

## STUDY OF KNOWLEDGE, ATTITUDE, AND PRACTICE OF GENERAL POPULATION OF GUNTUR TOWARD SILENT KILLER DISEASES: HYPERTENSION AND DIABETES

MOUNICA.BOLLU\*, KRANTHI KOUSHIK.NALLURI, AMBHI.SURYA PRAKASH, MUDDANA.NAGA LOHITH, NALLANI VENKATARAMARAO

Department of Pharmacy Practice, Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur, Andhra Pradesh, India.

Email: mouni.b09@gmail.com

Received: 01 March 2015, Revised and Accepted: 23 March 2015

### ABSTRACT

**Objectives:** The objective was to study the demographic details of hypertensive and diabetic patients and their knowledge, attitude, and practices (KAP) regarding their illness.

**Methods:** We examined KAP on hypertension and diabetes in a sample of 50 adult hypertensive patients and 50 adult diabetic patients aged above 20 years. KAP's were assessed during the period from October 2014 to January 2015.

**Results:** Altogether 50 hypertensive and 50 diabetic patients were enrolled in the study. Most of the respondents in the KAP on hypertension were aged between 31 and 40 years (56%) and 94% of the participants knew that hypertension is the disease state whereas in KAP on diabetes 46% are aged in between 31 and 40 years of age, 88% of participants know that the diabetes is a condition in which the body contains increased levels of blood glucose. We observed poor score in attitude and practice part of the questionnaire. It concludes that the responders had good knowledge but poor attitude and practice toward the diseases. Repeated reinforcement and motivation along with health education will definitely bring about a positive change in attitude and practices among the patients.

**Conclusion:** We conclude that the motivation and counseling stressing the importance of lifestyle modifications and self-management is required for the patients suffering with chronic diseases such as hypertension and diabetes. Patient counseling by the clinical pharmacist can play a vital role in imparting education to the diabetic and hypertensive patients.

**Keywords:** Hypertension, Diabetes, Knowledge, Attitude, Practices.

### INTRODUCTION

Hypertension and diabetes are the silent killer diseases worldwide and is a major risk factor for many other diseases like cardiovascular diseases, stroke, renal diseases, and many other. They are also the most important reasons to visit the physician [1,3]. India presently has the large number of diabetic patients in world and has been infamously dubbed as the diabetic capital of the world. Good control of blood pressure (BP) and blood sugar will result in prolonged survival. Increasing the knowledge, awareness, and control of hypertension will reduce the morbidity and mortality [4,5]. Studies show that many patients did not have appropriate knowledge about the diseases like hypertension and diabetes.

The 8<sup>th</sup> Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High BP (JNC-8) reports that it affects 1 billion people worldwide. A 55 year normotensive person has up to a 90% lifetime risk of developing hypertension and it is the number one reason listed for office visits and also causes/contributes to 457,000 admissions per year and a leading cause/contributor to death (myocardial infarction, stroke, vascular disease) [6,7].

Diabetes mellitus (DM) is a chronic metabolic disorder associated with high morbidity and mortality among patients. Today, with a global prevalence of more than 138 million people, it is projected that the number of diabetic patients would continue to increase, making DM a pandemic. Plausible reasons for the steady increase in the prevalence of DM in Asian countries may include poor lifestyle, rapid westernization, lack of knowledge, and unsatisfactory attitude and practices toward DM among the general population and diabetic patients [9,10]. Moreover, there also exists an apparent gap between knowledge and the attitude toward diabetes among diabetic patients. Knowledge about DM,

appropriate attitude and practices are vital to reduce the incidence and morbidity associated with DM [11,14].

India harbors the largest number of diabetic patients in the world. Poor awareness and practices are some of the important variables influencing the development and progression of diabetes and its complications, which are largely preventable. Preventive strategies need to be formulated based on factors contributing to the development and progression of diabetes [15,16].

Considering the high morbidity and mortality due to hypertension and diabetes and knowing that if a patient has knowledge about the disease, patient will be more careful about the management, and a better control can be achieved. This study was conducted to know about the knowledge, attitude, and practice (KAP) about hypertension and diabetes in the adult patients [11,18].

The emergence of diabetes and hypertension and as a public health problem is strongly related to the aging of the populations, urbanization, and socioeconomic changes favoring sedentary lifestyle, obesity, alcohol consumption, and salt intake, among others [17,22].

