

KNOWLEDGE, ATTITUDES AND PRACTICES OF PATIENTS REGARDING DIABETES AND HYPERTENSION CONTROL

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ABSTRACT

Objective: To determine knowledge, attitudes and practices (KAP) of diabetic and hypertensive patients regarding their disease and its management and to find out the association between Knowledge, attitude and practices of patients with other independent variables.

Methodology: A descriptive cross sectional study was carried out in Combined Military Hospital (CMH), Rawalpindi, from September to December 2016. Data was collected from 160 diabetic and hypertensive patients who were attending medical OPD of CMH, Rawalpindi. Knowledge, attitude and practices of patients were assessed. Written Informed consent was taken from all patients and data was collected through an interview based questionnaire. Frequencies, percentages and p values were reported for the variables under study.

Results: Knowledge of both hypertensive and diabetic patients was good with a percentage of 71% and 59% respectively. Practice scores of both groups were low, 51% for hypertensive and 42.5% for diabetic patients. On the contrary, the attitude scores of both groups were poor having a percentage of 42% and 34% respectively. A statistically significant association was observed between educational status and knowledge of respondents.

Conclusion: In spite of having adequate knowledge about the disease, practices and attitude of patients towards disease management were poor.

Keywords: Hypertension, Diabetes, Knowledge, Attitude, Counseling

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INTRODUCTION

Hypertension and diabetes are the silent killers worldwide¹ and are a major risk factor for other diseases such as cardiovascular diseases, stroke and kidney diseases. They are one of the main reasons for visiting the physicians^{2,3}. An increase in knowledge, awareness and control of hypertension will reduce morbidity and mortality^{4,5}. Studies showed that many patients do not have adequate knowledge about the diseases such as hypertension and diabetes.

The Joint National Committee on Prevention, Recognition, Evaluation and Treatment of High BP (JNC-8) reports that it affects 1 billion people worldwide. People who are aged 55 years or above are at a higher risk of developing hypertension as compared to people who are younger. Hypertension is considered as the number 1 reason for office visits and contributes to 457,000 approvals per year and a leading cause of death case bearer (myocardial infarction, stroke)⁶.

Diabetes mellitus (DM) is considered as a persistent metabolic disorder that is linked to high mortality and morbidity among patients. The prevalence of diabetic patients is rising day by day and about 138 million people worldwide are affected by this disease. With this increase in proportion of the diabetic patients it is now becoming a pandemic. Possible reasons for the sturdy increase in the frequency of DM in Asian countries is attributed to the changing lifestyle, quick urbanization and not good enough attitude and practice for DM in the patients as well as in general population^{7,8}. In addition, there is also an apparent gulf between knowledge and the attitude towards diabetes in diabetic patients. Knowledge about DM, appropriate attitudes and practices are crucial to reduce the incidence and morbidity associated with DM^{9,10}.

In view of the high morbidity and mortality due to hypertension and diabetes, if a patient has knowledge of the disease, the patient will be more careful about the management and better control can be achieved.

The development of diabetes and hypertension are strongly related to aging populations, urbanization and socio-economic changes that promote sedentary lifestyle, obesity, alcohol consumption and salt intake^{11,12}. In this context, hypertension and diabetes are a major intervention area because they are the frequent diseases that can be controlled by both non-pharmacological interventions as well as by pharmacological treatment. Lifestyle measures include reduced sodium chloride intake, reduced sugar intake, increased physical activity and weight control^{13,14}.

Appropriate assessment and understanding of KAP factors is particularly useful in the area of chronic diseases such as hypertension and diabetes, for which prevention and control require a life-long adoption of healthy lifestyle¹⁵. However, very little information on the evaluation of KAP's is available from developing countries, where hypertension and diabetes have recently been recognized as a major health problem.

Gaining information about awareness is the first step in the formulation of a preventive program for the disease. It is necessary to examine the KAP among the population in order to support the future development of programs and techniques for effective health education. KAP surveys are effective in providing a basis for evaluating intervention programs. The objectives of this study were to assess the baseline levels of the KAP of the study population to hypertension and diabetes; to determine knowledge, attitude and practices (KAP) of diabetic and hypertensive patients regarding disease and its management; and to find out the association between knowledge, attitude and practices of patients with other independent variables.

