resulting from this study.
- Your participation in this research study is voluntary. You may choose not to participate and you may withdraw your consent to participate any time. You were not be penalized in any way should you decided not you participate or to withdraw from this study.

DATA COLLECTION PROCEDURE

After permission for the data collection from FIMS College of Nursing and Health Sciences ethical committee and hospital administration we were start data collection; which was completed in two phases. In the first phase of the data collection participants were recruited and consent were obtained from each participant. The selected participants were on the base of inclusion and exclusion criteria. In the second phase Questionnaire was distributed to the participants and they gave response in 30 minutes. After collection of the fulfilled questionnaire; this data were converted into digital form for data analysis.

DATA ANALYSIS PROCEDURE

Data were analyzed by using the SPSS Version 21 and MS Excel.

Descriptive Statistics: These variables were analyzed by using Frequency distribution and percentage.

Inferential Statistics: First of all data normality was checked by Kolmogorov–Smirnov test with a $p>0.05$; because the calculated sample size was greater than 50, if the data is normally distributed with a $p> 0.05$. So a Chi-Square test was applied with a statistical significance of ($P<0.05$) to find the significance between a categorical variables.

RESULTS

This study was conducted over 97 patients who were visiting Sheikh Zayed Hospital OPD. Firstly, Data normality was checked by Kolmogorov–Smirnov test; the calculated value was greater than 0.05 which means that the data is distributed normally. This chapter was divided into two parts; demographic variable and inferential variable. A frequency table was used for demographic statistics while a chi-square test was used to see the difference between compliance categories.

The Patient's Compliance to treatment means, a person's behavior, taking medicines, follows

a diet and life style changes. According to Likert Scale, terms which were used; none of the time (1), some of the time (2), Most of the time (3) and All the time (4). The scoring for the terms; Maximum score was the 40 and minimum score was 10.A score less than or equal to 20 indicates the good Compliances while a score greater than 20 indicates the poor Compliances; because Likert scale scoring terms were used in reverse order.

The barriers to optimal blood pressure which affect the normal blood pressure control were assessed through frequency table. It's basically indicated that how many persons selected the option repeatedly in the response of all the time. The highest selected response or questions will the common identified barriers which affect the normal blood pressure control. The base included barriers were they Forget to take medicine, Decide not to take their HBP medicine, Eat salty food, Shake salt on their food before they eat it, Eat extra salty foods such as pickles and salty grounded red pepper, Eat fast food such like Fat cook, Burger, Chips, no Get the next appointment before they leave the clinic, Miss scheduled of their appointments, Leave the dispensary without obtaining their prescribed medicine and Run out of blood pressure medicine.

Table 1*:* Adult Hypertensive patient's demographic data

Demographic variables		**Frequency(n)**	**Percent (%)**
Gender	Male	24	24.7
	Female	73	75.3
Age	18-28	14	14.4
	29-38	27	27.8
	39-50	56	57.7
Marital Status	Single	20	20.6
	Married	63	64.9
	Divorced	12	12.4
	Widow	2	2.1
Level of Education	Primary	54	55.7
	Secondary	27	27.8
	Degree level	16	16.5

Analyzed by frequency (n), percentage (%) with a CI: 95% and d: 5%

The data collected (displayed in table 1) indicated that in this study out of 97 participants, 24(24.7%) were male and 73(75.3%) were female. Regarding the age of the participants, 18-28 years old were 14 (14.4%), 29-38 year old participants were 27(27.8%), and 39-50 years old were 56(57.7%). Regarding marital status 20(20.6%) participants were single, 63(64.9%) were married, 12(12.4%) were divorced, and 2(2.1%) were widow. Regarding the level of education 54(55.7%) had primary level of education, 27(27.8%) had

secondary level and 16(16.5%) were graduated. It means that in this study most of the participants were females, and were aged between 39-50 married and had primary level of education with the confidence interval of 95%.

