

## Prescription Pattern of Anti-Diabetic Drugs In Type 2 Diabetes Mellitus Patients at a Tertiary Care Hospital – India

Satya Abhishek Kombathula<sup>1</sup>, Sachidananda Moorthy<sup>2</sup>

<sup>1</sup>Doctor of Pharmacy, Lydia College of Pharmacy, Ravulapalem, Andhra Pradesh, India

<sup>2</sup>Professor and Head, Department of Pharmacology, Konaseema Institute of Medical Sciences, Amalapuram, Andhra Pradesh, India

Received: 25-05-2024 / Revised: 23-06-2024 / Accepted: 26-07-2024

Corresponding Author: Dr. Sachidananda Moorthy

Conflict of interest: Nil

### Abstract:

**Background:** Understanding the prescription patterns of anti-diabetic drugs in Type 2 Diabetes Mellitus patients is crucial for optimizing treatment outcomes and addressing variations in clinical practices, ensuring effective disease management.

**Aim:** To evaluate the prescription pattern of antidiabetic drugs in patients with type 2 diabetes mellitus.

**Materials & Methods:** A prospective observational study was conducted at Konaseema Institute of Medical Sciences (KIMS) Hospital, from July 2022 to December 2022 after getting approval from the Institutional Ethics Committee (IEC). A total of 200 patients aged 18-75 years of both genders and with Type 2 Diabetes Mellitus currently on OHA medication was included in the study after taking informed consent. All the patient's demographic data and medical data were collected using a case report form. Data was entered into an MS Excel spreadsheet, and analyzed by descriptive statistics.

**Results:** A total of 200 patients with T2DM were included in the study, among which males were 52% and females were 48%. The age group 46 – 55 years has the maximum number of patients (33%). About 92.5% of patients were treated only with oral hypoglycaemic agents (OHA) whereas, 5.5% were treated with both OHA and Insulin and 2% were treated only with Insulin. Metformin and Glimepiride are the most commonly prescribed fixed-dose combination. Metformin is the most commonly prescribed drug in patients with type 2 Diabetes Mellitus (96.5%) followed by Glimepiride (38%), and Voglibose (6%). Human Actrapid was the most prescribed insulin preparation among the study participants. The average number of drugs per prescription was 4.2. About 16.87% of drugs were prescribed from the National List of Essential Medicines - 2015 (NLEM) and 12.42% of drugs were prescribed from the WHO Essential List of Medicines – 2021 (WHO ELM).

**Conclusion:** Metformin (Biguanides) was the most commonly prescribed drug in patients with type 2 diabetes mellitus followed by Glimepiride (Sulfonylureas). Metformin with Glimepiride is the most commonly prescribed FDC in combination therapy. The average number of drugs per prescription was found to be 4.2 and the majority of the drugs were prescribed with their brand names.

**Keywords:** Prescription pattern, Anti-diabetic drugs, Type 2 Diabetes Mellitus, Oral Hypoglycemic agents, Drug Utilization.

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

### Introduction

Diabetes Mellitus (DM) is the most prevalent and challenging disease in the recent era and India also accounts for a significant share of diabetic cases, approximately 17% of the total number of patients all over the world.[1,2] Type 2 Diabetes Mellitus is defined as a group of chronic heterogeneous metabolic disorders characterized by a state of hyperglycemia due development of resistance to insulin with or without deficiency in insulin secretion and involves numerous complications and co-morbid conditions that may deteriorate the health of the patient to a large extent.[3–5] Type 2 Diabetes Mellitus is associated with acute and

chronic micro- and macro-vascular diabetic complications which deteriorate the quality of life of diabetic patients thereby causing an increase in morbidity and mortality.[6] The primary objectives of treatment for diabetes are to reduce the risk for macrovascular and microvascular complications of diabetes, to maintain the blood glucose levels in the normal range, and to improve the quality of life of the patients. The non-pharmacological approach for the therapy of diabetes is through patient education about the disease and lifestyle modifications which play a major role in the improvement of the patient's condition. Appropriate glycemic control,

maintaining blood pressure and lipid levels, dietary modifications, and regular exercise help in reducing morbidity and mortality thereby improving patient quality of life.[7,8]

