IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

IMPACT OF PATIENT COUNSELLING ON PATIENTS OF DIABETES MELLITUS 2 AND HYPERTENSION IN OUT-PATIENTSETTING IN TERTIARY CARE TEACHING HOSPITAL

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STRUCTURED ABSTRACT

INTRODUCTION: Patient counselling is defined as process of providing information, advice and assistance to help patients in appropriate medication use as well as to improve patient's knowledge and quality of life. Hyperglycemia occurs when body causes blood glucose levels to rise higher than normal. Hypertension occurs due to repeatedly elevated blood pressure exceeding 140/70 mmHg.

METHODOLOGY: An interventional study was conducted in 94 patients for 6 months in 3 phases using validated questionnaires and data collection form.

RESULT: The study defines improvement in the disease knowledge, life style habits and drug therapy after patient counselling. Higher numbers of patients were diabetic as well as hypertensive. The prevalence was more in age group 50-60 year. The percentage of smokers reduced from 19% to 11% post counselling, whereas number of alcoholics reduced from 6 to 2. Out to 94 patients only 15% population was performing mild physical activity. At the end of the study 62% patients were showing improvement in their RBS levels and 72% population were reflecting improved blood pressure. Significant improvement was detected in patient's score for knowledge regarding disease condition. Paired t-test value for diabetic patient is 1.9886 whereas for hypertensive patient paired t-test value is 2.0032.

Key words: Patient Counselling, Hypertension, Hyperglycemia, life style habits, Drug therapy.

1. INTRODUCTION

Patient counselling refers to the process of providing information, advice and assistance to help patients in appropriate medication use. It also plays an important role in improving patient's knowledge and quality of life. Being a clinical pharmacist it's our role to provide knowledge to appropriately manage the disease with drugs along with life style modification.[1]Diabetes is a problem with your body that causes blood glucose (sugar) levels to rise higher than normal. This is also called hyperglycemia. Type 2 diabetes is the most common form of diabetes. If you have type 2 diabetes your body does not use insulin properly. This is called insulin resistance. On-going patient's self-management, education and support are critical for preventing acute complications and reducing the risk of long-term complications.[2] Hypertension is a term used to describe high blood pressure (BP) that occurs as a result of repeatedly elevated blood pressure exceeding 140/90 mmHg where by systolic pressure above 140 and diastolic above 90.[3]

2. MATERIAL AND METHOD

2.1 DURATION OF STUDY: The study was conducted for a period of 06 months i.e. Oct. 2018 to March 2019,

2.2 STUDY DESIGN: An Intervention Study.

2.3SAMPLE SIZE: Sample size calculation was done using raosoft sample size calculator with margin of error 5%, confidence level 95%, , response distribution 50% .

2.4 SOURCE OF DATA: The data was collected from Outpatient department in a tertiary care teaching hospital. Questionnaires were validated by experts.

2.5 STUDY CRITERIA

2.5.1 INCLUSION CRITERIA

- Diabetic Patients including age 40-65 years.
- Hypertensive Patients of age 40-65 years.
- Patients of either gender.
- Outpatient

2.5.2 EXCLUSION CRITERIA

- Patient with TYPE 1 DM.
- Inpatient.
- Patients with co morbid condition other than DM/HTN.
- Patients with age below 40 years.
- Pregnant women

2.6 MATERIALS REQUIRED

- Data collection form.
- Patient counseling form.
- Patient assessment form.
- Patient information leaflets.
- Informed consent form.

2.7 CONDUCT OF STUDY

The study was conducted in four phases:

Phase 1: Base Line Study

It was the phase where patients were initially enrolled in the study and assessment of patient score was done on the basis of analysis of questionnaire filled by clinical pharmacist. Patient counselling was carried out to improve the knowledge and understanding about the condition along with life style modifications.

Phase 2: First Follow Up Study

On second exposure (i.e. follow up study) the patient score was again evaluated. And the post patient counselling impact was analyzed.

Phase 3: Second Follow Up Study

On third exposure the patient score was again evaluated and compared with first follow up data.