Table 2: Adult Hypertensive patient's demographic data

Demographic variables		Frequency(n)	Percent (%)
Smoking	Yes	23	23.7
	No	74	76.3
If yes ,time when started	1<Year	13	56.5
	≥1Year	10	43.4
Exercise and walking	Yes	70	72.2
	No	27	27.8
If yes, how many times a week	1-2	42	60.0
	3-4	28	40.0
	7-8	27	38.5

Analyzed by frequency (n), percentage (%) with a CI: 95% and d: 5%

This table (2) basically showed that in this study 23(23.7%) participants were smoker and 74(76.3%) were non-smoker. According to the time from which patients stared smoking were 13 (56.5%) who just recently started, and 10(43.4%) were smoking from several years. 70 (72.2%) were taking exercise on regular basis and 27(27.8%) were not. Those who were doing exercise and walk on regular basis; about 42(60.0%) participants used to take exercise 1-2 times a week, 28(40.0%) took exercise 3-4 times a week and 27(38.5%) used to take exercise 7-8 times a week. Hence we found that most of the hypertensive patients were non-smoker and most of the participants were taking exercise and went for a walk at least twice in a week

Table 3: Compliance of Hypertensive patients towards treatment.

	n	%	X D	S. Value	P-
<20 Score Good Compliance	63	64.9	17.87	5.31	0.003
≥20 score Poor Compliance	34	35.1			

Analyzed by a chi square test with a significance value <0.05

Result of the study showed the compliance of the patients with HTN; it is a person‟s behavior, taking medicines, following a diet plan and life style changes. A score less than or equal to 20 indicates the good Compliances while a score greater than 20 indicates the poor Compliances. This table basically indicated that out of 97 participants, 63(64.9%) scored less than 20 which means they have good compliance to treatment and 34(35.1%)participants scored more than 20.which means they have poor compliance to treatment of high blood pressure. The mean value of compliance of the hypertensive patients toward treatment is 17.87 with standard deviation 5.31. The collected data was analyzed by the Chi Square with a significance of >0.05 and according to the statistical analysis this study, most of the hypertensive patients has good compliance towards treatment of hypertension.

Table 4: Barriers which affect the normal blood pressure control

	All the time		
Barriers to optimal Blood pressure			%
Forget to take your HBP medicine?	7	1	3.
Decide not to take your HBP medicine?	7	1	3.
Eat salty food ?	7	4	4.4 1
Shake salt on your food before you eat it?	7	2	7.
Eat extra salty foods such as pickles and salty grounded red pepper?	7	2	5.
Eat fast food?[Fat cook, Burger,Chips]	7	5	5.5 1
Get the next appointment before you leave the clinic?	7	7	7.5 1
Miss scheduled appointments?	7	3	9.
Leave the dispensary without obtaining your prescribed pills ?	7	1	3.
Run out of blood pressure pills?	7	2	6.

The higher %age indicating common barriers which affects Blood Pressure control

The result shows the major barriers that affect the optimal blood pressure control which are: they forget to get the next appointment before they leave the clinic (17.5%), they used to eat fast food [fat cooked, burger, chips] (15.5%). Participants of this study used to eat salty food (14.4%), and miss scheduled appointments reported (9.3%). These were the reported barrier which affects most of the patients and makes the compliance poor toward the treatment. The barrier which affects the least in normal blood pressure control were: Patients forget to take their hypertensive medicines (3.1%), secondly they decided not to take their high blood pressure medicines were (3.1%), and lastly they leave their dispensary without obtaining their

prescribed hypertensive pills were (3.1%).Means, in adult hypertensive patients the most important barrier towards optimal blood pressure control is that they forget to get the next appointment before they leave the clinic. Patients don't know when to report back to clinic.