Oral hypoglycemic agents are used in pharmacological therapy of Type 2 Diabetes Mellitus. There are a wide variety of hypoglycemic agents approved by the US FDA for the treatment of type 2 diabetes mellitus. [9,10]. These include Sulfonylureas, [11] Biguanides, [12] Thiazolidinediones,  $\alpha$ -Glucosidase Inhibitors, Glucagon-like peptide-1 (GLP-1) receptor agonists, Dipeptidyl peptidase-4 inhibitors (DPP-4 insulin secretagogues), and Meglitinides (also known as D-phenylalanine analogues or KATP channel blockers). [13–15]

### Materials and Methods

A prospective observational mono-center study was conducted at Konaseema Institute of Medical Sciences (KIMS) Hospital, a tertiary care multispecialty teaching hospital in Andhra Pradesh, India.

The present study was conducted for 6 months from July 2022 to December 2022. The study included patients aged 18-75 years of both genders and with Type 2 Diabetes Mellitus, and is currently on medication with oral hypoglycemic agents. The

study was conducted after getting approval from the Institutional Ethics Committee (IEC), and all the participants had signed the informed consent form before their inclusion in the study. Patients unwilling to participate in the study, and did not meet the inclusion criteria were excluded from the study. Using a case report form (CRF) all the patient's demographic data and medical data was collected. The usage of medications by every patient was cross-checked with the administration record.

Data were entered into an MS Excel spreadsheet, and analyzed by descriptive statistics (frequency (N), percentage (%), mean) and the results were obtained in the form of tables, charts, and/or graphs.

### Results

A total of 200 patients with T2DM were included in the study, among which males were 104 (52%) and females were 96 (48%).

The age group distribution states that the maximum subjects were 66 (33%) found between the age group 46 – 55 in which males were 39 (19.5%) and females were 27 (13.5%). The minimum number of subjects was 18 (9%) found in the age group of 26 – 35.

**Table 1: Age and Gender-wise distribution of study participants**

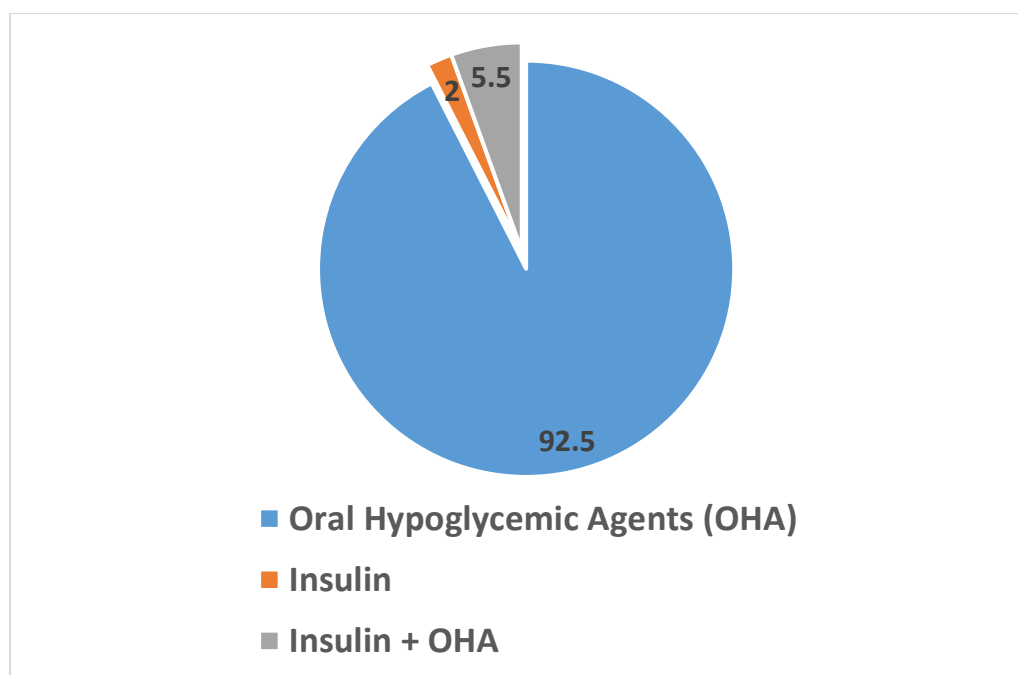
Age	Frequency (N)	Percentage (%)	Gender Distribution	
			Males N (%)	Females N (%)
25 – 35	18	9	12 (6)	6 (3)
36 – 45	31	15.5	9 (4.5)	22 (11)
46 – 55	66	33	39 (19.5)	27 (13.5)
56 – 65	49	24.5	21 (10.5)	28 (14)
66 – 75	36	18	23 (11.5)	13 (6.5)
<b>Total</b>	<b>200</b>	<b>100</b>	<b>104 (52)</b>	<b>96 (48)</b>