Phase 4: Analyze & Interpret the Data

The data obtained from both phases were compared, studied and analyzed in order to find out the effect of clinical pharmacist's patient counselling on the patients of DM2 and HTN.

3. RESULTS

The study defines improvement in the disease knowledge, life style habits and drug therapy by clinical pharmacist's patient counselling. Total 98 patients were enrolled from hospital's out- patient setting. 94 patients fulfilled inclusion criteria and 4 patients were excluded attributable to co-morbid conditions. DM, HTN and DM+HTN were observed in 40,10 and 44 patients respectively. The prevalence of DM-2 and HTN was found more in age group 50-60 year.. Post counselling smoking habits reduced to 11% from 19% and the ratio of alcoholism declined from 6% to 2%. Most patient had mild physical activity followed by nil and moderate physical activity respectively. Significant improvement was detected in RBS level, knowledge and quality of life after follow-up whereas negative effect was noticed in hypertensive patients during 2nd follow up

TABLE 3.1: CORRELATION FACTORS

3.1.1 GENDER DISTRIBUTION	
MALE	FEMALE
49	45

3.1.2 DISEASE DISTRIBUTION		
DM2	HTN	DM2 + HTN
40	10	44

3.1.3 AGE DISTRIBUTION		
40-50 YEARS	50-60 YEARS	ABOVE 60YEARS
28	41	25

3.1.4 PHYSICAL ACITVITY		
MILD ACTIVITY	MODERATE ACTIVITY	NIL (NO ACTIVITY)
63	15	16

Total of 98 cases were collected of which 94 continued to participate in the study and other dropped out as they had other co morbid condition along with DM2 & HTN. From the total 98 cases, 40 cases were of diabetes mellitus, 10 cases were of hypertension, 44 cases were having both the conditions and 4 cases did not satisfy the inclusion criteria as they had other co morbidities along with DM2 and HTN. The data represents gender distribution of the enrolled patients in which out of 94 patient 52% were male and 48%were female.

The data represents the age wise distribution of the patients. 30% patient were in age group of 40-50, 44% belong to age group 50-60 year and 26% patient belong to age above 60 years, so the prevalence was seen more in age group of 50-60years.

The data represents that 67% patients were performing mild physical activity, 15%population was performing moderate physical activity and 17%population was performing no activity, among the diabetic patients to maintain their health.

TABLE 3.2: LIFESTYLE PARAMETERS

3.2.1 SMOKERS

PARAMETER	PRECOUNSELLING	POST COUNSELLING
SMOKERS	18	10
NON-SMOKERS	76	84
P Value (Two sided) = 0.1013		

3.2.2 ALCOHOLICS

PARAMETER	PRECOUNSELLING	POST COUNSELLING
ALCOHOLIC	6	2
NON-ALCOHOLIC	88	92
P Value (Two sided) = 0.1484		

3.2.3 RBS LEVEL

PARAMETER	BASELINE TO FIRST FOLLOW-UP	FIRST FOLLOW-UP TO SECOND FOLLOW-UP
DECRESASED	58	58
NO CHANGE	18	17
INCREASED	18	19
P Value (Two Tailed) = < 0.0001		

3.2.4 BP LEVEL

PARAMETER	BASELINE TO FIRST FOLLOW-UP	FIRST FOLLOW-UP TO SECOND FOLLOW-UP
DECRESASED	57	68
NO CHANGE	10	8
INCREASED	27	18
P Value (Two Tailed) = < 0.0001		

The data represents the numbers of the smokers. From the total of 94 patient's 76 were Non- smokers and 18 of them where smokers. Post counselling by the clinical pharmacist 8 people quitted smoking and 10 reduced their frequency and were trying to quit. These signifies that the percentage of smokers reduced post counselling was from 19% to 11%.The P value (two sided) was found to be 0.1013.

The data illustrates that the number of alcoholics were 6% and non-alcoholics were 94%. i.e. 6 and 88 alcoholic and non-alcoholic respectively of the total enrolled 94 patients before counselling. Post counselling by the clinical pharmacist, the alcoholics reduced from 6 to 2.i.e.of total 94 patients only 2 was alcoholics while 92 patients were non alcoholics. It signifies that the non-alcoholics percentage increased post counselling from 94% to 98%. The P value (two sided) was found to be 0.1484.

