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Original Article

Assessment of Knowledge, Attitude and Practice among Hypertensive Patients in a Teaching Hospital

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ABSTRACT

Objectives: To assess knowledge attitude and practice regarding hypertension and secondary objective was to improve the health related quality of life by means of patient counselling. **Methods:** It was a prospective interventional study which was carried out for six months. Patient's demographic details like were collected in a pre-designed data entry form. KAP questionnaire was used to assess patient's knowledge, attitude and practice components before and after giving counselling session. SPSS18.0 was the statistical software used to analyses the data. **Results:** In a total of 120 male patients were (51.7%) and belong to the age group of 41-60 years. In this study, the pre-counselling KAP was assessed in which 30(25%), 60(50%) and 69(57.5%) patients had good score of knowledge, attitude and practice of Hypertension whereas the post counselling KAP showed that 103(85.83%), 116(96.66%) and 117(97.5%) score respectively. It shows that the patient counselling has a great impact on quality of life. **Conclusion:** It has been observed that hypertension affects the health of patients and education has a major role in improving the health care outcomes. This study concluded that before giving counselling session participants had inadequate information regarding complications of disease which led to worsening of health conditions. After giving intervention these patients showed marked improvement in quality of life.

Key words: Hypertension, Patient counseling, KAP Questionnaire, Brochures, Quality of Life.

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INTRODUCTION

Among the different disease conditions hypertension is considered as an important factor which leads to severe burden of diseases in South Asia.[1] It has become a global challenge and is ranked third as the cause of disability adjusted life years.[2] Around 57% of all stroked and 24% of all the Coronary heart disease deaths in India are caused due to its complications.[3] According to the data by World Health Organization (WHO), the most important cause of premature deaths worldwide is hypertension.[4] While carrying out an analysis of population health data for Attributable deaths and attributable disease burden in the Global and Regional Burden of Disease and Risk Factors study it was found that hypertension in South Asia was rank second only to child underweight for age.[5] It's a chronic condition where several barriers exists for its control such as physicians turn over, not following guidelines properly, selecting two or more antihypertensive drugs from same category, side effects due to usage of multiple drugs and not following a single physician.[6] However the results from a multicenter study in India on awareness, treatment and adequacy of control of hypertension (HTN) showed that only 25.6% of hypertensive undergoing treatment were successful in keeping their blood pressure under control.[7] Hypertension is defined as a systolic blood pressure(SBP) above 140 mmHg and/or a diastolic blood pressure (DBP) above 90 mm Hg.[8]

Hypertension is always considered as silent killer as it presents with no warning signs. Majority people don't experience any symptoms but few manifest symptoms like dull headaches, vomiting, dizzy spells and frequent nose bleeds.[9] Blood pressure is classified into one of four categories normal, pre- hypertension, stage 1and stage 2 HTN based on the Eighth report of the Joint National Committee (JNC-8).[10] Pre-hypertension in itself is not a disease but is like a warning sign and identifies those who are likely to develop stage1 and stage 2 HTN.[11] High blood Pressure can also cause damaging effects to the brain specifically it can cause aneurysm or stroke.[12]

Significant changes have been noted in the incidence and prevalence of hypertension where major dietary changes had been implemented. Even though antihypertensive drugs are having greater impact on blood pressure control but nowadays more importance and emphasis were given on management of complications by lifestyle modifications.[13] According to the 7th report of Joint National Committee few life style modifications have been recommended on prevention, detection, evaluation and treatment of high blood pressure as follows:-

Lifestyle modifications recommended by JNC-8[10]

Modifications	Recommendations	Avg, sbp, reduction range
Weight reduction	Maintain normal body weight [BMI 18.5 – 24.9 kg/m^2]	5-20 mmHg/10 kg
DASH Therapy	Minimise the quantity of saturated fat and should consume food rich in low fat dairy products	8-14 mmHg
Dietary sodium reduction	Minimise dietary Sodium consumption to 6 g Sodium	2-8 mmHg
Aerobic physical activity	Daily aerobic physical activity for atleast half an hour per day	4-9 mmHg
Moderation of alcohol consumption	Men: limit to <2 drinks per day Women and lighter weight persons: limit to <1 drink per day	2-4 mmHg

*1 drink = ½ oz or 15 ml ethanol [e.g., 12 oz beer, 5 oz wine, 1.5 oz 80-proof whiskey].