The mean duration of diabetes was  $8.07 \pm 6.75$ . A total of 107 patients (53.5%) reported a family history of T2DM, 141 patients (70.5%) reported a lack of exercise, 48 patients (24%) had obesity, and 109 patients (54.5%) reported a stressful lifestyle. 88 patients (44%) with T2DM suffer from insomnia (decreased or lack of sleep).

Hypertension is the most commonly observed comorbidity & complication in about 55.5% of patients.[16] The leading diabetic complications in

the Indian population were Retinopathy (54%), peripheral neuropathy (53%), and peripheral vascular disease (50%). The least commonly occurring diabetic complication was found to be nephropathy (15%).

About 92.5% (n = 185) of patients were treated only with oral hypoglycaemic agents (OHA) whereas, 5.5% (n = 11) were treated with both OHA and Insulin and 2% (n = 4) were treated with Insulin.



**Figure 1: Mode of Treatment**

Among these 185 patients prescribed oral hypoglycaemic agents, about 40.5% (N = 75) were prescribed single-drug therapy and about 59.5% (N = 110) were prescribed combination therapy. Of which 45.4 % of patients (N = 84) were prescribed a combination of dual drugs and 14.1% (N = 26) were prescribed with a combination of triple drugs.

**Table 2: Prescription Pattern of Antidiabetic drugs (N=200).**

Drug Class	Drugs	N (%)
<b>Single drug therapy</b>		
Biguanides	Metformin	75(37.5)
<b>Dual drug Combinations</b>		
Sulfonylureas + Biguanides	Glimepiride + Metformin	52 (26)
	Glipizide + Metformin	3 (1.5)
	Gliclazide + Metformin	10 (5)
	Glibenclamide + Metformin	5 (2.5)
Biguanide + Thiazolidinedione	Metformin + Pioglitazone	3 (1.5)
Biguanides + Dipeptidyl peptidase-4 (DPP-4) inhibitors	Metformin + Sitagliptin	4 (2)
	Metformin + Vidagliptin	2 (1)
	Metformin + Teneligliptin	1 (0.5)
Biguanides + Meglitinides	Metformin + Repaglinide	1 (0.5)
Thiazolidinediones + Sulfonylureas	Pioglitazone + Glimepiride	3 (1.5)
<b>Triple drug Combinations</b>		
Sulfonylureas + Biguanides + Thiazolidinediones	Glimepiride + Metformin + Pioglitazone	5 (2.5)
Sulfonylureas + Biguanides + DPP-4 inhibitors	Glimepiride + Metformin + Teneligliptin	4 (2)
	Glibenclamide + Metformin + Vidagliptin	3 (1.5)
Sulfonylureas + Biguanides + $\alpha$ -Glucosidase inhibitors	Glimepiride + Metformin + Voglibose	12 (6)
Biguanides + DPP-4 inhibitors + sodium-glucose co-transporter 2 (SGLT2) inhibitors	Metformin + Teneligliptin + Dapagliflozin	2 (1)

The majority of the fixed-dose combination (FDC) prescribed to the patients were two antidiabetic drugs (45.4%).

