A psychotropic drug use study among depression patients attending private psychiatric practitioners of Dehradun, Uttarakhand

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Abstract

Background: Drug use studies are beneficial in clinical practice for rational prescribing of drugs and helpful for minimizing the medication errors.

Aims and Objectives: The present study investigates the prescribing pattern of various antidepressants among private practitioners of Dehradun, Uttarakhand.

Materials and Methods: A retrospective observational study was carried out in a private psychiatric unit at Dehradun. A total of 196 prescriptions were analyzed using World Health Organization drug use indicators and National Essential Medicine List (NEML) 2013.

Results: Among 196 prescriptions, 54.08% were for females and 45.92% were for males. Depression was more commonly seen in patients in aged 31–50 years. Depression was more common among housewives (28.06%) and in married (52.04%) people. Selective serotonin reuptake inhibitors (SSRIs) (39.17%) were the most commonly prescribed class of antidepressants followed by serotonin norepinephrine reuptake inhibitors (33.33%). Fluoxetine and escitalopram were the most commonly prescribed SSRIs. Alprazolam (59.33%) was most commonly prescribed benzodiazepine class followed by lorazepam (16.0%) for comorbid anxiety symptoms. Among patients, 18.48% antipsychotics were prescribed to patients; olanzapine and risperidone (atypical antipsychotics) were the most commonly prescribed. Trihexyphenidyl was the most common anticholinergic prescribed. The average number of drugs per prescription in our study was 3.03 with 55.39% drugs prescribed from the NEML 2013.

Conclusion: Fluoxetine and escitalopram were the most commonly used SSRIs. SSRIs are preferred over other antidepressants because of their relative lesser side effects. Polypharmacy was observed with benzodiazepines as frequent coprescription.

KEY WORDS: Drug use, antidepressants, antipsychotics, rational prescribing

Access this article online	
Website: http://www.ijmsph.com	Quick Response Code:
DOI: 10.5455/ijmsph.2015.19012015129	

Introduction

Depression is an important global public health problem and is a major cause of disability and premature death.[1] In 2002, 4.5% of the worldwide total burden of diseases was depression (in terms of disability adjusted life years).[2] The overall prevalence of depression in India is 15.1% and is associated with suicidal mortality rate of 16 per 1000,000.[3]

Depression can be defined as a mental state that is characterized by feelings of sadness, loneliness, despair, low self-esteem, and self-reproach.[4] The accompanying signs are psychomotor retardation or withdrawal from interpersonal contact and vegetative symptoms such as anorexia and insomnia.[5] The symptoms may include low/sad, irritable or indifferent mood, loss of interest and enjoyment in daily life, and lack of energy, any or a combination of these, which have been experienced for more than 2 weeks.[6]

Antidepressant-prescribing patterns have changed globally over the past few years, that is, conventional drugs such as tricyclics and monoamine oxidase inhibitors being gradually replaced by selective serotonin reuptake inhibitors (SSRIs) or novel antidepressants. In National institute of Clinical Excellence or the American Psychiatric Association guidelines, SSRIs have been unanimously regarded as treatment of choice for depression.[7] Drug use studies are pointers to prescribing behavior of clinicians and help in improving it. The recent proliferation of new drugs, the increasing recognition of delayed adverse effects, and the focus on pharmacoeconomic considerations have stimulated interest in the prescribing patterns of physicians.[8] A few studies have been reported from India for antidepressants use. Therefore, our aim was to study the drug use pattern of psychotropic drugs among private practitioners and to assess its rationality and prevalence.

Materials and Methods

This is a prescription auditing study of depression patients attending private psychiatric practitioners. A total of 196 prescriptions of depression patients were collected randomly from a psychiatric practitioner of Dehradun. Patients of all ages and both sexes attending the psychiatry outpatients department diagnosed with depressive or adjustment disorders (diagnosed as per the International Classification of Diseases—ICD 10 criteria)[9] were indicated were included in the study. The prescriptions were analyzed using WHO (World Health Organization) drug use indicators and National Essential Medicine List (NEML) 2013.