From Randomized Controlled Trials (RCT), abundant evidences are there which shows the benefits of antihypertensive drug in reducing the important health outcomes in persons with hypertension.[14] The choice of initial therapy varies, depending upon the patient's condition, age, co-morbidities etc.[15] Usually monotherapy is considered as the standard initial treatment for hypertension and the dose is gradually increased when the desired goal is not achieved.[16] Based on the cause and different pathogenesis of Hypertension, patients usually require multiple antihypertensives drugs to obtain proper control of blood pressure.[17]

Most of the antihypertensive agents produce dose dependent side effects such as hypotension, dizziness, headache, nausea, vomiting, diarrhea or constipation, skin rash etc.[18] Excessive reduction in BP, increased incidence of side effects and difficulty in determining the drug responsible for a particular side effect are few of the disadvantages associated with the use of combination therapy as the initial treatment for hypertension.[19]

Knowledge, Attitude and Practice (KAP) Questionnaire is mainly used to understand people's perception about certain things, their feelings and behavior towards disease mangement.[20] It includes awareness regarding medication names, lifestyle interventions, physical activity etc. To develop compliance with medications, its very essential to have good knowledge about disease and medications.[21]

Low health literacy compromises these if management abilities of the elderly patients such as using basic health related materials, like prescriptions, pamphlets, articles, medication and food labels and health insurance plans, which ultimately had an effect on their ability to take appropriate and timely health care action.[22]

This study was mainly designed and conducted with the aim of assessing knowledge attitude and practice regarding hypertension in patients and to provide patient counselling by means of brochures. Thus, to improve the health-related quality of life in hypertensive patients.

METHODS

All the participants were given detailed explanation regarding the study and questionnaire in local language by means of informed consent form. The study was approved by the Institutional Ethics Committee of the Oxford Medical College, Attibele, Bangalore.

Study Design and Data Collection

It's a prospective interventional study carried out in General Medicine Department for a duration of 6 months. Inclusion criteria consisted of patients of both genders above 18 years diagnosed with hypertension and those who were willing to participate and able to communicate. Specially designed data collection form was made to collect demographics of the patients such as age, gender, socioeconomic status, past medical and medication history and relevant laboratory details. Patients who cannot read and write and those hypertensive patients admitted in ICU were excluded.

Data Analysis

Initially consent was obtained from participants by means of informed consent form. Demographics of the patients and data regarding past medical and medication history, diagnosis and details of prescribed drugs were collected. Assessment of Knowledge, Attitude and Practice among hypertensive patients was evaluated by administering KAP Questionnaire. The KAP questionnaire (in English and Kannada) consisted of 21 questions which were divided into three parts such as knowledge attitude and practice and is shown in Appendix -1.

The KAP scoring was as follows:

Total score: 0-3 = POOR, 4-7 = GOOD

Based on the scores counselling was given related to life style modifications. Same set of patients were reassessed by administering the questionnaire again.

Statistical Analysis

Descriptive and inferential statistical analysis has been carried out in this study. Data's were mentioned in mean (SD) values and categorical variables were presented in percentage. Paired T test has been used to find out significance of proportion in paired data. Microsoft word and excel were used to generate graphs and tables. Statistical software known as SPSS 18.0 and R environment ver 3.2.2 were used to find out the p value.