DISCUSSION

Blood pressure is one of the most commonly measured functions in physiology and medicine, and it has emerged as a key variable in recent psychological, physiological and behavioral medicine studies. According to world health organization the compliance or adherence to treatment mean the extent to which a person's Behavior, taking medication, following a diet, and Executing lifestyle changes, corresponds with agreed Recommendations from a healthcare provider. Compliance includes three major Components: initiation of therapy, the extent to which the Patient adheres to the prescribed regimen and persistence or discontinuation, describing the continuing medication for more than one year.

This Study finds out 97 participants most of the participants were females (73.3%), and were aged between 39-50 married (64.9%) and had primary level of education (55.7%). However a study conducted by Islam et al. (2021) finding of the study stated that the male participants in the study were 54.64% while the female participants were 45.3% followed by marital status of 96.02% married and 3.98% of unmarried participants. The participants were from diverse culture and languages, aged between 26 to 85 years. In addition the literature participants were 66.84% and unemployed were 71.88 % respectively.

In our study most of the hypertensive patients were female because of sedentary lifestyle, geographical area and fast food. Obesity is the leading cause of hypertension in females of Rahim Yar Khan, Punjab. While in the study KPK mostly males were affected because they live in hilly areas, have cultural diversity, most of the males were unemployed and also were illiterate.

Additionally according to Alefan et al. (2019)findings the majority(92%) reported that they do not have maids in their homes. A majority of respondents (80%) were either overweight

(35%) or obese (45%). Slightly more than half of the patients (53%) reported that their BP was less than 140/90 mmHg at the last measurement, and half (49%) reported that their BP was controlled.

The finding of this study stated that that 23(23.7%) participants were smoker and 74(76.3%) were non-smoker. According to the time from which patients stared smoking were 13 (56.5%) who just recently started, and 10(43.4%) were smoking from several years. 70 (72.2%) were taking exercise on regular basis and 27(27.8%) were not. Those who were doing exercise and walk on regular basis; about (60.0%) participants used to take exercise 1-2 times a week, 28(40.0%) took exercise 3-4 times a week and 27(38.5%) used to take exercise 7-8 times a week. Hence we found that most of the hypertensive patients were non-smoker and most of the participants were taking exercise and went for a walk at least twice in a week.

The finding basically indicated that exercise and smoking is one of the factors which affect our blood pressure level. The finding of our study show that the study participants were non-smokers and most actively involved in exercise and working. However due to our culture most of the females do not smoke (Akbarpour et al., 2018).

This finding were justify (Ul Islam et al., 2021a) smoking is not directly related to HTN because the study reported that 65.9% participants never smoked and (86.8%) participants were not smoking at the time of data collection, but still they were hypertensive. Furthermore, this study reported that lack of knowledge about HTN has a major role in the etiology of HTN. Another study showed that basic knowledge of hypertension was low among illiterate. In this study most of the patients about (55.7%) had primary level of education.

In this study, it is indicated that out of 97 participants, 63(64.9%) scored less than 20 which means they have good compliance to treatment and 34(35.1%) participants scored more than 20 which means they have poor compliance to treatment of high blood pressure. The mean

value of compliance of the hypertensive patients toward treatment is 17.87, The collected data is analyzed by the Chi Square with a significance of >0.05 and according to the statistical analysis this study, most of the hypertensive patients has good compliance towards treatment of hypertension.

However the finding of Ul Islam et al. (2021a) study reported that participants scored more than 20 which means they have poor compliance to treatment of high blood pressure is demonstrated by Morisky scale; by this scale, 49.3 % of participants felt worse while taking drugs and stop taking medication without consultation with their concerned physicians, while 53% of the participants stop taking their medicines when they feel symptoms of HTN are under control, and 35.71% participants often forget to take antihypertensive medication which leads to HTN.

A study on poor adherence to drugs shows the main cause of non-adherence is due to lack of patient knowledge of the importance of antihypertensive drugs in the control of HTN (Nakalema et al., 2019). Another study shows 41.5% of patients have poor self-reported compliance with antihypertensive drugs at different levels, ranging from routinely missing to taking their medication on time to rarely taking their medication on a daily basis (Sarfo et al., 2018).