Results

A total of 196 prescriptions were analyzed. Total 594 drugs were found to be prescribed. Maximum patients with depression (40.31%) were observed in 31–50 years age group followed by 18–30 years (25%), 31–70 years (23.47%), <18 years (7.65%), and least (3.57%) seen in >70 years age group in both the sexes. The mean age was 40.41±1.34 years; 106 (54.08%) were females and 90 (45.92%) were males with male-to-female ratio of 1:1.17. Majority of patients were married (102; 52.04%) and were housewives (55; 28.06%) [Table 1].

Of the total 597 drugs prescribed, antianxiety drugs (150; 25.25%) constituted the major class of drugs being prescribed for depression followed by antidepressants (120; 20.20%), antipsychotics (111; 18.48%), antiepileptics/mood stabilizers

Table 1: Demographic profile

Patient parameters	Number (%)
Mean age	40.41±1.34
Age in years	
<18	15 (7.65)
18–30	49 (25)
31–50	79 (40.31)
51–70	46 (23.47)
>70	7 (3.57)
Male/Female ratio	1:1.17
Married/Unmarried ratio	1.58:1
Occupation	
Housewife	55 (28.06)
Government job	38 (19.39)
Businessman	42 (21.43)
Student	33 (16.84)
Ex-army personal	10 (5.10)
Unemployed	18 (9.18)

Table 2: Drug prescribing pattern

Drug class	Number (%)
Antianxiety	150 (25.25)
Antidepressants	120 (20.20)
Antipsychotics	111 (18.48)
Antiepileptic/Mood stabilizer	92 (15.39)
Anticholinergics	6 (1.01)
Others	118 (19.67)

Table 3: Prescribing trend of anxiety drugs

Drugs	Number (%)
Alprazolam	89 (59.33)
Lorazepam	24 (16)
Zolpidem	22 (14.67)
Propranolol	5 (3.33)
Clonazepam	5 (3.33)
Etizolam	2 (1.33)
Ramelteon	2 (1.33)
Diazepam	1 (0.68)

(92; 15.39%), anticholinergics (6; 1.01%) and (118; 19.07%) were from the others category [Table 2].

Antianxiety drugs (150; 25.25%) were the major group of drugs prescribed for depression. Alprazolam (89; 59.33%) constituted the major drug prescribed followed by lorazepam (24; 16%), zolpidem (22; 14.67%), propranolol (5; 3.33%), clonazepam (5; 3.33%), etizolam (2; 1.33%), ramelteon (2; 1.33%), and diazepam (1; 0.68%) [Table 3].

Antidepressants were the second most common drug group being prescribed, of which SSRIs (47; 39.17%) were the most commonly prescribed group, followed by SNRIs (serotonin norepinephrine reuptake inhibitors) (40; 33.33%) and atypical antidepressants (30; 25%). Fluoxetine (21; 17.5%) was the most common SSRI prescribed

Table 4: Most commonly prescribed antidepressant drugs

Drugs	Number (%)
SSRIs	
Fluoxetine	21 (17.5)
Escitalopram	19 (15.83)
Paroxetine	8 (6.67)
Fluvoxamine	2 (1.67)
SNRIs	
Venlafaxine	37 (30.83)
Duloxetine	3 (2.5)
Atypical antidepressant	
Mirtazapine	30 (25)

Table 5: Prescribing trend of antipsychotics

Drugs	Number (%)
Atypical	
Olanzapine	47 (42.34)
Risperidone	27 (24.32)
Aripiprazole	11 (9.91)
Quetiapine	7 (6.31)
Amisulpride	2 (1.80)
Typical	
Haloperidol	14 (12.61)
Trifluoperazine	3 (2.71)