In this context, hypertension and diabetes presents a major area of intervention because these are the frequent conditions and is amenable to control through both non-pharmacological lifestyle factors and pharmacological treatment. Lifestyle measures include reduced alcohol intake, reduced sodium chloride intake, reduced sugar intake, increased physical activity, and control of overweight [20,21].

A proper assessment and understanding of KAP factors is particularly helpful in the area of chronic conditions such as hypertension and

diabetes, for which prevention and control necessitate a lifelong adoption of healthy lifestyles. However, a little information on the assessment of KAP's is available from developing countries where hypertension and diabetes have lately been recognized as a major health problem. In this study, we examine KAP for hypertension and diabetes in adults to help improve their condition and also to control the complications.

There is no doubt that the knowledge and attitudes of patients have an impact on the management of their illnesses, and improving knowledge is known to improve compliance with treatment in conditions such as hypertension and diabetes. Poor compliance with prescribed drugs is a common and important problem in clinical practice which can result in treatment failure and poor outcomes. Obtaining information about the level of awareness is the first step in formulating a preventive program for the disease. There is a need to investigate KAP among the general population to aid in future development of programs and techniques for effective health education. KAP surveys are effective in providing a baseline for evaluating intervention programs. This study aims to assess the baseline levels of KAP of the general population toward hypertension and diabetes.

**Objective**

To study the demographic details and KAP about hypertension and diabetes in adult population.

**METHODS**

This prospective and cross-sectional study was carried out on 50 diagnosed hypertensive patients and 50 diabetic patients from October 2014 to January 2015. The study was carried out after getting the verbal consent from the participants who were enrolled in the study. We questioned the patients and assess the various lifestyle factors and risk factors. The special case sheets were prepared, containing all the information as name, age, sex, address, family history, personal history, social history, marital status of the patients. The special questionnaire to study the KAP of the patients toward hypertension and diabetes was also included in the case sheets and the obtained results were analyzed.

**RESULTS**

The questionnaire for assessment of KAP's regarding the hypertension and diabetes covered three areas: KAP. There were a total of 19 questions in the KAP questionnaire for hypertension, with 8 questions related to knowledge about hypertension, 5 questions to assess the attitude of the patient toward the disease, and 6 questions regarding the practices. Similarly, the questionnaire for diabetes had 25 questions (knowledge - 18, attitude - 4, and practice - 3 questions). This questionnaire was filled in at a face-to-face interview with the participant. We tried to improve the knowledge of the respondents by providing the counseling.

The demographic details and the KAP of the 50 hypertensive patients were recorded in Table 1.

Most of the respondents age ranges between 31 and 40 with 32% patients educated up to primary school, and 22% were illiterates, 30% were educated up to secondary school. Majority of the patients belongs to the primary school education. This finding is not unexpected as the patients' level of education is generally known to have a positive influence on their understanding of specific health education programs and relevant behavior change techniques. Among the males, 51.72% were smokers and 44.82% were alcoholics.

About 94% patients can explain that hypertension is a disease, 70% have told the normal range of BP. 56% have knowledge about complications. 36% of them are aware of the symptoms and 68% believe that exercise can be beneficial in reducing hypertension. 72% patients can tell that salt intake can be reduced to prevent hypertension. 42% think that regular checking of BP is important (Table 2).

**Table 1: Demographic details of the study population involved in assessment of KAP's of hypertension**

Variables	Number of general population	%
Gender		
Male	29	58
Female	21	42
Total	50	100
Educational status		
Illiterate	11	22
Primary school	16	32
Secondary school	15	30
Graduate	8	16
Total	50	100
Marital status		
Married	48	96
Unmarried	2	4
Total	50	100
Age (years)		
21-30	3	6
31-40	28	56
41 or above	19	38
Total	50	100
Smoking (cigarettes/day)		
Non smokers	8	27.58
Past smoker	6	20.68
Smokers	15	51.72
Total	29	100
Alcohol		
Non-alcoholic	12	41.37
Past alcoholic	4	13.79
Alcoholic	13	44.82
Total	29	100

KAP: Knowledge, attitude, and practices

About 54% of the respondents were aware regarding the reduction of salt intake to prevent hypertension, 36% think that regular checking of BP level is important, and 48% reported that they are visiting the physician regularly. 32% think that regular use of medication is beneficial for treating hypertension. Moreover, 58% of study participants exercise regularly for maintaining a healthy life (Table 3).