In our study there was good compliance among hypertensive patients because most of the participants were female 73.3%. This study included young adults more 57.7%, because according to Meekusol et al. (2020) gender differences medication adherence vary by age young women show much better adherence than young men as far as talked about medication adherence young women show much better adherence than young men Social support can encourage women with hypertension to develop better adherence to their treatment regimens perhaps the possible reason is social support that buffers stress, providing material and psychological resources needed to deal with difficult situations during treatment. More than half of participants were married and lived with family members. They had access to emotional, appraisal, instrumental, and informational social support. Thus, can encourage the patients with hypertension to develop better adherence to their treatment regimens, and our finding is consistent with prior research.

According to Schoenthaler et al. (2017)as one of the enabling factors, patient–provider communication was a strong and significant predictor influencing adherence to hypertensive treatment. This predictor had a significantly positive association with adherence to hypertensive treatment. An explanation for this is that good patient–provider communication enabled patients to gain adequate information, understand their health condition and treatment as well as share decision-making on their treatment plan.

This study revealed that in Sheikh Zayed Hospital Cardiac OPD, participants usually visit their physicians on regular basis, hence, become well accustomed with their healthcare providers, and had good patient–provider communication. Thus, they had good information support as they had more chance to receive useful information on self-care management from their healthcare providers, such as taking medications as prescribed, eating a healthy diet,

keeping physical activity, and monitoring blood pressure and body weight. As well as they also developed trust in their physicians therefore, they were more likely to have good adherence to hypertensive treatment.

In this study, the findings show the major barriers that affects the optimal blood pressure control which are: they forget to get the next appointment before they leave the clinic (17.5%); they used to eat fast food [fat cooked, burger, chips] (15.5%). Participants of this study used to eat salty food (14.4%), and miss scheduled appointments reported (9.3%). These were the reported barrier which affects most of the patients and makes the compliance poor toward the treatment. The barriers which affect the least in normal blood pressure control were: Patients forget to take their hypertensive medicines (3.1%), secondly they decided not to take their high

blood pressure medicines were (3.1%), and lastly they leave their dispensary without obtaining their prescribed hypertensive pills were (3.1%). Means, in adult hypertensive patients the most important barrier towards optimal blood pressure control is that they forget to get the next appointment before they leave the clinic. Patients don't know when to report back to clinic.
Similarly, in the study of Ul Islam et al. (2021b), their findings show that some participants had salt and fat restrictions but some participants had never salt or fat restrictions throughout. Since salts and fats are directly related to HTN, still most of the participants had HTN despite of salts and fats restrictions .A study conducted by Mehta (2017) shows an increase in plasma fatty acid levels following fat intake, which had led to hypertension. Our study supported that these are the barriers to optimal blood pressure control in adult hypertensive patients these are considered contributing factors means they are sufficient but not necessary.
According to Abaynew and Hussien (2021) the aforementioned findings are supported by previous study, which stated that economic constraints, stress, and use of traditional remedies

such as herbal medicine, medication side effects, and low community awareness as barriers to hypertension control. Similarly, a study done in Uzbekistan showed that switching to traditional therapy, being afraid of addiction, costs, availability of drugs and duration of therapy were strong reasons for non-adherence (Maffoni et al., 2020). Moreover, in a study done in Sri Lanka barriers such as cultural practices, adverse drug reactions, drug out of supply, and expenses were reported as reasons for non-adherence of drugs (Zoyirov et al., 2021). Similarly, other study findings showed that the most common predictors of poor drug adherence were poor knowledge, negative perception about medication, side effects, feared dependence, lack of availability and high medication cost (Tilea et al., 2018). A prior qualitative study also showed that reluctance or hesitancy to make a commitment to lifelong medication and financial barriers (cost) were associated with blood pressure medication non-adherence (Zoyirov et al., 2021). Additionally, a study from India indicates that the cost of medicines as a barrier for low adherence to antihypertensive medication in women (Gupta et al., 2019). Other researchers also reported cost as a major barrier for some patients (Gardiner et al., 2018).