Table 6: Prescribing trend of antiepileptics/mood stabilizers

Drugs	Number (%)
Divalproex sodium	41 (44.37)
Lamotrigine	26 (28.26)
Lithium carbonate	12 (13.04)
Levetiracetam	6 (6.32)
Oxcarbazepine	6 (6.32)
Topiramate	1 (1.69)

Table 7: Drugs included in others category

Drugs	Number (%)
Calcium and vitamin D	48 (40.68)
Multivitamins	41 (34.75)
Iron and folic acid	12 (10.18)
Antihelminthics (albendazole)	5 (4.24)
Cognition enhancers (piracetam)	4 (3.39)
Sildenafil	2 (1.69)
Herbal syrup	2 (1.69)
Ethinyl estradiol	2 (1.69)
Proton pump inhibitor (pantoprazole)	2 (1.69)

followed by escitalopram (19; 15.83%), paroxetine (8; 6.67%), and fluvoxamine (2; 1.67%). Among SNRIs, venlafaxine (37; 30.83%) was the most commonly prescribed followed by duloxetine (3; 2.5%). Mirtazapine (30; 25%) was the only atypical antidepressant prescribed [Table 4].
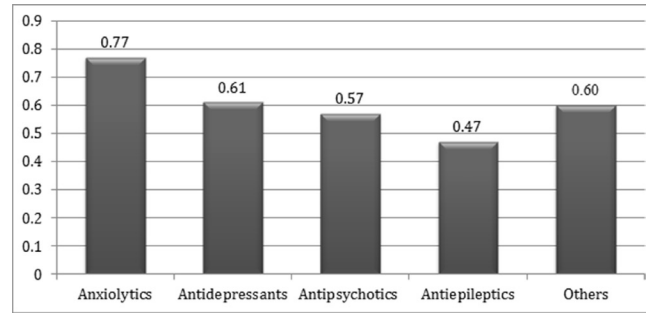

Figure 1: Individual drug group prescribed per prescription.

Table 8: Most commonly prescribed drugs

Drug class	Name
Antianxiety	Alprazolam
Antidepressants	Fluoxetine
Antipsychotics	Olanzapine
Antiepileptics	Divalproex sodium
Anticholinergics	Trihexyphenidyl
Others	Calcium and multivitamins

Table 9: Prescribing indicators recommended by the World Health Organization

Average number of drugs/prescription	3.03
Percentage of the drugs prescribed by generic name	0
Percentage of fixed-dose combination (FDC)	0
Percentage of oral formulations	100
Percentage of the drugs prescribed from NLEM 2013	55.39

The third most common drug group prescribed was antipsychotics (111; 18.48%) of which atypical (newer) antipsychotics (94; 84.68%) were the major group prescribed followed by typical (classical) antipsychotics (17; 15.32%). Olanzapine (47; 42.34%), risperidone (27; 24.32%), aripiprazole (11; 9.91%), quetiapine (7; 6.31%), amisulpride (2; 1.80%), haloperidol (14; 12.61%), and trifluoperazine (3; 2.71%) were the frequently prescribed antipsychotics [Table 5].

Divalproex sodium (41; 44.37%) was the most common antiepileptic prescribed followed by lamotrigine (26; 28.26%), lithium carbonate (12; 13.04%), levetiracetam (6; 6.32%), oxcarbazepine (6; 6.32%), and topiramate (1; 1.69%) [Table 6]. Trihexyphenidyl (6; 1.01%) was the only anticholinergic prescribed to patients with depression. Drugs in the others category included calcium and vitamin D tablets (48; 40.68%), multivitamins (41; 34.75%), iron and folic acid (12; 10.18%), antihelminthics (albendazole) (5; 4.24%), cognition enhancers (piracetam) (4; 3.39%), and each of sildenafil, herbal syrup, ethinyl estradiol, and proton pump inhibitor (pantoprazole) (2; 1.69%) [Table 7]. Most frequently prescribed drugs from the different drug classes were alprazolam (antianxiety), fluoxetine (antidepressant),

olanzapine (antipsychotic), divalproex sodium (antiepileptic), trihexyphenidyl (anticholinergic), and calcium and multi-vitamins (other drug categories) [Table 8].

