

# Evaluation of Health Screening services to Diabetic and Hypertensive Patients in a selected Community Pharmacy set up in a District head quarters of North Karnataka

Mahendra Kumar BJ\*, Ramakrishna S<sup>1</sup>, SushilKumar P Londhe, Sandeep A, Bhimaray S Krishnagoudar, Katti Ravi Venkappa

Clinical Pharmacy Department, SAC College of Pharmacy, BG Nagara-571448, Karnataka, India

<sup>1</sup>Principal, CR College of Pharmacy, Koratagere, Tumkur district, Karnataka, India

## ABSTRACT

Health screening services are the services provided by health professionals to screen the health status of individuals with or without positive signs and symptoms of a disease and typically which is affordable, comprehensive, reliable and inexpensive flexible test. The objective of the study is to screen the health status of diabetic and hypertensive patients in a selected community pharmacy set up. It is a prospective, investigational and community based study conducted for a period of one year. The community pharmacy set up and patients were selected based on the inclusion and exclusion criteria. Ninety eight patients were screened, 58(59.18%) diabetic with hypertension, 26(26.53%) hypertension and 14 (14.28%) diabetic, males 62(63.26%) and females 36(36.73%), systolic blood pressure normal 2(2.04%), prehypertension 42(42.85%), stage 1 hypertension 42(42.85%) and stage 2- 12(12.24%) and diastolic normal 12(12.24%), prehypertension 41(41.83%), stage 1 hypertension 38(38.77%) and stage 2 hypertension 07(07.14%). Random blood sugar level screened in 72 patients and found normal 10(13.88%), moderate 41(56.94%), severe 21(29.16%). This study finding suggest that the community pharmacy health screening services should be provided to enhance public awareness on the seriousness of diabetes and hypertension, its complications and to know their health status.

**Keywords:** Health screening services, Diabetes Mellitus, Hypertension, Community Pharmacy

## INTRODUCTION

WHO defines health as a state of complete physical, mental and social well being and merely the absence of disease or infirmity. Health is therefore, seen as a resource of everyday life, not an object of living; it is a positive concept emphasizing social and personnel resources, as well as physical capacities. Screening refers to an examination of a group of individuals with or without positive signs and symptoms or detection of the individuals with a high probability, inexpensive, flexible test. Services refer to help or assistance by health professionals for high risk individuals, who will be benefited by assigning and knowing the current status of their health. Health screening services are the services provided by health professionals to screen the health status at any time during therapy. Early diagnosis and monitoring is always a better chance for cure and prevention of the disease.<sup>1</sup>

The incidence and prevalence rate of diabetes and hypertension is increasing tremendously around the world. The number of people with diabetes mellitus in India currently about 40.9 million and is expected to rise to 69.9

million by 2025.<sup>2</sup> Hypertension is affecting over 65 million Americans. Both diabetes and hypertension have long term complications, if not controlled within the normal limits. Health screening is essential for diabetic and hypertensive patients to assess the therapy outcomes and status of their health.<sup>3</sup>

Pharmacists are health professionals placed well in the community to help, identify people with diabetes and hypertension and provide health screening services such as blood glucose monitoring, blood pressure measurement, body mass index (BMI) in different pharmacy set up.<sup>4</sup> Pharmacists play a vital role like procurement, storage and dispensing of drugs in addition to this pharmaceutical care services including health screenings which remind, reinforce and referral to doctors for the better management of disease. Pharmaceutical care services can be provided in different pharmacy set up such as hospital, clinical and community pharmacy.<sup>4</sup> Pharmacist can play an integral role in teaching patients about diabetes, hypertension and its related complications. Reinforcement of the importance of management should be performed at every available opportunity by educating patients in medications, proper control of blood sugar, and control of hypo and hyperglycemic symptoms.<sup>5</sup> Many pharmacists have gone on

to become certified diabetes educators and have practice sites in community pharmacies and ambulatory care clinics. Community pharmacy is the most accessible and suitable place for the conduct of health screening for the chronic patients who visit for refilling prescription.<sup>6</sup>

## METHODOLOGY

This was a prospective, investigational and community based study conducted for a period of one year in a selected community pharmacy set up. The community pharmacy was selected based on the inclusion criteria like the owner of the pharmacy should be a pharmacist by profession, adequate infrastructure, space requirements and provision of materials essential for providing health screening services in the pharmacy, the pharmacist consent and co-operation during study period. Pharmacies run by non pharmacy professionals and non availability of community pharmacist in pharmacy for most of the time is the exclusion criteria. The study was approved by the Institutional ethics committee. The study materials such as patient data collection form, patient identity card and patient informed consent form were used. The various instruments like sphygmomanometer, blood glucose meter (glucometer), stethoscope, weighing machine and measuring tape were used. Patient were screened considering inclusion criteria like patients aged 18 years and above of either gender diagnosed with diabetes and hypertension or both, with or without risk factors visiting to community pharmacy set up. Patients who were not willing to give consent and enrolled in other studies were excluded.