CONCLUSION

The finding of this study concluded that most of the patients were females, aged between 39-50, married, primary level of education, and were non-smoker. About 64.9% participants scored less than 20 which means they have good compliance to treatment and 35.1% participants scored more than 20 which means they have poor compliance to treatment of high blood pressure with mean and standard deviation 17.87 ± 5.31 and P with <0.05. The major barriers that affects the

optimal blood pressure control which are: they forget to get the next appointment before they leave the clinic they used to eat fast food like fat cooked, burger, chips ; eat salty food, and miss scheduled appointments reported. The barriers which affect the least in normal blood pressure control were: Patients forget to take their hypertensive medicines, secondly they decided not to take their high blood pressure medicines were and lastly they leave their dispensary without obtaining their prescribed hypertensive pills. Further the finding revealed that in Sheikh Zayed Hospital Cardiac OPD, participants usually visit their physicians on regular basis, hence, become familiar with their healthcare providers, and had good patient–physician communication. Thus, they had good information support as they had more chance to receive useful information on self-care management from their healthcare providers, such as taking medications as prescribed, eating a healthy diet, keeping physical activity, and monitoring blood pressure and body weight as well as patients also developed trust in their physicians which enhance patient's good adherence to the treatment.

RECOMMENDATIONS

Illiteracy negatively impacts treatment compliance; therefore, workshops, seminars, and patient education sessions regarding hypertension medication adherence should be conducted at the Outpatient Department (OPD) of Sheikh Zayed Hospital. The study findings further suggest that patients visiting the OPD should receive reminders for their follow-up appointments. Upon discharge from the clinic, patients should be provided with booklets or pamphlets outlining a dietary restriction plan. Additionally, patients must receive comprehensive information about their prescribed antihypertensive medications before leaving the dispensary. Improved communication between patients and physicians is also needed. Future research should be extended to government healthcare settings and should include surveys within local communities. An interaction-based study should be conducted to evaluate the effect of educational interventions on hypertension treatment compliance. Lastly, a qualitative study is recommended to identify barriers to adherence, thereby enabling broader generalizability of findings.

Limitations

This study's findings cannot be generalized due to the small sample size. The research was conducted in a single private healthcare setting and was not a community-based survey. Furthermore, a close-ended questionnaire with a limited number of questions was used, which is insufficient to identify the full range of barriers to optimal blood pressure control.

REFERENCES

Abaynew, Y., & Hussien, M. (2021). A qualitative study on barriers to treatment and control of hypertension among patients at Dessie Referral Hospital, Northeast Ethiopia: Healthcare workers' perspective. *Integrated Blood Pressure Control, 14*, 173–178.

Abu-El-Noor, N. I., Aljeesh, Y. I., Bottcher, B., & Abu-El-Noor, M. K. (2020). Assessing barriers to and level of adherence to hypertension therapy among Palestinians living in the Gaza Strip: A chance for policy innovation. *International Journal of Hypertension, 2020*, Article 8858032.

Akbarpour, S., Khalili, D., Zeraati, H., Mansournia, M. A., Ramezankhani, A., & Fotouhi, A. (2018). Healthy lifestyle behaviors and control of hypertension among adult hypertensive patients. *Scientific Reports, 8*, 8508.

Alefan, Q., Huwari, D., Alshogran, O. Y., & Jarrah, M. I. (2019). Factors affecting hypertensive patients' compliance with healthy lifestyle. *Patient Preference and Adherence, 13*, 577–585.