The number of anxiolytics, antidepressants, antipsychotics, antiepileptics, and other drugs prescribed per prescription was 0.77, 0.61, 0.57, 0.47, and 0.60, respectively [Figure 1]. Average number of drugs per prescription was 3.03. All (100%) drugs were prescribed by their brand names. All drugs were given in the form of oral formulations; there was no fixed-dose combination (FDC); and 55.39% drugs were prescribed from the NEML 2013 [Table 9].

Discussion

Worldwide prevalence of major depression is 2%–4% in community, 5%–10% of primary care, and 10%–14% in medical inpatients.[10] Therefore, a prescription may be taken as a reflection of the physician's attitude toward the disease and the role of the drug in its treatment providing an insight into the nature of the health-care delivery system.

Out of 196 prescriptions analyzed, male-to-female ratio was 1:1.17, correlating with the fact that depression is higher in females, which is consistent with studies by Grover et al,[11] Memon and Patel[12], and Avanthi et al.[13] Majority of patients were in the age group of 30–51 years in both sexes, which is similar to those reported in studies by Dutta et al.,[14] Trivedi et al.[15], and Grover et al.[11] Pediatric and geriatric groups together constituted less than 10% of our patient population, which is comparable to a previous study.[12] Depression was more common among housewives, which is comparable to a previous study.[13]

It was found that 20.20% antidepressants were prescribed in our study. SSRIs were the most commonly prescribed class of antidepressants followed by SNRIs, which is consistent with that reported in a study by Dutta et al and other previous studies.[11,16,17] Fluoxetine and escitalopram were the most commonly prescribed SSRIs, which is consistent with previous studies by Grover et al.[11] and Piparva et al.[17] Venlafaxine and duloxetine among SNRIs, and mirtazapine among atypical antidepressants were prescribed, similar to previous studies.[11,14] SSRIs are generally free of sedative effects and safer at higher doses. Better tolerability, combined with their mild adverse effects, accounts for their popularity as the most widely prescribed antidepressants.[13,18] Current treatment guidelines mostly recommend use of SSRIs as the first-line agents in patients of depression.[19]

Out of total antianxiety drugs prescribed, majority were benzodiazepines, which is consistent with that reported in previous studies.[11,15] Alprazolam was the most commonly prescribed followed by lorazepam. Two previous studies showed clonazepam being the most preferred agent whereas another study showed lorazepam being most commonly prescribed.[16,20,21] Our study reconfirms the fact that anxiety symptoms are comorbid with depression and require medication, which is similar to that reported in previous

studies.[15,21] Another reason for higher rate of prescription of benzodiazepine could be anticipated worsening of anxiety, which is commonly seen with the use of SSRIs.

In this study, 18.48% antipsychotics were prescribed to patients with depressive disorder. Atypical antipsychotics were frequently prescribed compared to the typical or classical antipsychotics. Olanzapine and risperidone were the most commonly prescribed atypical antipsychotics, which is consistent with previous studies.[14,15,17,22] Among the typical antipsychotics, haloperidol was most commonly prescribed drug. Atypical antipsychotics are now rated as first-line agents because of their low propensity to cause extrapyramidal side effects, efficacy against refractory cases, better tolerance, low relapse rate, and safer adverse effect profile.[22] Divalproex sodium and lamotrigine were frequently prescribed antiepileptics along with mood stabilizer lithium carbonate. Trihexy-phenidyl was the most common anticholinergic prescribed, similar to previous studies.[14,16,17] Although the frequency of prescribing atypical antipsychotic was higher in our study, yet anticholinergic agents were also prescribed to the patients. Similar observation was made in a study by Ren et al.[23] in which when anticholinergic agents were used concomitantly with atypical antipsychotics, patients tend to stay on target drug significantly longer than those who did not use any anticholinergic agents.

