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## INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/16292

DOI URL: <http://dx.doi.org/10.21474/IJAR01/16292>



### RESEARCH ARTICLE

#### A DESCRIPTIVE CROSS-SECTIONAL OBSERVATIONAL STUDY ON ASSESSMENT OF PATIENT'S KNOWLEDGE, ATTITUDE AND PRACTICE ON HYPERTENSION AT A TERTIARY CARE HOSPITAL

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#### Manuscript Info

##### Manuscript History

Received: 15 December 2022

Final Accepted: 19 January 2023

Published: February 2023

##### Key words:-

Hypertension, Heart Failure, Awareness, Adherence, Medication Review, Counselling

#### Abstract

**Introduction:** Hypertension is a strong independent risk factor for coronary and cerebrovascular diseases, as well as for heart failure, atrial fibrillation and chronic renal failure, thus substantially contributing to the global burden of disease. Moreover, it is well known that reducing blood pressure (BP) in hypertensive patients is associated with a significant reduction in the rate of cardiovascular complications and decline in renal function.

**Aim:** To assess the patient's knowledge, attitude and practice (KAP) and to create awareness about hypertension among hypertensive patients.

**Objectives:** To evaluate the current situation and differences in knowledge, attitude and practices regarding hypertension and to create awareness of hypertension by giving verbal counseling to hypertensive patients.

**Conclusion:** Our study signifies that patients require support and guidance for practicing better disease management. Hence we conclude that a clinical pharmacist can play a major role in improving patient's knowledge and adherence by patient education, developing maintenance of diet and exercise improved the patients practice activities. Clinical activities such as patient counseling, Home Medication Review, Pharmaceutical care program help to increase the patients practice in disease management.

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#### Introduction:-

Hypertension is a strong independent risk factor for coronary and cerebrovascular diseases, as well as for heart failure, atrial fibrillation and chronic renal failure, thus substantially contributing to the global burden of disease.<sup>1</sup> Moreover, it is well known that reducing blood pressure (BP) in hypertensive patients is associated with a significant reduction in the rate of

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cardiovascular complications and a decline in renal function.<sup>2,3</sup>The 7th report of Joint National Committee on prevention, detection, evaluation, and treatment of hypertension, defined hypertension as systolic blood pressure (SBP) of 140mmHg or more (or) diastolic blood pressure (DBP) of 90mmHg or more.<sup>4</sup>Over 90% of individuals with hypertension have essential hypertension (primary hypertension) where the exact mechanism of the condition cannot be identified.<sup>5</sup>Secondary hypertension is high blood pressure that is a symptom of an identified medical problem, such as kidney disease. If the medical problem is fixed, the high blood pressures will decrease.<sup>6</sup>

### **Epidemiology**

Recent data from the World Health Organization (WHO) indicate that nearly one billion people in the world are suffering from hypertension. Forecasts suggest that, with the aging of the population, this number could reach 1.5 billion by 2025.<sup>1</sup> Reviews of studies on hypertension epidemiology in India have shown a high prevalence in both urban and rural areas.<sup>7,8</sup> Worldwide, high blood pressure (HBP) is estimated to cause 7.1 million deaths, about 13 percent of the global fatality total. Across world health organization (WHO) regions, research indicates that about 62 percent of strokes and 49 percent of heart attacks are caused by HBP.<sup>9</sup> Increasing awareness and diagnosis of hypertension and improving control of BP with appropriate treatment are considered critical Public health initiatives to reduce cardiovascular morbidity and mortality. The "Seventh Report of the Joint National Committee on prevention, detection, evaluation, and treatment of High Blood Pressure" (HBP) provides a new guideline for hypertension prevention and management. According to JNC – 7 guidelines in persons older than 50 years, systolic blood pressure greater than 140 mm Hg is a much more important cardiovascular disease (CVD) risk factor than diastolic blood pressure.<sup>5</sup>