About 28% of the participants reported that they visit the physician regularly without any fail for prescription refill. But from the practice questions, it was found that less number of study participants were going for regular health check up's and medical tests including BP, blood glucose, lipid profile, and urine examinations (Table 4).

Apart from the KAP of the study participants toward the hypertension. Reasons for poor compliance with antihypertensive drugs was also studied.

Reasons	Number of participants	%
Poor knowledge of the disease and ignorance of need for long-term treatment	8	16
High cost of antihypertensive drugs	26	52
Religious practices and cultural beliefs	3	6
Adverse drug reactions	17	34
Inadequate access to medical facilities and care	11	22
Use of complimentary medications	23	46

The reasons attributed to poor compliance included: Poor knowledge of the disease and ignorance of need for long-term treatment (8, 16%); high cost of drugs (26, 52%); religious practices and cultural beliefs (3, 6%); adverse drug reactions (17, 34%); inadequate access to medical facilities and care (11, 22%); and use of complimentary medications and practices (23, 46%).

**Table 2: Response of the participants to the knowledge questions involved in assessment of KAP's of hypertension**

S. No	Questions	Number of persons correctly answering	%
1	Do you know hypertension is a disease?	47	94
2	What are the complications of hypertension?	28	56
3	What is the normal level of blood pressure?	35	70
4	Is the diet rich in salt causes hypertension?	38	76
5	Is the smoking major cause of hypertension?	27	54
6	What are the symptoms of hypertension?	42	84
7	Is obesity associated with hypertension?	31	62
8	Is exercise having beneficial role in hypertension?	34	68

KAP: Knowledge, attitude, and practices

**Table 3: Response of the participants to the attitude questions involved in assessment of KAP's of hypertension**

S. No	Questions	Number of persons correctly answering	%
1	Should we reduce salt intake to prevent hypertension?	27	54
2	Do you think regular checking of your blood pressure level is important?	18	36
3	Should we keep in touch with physician regularly?	24	48
4	Do you think regular medication is important in hypertension?	16	32
5	Should we exercise regularly for a healthy life?	22	44

KAP: Knowledge, attitude, and practices

**Table 4: Response of the participants to the practice questions involved in assessment of KAP's of hypertension**

S. No	Questions	Number of persons correctly answering	%
1	When was your blood pressure checked last?	22	44
2	When was your last visit with your physician?	14	28
3	When was your last urine examination done?	23	46
4	When did you have your last lipids checked?	8	16
5	When was your blood sugar level checked last?	12	24
6	When did you have gone for exercise last?	19	38

KAP: Knowledge, attitude, and practices

The demographic details and the KAP of the 50 diabetic patients were recorded in Table 5.

A total of 50 patients were enrolled in the study of which 24 (48%) were male participants and 26 (52%) were female participants. The greatest number of patients was in the age group of 31-40 years (46%). Almost 38% of the participants had completed at least primary education. Among the males, 54.16% were alcoholics and 20.83% were smokers.

The participants' knowledge was assessed based on their understanding toward DM, which included the causes, risk factors, symptoms, complications, and treatment options. Participants were specifically asked to identify the important elements of the lifestyle modifications necessary for diabetes management based on options given in Table 6. Participants were considered to have answered the questions correctly if they adhered to the recommended guidelines. Most of the questions

**Table 5: Demographic details of the study population involved in assessment of KAP's of diabetes**

Variables	Number of general population	%
Gender		
Male	24	48
Female	26	52
Total	50	100
Educational status		
Illiterate	15	30
Primary school	19	38
Secondary school	11	22
Graduate	5	10
Total	50	100
Marital status		
Married	49	98
Unmarried	1	2
Total	50	100
Age (years)		
21-30	9	18
31-40	23	46
41 or above	18	36
Total	50	100
Smoking (cigarettes/day)		
Non smokers	16	66.66
Past smoker	3	12.5
Smokers	5	20.83
Total	24	100
Alcohol		
Non-alcoholic	9	37.5
Past alcoholic	2	8.33
Alcoholic	13	54.16
Total	24	100

KAP: Knowledge, attitude, and practices

were answered correctly by the participants, indicating a relatively good overall knowledge toward the disease.