Metformin is the most common component of the majority of fixed-dose combinations (FDCs). Metformin and Glimepiride are the most commonly

prescribed FDC in 52 patients. Metformin is also the most commonly prescribed drug in combination with Insulin therapy.

About 11 patients were prescribed both Insulin and Metformin. The overall utilization of the anti-diabetic drugs is given in the table.

**Table 3: Overall utilization of Antidiabetic drugs (N=200).**

Class of Drug	Name of the Drug	Frequency (N)	Percentage (%)
Sulphonylureas	Glimepiride	76	38
	Glipizide	3	1.5
	Glibenclamide	8	4
	Gliclazide	10	5
Biguanides	Metformin	193	96.5
Meglitinides	Repaglinide	1	0.5
DPP-4 Inhibitors	Sitagliptin	4	2
	Teneligliptin	7	3.5
	Vildagliptin	5	2.5
$\alpha$ -Glucosidase Inhibitors	Voglibose	12	6
SGLT – 2 Inhibitors	Dapagliflozin	2	1
Thiazolidinediones	Pioglitazone	11	5.5
Insulin Preparations	H. Actrapid	9	4.5
	Insulin Basalog	3	1.5
	Insulin Mixtard	1	0.5
	Biphasic Insulin	2	1

The overall utilization of oral hypoglycemic agents stated Metformin is the most commonly prescribed drug in patients with type 2 Diabetes Mellitus 193 (96.5%).

Other commonly prescribed drugs are Glimepiride 76 (38%), and Voglibose 12 (6%). Human Actrapid was the drug of choice for insulin

preparation among the study participants. The other drugs concomitantly prescribed with the antidiabetic drugs were Proton pump inhibitors (28.1%), Angiotensin Receptor Blockers (46.4%), Antiplatelet agents (18.2%), HMG CoA Reductase Inhibitors (14.6%), Calcium Channel Blockers (9.1%), and Antiemetics (8%).

**Table 4: Drug Prescribing Indicators**

S. No.	Prescription Indicator	Value
1	The total number of prescriptions analyzed	200
2	Average number of drugs per prescription	4.2
3	Percentage of drugs prescribed by their Generic name	2 %
4	Percentage of patients prescribed with Antibiotics	6.7 %
5	Percentage of patients prescribed with injectable medicines	18.6 %
6	Percentage of drugs prescribed from the National List of Essential Medicines (2015)	16.87 %
7	Percentage of drugs prescribed from the WHO Essential List of Medicines (2021)	12.42 %

The average number of drugs per prescription was 4.2. About 16.87% of drugs were prescribed from the National List of Essential Medicines - 2015 (NLEM)[17] and 12.42% of drugs were prescribed from the WHO Essential List of Medicines – 2021 (WHO ELM).[18]

### Discussion

Diabetes Mellitus is a major health problem of public concern worldwide. It has reported an alarming rise in its prevalence all over the world, and Developing country like India is no exception to it.[5,19] It is associated with very complex and complicated co-morbidities, complications, and health-related problems which eventually deteriorate the health of the patients to a greater extent.[20,21]

This study mainly focused on the prescription pattern of antidiabetic drugs in patients with type 2 diabetes mellitus. Our study reported that the risk of type 2 diabetes mellitus is associated with a

family history, a stressful and sedentary lifestyle, and irregular and unhealthy dietary habits.[22] In our study, the maximum number of diabetic patients were found between the age group 46 – 55 years (33%) which is similar to the study conducted by Ashutosh Kakade et al.[23] Hypertension is the most commonly observed co-morbidity & complication in about 55.5% of patients which is also similar to the studies conducted by Bharti N. Karelia et al.[24] and Kalpana Tiwari et al.[25] The leading diabetic complications in the Indian population were Retinopathy (54%), peripheral neuropathy (53%), and peripheral vascular disease (50%). The least commonly occurring diabetic complication was found to be nephropathy (15%) these results are very similar to the findings reported by Adam Lloyd et al.,[26] Alex SM et al.,[27] and Bharti et al.[24]