METHODOLOGY

A descriptive cross sectional study was conducted from September to December 2016 at the Department of Medicine, Combined Military Hospital, Rawalpindi. Data was collected from a sample of 160 patients. Sample size was calculated using OpenEpi Software at 95% Confidence Interval. Prevalence of co-morbidity of hypertension and diabetes was taken as 11%¹⁶. From total of 160 patients, 80 hypertensive and 80 diabetic patients were selected through consecutive sampling. Institutional review board approval was obtained before starting data collection. Informed consent was taken from patients and they were then interviewed in the Out Patient Department in a comfortable setting.

A structured questionnaire developed from previous studies was used as a data collection tool. The questionnaire was divided into 4 main sections namely socio-demographic data, knowledge, attitudes and practices of diabetics and hypertensive patients. A total of 20 questions were included in the KAP questionnaire

that was filled by hypertensive patients. Likewise, the questionnaire for diabetic patients was composed of 18 questions.

Data analysis was done using SPSS version 20. Frequencies and percentages were reported. A scoring system was used for analysis of knowledge, attitude and practices of the respondents. The scores for knowledge, attitude and practices were categorized based upon the median values. Scores that fall below median were categorized as poor and scores above median were categorized as good scores for knowledge, attitude and practices. Chi-squared test was used to find out association between KAP of patients and different independent variables. P values less than 0.05 were considered significant.

RESULTS

Demographic profile of study participants is listed in Table 1. There were more females 58.8% in hypertension group and 53.8% in the diabetic group. Majority of our respondents 88.8% and 95% were married in the 02 groups respectively. Among hypertensive patients, 47.5% were diagnosed ever for diabetes. Table 2 and 3 show knowledge and attitude assessing questions of hypertensive patients while Table 4 and 5 show knowledge and attitude assessing questions of of diabetic respondents.

The respondents were asked 7 questions regarding their practices about medicine intake and preventive measures. Of the 80 respondents, 47 (58.8%) reported that they last checked their blood pressure less than a week ago; 62 (77.5%) respondents reported that they go for check-ups whenever they are not feeling good; while 39 (48.8%) respondents reported that the last urine, lipid and blood sugar level checkup was done 1 year ago. About 52 (65%) responded that they are prescribed with medications and they take their prescribed medicine regularly. Of the 28 hypertensive patients who were not taking their prescribed medicines, 16 (56.3%) participants reported that they did not like taking medicines while 7 (25%) participants said that they take medicine only when needed. Moreover, exercise being an important component of daily routine was reported "NO" by 42 (52.5%) respondents.

Regarding their practices, 41 (51.3%) diabetic patients reported that they had checked their blood sugar levels last week. About 28 (35%) of respondents reported that they had their last eye examination about 6 months ago. Urine examination of 30 (37.5%) diabetic patients was never done at all. About 43 (53.8%) respondents reported that they missed their medication and were not in a habit of taking medicine regularly. The Overall KAP of hypertensive patients is shown in figure 1 and the overall KAP of diabetic patients is shown in figure 2.

Table 1: Demographic profile of study participants

Variables		Hypertensive Respondents (n=80)		Diabetic Respondents (n=80)	
		Frequency	Percentage	Frequency	Percentage
Gender	Male	33	41.2	37	46.2
	Female	47	58.8	43	53.8
	Total	80	100	80	100
Age of Respondents	≤40yrs	19	23.8	03	4
	41-50yrs	16	20	03	4
	51-60yrs	19	23.8	19	23
	61-70yrs	21	26.2	26	32.5
	≥71yrs	05	6.2	29	36.5
	Total	80	100	80	100
Educational Status	Illiterate	20	25	22	27.5
	Primary School	13	16.3	22	27.5
	Sec. School	16	20	09	11.3
	Graduate	21	26.2	17	21.3
	Post Graduate	10	12.5	10	12.4
	Total	80	100	80	100
Marital Status	Married	71	88.8	76	95
	Un-married	09	11.2	04	05
	Total	80	100	80	100
Family History of Hypertension/ Diabetes	Yes	54	68.8	50	62.5
	No	26	31.2	30	37.5
	Total	80	100	80	100
Diagnosed ever for Diabetes/ Hypertension accordingly	Yes	38	47.5	50	62.5
	No	42	52.5	30	37.5
	Total	80	100	80	100