However, more than half of the participants were aware of the major causes of diabetes, the effects of diabetes to their BP and the purpose/importance of doing urine tests. Furthermore, half of the participants had knowledge regarding the components of a well-balanced diet. 76% are aware of the treatment of diabetes. Moreover, 90% of the participants are aware of the management of the hypoglycemic symptoms. Despite that, people with diabetes often find it difficult to initiate and sustain physical activities in their daily lives. In our study, 70% of the study participants reported that exercise will help in controlling the diabetes.

About 36% of the respondents answered that they are doing exercise regularly and 24% explained that they are following a controlled and planned diet. 38% are aware of blood sugar levels falling below normal when they are taking the drugs (Table 7).

From the results of the practice questions, it was found that the participants have poor knowledge regarding the importance of frequent health check up's.

Most patients reported to have checked their blood glucose levels only during their scheduled consultation with the doctor. The lack of frequent self-monitoring of glucose levels may be one of the factors responsible for poor glycemic control. Self-monitoring of blood glucose aims to collect information of blood glucose level on a daily or regular basis to allow for timely and prompt high glucose level identification, thus allowing measures to be taken to ensure adequate blood glucose control (Table 8).

**DISCUSSION**

We found that the attitudes and practices scores of the study participants were low. However, a study from Malaysia identified a good KAP score.

**Table 6: Response of the participants to the knowledge questions involved in assessment of KAP's of diabetes**

S. No	Questions	Number of patients answering correctly	%
1	Diabetes is a condition in which the body contains?	44	88
2	The major cause of diabetes is?	32	64
3	The symptom (s) of diabetes is/are?	38	76
4	Diabetes, if not treated?	29	58
5	The most accurate method of monitoring diabetes is?	28	56
6	In a diabetic patient, high blood pressure can increase or worsen?	27	54
7	A diabetic patient should measure his or her blood pressure?	18	36
8	The lifestyle modification (s) required for diabetic patients is/are?	36	72
9	A diabetic patient should have his or her eyes checked?	27	54
10	Regular urine tests will help in knowing?	28	56
11	The important factors that help in controlling blood sugar are?	32	64
12	A regular exercise regimen will help in?	35	70
13	The well-balanced diet includes?	40	80
14	For proper foot care, a diabetic patient?	34	68
15	Treatment of diabetes comprises?	38	76
16	Diabetes cannot be treated with?	26	52
17	Upon control of diabetes, the medicines?	43	86
18	How do you manage hypoglycemic symptoms?	45	90

KAP: Knowledge, attitude, and practices

**Table 7: Response of the participants to the attitude questions involved in assessment of KAP's of diabetes**

S. No	Questions	Number of patients answering correctly	%
1	Do you exercise regularly?	18	36
2	Are you following a controlled and planned diet?	12	24
3	Do you miss taking the doses of your diabetic medication?	38	76
4	Are you aware of blood sugar levels falling below normal when you are taking drugs?	19	38

KAP: Knowledge, attitude, and practices

The difference in the findings among different studies may be due to the differences in the literacy of the study patients, the training received by them and availability of information on hypertension and diabetes.

We observed in attitude part of the KAP questionnaire of hypertension that 58% had a positive attitude toward exercise as per Table 3. Only 36% of responders told that regular checking of BP is important.

A high proportion of participants showed good basic knowledge on hypertension. For example majority of participants (94%) recognized that high BP to be a threat to health which is comparable to the Parmar *et al.*, [8] in which 98% of the participants were aware of it. 76% knew that salt and 62% knew that obesity was associated with hypertension. Most of the participants (54%) reported that smoking causes high BP. The benefit of physical exercise on BP was also well recognized by 68% of the participants. All these findings were comparable with the study done by Parmar *et al.*, who reported 82.4% knew the role of salt in hypertension and 80.4% know that obesity is associated with hypertension.

**Table 8: Response of the participants to the practice questions involved in assessment of KAP's of diabetes**

Questions	Responses	Number of patients	%
When was your blood pressure checked last?	1-week ago	2	4
	1-month ago	5	10
	2 months ago	7	14
	6 months ago	15	30
When did you have your last eye examination?	1-years ago	21	42
	1-month ago	3	6
	6 months ago	9	18
	1-year ago	20	40
When was your last urine exam done?	2 years ago	12	24
	Not done at all	6	12
	1-month ago	7	14
	6 months ago	26	52
	1-year ago	13	26
	Not done at all	4	8

KAP: Knowledge, attitude, and practices

Specific knowledge on hypertension was found to be good in the study population. For example, 84% of all participants knew the hypertension symptoms whereas 70% of the participants knew normal BP level. Again these results were compared with another study in which 24% of the study participants know about the normal BP levels.