The data represents the improvement in the RBS level after patient counselling from baseline to first follow up visit, number of patients that reflected the improvement in RBS were 58 while patients with increment in RBS levels were 18.i.e.62% patient showed a positive impact while 19% population showed a negative effect while 19% showed no impact. The data also represents the improvement in the RBS level after patient counselling from first follow up visit to second follow up, number of patients that reflected the improvement in RBS were 58 while patients with increment in RBS levels were 19.i.e. 62% patient showed a positive impact while 20% population showed a negative effect while 18% showed no impact. The P value (two sided) was found to be <0.0001.

The data represents the improvement in the BP level after patient counselling from baseline to first follow up visit, number of patients that reflected the improvement in BP were 57 while patients with increment in BP levels were 27.i.e. 61% patient showed a positive impact while 29% population showed a negative effect while 10% showed no impact. The graphical data represents the improvement in the BP level after patient counselling from first follow up visit to second follow up visit, number of patients that reflected the improvement in BP were 68 while patients with increment in BP levels were 18.i.e. 72% patient showed a positive impact while 19% population showed a negative effect while 9% showed no impact. The P value (two sided) was found to be <0.0001.

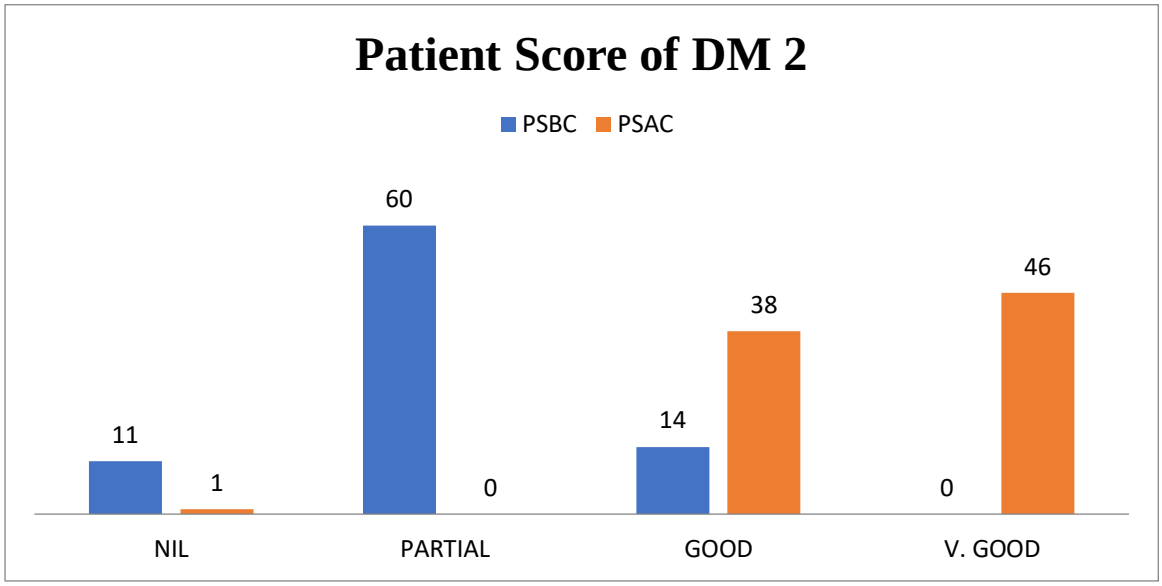

FIGURE 3.1: PATIENT ASSESSMENT SCORE OF DM 2 PATIENTS

The graphical data represents patient score before and after patient counselling. It was 14, 0, 60, and 11 for good, very good, partial, nil respectively before counselling and 38, 46, 0, and 1 for good, very good, partial, nil respectively after counselling. The figures illustrate the improvement in patient knowledge about the disease condition before and after patient counselling. The P value (two sided) was found to be <0.0001.