Our study reported that 92.5% of patients were treated only with oral hypoglycaemic agents (OHA) of which about 40.5% were prescribed with

monotherapy and 59.5% were prescribed with combination therapy, whereas, in 5.5% of patients both OHA and Insulin were used and 2% patients were treated only with Insulin, these results are comparable to the studies conducted by Ashutosh Kakade et al.,[23] Kevin M Pantolone et al.,[28] Khushali G. Acharya et al.,[29] and Jambu Jain et al.[30] Metformin is the most commonly prescribed drug in patients with Type 2 Diabetes Mellitus followed by Glimepiride, Voglibose, and Pioglitazone. Human Actrapid was the most prescribed insulin preparation among type 2 diabetes patients. The majority of the fixed-dose combination (FDC) prescribed to the patients were two antidiabetic drugs and Metformin+Glimepiride is the most commonly prescribed FDC. Our study results also reported that Metformin is also widely prescribed in combination with Insulin. These study results are also similar to the studies conducted by Purnima Ashok et al.[31] Kalpana Tiwari et al.[25] and Alex SM et al.[27] However, studies conducted by Ashutosh Kakade et al.[23] Akshay A. Agarwal et al.[32]

The average number of drugs per prescription was found to be 4.2 which is slightly higher than the study findings 3.2 reported by Bharti N. Karelia et al.[24] and 3.98 found by Dutta S. et al.[33] and the value is comparatively lower than the study findings 7 reported by Purnima Ashok et al.[31] The variations in these values may be due to the presence of co-morbid conditions and diabetic complications in diabetic patients. This study evaluated the trends in the treatment of type 2 diabetic patients to encourage cost-effective and rational drug prescribing by physicians. More number of drugs in the prescription leads to polypharmacy which may cause an increased risk of potential drug-related problems and drug-drug interactions (DDIs).[24]

The percentage of drugs prescribed by their generic name is very low i.e. 2% which is slightly higher when compared with other study results reported 0.1% by Bharti N. Karelia et al.[24] and Alam MS et al.[34] but comparatively higher 75.36% result was observed in other study conducted by Purnima Ashok et al.[31] WHO and the National Accreditation Board for Hospitals (NABH)-India have provided standard guidelines for physicians to prescribe the drugs in their generic name using capital letters. Our study found a very small percentage of the prescriptions contain generic names of the drugs.[35–37] This shows that there is a need to follow the guidelines while prescribing the drugs. Our study also found that 16.87% of drugs were prescribed from the National List of Essential Medicines (NLEM)[17] and 12.42% of drugs were prescribed from the WHO Essential List of Medicines (WHO ELM).[18]

## Conclusion

Metformin (Biguanides) was the most commonly prescribed drug in patients with type 2 diabetes mellitus followed by Glimepiride (Sulfonylureas). Similarly, Metformin + Glimepiride is the most commonly prescribed FDC in combination therapy. The average number of drugs per prescription was found to be 4.2 and the majority of the drugs were prescribed with their brand names.