The WHO estimates that 600 million people with HBP are at risk of heart attack, stroke and cardiac failure. Worldwide, Indo-Asian people were among the populations at highest risk for cardiovascular disease.<sup>10</sup> Evidence also suggests that associations between body mass index (BMI), the percentage of body fat and chronic disease may increase the risk of cardiovascular diseases. Because of the observed differences between populations, the International Association for the Study of Obesity and the International Obesity Task Force have suggested lower BMI cutoff values for the definitions of overweight (23.0–24.9 kg/m<sup>2</sup>) and obesity (25.0 kg/m<sup>2</sup> or greater) in Asian populations.<sup>11</sup> Dubey VD<sup>12</sup> carried out one of the earliest studies in India (1954), documented 4% prevalence of hypertension (criteria: >160/95) amongst. During 1984-87 Gopinath and Chadha et al.,<sup>13,14</sup> reported the prevalence of hypertension (criteria: >160/90) to be 11% among males and 12% among females in the urban areas and 4% and 3% respectively in rural areas. Another two studies carried out in rural areas<sup>15</sup> (1994-95) demonstrated 4.5% prevalence of hypertension (JNC V criteria) while urban areas had a higher prevalence of 45% during 1996-97.<sup>16</sup>

### **Knowledge, Attitude And Practice On Hypertension:**

In India, 23.1% of men and 22.6% of women over the age of 25 years suffer from hypertension.<sup>17</sup> Prevalence of hypertension in India is 25% in urban and 10% in rural population, leads to 57% of all stroke deaths and 42% of deaths due to cardiovascular disease.<sup>18</sup> The increase in prevalence of hypertension is attributed to age, urbanization, sedentary habits, lack of physical activity, obesity, alcohol consumption and exposure to continuous stress.<sup>19</sup> Common complications of uncontrolled hypertension include cerebrovascular, cardiovascular, renal and retinal diseases. These complications are the primary causes of death and disability in developing countries including India and this leads to poor quality of life and increases the burden to family, community and nation. Early detection of hypertension can minimize the risk of cardiovascular diseases, stroke and kidney failure.<sup>19</sup> Regular anti-hypertensive medications can reduce the long-term risk of cardiovascular morbidity and mortality. Most hypertensive people are not aware of their condition and also have a low level of health literacy regarding hypertension. Inadequate level of knowledge about the health issues has been reported among the hypertensive patients in different countries all over the world.<sup>20,21</sup> Their knowledge, awareness and attitude of people towards hypertension has a significant role in changing lifestyle including the modifiable risk factors of hypertension. Therefore, the patients should be aware of the preventive approaches of hypertension management and should stringently adhere to the therapy.<sup>20</sup> Regular exercise decreasing systemic vascular resistance thereby blood pressure by regulatory mechanism of autonomic nervous system and renin angiotensin system. Dietary factors play a critical role in the prevention and treatment of hypertension. DASH (Dietary approach to stop hypertension) diet can be started at younger age to avoid complications due to hypertension. Salt intake restriction and drug compliance is beneficial in hypertensive people in lowering blood pressure and its complications.<sup>21</sup> Hence, this study was conducted primarily to assess the knowledge, attitude and practice (KAP) and to create awareness about hypertension among hypertensive patients.

### **Aim:-**

To assess the patient's Knowledge, Attitude, and Practice (KAP) and to create awareness about hypertension among hypertensive patients.

**Objectives:-**

To determine the Socio-demographic details of the hypertensive patients. To evaluate the current situation of the knowledge, attitude, and practices regarding hypertension. To determine major risk factors among hypertensive patients. To find out the differences in knowledge, attitude and practices regarding hypertension. To create awareness of hypertension by giving verbal counseling to hypertensive patients.

**Methodology:-**

The entire study was planned to be carried out for a period of 6 months. The proposal was designed into three phases. **In Phase 1**, Identified the scope of work, obtained a literature survey, and Study design, including the design of the questionnaire form and Obtained approval from the Institution's ethical committee and hospital. **In Phase2**, written consent from hypertensive patients was obtained, and collections of participant's details from by conducting the face-to-face interview. **In Phase3**, data analysis and submission of the report. A descriptive cross-sectional observational study was conducted at a tertiary care hospital, erode, Tamil Nadu for a period of 5 months. The variables were collected from a face-to-face interview.

**Inclusion criteria**

Hypertensive patients aged >30 years of both gender who were on treatment for hypertension for more than 6 months. The identified patients were with or without co-morbid conditions and willing to participate.

**Exclusion Criteria:-**

Age group from <24 years of the study, Pregnant and lactating women hypertensive patients, who are critically ill during the study and who are not willing to participate. Study tool: A semi structured interview schedule was constructed by an expert group of public health specialists from the tertiary care hospital. A pre-piloting of the questionnaire before its use was performed for evaluating its suitability in information gathering. After a pre-pilot session was completed, the authors amended the questionnaire, wherever necessary based on a unanimous decision by the expert group. The aim of this step was to arrive at a questionnaire that was unambiguous, appropriate, and acceptable to the respondents. Informed consent and ethical clearance of the study protocol had been approved by the Institutional Ethical Committee [IEC]. The nature and purpose of the study were explained, and their consent was sought.