Table 2: Knowledge assessing questions of hypertensive patients (n=80)

S.No.	Questions	Number of Correct Response by Patients	Percentage
1	Do you think hypertension is a disease?	68	85
2	Do you think that high blood pressure affects the heart?	72	90
3	Complications of hypertension	33	41.3
4	Normal blood pressure levels	54	67.5
5	Diet rich in salt; a major cause of hypertension	69	86.3
6	Symptoms of hypertension	67	83.8
7	Obesity associated with hypertension?	43	53.8
8	Regular exercise beneficial for control of hypertension	60	75

Table 3: Attitude assessing questions of hypertensive patients (n=80)

S.No.	Questions	Number of Correct Response by Patients	Percentage
1	Salt intake to reduce hypertension	52	65
2	Regular checkups of blood pressure important	43	53.8
3	Regular contact with physicians	41	51.3
4	Regular medication for controlling hypertension	46	57.5
5	Regular exercise	49	61.3

Table 4: Knowledge assessing questions of diabetic respondents

S.No.	Questions	Number of Correct Response by Patients	Percentage
1	Diabetes is a condition in which body contains?	55	68.8
2	Diabetes can be cured by diet and exercise only?	60	75
3	Symptoms of diabetes?	39	48.8
4	Obese people more likely to develop Type 2 diabetes?	53	66.3
5	Type 2 diabetes causes long term changes to which of the following?	51	63.8
6	People with diabetes are more prone to?	41	51.3
7	Accurate method of monitoring diabetes	72	90
8	Proper foot care of diabetic patients is important?	52	65
9	Blood pressure monitoring is important for diabetic patients	58	72.5
10	"Roti" increases blood sugar levels?	55	68.8

Table 5: Attitude assessing questions of diabetic respondents

S.No.	Questions	Number of Correct Response by Patients	Percentage
1	Prefer going for walk	56	70
2	Exercise regularly	37	46.3
3	Follow controlled diet plan	44	55
4	Important to follow prescriptions	37	46.3

Table 6: Association of knowledge, attitude and practices with KAP scores of hypertensives and diabetics

S.No.	Variables	Hypertensive Patients			Diabetic Patients		
		Inadequate KAP	Adequate KAP	P Value	Inadequate KAP	Adequate KAP	P Value
1	Inadequate Knowledge	36 (63.2%)	21 (36.8%)	0.0021	27 (81.8%)	6 (18.2%)	0.000
	Adequate Knowledge	8 (34.8%)	15(65.2%)		18 (38.3%)	6 (18.2%)	
2	Poor Practices	27 (69.2%)	12 (30.8%)	0.013	37 (80.4%)	9 (19.6%)	0.000
	Good Practices	17 (41.5%)	24 (58.5%)		8 (23.5%)	26 (76.5%)	
3	Negative Attitude	38 (82.6%)	8 (17.4%)	0.000	40 (75.5%)	13 (24.5%)	0.000
	Positive Attitude	6 (17.6%)	28 (82.4%)		5 (18.5%)	22 (81.5%)	