Trained clinical pharmacist identified the community pharmacy and selected patients based on the inclusion and exclusion criteria. The patient's demographics details were collected in a suitably designed documentation form including BP and RBS measurement, and BMI. The collected data was analyzed using simple mathematical calculations such as percentage calculation, since this study does not require any statistical analysis.

## RESULTS

Ninety eight patients were screened 62 (63.26%) male and 36 (36.73%) females. The age groups between 18-28 years were eight patients, 29-38 eleven patients, 39-48 seventeen patients, 49-58 twenty seven patients, 59-68 twenty five patients and more than 69 years patients were 10. Out of 98, 84 married and 14 were unmarried. Highest education background was degree and found in 55. The economic status between Rs.1000-5000/- was found in 39. Non smokers were 65 out of 98. 58 patients were not performing exercises. Special diet was followed only by 59 patients. Forty patients were found to be Overweight out of 98. Among the screened patients 78 of

them presented with a family history of diabetes and 70 with family history of hypertension. Table No. 1 shows the demographic details of screened patients.

**Table 1: Demographic details of screened patients (n=98)**

Patients characteristics	Number (percentage)
<b>Gender</b>	
Male	62(63.26)
Female	36(36.73)
<b>Age group(years)</b>	
18-38	19(19.38)
39-58	44(44.89)
59-68	25(25.51)
>69	10(10.20)
<b>Marital status</b>	
Married	84(85.71)
Unmarried	14(14.28)
<b>Occupation</b>	
Business	09(09.18)
Government employee	04(04.08)
Agriculture	14(14.28)
Others	71(72.44)
<b>Education background</b>	
No formal education	08(08.16)
< 5 th std	03(03.06)
6 th – 10th std	32(32.65)
Degree	55(56.12)
<b>Economic status(in rupees)</b>	
<1000	23(23.47)
1001-5000	39(39.80)
>5001	36(36.73)
<b>Smoking habit</b>	
Smoker	20(20.41)
Non smoker	65(66.32)
Past smoker	08(08.16)
Chain smoker	05(05.10)
<b>Alcohol drinking habit</b>	
Alcoholic	37(37.76)
Non alcoholic	61(62.24)
<b>Exercise background</b>	
Yes	40(40.82)
No	58(59.18)
<b>Diet background(special diet)</b>	
Yes	59(60.20)
No	39(39.80)
<b>Body Mass Index (BMI in kg/m<sup>2</sup>)</b>	
Normal	44(44.89)
Overweight	40(40.81)
Obese	14(14.28)
Obese very high	00(00.00)
<b>Family History of diabetes</b>	
Yes	78(79.59)
No	20(20.41)
<b>Family History of hypertension</b>	
Yes	70(71.43)
No	28(28.57)

Table No. 2 shows the comparison of systolic blood pressure between patients with diabetes, hypertension and diabetes with hypertension. It showed that systolic blood pressure was more in diabetes with hypertension patients. The prehypertensive patients were 25, stage I hypertension patients were 23 and stage II hypertension patients were 10.

The comparison of diastolic blood pressure among diabetes with hypertension patients, hypertension patients and patients with diabetes shows that stage I hypertension patients were 25, stage II hypertension patients were 05 and prehypertensive patients were 19. Table No. 3 shows the comparison of diastolic blood pressure in screened patients.

The comparison of random blood sugar level in screened patients was 31 in moderate level, 23 patients in normal level and 10 patients in moderate level in diabetes with hypertension patients, hypertension patients and diabetic patients respectively. Table No. 4 shows the comparison of random blood sugar level in screened patients.

## DISCUSSION

Ninety eight patients were screened by personal interview, patients prescription viewed by community pharmacist, prescription bills at the pharmacy counter referred by

working community pharmacist to investigator. Patients were also referred from doctors, friends, and relatives to avail the health screening services. The owner himself a pharmacist helped in getting more number of patients to take this benefit.