**Work Methodology:-**

The nature and purpose of the study were explained to patients. Patients were selected by simple random sampling method. A suitably designed and validated KAP questionnaire was administered to hypertensive patients. A questionnaire comprising 4 parts, the first part of the questions covering socio-demographic details. Second part, there were 8 questions asked for determining the levels of knowledge were yes or no type of questions. While the third and fourth part, there were 6 questions to assess the attitude and 6 questions for practice were prepared as yes/no and multiple-choice questions. For assessing response from patients were >50% considered as good knowledge and <50% considered as low knowledge. It was emphasized that participation in the study was voluntary and all data collected were strictly confidential and would not be used for anything except for this study. After the conduction of face to face interview, from the patients, a brief counselling session was conducted for creating awareness among hypertensive patients.

**Results:-****Table 1:-** Category wise socio-demographic distribution of samples involved in the study.

Category	Samples Distribution	No. of Patients (n=426)	Percentage (%)
Gender Distribution	Male	281	65.96
	Female	145	34.03
Age wise (Years)	< 30	61	14.31
	31-50	216	50.70
	51-80	82	19.24
	>80	67	15.72
Family History (F – Father with HTN, M - Mother with HTN, O – Other members of family with HTN, N – None in the family with HTN)	F	213	50
	M	95	22.30
	F + M	45	10.50
	O	31	7.27
	N	42	9.85
Demography	Rural	116	27.23
	Urban	249	58.45
	Mixed	61	14.31
Literacy	Illiterate	115	26.99
	Primary	76	17.84
	Secondary	45	10.56
	Higher Secondary	110	25.82
	Graduate/ Postgraduate	80	18.77
Occupation	Housewife	91	17.30
	Security	72	13.68
	Driver	18	3.42
	Farmer	45	8.55
	Private Companies	182	53.61
	Unemployed	18	3.42
HTN Duration affected (Years)	<1	42	9.85
	1-5	94	22.06
	5- 9	221	73.94
	>10	69	16.19
Social Habits (S- Smoking, T – Tobacco Chewing, A – Alcohol Consumption)	S	94	22.06
	T	76	17.84
	A	104	24.4
	S + T + A	99	23.23
	None	53	12.44
Food Habits (V -Vegetarian, NV – Non-vegetarian)	V	91	21.36
	NV + V	335	78.63
Co-Morbidities (A – Nil, B – Diabetes, C – CVD, D - Kidney Diseases, E – Asthma)	A	174	40.84
	B	99	23.23
	B + C	49	11.50
	B + E	64	15.02
	B + D	40	9.38

**Table 2:-** Knowledge related questions on hypertension.

Items	Frequency	%
1. How did you come to know about your HTN?		
Clinical	358	84.04
Voluntary	68	15.96
2. Do you have any relatives with history of HTN?		
Yes	112	26.29
No	314	73.70

3. Do you know what are the complications of HTN?		
Yes	119	27.93
No	307	72.06
4. Do you know normal level of blood pressure?		
Yes	386	90.61
No	40	9.38
5. Do you know the symptoms of HTN?		
Yes	353	82.86
No	73	17.13
6. Do you think smoking and alcohol consumption cause HTN?		
Yes	329	77.23
No	97	22.76
7. Do you think obesity is associated with HTN?		
Yes	285	66.90
No	141	33.09
8. Do you know the names of your prescribed drugs?		
Yes	289	67.84
No	137	32.15

**Table 3:-** Attitude-related questions on hypertension.

Items	Frequency	%
1. Do you think regular medications will improve the disease?		
Yes	318	74.64
No	108	25.35
2. Do you think medications alone can control HTN		
Yes	265	62.20
No	161	37.79
3. Do you think diet control will improve the condition		
Yes	329	77.23
No	97	22.76
4. Do you think salt reduction can control hypertension		
Yes	298	69.95
No	128	30.04
5. Do you think regular physical activity is essential		
Yes	308	72.30
No	118	27.69
6. Avoiding extra cooking oil		
Yes	302	70.89
No	124	29.10

**Table 4:-** Practice-related questions on hypertension.

Items	Frequency	%
1. Where you was first diagnosed with HTN		
Govt	99	23.23
Private	256	60.09
Camp	71	16.66
2. Regular Followup		
Yes	115	26.99
No	311	73
3. Did you ever taken double dose		
Yes	86	20.18
No	340	79.81
4. Are you avoiding extra added salt		