RESULTS

Patient Characteristics

A total of 120 hypertensive patients were enrolled in the study from General Medicine Department of The Oxford Medical College, Hospital and Research Centre, Bengaluru. Patients were recruited in the study based on inclusion criteria. The majority 57 (47.5%) patients were diagnosed with hypertension alone whereas 18 (15%) were having Hypertension and Diabetes and 45 (37.5%) were having other comorbid conditions. (Table 1)

Out of 120 hypertensive patients 62 (51.7%) were males and 58 (48.3%) were females. The age of the patient ranged from 18-100 years with a mean (SD) of 55.14 (12.9) years. Majority 60 (50%) of the patients were belonging to the age group of 41-60 years. On considering social habits 21.7% were smokers, 19.2% were alcoholics and 17.5% were taking tobacco. On considering social habits total smokers were 21.7%, 19.2% were alcoholics and 17.5% were taking tobacco. Based on the socioeconomic status almost 71 (59.2%) were having medium status and 49 (40.8%) were having poor status. According to blood pressure distribution of patient's majority (62%) had systolic BP above 140 and (89%) had diastolic BP between 80-100. Socio demographics and clinical characteristics of hypertensive patients are shown in Table 2.

Effect of patient counselling on knowledge related questions were studied and significance was found out in [Table 3]. Effect of patient counselling on attitude related questions and significance was found out in [Table 4]. Effect of patient counselling on practice related questions and its significance was found out in [Table 5]. Figure 1 shows the schematic presentation of study design and results.

DISCUSSION

Hypertension is a chronic condition where patients require better care and counselling to improve their quality of life. This study mainly focusses on the fact that how pharmacists by means of providing counselling can improve the different parameters such as knowledge regarding disease and its complications.

A prospective interventional study was carried out t1o assess the knowledge, attitude and practice among hypertensive patients for a period of six months at The Oxford Medical College, Hospital and Research Centre, Bangalore. The study included in-patients as well as out-patients treated in the General Medicine department who were suffering from hypertension. A total of 120 patients who fulfilled the inclusion criteria were included in the study out of which 62[51.7%] were male and 58[48.3%] were female.[23,24]

Our study showed that patient counselling have a greater impact on patients in improving health related outcomes. Initially due to lack of knowledge and awareness patients were not following medication regimen and diet therapy properly. Here post counselling KAP scores revealed that 103 (85.83%), 116 (96.6%) and 117 (97.5%) patients had good score of knowledge, attitude and practice respectively. Several other

Appendix 1: Knowledge, Attitute And Practice Questionnaire.

Knowledge Related Questions (YES=1, NO=0)

S. no	Questions	Answers
1	How did you come to know about hypertension?	Clinical voluntary
2	Do you have any relatives with history of hypertension?	Yes/No
3	Do you know what the complications of hypertension are?	Yes/No
4	Do you know normal level of blood pressure?	Yes/No
5	Do you know the symptoms of hypertension?	Yes/No
6	Do you think smoking and alcohol consumption cause hypertension?	Yes/No
7	Do you think obesity is associated with hypertension?	Yes/No
8	Do you know the names of your prescribed drugs?	Yes/No

TOTAL SCORE:< 3= Poor score; > 4 = Good score

ATTITUDE QUESTIONS (YES=1, NO=0)

S.no	Questions	Answers
1	Do you think regular medications will improve the disease	Yes/No
2	Do you think only medications can control hypertension	Yes/No
3	Do you think diet control will improve the condition	Yes/No
4	Do you think salt reduction can control hypertension	Yes/No
5	Do you think regular physical activity is essential	Yes/No
6	Avoiding extra cooking oil	Yes/No

TOTAL SCORE:< 3= Poor score; > 4 = Good score

PRACTICE RELATED QUESTIONS (YES=1, NO=0)

S.no	Questions	Answers
1	Where you were first diagnosed with hypertension?	Yes/No
2	Regular follow up	Yes/No
3	Did you ever experience any side effect?	Yes/No
4	Did you ever take double dose?	Yes/No
5	Are you avoiding extra added salt?	Yes/No
6	Are you doing any physical exercise daily?	Yes/No
7	Are you taking your drugs regularly?	Yes/No

TOTAL SCORE:< 3= Poor score; > 4 = Good score

Table 1: Disease distribution in study population.