Male patients were more than the females; this may be due to independent decision taking capacity, head of the family, no hesitation to interact with the person, more male patient visit to community pharmacy. More number of patients was screened in the age group of 39-58 years, as compared to other age groups. This may be due to the more number of patients visits more often to the community pharmacy for their prescription refilling. Majority of patients screened were married. The education background of screened patients was found to be good. This may be because of the district has good reputation in education background. The economic status of the screened patients found to be less because more of patients were from middle class family. The smoking and alcohol drinking habit did not have any strong influence in the screened patients. The low economic status of the screened patients may have the influence in the refilling of the medication which may lead to non adherence. Majority of patients were not performing exercise and not on diet control which may have the influence on the disease progress. This may be because of unawareness and lack of advice from

**Table 2: Comparison of systolic blood pressure in screened patients (n=98)**

Blood pressure classification (mm Hg)	Diabetes with Hypertension patients (n=58)	Patients with hypertension (n=26)	Patients with diabetes (n=14)
Normal <120	00(00.00)	02(07.69)	00(00.00)
Prehypertension 120-139	25(43.10)	07(26.92)	10(71.43)
Stage I hypertension 140-159	23(39.66)	15(57.69)	04(28.57)
Stage II hypertension >160	10(17.24)	02(07.69)	00(00.00)

**Table 3: Comparison of diastolic blood pressure in screened patients (n=98)**

Blood pressure classification (mm Hg)	Diabetes with Hypertension patients (n=58)	Patients with hypertension (n=26)	Patients with diabetes (n=14)
Normal <80	09(15.52)	03(11.54)	00(00.00)
Prehypertension 80-89	19(32.76)	10(38.46)	12(85.71)
Stage I hypertension 90-99	25(43.10)	11(42.31)	02(14.29)
Stage II hypertension >100	05(08.62)	02(07.69)	00(00.00)

**Table 4: Comparison of Random blood sugar level in screened patients (n=98)**

Blood pressure classification (mm Hg)	Diabetes with Hypertension patients (n=58)	Patients with hypertension (n=26)	Patients with diabetes (n=14)
<60	00(00.00)	00(00.00)	00(00.00)
Normal 60-160	09(15.51)	23(88.46)	01(07.14)
Moderate 160-200	31(53.44)	03(11.53)	10(71.42)
Severe >200	18(31.03)	00(00.00)	03(21.42)

health professionals including doctors and pharmacists. The BMI of screened patients showed that the majority of them overweight, this may be because of heredity, eating habits or lack of exercise which aggravated the development of diabetes and hypertension complications. The family history was found to be high in both diabetes and hypertension, which may be due to lack of life style modification or heredity and play a vital role in acquiring the disease.

The diabetes, hypertension and diabetes with hypertension patients were screened and found to be above normal levels, this shows that the patients were not on regular medication, no sign and symptoms of disease, no change in the life style modification includes diet, exercise and habits, no regular check up, family history and more than this lack of activity and BMI and over above stress.

Mangum SA, Kraenow KR, Narducci WA in their study has demonstrated that community pharmacist can be successful in identifying and referring patients with elevated blood pressure. In the result it was found that out of 351 patients screened for hypertension, 216 (62%) had reading greater than 140/90 mm Hg, out of these 121 patients referred to physician had a regimen change and indicated same results as of the present study.<sup>7</sup>

The random blood sugar of the patients were in the range of moderate this may be because of the heterogeneous factors include non-compliance, self monitoring blood sugar, exercise, diet and other associated diseases. This also may be because of lack of motivation from health professionals and family members and unaware of disease complications.

Cory R, Dunbar P, Salisbury S, Sketris I, George K in their study have shown that according to the 1992 Canadian guidelines in patients with diabetes mellitus, 63% of the patients and according to the 2003 guidelines, 84% of patients were above target blood pressure are receiving anti hypertensive medications. 47% of patients are considered to be hypertensive and not on treatment according to 2003 guidelines. The result of multi variate analysis shows that the only factors independently associated with antihypertensive use were oral hyperglycemic use. It was concluded that hypertension is an additional risk factor in those with diabetes mellitus for macro vascular and micro vascular complications.<sup>8</sup>

## CONCLUSION

This study demonstrated that the blood pressure, blood glucose measurement and BMI helped patient to know their values at the time of visit to hospital. Screened Patient was benefited with this and necessary step is taken for the

management of disease. Also study demonstrated the influence of factors like BMI, non compliance, lack of exercise and diet habit and family history of the patient.

## ACKNOWLEDGEMENT

We thank Prof. M.S Ganachari, Dr. FV Manvi, Dr. MV Jali, Mr. Ashok Pujar, Community pharmacist for their support to smooth conduct of this study. Thanks due to Dr. B Ramesh for giving facilities.

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### Address for Correspondence

Mahendra Kumar B.J, Clinical Pharmacy Department, SAC College of Pharmacy, BG Nagara-571448, Karnataka  
E-mail:bjmahendra2003@yahoo.co.in