Yes	145	34.03
No	281	65.96
5. Are you doing any physical exercise daily		
Yes	112	26.29
No	314	73.70
6. Are you taking your drugs regularly		
Yes	186	43.66
No	240	56.33

**Table 5:-** Overall Knowledge attitude and practice of patients regarding hypertension.

<b>Knowledge</b>	
Good Knowledge	68.89%
Poor Knowledge	31.10%
<b>Attitude</b>	
Good Attitude	71.20%
Poor Attitude	28.79%
<b>Practice</b>	
Good Practice	30.23%
Poor Practice	69.76%

### Discussion:-

High blood pressure is a burning issue now, rising developing countries. It is the top cause of mortality. Prevention is always desirable, but it is actually difficult where there is poor awareness, attitude, and practices.<sup>22</sup>This study aims to assess the baseline levels of patient's knowledge, attitude and practices of patients at erode towards hypertension.

### Socio-Demographic characteristics

A total of 487 hypertensive patients were interviewed, only 426 were included as 61 patients refused to be interviewed as per the inclusion and exclusion criteria. Table No 1 explains about the Category wise socio-demographic distribution of samples involved in the study. Among them 62.44% were males and 37.55% were females. This study reveals that 14.31%, 50.70%, 19.24%, and 15.72% of the respondents were <30years, 31-50years, 51-80 years and more than 80 years old respectively. This finding was supported by another study which shows that greater number of participants age range was 35-54 (50.2%), followed by 15-34 yrs (11.9%).<sup>23</sup> Our study found that more of the respondents were from urban area 58.45% followed by rural 27.23% (Table 1). Majority of the respondents suffered from hypertension 40.84% since 5-9 years and are at risk of developing comorbid conditions (Table 1). Most of the patients were from medium socio-economic status and were illiterates (Table 1). In a study from Jaipur, high prevalence of hypertension was reported in low education or illiterate groups.<sup>24</sup>In this study about 50%, father having the family history of hypertension (Table 1) this shows that may be genetic also one of the reason and is not comparable with the study done by In this study about 36% has family history of hypertension and 64% has no family history of hypertension, whereas study done by Seham et al shows 74.3% history of hypertension in the family.<sup>25</sup> The study reveals that majority of respondents 24.41% were alcoholic, 23.23% were smoking + tobacco + alcohol and 22.06% were smoking. Among food consumption 78.63% were non-veg and 21.36% were veg (Table 1). Alcohol and non-veg consumption has been consistently related to high blood pressure in cross-sectional as well as prospective observational studies in several populations.<sup>26</sup>

### Knowledge related questions on hypertension

In this study the patients were had good knowledge about, normal B.P levels 90.61%, signs and symptoms (82.86%), prescribed drug names (67.84%), obesity is associated with HTN (66.90%) and smoking and alcohol consumption cause HTN (77.23%) but most of the respondents had poor knowledge with regard to the disease complications (72.06%) (Table No 2). This finding was similar to the previous study conducted by Sanjiv Bhatia et al.<sup>27</sup> The reports of national Health and Nutrition Examination Survey (NHANES II and NHANES III) shows an increase in BP awareness during the time period 1976 - 1991 from 51% to 73%.<sup>28</sup>

**Attitude related questions on hypertension**

We found that respondents had profound positive attitude regarding the disease and its influential factors. 74.64% of patients think regular medications will improve the condition, 62.20% patients think medications alone can control HTN, 77.23% patients were aware diet control will improve the condition, 72.30% patients were think about regular physical activity is essential and 69.95% thinks that taking less salt will control the blood pressure (Table No 3). Salt reduction has been suggested as a possible adjunct to pharmacologic treatment to enhance blood pressure control. Several studies have investigated this issue and found that, for hypertensive patients who are receiving antihypertensive medication; salt restriction provides additional benefits in terms of BP control.<sup>29</sup> This finding was similar to the previous study conducted by Roopa et al and Sabouhi et al.<sup>30,31</sup>

**Practice related questions on hypertension**

We noticed that the patients were not executing the practice regarding lifestyle and diet. 73.70% of patients were not doing any physical activity (Table No 4). This shows the poor practice towards hypertension. This finding was similar to the previous studies conducted by Sanjiv Bhatia et al., and Susan A Oliveria et al.<sup>27,32</sup> Epidemiological studies suggest that exercise is efficacious in controlling the Blood Pressure. Exercise has multiple benefits for patients with hypertension there by reducing the risk of cardiovascular event and mortality.<sup>33</sup> The serious spread of disease can cripple the fiscal and human resources; therefore, it is the time to act now and do as much as possible to cover almost all aspects of the disease.