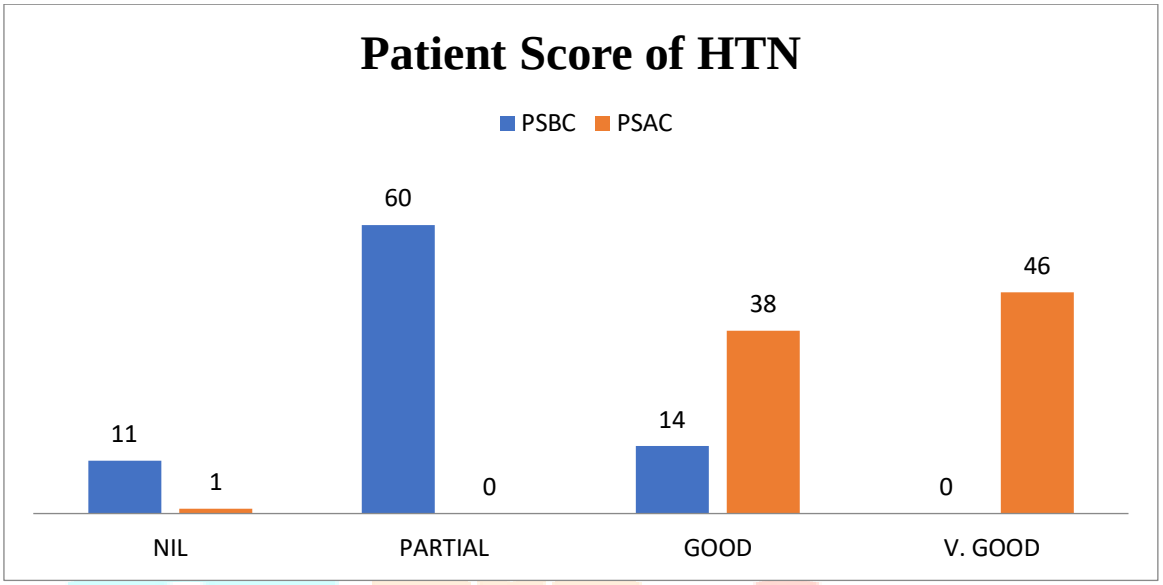

FIGURE 3.2: PATIENT ASSESSMENT SCORE OF HTN PATIENTS

The graphical data represents patient score before and after patient counselling. It was 38, 0, 15, and 0 for good, very good, partial and nil respectively before counselling and 8, 45, 0, 0 for good, very good, partial and nil respectively after counselling. The figures illustrate the improvement in patient knowledge about the disease condition before and after patient counselling. The P value (two sided) was found to be <0.0001.

STATISTICAL ANALYSIS:

The data analysis was done by using Graph Pad Prism 8.0.1 software. Following analytical methods were used based on the suitable data: Chi-square Method, Wilcoxon T-Test and One Sample T-test

4. DISCUSSION

The data of gender distribution showed 52% were male and 48%were female of the total 94 patients included which shows that males exceeded females in the suitability of inclusion criteria which is similar to the study conducted by Ranadheer chowdary puvada & Vijiey Muthukumar.[7]

The data of age wise distribution of the patients shows that 30% patient were in age group of 40-50, 44% belong to age group 50-60 year and 26% patient belong to age above 60 years, so the prevalence was seen more in age group of 50-60years which is similar to the study done by Krishna Ravi et al.[8]

The data analysis represents that the improvement (positive impact) in RBS & BP level was 62% & 61% respectively after clinical pharmacist patient counselling from baseline to first follow-up and from first follow up to second follow up it was 62% & 72% in RBS and BP respectively, p-value was found to be <0.0001for RBS which is similar to the study carried by Ranadheer chowdary puvada & Vijiey Muthukumar[7] whereas the p-value of blood pressure was found to be <0.0001 that was contradictory to the study done by Ranadheer chowdary puvada & Vijiey Muthukumar.[7]

The improvement in patient score for DM2 Patient was 38, 46, 0, 1 for good, very good, partial, nil respectively compared to pre counselling score that was 14, 0, 60, 11 for good, very good, partial, nil respectively i.e.24 increases in good score category and 46 increases in v. good category and 10 decreases in nil category. Statistically significant p-value <0.0001 for patient score was obtained for DM2 patients which was similar to the study done by Krishna Ravi et al.[8]