Here, we observed that only 44% of the participants believe that the habit of exercise is associated with healthy life. Many studies have confirmed the beneficial role of physical activity in improving BP control. Poor practice regarding regular health check-ups, blood, and urine examination as well as of exercise may be due to lack of importance and awareness for the need of it.

The reasons attributed to poor compliance included: Poor knowledge of the disease and ignorance of need for long-term treatment (8, 16%); high cost of drugs (26, 52%); religious practices and cultural beliefs (3, 6%); adverse drug reactions (17, 34%); inadequate access to medical facilities and care (11, 22%); and use of complimentary medications and practices (23, 46%). These reasons were compared with a study conducted by the Busari *et al.*, [13] which found that the reasons attributed to poor compliance included: Poor knowledge of the disease and ignorance of need for long term treatment (95, 32.6%); high cost of drugs (63, 21.7%); religious practices and cultural beliefs (37, 12.5%); adverse drug reactions (19, 6.5%); inadequate access to medical facilities and care (18, 6.2%); and use of complimentary medications and practices (60, 20.5%).

In the KAP study on diabetes, more than half of the participants (64%) were aware of the major causes of diabetes, 54% aware of the effects of diabetes on their BP, and 56% are aware of the purpose/importance of doing urine tests. Furthermore, half of the participants (80%) had knowledge regarding the components of a well-balanced diet. 76% are aware of the treatment of diabetes. Moreover, 90% of the participants are aware of the management of the hypoglycemic symptoms. Despite that, people with diabetes often find it difficult to initiate and sustain physical activities in their daily lives. In our study, 70% of the study participants reported that exercise will help in controlling diabetes. These results were compared with a study conducted by the Upadhyay *et al.*, [19] in which 20.33% are aware of the causes whereas 21.43% knew the components of a well-balanced diet. 4.40% knew regarding the treatment of diabetes and 36.26% are aware of the management of hypoglycemia.

In our study, 36% of the respondents answered that they are doing exercise regularly and 24% explained that they are following a controlled and planned diet. 38% are aware of blood sugar levels falling below normal when they are taking the drugs. These results were compared with that of another study which was conducted by

Upadhyay *et al.*, in which 66.48% reported that they exercise regularly and 85.71% were following a controlled and planned diet and 21.43% are aware of hypoglycemia while using the medications.

In present study, the responses to the practice questions regarding the diabetes indicates that the study participants were unaware of the importance of regular health check-ups which may lead to complications and furthermore economic burden to the patients.

In case of diabetes and hypertension, definite cure cannot be provided by medicines alone. Thus decreased symptoms and slowing down the progression of the disease and improvement in the function becomes important in the management of the disease. It is well understood that hypertension and diabetes management requires patient involvement for a better disease control. Improving KAP of the patients regarding the disease and drugs can improve the medication adherence behavior, which in turn improves the therapeutic outcomes and it can be done by many ways including group education as well as through patient counseling. Thus, the pharmacist has a potential role as patient educator in the management of diabetes and hypertension.

## CONCLUSION

We conclude that the motivation and counseling stressing the importance of lifestyle modifications and self-management is required for the patients suffering with chronic diseases like hypertension and diabetes. Patient counseling by the clinical pharmacist can play a vital role in imparting education to the diabetic and hypertensive patients. Strategies to modify lifestyle which help in control of hypertension and diabetes include providing the leaflets as well as direct educational programs. There is a need of pharmaceutical care program to increase the patients understanding about the disease management and to enhance the knowledge of the patients regarding the importance of self-monitoring of blood glucose and regular BP checkup is essential.

## LIMITATIONS IN MEASURING KAP

KAP assessment from the population surveys invariably poses the problem of social desirability, whereby study participants are reluctant to admit socially poorly acceptable KAP's to avoid giving a negative impression. This study is limited by the small sample size and the KAP data is based on a self-reported questionnaire.

## ACKNOWLEDGMENT

The authors would like to acknowledge and thank all the study participants.

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