Figure 1: Overall knowledge, attitude and practices of hypertensive patients

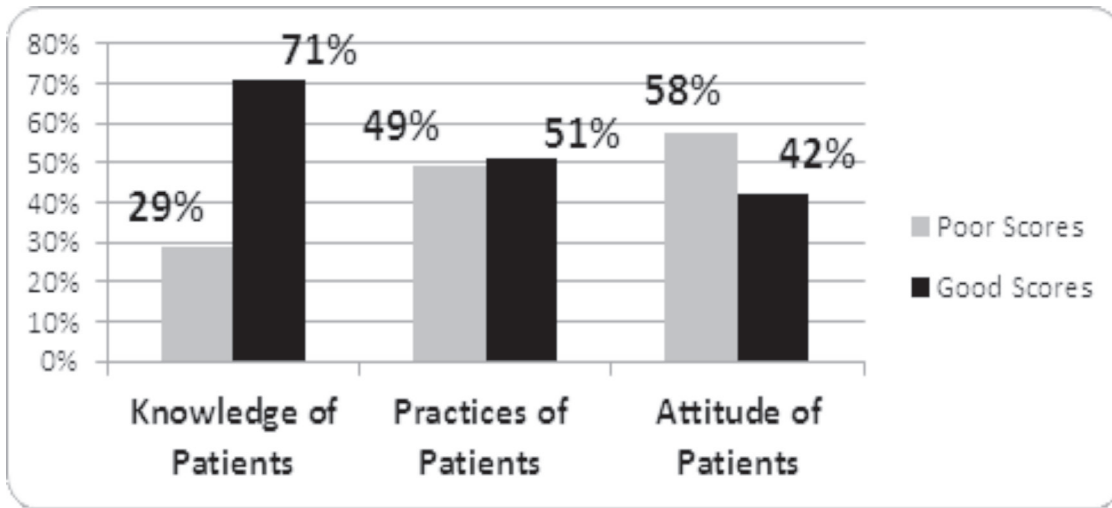
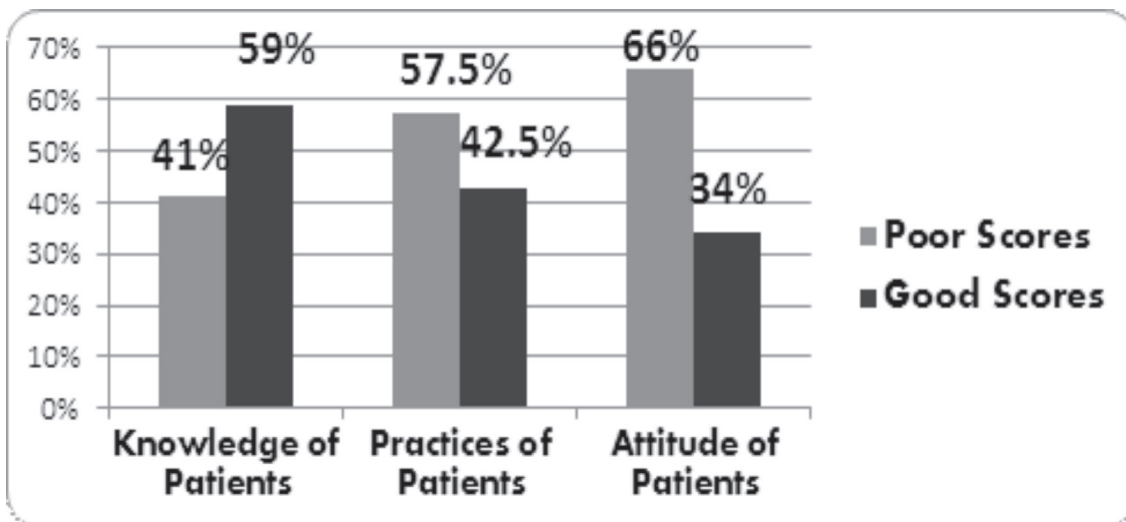


Figure 2: Overall knowledge, attitude and practices of diabetic patients



Knowledge of the hypertensive respondents had a statistically significant association with the educational status of the respondents (p value = 0.009). Cross tabulation also showed a statistically significant association between the knowledge of the respondents and their total knowledge, attitude and practices score with a p value of 0.021; people having poor knowledge had poor knowledge, attitude and practices. Practices and attitude of the respondents were also significantly associated with KAP score of participants having p value of 0.013 and 0.000 respectively (Table 6).

The cross tabulation showed a statistically significant association between the knowledge of the diabetic respondents and their total KAP scores with a p value of 0.001. The practices and attitudes of the respondents were also significantly associated with KAP scores with a p value < 0.05 (Table 6). This explains that the knowledge, attitude and practices of respondents are interrelated which ultimately define the general health seeking behavior of the patients. Health seeking behavior of respondents in this study was defined by personal behavior of respondents towards diabetes control and its management.