Disease Distribution	Number of Patients	Percentage (%)
Hypertension	57	47.5
Hypertension+ Diabetes	18	15
Hyperetnsion with other comorbid conditions	45	37.5
Total	120	100

studies showed positive impact of patient counselling on hypertensive patients.[25,26]

In our study patients having addictions of smoking and alcohol were less but it can be considered as an important risk factor for development of cardiovascular diseases in hypertensive patients. Many epidemiological studies from different parts of India have shown significant correlation of smoking and alcohol use with hypertension prevalence.[27,28]

In our study those participants who were having low socioeconomic status and physically inactive patients were having more risk of cardiovascular disease and mortality. The results obtained in this study were similar to earlier studies.[29,30]

Table 2: Socio demographics and clinical characteristics of Hypertensive patients.

Variables	Number of patients (n)	Percentage (%)
Gender		
Male	58	48.3
Female	62	51.7
Age (Years)		
18-40	16	13.3
41-60	60	50
61-80	42	35
81-100	2	1.6
Social Habits		
Smoking	26	21.7
Alcohol	23	19.2
Tobacco	21	17.5
Socio economic Status		
Medium	71	59.2
Poor	49	40.8
Blood Pressure Distribution		
Systolic Blood Pressure		
120-140	46	38.3
>140	74	61.7
Diastolic Blood Pressure		
80-100	106	88.3
>100	14	11.7

Out of 120 patients before counselling the patients had poor knowledge, attitude and practice regarding hypertension. After giving patient counselling regarding lifestyle modifications and DASH therapy, these parameters were improved and quality of life in majority of patients.

Table 3: Impact of patient counselling on Knowledge related questions (*n*=120).

Knowledge related Questions	Pre-counselling	Post counselling	% difference	*P*-value
How did you come to know about hypertension?				
Clinical	116(96.7%)	16(96.7%)	0.0%	0.500
Voluntary	4(3.3%)	4(3.3%)	0.0%	
Do you have any relatives with history of hypertension				
Yes	56(46.7%)	64(53.3%)	6.6%	0.235
No	64(53.3%)	56(46.7%)	-6.6%	
Do you know what the complications of hypertension are?				
Yes	24(20%)	68(56.7%)	36.7%	*<0.001***
No	96(80%)	52(43.3%)	-36.7%	
Do you know the normal level of blood pressure?				
Yes	33(27.5%)	85(70.8%)	43.3%	*<0.001***
No	87(72.5%)	35(29.2%)	43.3%	
Do you know the symptoms of HTN				
Yes	44(36.7%)	106(88.3%)	51.6%	*<0.001***
No	76(63.3%)	14(11.7%)	-51.6%	
Do you think smoking and alcohol cause hypertension?				
Yes	44(36.7%)	108(90%)	53.3%	*<0.001***
No	76(63.3%)	12(10%)	-53.3%	
Do you think obesity is associated with hypertension?				
Yes	40(33.3%)	114(95%)	61.7%	*<0.001***
No	80(66.7%)	6(5%)	-61.7%	
Do you know the names of your prescribed drugs?				
Yes	20(16.7%)	56(46.7%)	30.0%	*<0.001***
No	100(83.3%)	64(53.3%)	-30.0%	

Table 4: Impact of patient counselling on Attitude related questions (*n*=120).

Attitude questions	Pre counseling	Post counseling	% difference	*P* value
Do you think regular medications will improve the disease?				
Yes	114(95%)	115(95.8%)	0.8%	0.475
No	6(5%)	5(4.2%)	-0.8%	
Do you think medications alone can control hypertension?				
Yes	57(47.5%)	37(30.8%)	-17.5%	0.019*
No	63(52.5%)	83(69.2%)	16.7%	
Do you think diet control will improve the condition?				
Yes	49(40.8%)	106(88.3%)	47.5%	<0.001**
No	71(59.2%)	14(11.7%)	-47.5%	
Do you think salt reduction can control hypertension?				
Yes	64(53.3%)	116(96.7%)	43.4%	
No	56(46.7%)	4(3.3%)	-43.4%	<0.001**
Do you think regular physical activity is needed				
Yes	65(54.2%)	116(96.7%)	42.5%	<0.001**
No	55(45.8%)	4(3.3%)	-42.5%	
Reducing extra cooking oil				
Yes	60(50%)	116(96.7%)	46.7%	<0.001**
No	60(50%)	4(3.3%)	-46.7%	

Table 5: Impact of patient counselling on Practice related questions(*n*=120).