The average number of drugs per prescription is an important index of the scope for review and educational intervention in prescribing practices. The number of anxiolytics, antidepressants, antipsychotics, antiepileptics, and other drugs prescribed per prescription was 0.77, 0.61, 0.57, 0.47, and 0.60, respectively. This depicts that every patient was not prescribed antidepressants and other drug groups, which could probably mean that patient counseling was a part of their routine treatment. However, the overall number of drugs per prescription in our study was 3.03, which is higher compared to that reported in studies by Lahon et al.[8] and Memon and Patel.[12] Although irrational polypharmacy is observed frequently, but in many instances it is necessary to manage the patient with multiple medications and that makes rational polypharmacy. Concerns with polypharmacy include the possibility of cumulative toxicity and increased vulnerability to adverse events as well as adherence issues, which emerge with increasing regimen complexity.[24] No FDCs and no injectables were found to be prescribed in this study, which is in concordance with previous that reported in a study by Lahon et al.[8] Basic morbidity was depression, which might be associated with anxiety and psychosis. As oral preparations have better acceptability among the patients and result in better compliance, 55.39% drugs prescribed were from the NEML 2013, which is higher than in the previous study.[8] Hundred percent (100%) drugs were prescribed by their brand names, which is not in accordance with the WHO guidelines as rational prescribing requires prescription with generic names of drugs. This suggests popularity of brands among the psychiatrists and the influence of pharmaceutical companies.

Limitations of the Study

Our study results should however be seen in the light of our small sample size, as compared to the studies with which they have been compared. The limitations of this study were the lack of patient care indicators and some of the facility indicators such as the availability of drugs and the impact of cost on the drug treatment, which could increase the utility of the study, but they can only be derived from a prospective design. As with any drug use study, it was not possible to monitor the actual use or compliance with the prescribed antidepressant, more so, as it was a retrospective study of case records in which notes on compliance were lacking. Moreover, we could not quantify the data on the comparative clinical effectiveness of the antidepressants.

Conclusion

Because depression is a serious public health problem that is frequently underdiagnosed and inadequately treated, studying and analyzing the prescription patterns seek to monitor, evaluate, and help the physicians in understanding how the available drugs can be best put to use practically. They suggest, if necessary, modifications in prescribing patterns so as to make medical care rational, and our study was a step in that direction. Fluoxetine and escitalopram were the most commonly used SSRIs. Polypharmacy was observed, with benzodiazepines as frequent coprescription.