Aslam, N., Shoaib, M. H., Bushra, R., Farooqi, F. A., Zafar, F., Ali, H., & Saleem, S. (2018). Out-of-pocket cost of treating hypertension in Karachi, Pakistan. *Pakistan Journal of Pharmaceutical Sciences, 31*.

Basit, A., Tanveer, S., Fawwad, A., & Naeem, N. (2020). Prevalence and contributing risk factors for hypertension in urban and rural areas of Pakistan: A study from the second National Diabetes Survey of Pakistan (NDSP) 2016–2017. *Clinical and Experimental Hypertension, 42*(3), 218–224.

Boro, B., & Banerjee, S. (2022). Decomposing the rural–urban gap in the prevalence of undiagnosed, untreated and under-treated hypertension among older adults in India. *BMC Public Health, 22*, 1–16.

Burnier, M., & Egan, B. M. (2019). Adherence in hypertension: A review of prevalence, risk factors, impact, and management. *Circulation Research, 124*(7), 1124–1140.

D. G. T., Berhane, Y., & Worku, A. (2020). Adherence to antihypertensive treatment and associated factors in central Ethiopia. *International Journal of Hypertension, 2020*, 9540810.

Edmealem, A., Ademe, S., & Gedamu, S. (2022). Adherence to self-care among patients with hypertension in Ethiopia: A systematic review and meta-analysis. *International Journal of Hypertension, 2022*, 5962571.

Fuchs, F. D., & Whelton, P. K. (2020). High blood pressure and cardiovascular disease. *Hypertension, 75*(2), 285–292.

Gardiner, F. W., Nwose, E. U., Bwititi, P. T., Crockett, J., & Wang, L. (2018). Blood glucose and pressure controls in diabetic kidney disease: Narrative review of adherence, barriers and evidence of achievement. *Journal of Diabetes and Its Complications, 32*(1), 104–112.

Gupta, S., Dhamija, J. P., Mohan, I., & Gupta, R. (2019). Qualitative study of barriers to adherence to antihypertensive medication among rural women in India. *International Journal of Hypertension, 2019*.

Islam, N. U., Ahmad, I. W., Khan, A., Ilyas, M., Rahim, T., & Ahmad, S. (2021). Barriers to optimal hypertension control among adults: A cross-sectional study. *Journal of Farkhanda Institute of Nursing and Public Health (JFINPH), 1*, 9–14.

Javed, A., Saleem, S., Saeed, M., Raza, H., Shahid, B., & Islam, K. (2021). Influence of socio-demographic variables on prevalence of hypertension in Lahore Division, Pakistan. *American Academic Scientific Research Journal for Engineering, Technology and Sciences, 81*, 186–191.

Kleindorfer, D. O., Towfighi, A., Chaturvedi, S., Cockroft, K. M., Gutierrez, J., Lombardi-Hill, D., Kamel, H., Kernan, W. N., Kittner, S. J., Leira, E. C., et al. (2021). 2021 guideline for the prevention of stroke in patients with stroke and transient ischemic attack: A guideline from the American Heart Association/American Stroke Association. *Stroke, 52*(7), e364–e467.

Maffoni, M., Traversoni, S., Costa, E., Midão, L., Kardas, P., Kurczewska-Michalak, M., & Giardini, A. (2020). Medication adherence in older adults with chronic multimorbidity: A systematic review of qualitative studies on patients' experiences. *European Geriatric Medicine, 11*(3), 369–381.

Meekusol, S., Maneesriwongul, W., Orathai, P., Pongthavornkamol, K., & Williams, S. P. (2020). Factors predicting women's adherence to hypertensive treatment. *Pacific Rim International Journal of Nursing Research, 25*(1), 131–142.

Mehta, V. (2017). Emergence of new risk factors for causing hypertension. *Journal of Medical Research and Innovation, 1*, 9–11.

Mishra, C. P. (2022). Prevalence and predictors of hypertension: Evidence from a study of rural India. *Journal of Family Medicine and Primary Care, 11*(3), 1047–1052.