The improvement in patient score for HTN was 8, 45, 0, 0 for good, very good, partial, nil respectively compared to pre counselling score that was 37, 0, 15, 0 for good, very good, partial, nil respectively. i.e. 29 decreases in good score category and 45 increases in v. good category as well as 15 decreases to 0 in partial category. Statistically significant p-value <0.0001 for patient score was obtained for HTN patients which was similar to the study done by Krishna Ravi et al.[8]

This signifies the clinical pharmacist role in improving knowledge and awareness about the disease condition, drug therapy and lifestyle changes by patient counselling to improve patient's quality of life.

5. CONCLUSION

At baseline a smaller number of patients had knowledge about their disease condition which then improved to very good knowledge post counselling. Total of 19% patients were smokers whereas 6% were alcoholics who gradually reduced to 11% and 2% for smokers and alcoholics respectively after counselling during their follow-up. The study outcomes are affirmation that pharmacist-based counselling is effective for enhancing quality of life and knowledge by providing education on medication adherence, physical activity, diet, complications of disease. Study demonstrates 62% and 66.5% average improvement in RBS and blood pressure control respectively at the completion of the study. These outcomes recommend that involvement of clinical pharmacist can help patient to control disease and its progression, effectively.

6. ETHICS APPROVAL

The study was approved by PARUL UNIVERSITY INSTITUTIONAL ETHICS COMMITTEE FOR HUMAN RESEARCH (PU-IECHR) with approval number "PUIECHR/PIMSR/00/081734/1808"

7. INFORMED CONSENT

Informed consent form was signed by all the participants after satisfactory information about the study. They were clearly informed that he subject to data is confidential and only for research purpose.

8. AUTHOR CONTRIBUTIONS

All authors were responsible for study design, acquisition of data, data analysis, interpretation, and writing and editing the manuscript. All authors read and approved the manuscript.

9. CONFLICT OF INTEREST

All authors have no conflict of interests to declare with regard to publication of this manuscript.

10. ACKNOWLEDGEMENT

We acknowledge our sincere thanks to the hospital staff, management and all the people who had direct or indirect role in completion of this research work. We also thank Dr. Mehul Marwadi, Asst. Professor, Department of Medicine, Parul Institute of Medical Sciences & Research (Pimsr), Parul University for his guidance throughout the research.

11. FUNDING INFORMATION

No funding was received from any agency.

12. ABBREVATION

1.	**BP**	BLOOD PRESSURE
2.	**DBP**	DIASTOLIC BLOOD PRESSURE
3.	**DM**	DIABETES MELLITUS
4.	**GDM**	GESTATIONAL DIABETES MELLITUS
5.	**HbA1C**	GLYCATED HEMOGLOBIN
6.	**HTN**	HYPERTENSION
7.	**LADA**	LATENT AUTOIMMUNE DIABETES OF ADULT
8.	**mmHg**	MILLIMETER MERCURY
9.	**RAAS**	RENNIN ANGIOTENSIN ALDOSTERONE SYSTEM
10.	**SBP**	SYSTOLIC BLOOD PRESSURE SELF BLOOD GLUCOSE MONITORING
11.	**SBGM**	WORLD HEALTH ORGANIZATION
12.	**WHO**	PATIENT SCORE BEFORE COUNSELLING
13.	**PSBC**	PATIENT SCORE AFTER COUNSELLING
14.	**PSAC**	PHYSICAL ACTIVITY
15.	**PA**	DATE OF COLLECTION
16.	**DOC**	DATE OF FOLLOW-UP
17.	**DOF**	RANDOM BLOOD SUGAR
18.	**RBS**	MODERATE
19.	**MO**	MINOR
20.	**MI**	HIGH INTENSITY
21.	**HI**	NIL
22.	**N**	MILLIGRAM /DESILETER
23.	**mg/dl**	KILOGRAM
24.	**kg**	SUBCUTANEOUS
25.	**SC**	PERORAL
26.	**PO**	PARUL UNIVERSITY
27.	**PU**	PARUL SEVASHRAM HOSPITAL
28.	**PSH**	

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