Practice related questions	Pre-counselling	Post counselling	% difference	*P* value
Where was first diagnosed with hypertension?				
Government	19(15.8%)	19(15.8%)	0.0%	0.500
Private	101(84.2%)	101(84.2%)	0.0%	
Regular follow up				
Yes	98(81.7%)	116(96.7%)	15.0%	0.109
No	22(18.3%)	4(3.3%)	-15.0%	
Did you ever experience any side effects				
Yes	24(20%)	30(25%)	5.0%	0.208
No	96(80%)	90(75%)	-5.0%	
Did you ever take double dose?				
Yes	18(15%)	43(35.8%)	20.8%	0.001**
No	102(85%)	77(64.2%)	-20.8%	
Are you avoiding extra salt				
Yes	80(66.7%)	117(97.5%)	30.8%	0.004**
No	40(33.3%)	3(2.5%)	-30.8%	
Are you doing any physical exercise daily?				
Yes	33(27.5%)	118(98.3%)	70.8%	<0.001**
No	87(72.5%)	2(1.7%)	-70.8%	
Are you taking your drugs regularly?				
Yes	82(68.3%)	118(98.3%)	30.0%	0.005**
No	38(31.7%)	2(1.7%)	-30.0%	

The above table shows that there was a great impact of counseling on the parameters and greater improvement were observed.

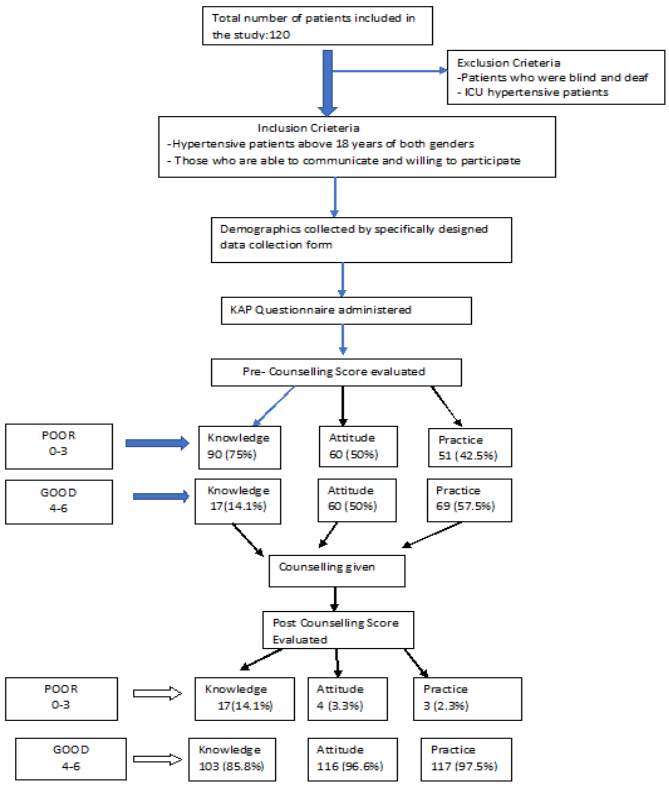

Figure 1: A schematic representation of study design and summary of results.

Many studies have manifested that blood pressure can be controlled with proper patient management. Our study shows that patient education has a major role in improving the health care outcomes in hypertensive patients. Our study demonstrates that pharmacist's interventions achieved significant improvement in KAP scores of the patients which eventually leads to reducing BP and improving quality of life of hypertensive patients.

LIMITATIONS

1. In this study there was no proper evidence about the complete follow up of patients.
2. The study was conducted for shorter duration of time.
3. Data with higher amount of authenticity can be obtained if other hospitals are also included in the study.

CONCLUSION

In our prospective interventional study, we reached to a conclusion that after counselling there was statistically significant improvement in patients' knowledge, attitude and practice regarding hypertension. We tried to improve the knowledge of patients suffering from HTN. Most of the patients were unaware about the complications of hypertension and lifestyle changes which showed the need of patient counselling. Our study concludes that hypertension affects the quality of life of patients and the education has a major role in improving the healthcare outcomes. Poor knowledge and practice can lead to worsening the health condition in time being and resulting in severe complications and damaging of other vital organs also. So proper educational strategies has to be adopted for patients.