References

1. Akiskal HS. Mood disorders: historical introduction and conceptual overview. In: *Kaplan and Sadock's Comprehensive Textbook of Psychiatry*, 8th edn. Philadelphia, PA: Lippincott, 2005. pp. 1559–75.
2. World Health Organization. *Revised Global Burden of Disease (GBD) 2002 Estimates*. Geneva: World Health Organization, 2005. 667 p.
3. Poongothai D, Pradeepa R, Ganesan A, Mohan V. Prevalence of depression in a large urban South Indian population. PLoS One 2009;4(9):71–85.
4. Ray S, Chogtu B. Prescribing trends in depression: a drug utilization study done at a tertiary healthcare centre. J Clin Diagn Res 2011;5(3):573–7.
5. Sadock B, Sadock V, Ruiz P (Eds.). *Comprehensive Textbook of Psychiatry*. 9th edn, Vol. 1. Philadelphia, PA: Wolters Kluwer, Lippincott, 2009. 923 p.
6. Reddy MS. Depression: the disorder and the burden. Indian J Psychol Med 2010;32:1–2.
7. Fochtmann LJ, Gelenberg AJ. *Guideline Watch: Practice Guidelines for the Treatment of Patients with Major Depressive Disorder*. 2nd edn, Vol. 3. Arlington, VA: American Psychiatric Association, 2005. pp. 34–42.
8. Lahon K, Shetty HM, Paramel A, Sharma G. A retrospective drug utilization study of antidepressants in the psychiatric unit of a tertiary care hospital. J Clin Diagn Res 2011;5(5):1069–75.
9. Baldessarini RJ, Leahy L, Arcona S, Gause D, Zhang W, Hennen J. Patterns of psychotropic drug prescription for US patients with the diagnoses of bipolar disorders. Psychiatr Serv 2007;58(1):85–91.
10. Katon W, Schulberg H. Epidemiology of depression in primary care. Gen Hosp Psychiatry 1992;14(4):237–47.
11. Grover S, Avasth A, Kalita K, Dalal PK, Rao GP, Chadda RK, et al. IPS multicentric study: antidepressant prescription patterns. Indian J Psychiatry 2013;55(1):41–5.
12. Memon A, Patel K. Drug use pattern of antidepressant agents in psychiatric patients—a prospective study. NHL J Med Sci 2013;2(2):33–6.
13. Avanthi E, Somashekar HE, Kumar P, Sushma HK, Sudarshan CY et al. Prescribing pattern of antidepressants in psychiatric unit of a tertiary care hospital. Int J Basic Clin Pharmacol 2014;3(4):667–70.
14. Dutta SB, Beg MA, Sindhu S, Singh NK. Role of pharmacoepidemiology in psychopharmacology: a study in psychiatric out-patient department of a tertiary care teaching hospital at Dehradun, Uttarakhand. Int J Basic Clin Pharmacol 2014;3(4):637–43.
15. Trivedi JK, Dhyani M, Sareen H, Yadav VS, Rai SB. Antidepressant drug prescription pattern for depression at a tertiary health care centre of Northern India. Med Pract Rev 2010;1(2):16–8.
16. Dutta S, Beg MA, Kaul V, Dutta SH, Dhasmana DC. Psychotropic drug utilization study in psychiatric OPD of a tertiary care teaching hospital in Dehradun, Uttarakhand. J Adv Res Biol Sci 2013;5(4):386–91.
17. Piparva KG, Parmar DM, Singh AP, Gajera MV, Trivedi HR. Drug utilization study of psychotropic drugs in outdoor patients in a teaching hospital. Indian J Psychol Med 2011;33(1):54–8.
18. Battista CD. Antidepressant agents. In: Katzung BG, Masters SB, Trevor AJ (Eds.). In: *Basic and Clinical Pharmacology*. 11th edn. New York: McGraw Hill, 2012. pp. 509–30.
19. American Psychiatric association (APA). Practice guidelines for the treatment of patients with major depressive disorder. 3rd edn. Arlington, VA: American Psychiatric association (APA), 2010.
20. Sahana DA, Keshava P, Rajeshwari S, Ullal SD, Rathnakar UP, Jaykumar JS. Pattern of psychotropic drug usage in psychiatric illnesses among elderly. J Med Use Dev Countries 2010;2(1):3–10.
21. Amuthaganesh M, Suhasinee S, Mathialagan S. Pattern of antidepressant utilization at a tertiary hospital in Malaysia (2009–2011). 2nd International Conference on Advances in Biotechnology and Pharmaceutical Sciences (ICABPS 2012); June 30–July 1, 2012; Bali. pp. 1-9.
22. Dhasmana DC, Rawat Y, Mishra KC. What is so atypical about atypical antipsychotic? Indian J Pharmacol 2003;35:322–4.
23. Ren XS, Huang YH, Lee AF, Miller DR, Qian S, Kazis L. Adjunctive use of atypical antipsychotics and anticholinergic drugs among patients with schizophrenia. J Clin Pharm Ther 2005;30(1):65–71.
24. Trumic E, Pranjic N, Begic L, Becic F, Asceric M. Idiosyncratic adverse reactions of most frequent drug combinations long term use among hospitalized patients with polypharmacy. Med Arh 2012;66(4):243–8.