## References

1. Amos AF, McCarty DJ, Zimmet P. The rising global burden of diabetes and its complications: estimates and projections to the year 2010. *Diabet Med.* 1997;14 Suppl 5:S1-85.
2. Lingadurai S, Hariharan RS, Vamsadhara C. Drug utilization study in diabetology outpatient setting of A tertiary hospital. *Indian J Pharmacol.* 2003 Aug 1; 35:237–40.
3. Drucker DJ, Sherman SI, Gorelick FS, Bergenstal RM, Sherwin RS, Buse JB. Incretin-Based Therapies for the Treatment of Type 2 Diabetes: Evaluation of the Risks and Benefits. *Diabetes Care.* 2010 Feb; 33(2):428–33.
4. Kahn SE, Cooper ME, Del Prato S. Pathophysiology and treatment of type 2 diabetes: perspectives on the past, present, and future. *Lancet.* 2014 Mar 22; 383(9922):1068–83.
5. Corriere M, Rooparinesingh N, Kalyani RR. Epidemiology of diabetes and diabetes complications in the elderly: an emerging public health burden. *Curr Diab Rep.* 2013 Dec; 13(6):805–13.
6. Kokić S, Radman M, Capkun V, Dovzak-Kokić D, Tesanović S. Comparative assessment of the treatment of type 2 diabetes mellitus. *Ann Saudi Med.* 2002; 22(3–4):163–6.
7. Chipkin SR, Klugh SA, Chasan-Taber L. Exercise and diabetes. *Cardiol Clin.* 2001 Aug; 19(3):489–505.
8. Tripathi BK, Srivastava AK. Diabetes mellitus: complications and therapeutics. *Med Sci Monit.* 2006 Jul; 12(7):RA130-147.
9. Libman I, Arslanian S. Type 2 diabetes in childhood: the American perspective. *Horm Res.* 2003; 59 Suppl 1:69–76.
10. Mosenzon O, Pollack R, Raz I. Treatment of Type 2 Diabetes: From “Guidelines” to “Position Statements” and Back: Recommendations of the Israel National Diabetes Council. *Diabetes Care.* 2016 Aug;39 Suppl 2:S146-153.
11. Groop LC. Sulfonylureas in NIDDM. *Diabetes Care.* 1992 Jun; 15(6):737–54.
12. Bailey CJ, Turner RC. Metformin. *N Engl J Med.* 1996 Feb 29; 34(9):574–9.