DISCUSSION

The present work shows that the knowledge scores of both hypertensive and diabetic patients were high while their attitude and practice scores were low. Our findings were similar to an Indian study by Mounica¹⁶ who observed poor attitude and practices scores while the knowledge of study participants was good. Similarity in results between these two studies might be because of the reason that India and Pakistan both have the same status and socio-demographic profile of both countries is quite similar.

A large section of participants from the hypertensive group showed good essential knowledge about the disease. In this study, majority of the participants (90%) reported that high blood pressure affects the heart and causes complications. Results of the present study were comparable to a study done by Parmar et al¹⁷ which showed that 98% of the study participants were aware of the fact that high blood pressure is a threat to heart and can cause serious health complications.

In our study, diet rich in salt as a major cause of hypertension was reported yes by 86.3% of the participants, obesity as a major risk factor for hypertension by 53.8% respondents and the beneficial role of regular exercise for control of hypertension was reported yes by 75% of the respondents. These findings were in conformity with the study by Parmar et al¹⁷, which showed that 76% of study participants stated that salt intake is associated with hypertension and 68% of the respondents recognized that physical exercise is beneficial for control of hypertension¹⁷. Similar findings of 62% were shown by another study regarding obesity and hypertension¹⁰.

Knowledge regarding symptoms and complications of hypertension were known by 83.8% and 41.3% of the respondents respectively. Mounica¹⁶ reported that 84% of the respondents knew about the symptoms of hypertension. In another study by Busari et al¹⁰, it was shown that 70% of the respondents knew about the normal blood pressure levels. In the present study normal blood pressure levels were known correctly by 67.5% of the respondents.

In our diabetic patients, 68.8% were aware of the cause of diabetes. Similar results of 64% were reported by an Indian study¹⁸. In the present study, 72.5% respondents were aware of the fact that proper monitoring of blood pressure is also important for diabetic patients and 75% were aware of the fact that diabetes requires proper balanced diet and exercise. Other researchers have shown that 54% of the respondents were aware of the effects of diabetes on their blood pressure and 80% had good knowledge about the components of a balanced diet¹⁴.

In our study, 46.3% diabetic respondents reported that they exercise regularly. These are matched with the study by Mounica¹⁶ where 36% of respondents reported doing exercise regularly. On the contrary a study done by Upadhyay et al¹⁸ stated that 66.48% respondents exercised regularly. The reason behind this increased awareness might be good counseling that is provided to patients and proper emphasis on regular exercise for the control and management of disease.

In the present study respondents were unaware of the significance of regular checkups. Very few of the respondents reported that they had gone through regular health checkups. Moreover, only 35% had their last eye examination about 6 months ago while 37.5% reported that they had never undergone urine examination. In another study, similar findings to our study were reported in which patients were ignorant of the significance of routine check-ups. The lack of knowledge of patients towards regular check-ups leads to complications and thus causes excessive burden on the patients both economically and physically¹⁸.

When considering non-communicable diseases like diabetes and hypertension, specific treatment cannot be provided by medication only. Therefore, to delay the advancement and magnitude of complications and adverse outcomes, proper management and control is advised for these patients. Hence enhancing the knowledge, attitude and practices of patients concerning their illness and medication adherence would improve the curative outcomes. The objectives of improving KAP could be attained by collective education and counseling of patients in the hospitals or private clinics. Therefore, health care providers might play a vital role in educating patients for their disease management and control.

CONCLUSION

In spite of having adequate knowledge about the disease, practices and attitude of patients towards disease management was poor. Patients suffering from chronic diseases should be counseled to embrace healthy practices and to adopt positive attitude for effective disease management.