**Overall knowledge attitude and practice of patients regarding hypertension**

In the present study, the responses to overall knowledge were 68.89% and positive attitude were (71.20%) appealingly good but the practice (30.23%) was not regular (Table No 5). Our results are in accordance with the findings of Oliveria et al<sup>34</sup> and Babaei et al<sup>35</sup> who reported KAP rates up to 90%–96% and 89.6% in their respective studies. The role of pharmacist involvement in a chronic disease care programme, including one for hypertension, is clearly demonstrated in developed countries. Pharmacists can reduce pressure on the healthcare system and helps in the management of chronic diseases by providing information about medications and lifestyle modifications to patients, and by acting as a referral point between the patient and doctor.<sup>36</sup>

**Conclusion:-**

Our study signifies that patients require support and guidance for practicing better disease management. Hence we conclude that a clinical pharmacist can play major role in improving patient's knowledge and adherence by patient education, developing maintenance of diet and exercise improved the patients practice activities. Majority of the respondents had higher knowledge and positive attitude toward hypertension but low level of practices clinical activities such as patient counselling. Home Medication Review, Pharmaceutical care program help to increase the patients practice in disease management. Thus, a pharmacist has a potential role as patient educator in the management of hypertension.

**Conflicts of Interest**

The Authors declared no conflicts of Interest.

**Funding**

No funding source is available.

**Contribution**

All authors equally contributed to preparing this article.

**Ethical Approval**

No ethics approval is required.

**Consent**

We have not identified any direct or indirect potential patient identifiers in this case report. The patient has provided their informed consent for the publication of this case report.

**Bibliography:-**

1. Gaziano TA. Cardiovascular disease in the developing world and its cost-effective management. *Circulation*. 2005;23:3547-3553.
2. McInnes GT. Lowering blood pressure for cardiovascular risk reduction. *Journal of Hypertension*. 2005;23:1:3-8.
3. Wenzel RR. Renal protection in hypertensive patients: selection of antihypertensive therapy. *Drugs*. 2005;2:29-39.
4. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. National High Blood Pressure Education Program. Bethesda (MD): National Heart, Lung, and Blood Institute (US). 2004 Aug. Report No:04-5230.
5. Chobanian AV, Bakris GL, Black HR. Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. *Hypertension*. 2003;42:1206-1252.
6. Egan BM, Lackland DT. International Society on Hypertension in Black. Ethnicity and Disease. [http://www.ishib.org/supportfiles/fact\\_hypertension.pdf](http://www.ishib.org/supportfiles/fact_hypertension.pdf). 1998;8:228-239.
7. Gupta R, Al-odat NA, Gupta VP. Hypertension epidemiology in India: meta-analysis of 50 year prevalence rates and blood pressure trends. *Journal of Human Hypertension*. 1996;7:465-472.
8. Gupta R. Trends in hypertension epidemiology in India. *Journal of Human Hypertension*. 2004;2:73-78.
9. World Health Organisation. Reducing risks and promoting healthy life. *World Health Report*. 2002.
10. Jafar TH, Jafary FH, Jessani S, Chaturvedi N. Heart disease epidemic in Pakistan: women and men at equal risk. *American Heart Journal*. 2005;150:221-226.
11. Choo V. World Health Organisation reassesses appropriate body-mass index for Asian populations. *Lancet*. 2002;360:235.
12. Dubey vd. A study on blood pressure amongst industrial workers of Kanpur. *Journal of Indian Medical Association*. 1954;23:495-498.
13. Chadha SL, Gopinath N, Shekhawat S. Urban-rural differences in the prevalence of coronary heart disease and its risk factors in Delhi. *Bulletin of the World Health Organization*. 1997;75:31-38.
14. Gopinath N, Chadha SL, Jain P, Shekhawat S, Tandon R. An epidemiological study of obesity in adults in the urban population of Delhi. *Journal of the Association of Physicians of India*. 1994;42:212-215.
15. Malhotra P, Kumari S, Kumar R, Jain S, Sharma BK. Prevalence and determinants of hypertension in an un-industrialised rural population of North India. *Journal of Human Hypertension*. 1999;13:467-472.
16. Ahlawat SK, Singh MM, Kumar R, Kumari S, Sharma BK. Time trends in the prevalence of hypertension and associated risk factors in Chandigarh. *Journal of the Indian Medical Association*. 2002;100:547-572.
17. Bollampally M, Chandershekar 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(6):3299-04.
18. Durai V, Muthuthandavan AR. Knowledge and practice on lifestyle modifications among males with hypertension. *Ind J Comm Heal*. 2015;27(1):143-9.
19. Kumar SK, Singh AB, Asem P. Prevalence, awareness, treatment and control of hypertension in urban communities of Imphal, Manipur. *IJIMS*. 2015;2:61-70.
20. Rashidi Y, Manafloyan H, Azar FP, Nikniaz Z, Nikniaz L, Ghaffari S. Knowledge, attitude and practice of Iranian hypertensive patients regarding hypertension. *J Cardiovascul Thoracic Res*. 2018;10(1):14.
21. Durai V, Muthuthandavan AR. Knowledge and practice on drug compliance among males with hypertension. *Int J Comm Med Pub Heal*. 2017;3(6):1424-30.
22. Rahman MN, Alam SS, Mia MA. Knowledge, attitude and practice about hypertension among adult people of selected areas of Bangladesh. *MOJ Public Health*. 2018;7(4):211-214.
23. Azubuike SO, Kurmi R. Awareness, practices, and prevalence of hypertension among rural Nigerian women. *Arch Med Health Sci*. 2014;2:23-28.
24. Ahmad S, Ahmad T. Assessment of knowledge, attitude and practice among hypertensive patients attending a health care facility in North India. *IJRM*. 2015;4(2):122-7.
25. Abd El-Hay SA, Mezayen, SE. Knowledge and Perceptions Related to Hypertension, Lifestyle Behavior Modifications and Challenges That Facing Hypertensive Patients. *IOSR Journal of Nursing and Health Science Ver I*. 2015;4(6):15-26.
26. Mahmood SE, Anurag S, Shrotriya VP, Shaifali I, Payal M. Prevalence and epidemiological correlates of hypertension among labour population. *NJCM*. 2011;2:1.
27. Bhatia S, Khanka BS, Singh D, Shankar P, Tutu S, Lakhani P. Study of knowledge, attitude and practice of general population of Lucknow towards hypertension. *WIPPS*. 2015;4:10.
28. Biradar SS, Reddy KR, Srinivas RS. Role of pharmacist towards knowledge, attitude and practice in compliance with hypertension in north Karnataka in South Indian city A brief overview. *IRJP*. 2012;3:5.