Murphy, A., Palafox, B., Walli-Attaei, M., Powell-Jackson, T., Rangarajan, S., Alhabib, K. F., Calik, K. B. T., Chifamba, J., Choudhury, T., Dagenais, G., et al. (2020). The household economic burden of non-communicable diseases in 18 countries. *BMJ Global Health, 5*(2), e002040.

Nakalema, I., Kaddumukasa, M., Nakibuuka, J., Okello, E., Sajatovic, M., & Katabira, E. (2019). Prevalence, patterns and factors associated with hypertensive crises in Mulago Hospital emergency department: A cross-sectional study. *African Health Sciences, 19*(1), 1757–1767.

Oseni, T., Affusim, C., Salam, T., Dele-Ojo, B., Ahmed, S., Edeawe, I., & Suleiman, B. (2021). Factors affecting medication adherence in patients with hypertension attending a tertiary hospital in southern Nigeria. *Nigerian Journal of Family Practice, 12*, 53–62.

Riaz, M., Shah, G., Asif, M., Shah, A., Adhikari, K., & Abu-Shaheen, A. (2021). Factors associated with hypertension in Pakistan: A systematic review and meta-analysis. *PLOS ONE, 16*(1), e0246085.

Rijal, A., Adhikari, T. B., Khan, J. A. M., & Berg-Beckhoff, G. (2018). The economic impact of non-communicable diseases among households in South Asia and their coping strategy: A systematic review. *PLOS ONE, 13*(11), e0205745.

Sarfo, F. S., Mobula, L. M., Burnham, G., Ansong, D., Plange-Rhule, J., Sarfo-Kantanka, O., & Ofori-Adjei, D. (2018). Factors associated with uncontrolled blood pressure among Ghanaians: Evidence from a multicenter hospital-based study. *PLOS ONE, 13*(3), e0193494.

Schoenthaler, A., Knafl, G. J., Fiscella, K., & Ogedegbe, G. (2017). Addressing the social needs of hypertensive patients: The role of patient–provider communication as a predictor of medication adherence. *Circulation: Cardiovascular Quality and Outcomes, 10*(9).

Shah, N., Shah, Q., & Shah, A. (2018). The burden and high prevalence of hypertension in Pakistani adolescents: A meta-analysis of published studies. *Archives of Public Health, 76*, 1–10.

Tilea, I., Petra, D., Voidazan, S., Ardeleanu, E., & Varga, A. (2018). Treatment adherence among adult hypertensive patients: A cross-sectional retrospective study in primary care in Romania. *Patient Preference and Adherence, 12*, 625–635.

Ul Islam, N., Ahmad, I. W., Khan, A., Ilyas, M., Rahim, T., & Ahmad, S. (2021a). Barriers to optimal hypertension control among adults: A cross-sectional study. *Journal of Farkhanda Institute of Nursing and Public Health (JFINPH), 1*, 9–14.

Ul Islam, N., Ahmad, I. W., Khan, A., Ilyas, M., Rahim, T., & Ahmad, S. (2021b). Barriers to optimal blood pressure control among adult hypertensive patients: Assessment of lifestyle and compliance to treatment. *Asian Journal of Allied Health Sciences*.

Yano, Y., Reis, J. P., Colangelo, L. A., Shimbo, D., Viera, A. J., Allen, N. B., Gidding, S. S., Bress, A. P., Greenland, P., & Muntner, P. (2018). Association of blood pressure classification in young adults using the 2017 American College of Cardiology/American Heart Association blood pressure guideline with cardiovascular events later in life. *JAMA, 320*(17), 1774–1782.

Zoyirov, T., Sodikova, S., & Elnazarov, A. (2021). The structure of periodontal and oral mucosa diseases in pregnant women against the background of iron deficiency anemia (literature review). *Voprosy Nauki i Obrazovaniya*, 33–45.