REFERENCES

1. Shaikh MA, Yakta D, Sadia Khan, Kumar R. Hypertension knowledge, attitude and practice in adult hypertensive patients at LUMHS. *J Liaquat Univ Med Health Sci* 2012; 11:113-6.
2. Oliveria SA, Chen RS, McCarthy BD, Davis CC, Hill MN. Hypertension knowledge, awareness, and attitudes in a hypertensive population. *J Gen Intern Med* 2005; 20:219-25.
3. Cheng S, Lichtman JH, Amatruda JM, Smith GL,

- Mattera JA, Roumanis SA et al. Knowledge of blood pressure levels and targets in patients with coronary artery disease in the USA. *J Hum Hypertens* 2005; 19:769-74.
4. Qureshi NN, Hatcher J, Chaturvedi N, Jafar TH, Hypertension Research Group. Effect of general practitioner education on adherence to antihypertensive drugs: Cluster randomised controlled trial. *Br Med J* 2007; 335:1030.
 5. Sengwana MJ, Puoane T. Knowledge, beliefs and attitudes of community health workers about hypertension in the Cape Peninsula, South Africa. *Curationis* 2004; 27:65-71.
 6. Huse DM, Roht LH, Alpert JS, Hartz SC. Physicians' knowledge, attitudes, and practice of pharmacologic treatment of hypertension. *Ann Pharmacother* 2001; 35:1173-9.
 7. Ambigapathy R, Ambigapathy S, Ling HM. A knowledge, attitude and practice (KAP) study of diabetes mellitus among patients attending Klinik Kesihatan Seri Manjung. *NCD Malaysia* 2003; 2:6-16.
 8. Rathod GB, Rathod S, Parmar P, Parikh A. Study of knowledge, attitude and practice of general population of Waghodia towards diabetes mellitus. *Int J Curr Res Rev* 2014; 6:63-8.
 9. Praveena P, Usman S, Deepika B, Raghu Kumar V, Mohanta GP, Manna PK et al. Impact of patient counseling on knowledge, attitude, practice and quality of life in patients with Type II diabetes mellitus and hypertension. *Indian J Pharm Pract* 2011; 4:50-4.
 10. 1Busari OA, Olanrewaju TO, Desalu OO, Opadijo OG, Jimoh AK, Agboola SM et al. Impact of patients' knowledge, attitude and practices on hypertension on compliance with antihypertensive drugs in a resource-poor setting. *TAF Prev Med Bull* 2010; 9:87-92.
 11. Sushmita S, Aarati K, Bharat P, Roshani S, Sunil S, Kalpana P et al. Knowledge, attitude and practice outcomes: An effect of pharmacist provided counseling in hypertensive patients in a tertiary care teaching hospital in Western Nepal. *Int J Pharm Sci* 2010; 2:583-7.
 12. Adepu R, Somashekar A. Influence of structured patient education on therapeutic outcomes in diabetes and hypertensive patients. *Asian J Pharma-Clin Res* 2010; 3: 174-8.
 13. Badrudin N, Basit A, Hydrie MZ, Hakeem R. Knowledge, attitude and practices of patient visiting a diabetes care unit. *Pak J Nutr* 2002; 1:99-102.
 14. Hartayu TS, Mi MI, Suryawati S. Improving of type 2 diabetic patients' knowledge, attitude and practice towards diabetes self-care by implementing community-based interactive approach-diabetes mellitus strategy. *BMC Res Notes* 2012; 5:315.
 15. Channanath AM, Farran B, Behbehani K, Thanaraj AT. State of Diabetes, Hypertension, and Comorbidity in Kuwait: Showcasing the Trends as Seen in Native Versus Expatriate Populations. *Diabetes Care* 2013; 36:e75.
 16. Mounica B. Study of Knowledge, Attitude and Practice of General Population of Guntur towards Silent Killer Diseases: Hypertension and Diabetes. *Value Health* 2015; 18:A398.
 17. Parmar P, Rathod GB, 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; 3:680-5.
 18. Upadhyay DK, Palaian S, Shankar PR, Mishra P. Knowledge, attitude and practice about diabetes among diabetes patients in Western Nepal. *Rawal Med J* 2008; 33:8-11.

CONTRIBUTORS

QT conceived the idea, planned the study, and drafted the manuscript. NA, MI and AH helped acquisition of data and did statistical analysis. AZ and AF helped literature search, did statistical analysis and drafted the manuscript. All authors contributed significantly to the submitted manuscript.