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CONFLICT OF INTEREST

The authors declare there is no conflict of interest

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ABBREVIATIONS

CVD: Cardiovascular disease; **SBP:** Systolic Blood Pressure; **DBP:** Diastolic Blood Pressure; **DASH:** Dietary Approach to Stop Hypertension; **KAP:** Knowledge Attitude Practice.

REFERENCES

1. Lim SS, Vos T, Flaxman AD, Danaei G, Shibuya K, Adair-Rohani H, Amann M, *et al*. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: A systematic analysis for the Global Burden of Disease Study 2010. Lancet. 2012;380(9859):2224-60. doi: 10.1016/S0140-6736(12)61766-8, PMID 23245609.
2. Kearney PM, Whelton M, Reynolds K, Muntner P, Whelton PK, He J. Global burden of hypertension: analysis of worldwide data. Lancet. 2005;365(9455):217-23. doi: 10.1016/S0140-6736(05)17741-1, PMID 15652604.
3. Gupta R. Trends in hypertension epidemiology in India. J Hum Hypertens. 2004;18(2):73-8. doi: 10.1038/sj.jhh.1001633.
4. Mackey J, Risk Factor MG. Blood pressure. In: Ann H, editor, The atlas of heart disease and stroke. 1st ed. Geneva: WHO; 2004. p. 28-30.
5. Lopez AD, Mathers CD, Ezzati M, Jamison DT, Murray CJ. Global burden of disease and risk factors [internet]. International bank for reconstruction and development; 2006. Global burden of disease and risk factors. The World Bank [cited 23/7/2021].
6. Buang NFB, Rahman NAA, Haque M. Knowledge, attitude and practice regarding hypertension among residents in a housing area in Selangor, Malaysia. Med Pharm Reports. 2019;92(2):145-52.
7. Hypertension Study Group. Prevalence, awareness, treatment and control of hypertension among the elderly in Bangladesh and India: a multicentre study. Bull World Health Organ. 2001;79(6):490-500. PMID 11436469.
8. Giles TD, Materson BJ, Cohn JN, Kostis JB. Definition and classification of hypertension: an update. J Clin Hypertens (Greenwich). 2009;11(11):611-14. doi: 10.1111/j.1751-7176.2009.00179.x, PMID 19878368.
9. High blood pressure (hypertension) - Symptoms and causes - Mayo Clinic. Available in https://www.mayoclinic.org/diseases-conditions/high-blood-pressure/symptoms-causes/syc-20373410 [Last assessed on 6 Jul 2021].
10. Bell K. Candidate P, Olin BR. Hypertension: the Silent Killer: updated JNC-8 Guideline Recommendations. Available in https://cdn.ymaws.com/www.aparx.org/resource/resmgr/CEs/CE_Hypertension_The_Silent_K.pdf [Last assessed on 6 Jul 2021].
11. Ralapanawa U, Bopeththa K, Wickramasurendra N, Tennakoon S. Hypertension Knowledge, Attitude, and Practice in Adult Hypertensive Patients at a Tertiary Care Hospital in Sri Lanka. Int J Hypertens. 2020;2020:4642704. doi: 10.1155/2020/4642704. PMID 33145107.
12. Balraj M, Faruqui A. Efficacy and safety of triple drug fixed-dose combination of telmisartan, amlodipine and hydrochlorothiazide in the management of hypertension. Int J Res Med Sci. 2015;3(8):1858-62. doi: 10.18203/2320-6012.ijrms20150291.
13. Bollampally M, Chandershekhar P, Kumar K, Surakasula A, Srikanth S, Reddy T. Assessment of patient's knowledge, attitude and practice regarding hypertension. Int J Res Med Sci. 2016;4(8):3299-304. doi: 10.18203/2320-6012.ijrms20162283.
14. Seham A. Abd El-Hay, Samira E, el Mezayen. Knowledge and perceptions related to hypertension, lifestyle behavior modifications and challenges that facing hypertensive patients. IOSR JNHS. 2015;4(6):15-26.