13. Intensive blood-glucose control with sulphonylureas or insulin compared with conventional treatment and risk of complications in patients with type 2 diabetes (UKPDS 33). UK Prospective Diabetes Study (UKPDS) Group. *Lancet*. 1998 Sep 12; 352(9131):837–53.
14. Buckingham RE, Al-Barazanji KA, Toseland CD, Slaughter M, Connor SC, West A, et al. Peroxisome proliferator-activated receptor-gamma agonist, rosiglitazone, protects against nephropathy and pancreatic islet abnormalities in Zucker fatty rats. *Diabetes*. 1998 Aug; 47(8):1326–34.
15. Padhi S, Nayak AK, Behera A. Type II diabetes mellitus: a review on recent drug based therapeutics. *Biomed Pharmacother*. 2020 Nov; 131:110708.
16. Sahay BK, Sahay RK. Hypertension in diabetes. *J Indian Med Assoc*. 2003 Jan; 101(1):12, 14–5, 44.
17. Kalra S. National List of Essential Medicines, 2015: Endocrinology perspective. *Indian J Endocrinol Metab*. 2016; 20(3):412–3.
18. WHO Model List of Essential Medicines - 22nd list, 2021 [Internet]. Available from: <https://www.who.int/publications-detail-redirect/WHO-MHP-HPS-EML-2021.02>
19. Whiting DR, Guariguata L, Weil C, Shaw J. IDF Diabetes Atlas: Global estimates of the prevalence of diabetes for 2011 and 2030. *Diabetes Research and Clinical Practice*. 2011 Dec 1; 94(3):311–21.
20. Pham TB, Nguyen TT, Truong HT, Trinh CH, Du HNT, Ngo TT, et al. Effects of Diabetic Complications on Health-Related Quality of Life Impairment in Vietnamese Patients with Type 2 Diabetes. *J Diabetes Res*. 2020; 2020:4360804.
21. Naranjo C, Ortega-Jiménez P, Del Reguero L, Moratalla G, Failde I. Relationship between diabetic neuropathic pain and comorbidity. Their impact on pain intensity, diabetes complications and quality of life in patients with type-2 diabetes mellitus. *Diabetes Res Clin Pract*. 2020 Jul; 165:108236.
22. Deng MG, Cui HT, Lan YB, Nie JQ, Liang YH, Chai C. Physical activity, sedentary behavior, and the risk of type 2 diabetes: A two-sample Mendelian Randomization analysis in the European population. *Front Endocrinol (Lausanne)*. 2022; 13:964132.
23. Kakade A, Mohanty IR, Rai S, Kakade A, Mohanty IR, Rai S. Assessment of Prescription Pattern of Antidiabetic Drugs in the Outpatient Department of a Tertiary Care Hospital. *International Journal of Clinical Endocrinology and Metabolism*. 2017 Mar 17; 3(1):001–7.
24. Karelia BN, G.Piparva K, Patel PA. Prescription Pattern Study In Type 2 Diabetes Mellitus In Diabetic Out Patients At Private Clinic. *European Journal of Molecular and Clinical Medicine*. 2021 Jun 22; 8(4):79–88.
25. Tiwari K, Bisht M, Kant R, Handu SS. Prescribing pattern of anti-diabetic drugs and adherence to the American Diabetes Association's (ADA) 2021 treatment guidelines among patients of type 2 diabetes mellitus: A cross-sectional study. *Journal of Family Medicine and Primary Care*. 2022 Oct; 11(10):6159.
26. Lloyd A, Sawyer W, Hopkinson P. Impact of long-term complications on quality of life in patients with type 2 diabetes not using insulin. *Value Health*. 2001; 4(5):392–400.
27. Alex SM, Bs S, S S, Kn J, Menon AS, P UD. Drug Utilization Pattern Of Antidiabetic Drugs Among Diabetic Outpatients In A Tertiary Care Hospital. *Asian Journal of Pharmaceutical and Clinical Research*. 2015 Mar 1; 144–6.
28. Pantalone KM, Hobbs TM, Wells BJ, Kong SX, Kattan MW, Bouchard J, et al. Clinical characteristics, complications, comorbidities and treatment patterns among patients with type 2 diabetes mellitus in a large integrated health system. *BMJ Open Diabetes Res Care*. 2015; 3(1):e000093.
29. Acharya KG, Shah KN, Solanki ND, Rana DA. Evaluation of antidiabetic prescriptions, cost and adherence to treatment guidelines: A prospective, cross-sectional study at a tertiary care teaching hospital. *J Basic Clin Pharm*. 2013 Sep; 4(4):82–7.
30. Jain, J., Sharma, P., Jain, J., & Raja, M. Utilization pattern of oral hypoglycemic agents for diabetes mellitus type 2 patients attending out-patient department at tertiary care centre in Bhopal, Madhya Pradesh, India. *International Journal of Basic & Clinical Pharmacology*, 2017; 5(5): 1826–1830.
31. Ashok P, Subrahmanian VT, Raj R, Babu RR, P RT, L K. Prescription Pattern Analysis of Type II Diabetes Mellitus Inpatients and Associated Co-Morbidities. *Journal of Drug Delivery and Therapeutics*. 2020 May 15; 10(3):42–7.
32. Agarwal AA, Jadhav PR, Deshmukh YA. Prescribing pattern and efficacy of anti-diabetic drugs in maintaining optimal glycemic levels in diabetic patients. *J Basic Clin Pharm*. 2014 Jun; 5(3):79–83.
33. Dutta S, Beg MA, Anjoom M, Varma A, Bawa S. Study on drug prescribing pattern in diabetes mellitus patients in a tertiary care teaching hospital at Dehradun, Uttarakhand. *International Journal of Medical Science and Public Health*. 2014 Jul 16; 3(11):1351–1351.

34. Alam MS, Aqil M, Qadry SAS, Kapur P, Pillai KK. Utilization Pattern of Oral Hypoglycemic Agents for Diabetes Mellitus Type 2 Patients Attending Out-Patient Department at a University Hospital in New Delhi. *Pharmacology & Pharmacy*. 2014 Jun 13; 5(7):636–45.
35. Andrade C, Rao TSS. Prescription writing: Generic or brand? *Indian J Psychiatry*. 2017; 59(2):133–7.
36. Kaushik S, Chawla R, Bhalla S. Prescriptions Written in Capital Letters in Compliance with National Accreditation Board of Hospital Standards. *International Journal of Research Foundation of Hospital and Health Care Administration*. 2016 Dec 1; 4:89 – 99.
37. Roy V, Rana P. Prescribing generics: All in a name. *Indian J Med Res*. 2018 May; 147(5): 442–4.