29. Dennison C, Peer N, Lombard C. Cardiovascular risk and comorbid conditions among black South Africans with hypertension in public and private primary care settings: The HiHi study. *Ethn Dis.* 2007;17:477-83.
30. Bollampally, M., Chandershekhar, P., Kumar, K. P., Surakasula, A., Srikanth, S., & Reddy, T.R.M. Assessment of patient's knowledge, attitude and practice regarding hypertension. *International Journal of Research in Medical Sciences.* 2017;3:6.
31. Primatesta P, Falaschetti E, Gupta S, Marmot MG, Poulter NR. Association between smoking and blood pressure: evidence from the health survey for England. *Hypertension.* 2001; 37: 187-93.
32. Oliveria SA, Chen RS, McCarthy BD, Davis CC, Hill MN. Hypertension knowledge, awareness, and attitudes in a hypertensive population. *Journal of Global Information Management. JGIM.* 2005;20(3):219-25.
33. Awotidebe TO, Adedoyin RA, Rasaanq WA, Adeyeye VO, Mbada CE, Akinola OT. Knowledge, attitude and practice of exercise for blood pressure control: a cross sectional survey. *Journal of Experimental Social Psychology. JESP.* 2014;1:1-10.
34. Oliveria SA, Chen RS, McCarthy BD, Davis CC, Hill MN. Hypertension knowledge, awareness, and attitudes in a hypertensive population. *The Journal of General Internal Medicine. J Gen Intern Med.* 2005;20:219 -25.
35. Babaei S, Moeini M, Sabouchi F, Mohammadi N. Investigation of experiences of hypertensive patients. *Indian Journal of Neonatal Medicine & Research. IJNMR* 2008;13:43-6.
36. Sharma S, KC Bhuvan, Alrasheedy AA, Kaundinnayana A, Khanal A. Impact of community pharmacy-based educational intervention on patients with hypertension in Western Nepal. *Academy of Management Journal. AMJ* 2014;7(7):304-13.