15. Bollu M, Nalluri K, Prakash A, Lohith M, Venkataramarao N. Study of knowledge, attitude, and practice of general population of Guntur toward silent killer diseases: hypertension and diabetes. Asian J Pharm Clin Res. 2015;8(4):74-8.
16. Mahajan H. Assessment of KAP, Risk factors and associated co-morbidities in hypertensive patients. IOSR-JDMS. 2012;1(2):6-14. doi: 10.9790/0853-0120614.
17. Kumar S, Mittal A, Bishnoi A. Study of knowledge, attitude and practice of general population of Ambala towards hypertension. Int J Heal Sci Res. 2016;6(8):24.
18. Gradman AH, Basile JN, Carter BL, Bakris GL, American Society of Hypertension Writing Group. Combination therapy in hypertension. J Am Soc Hypertens. 2010;4(1):42-50. doi: 10.1016/j.jash.2010.02.005, PMID 20374950.
19. Macdonald TM, Williams B, Caulfield M, Cruickshank JK, Mcinnes G, Sever P, Webb DJ, Mackenzie IS, Salsbury J, Morant S, Ford I, Brown MJ. Monotherapy versus dual therapy for the initial treatment of hypertension (Pathway-1): a randomised double-blind controlled trial. BMJ Open. 2015;5(8):e007645. doi: 10.1136/bmjopen-2015-007645, PMID 26253566.
20. Shaikh M, Dur-e-Yakta KR. Hypertension knowledge, attitude and practice in adult hypertensive patients at LUMHS. JLUMHS. 2012;11(02):1136.
21. Siddiqua A, Mohammed A, Alahmari E, Hadaddi F, Saleh N. Study on the knowledge, attitude and practice of patients with hypertension in A seer hospital. Int J Res Pharm Sci. 2017;7(2):37-41.
22. Ramli A, Ahmad NS, Paraidathathu T. Medication adherence among hypertensive patients of primary health clinics in Malaysia. Patient Prefer Adherence. 2012;6:613-22. doi: 10.2147/PPA.S34704, PMID 22969292.
23. Chataut J, Adhikari RK, Sinha NP. The prevalence of and risk factors for hypertension in adults living in central development region of Nepal. Kathmandu Univ Med J (KUMJ). 2011;9(33):13-8. doi: 10.3126/kumj.v9i1.6255, PMID 22610802.
24. Parmar P, Rathod G, Rathod S, Goyal R, Aggarwal S, Parikh A. Study of knowledge, attitude and practice of general population of Gandhinagar towards hypertension. Int J Curr Microbiol Appl Sci. 2014;3(8):680-85.
25. Naveen B, Mahaboojan M, Padmanabha YR, Narayana G. Impact of clinical pharmacist mediated patient counselling on health related quality of life in hypertensive patients. Indian J Pharm Pract. 2014;7(1):34-40.
26. Effect of pharmacist directed counselling services on Knowledge, Attitude, and Practice (KAP) and blood pressure control in hypertensive patients: A randomized control trial. Int J Pharm Sci Res. 2019;10(11):5109-16.
27. Mukamal KJ. The effects of smoking and drinking on cardiovascular disease and risk factors. Alcohol Res Health. 2006;29(3):199-202. PMID 17373409.
28. Friedman GD, Klatsky AL, Siegelaub AB. Alcohol, tobacco, and hypertension. Hypertension. 1982;4(5 Pt 2):III143-50. doi: 10.1161/01.hyp.4.5_pt_2.iii143, PMID 7049929.
29. Wu X, Wang Z. Role of socioeconomic status in hypertension among Chinese middle-aged and elderly individuals. Int J Hypertens. 2019;2019:Article ID 6956023. doi: 10.1155/2019/6956023, PMID 31737361.
30. Leng B, Jin Y, Li G, Chen L, Jin N. Socioeconomic status and hypertension: a meta-analysis. J Hypertens. 2015;33(2):221-9. doi: 10.1097/HJH.0000000000000428, PMID 25479029.

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