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PATTERNS OF BENZODIAZEPINE PRESCRIPTION AND PREVALENCE OF DEPENDENCE AMONG PSYCHIATRY OUTPATIENTS: A CROSS-SECTIONAL STUDY

Psychiatry

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ABSTRACT

Background: Benzodiazepines (BZDs) remain widely prescribed in psychiatry, but prolonged use increases risk of tolerance, withdrawal, and dependence. Local Indian data on real-world prescribing and dependence among outpatients are limited. **Aim:** To evaluate patterns of BZD prescription and the prevalence of dependence among psychiatry outpatients. **Methods:** Hospital-based cross-sectional study at the Department of Psychiatry, Jawaharlal Nehru Medical College & Hospital, AMU, Aligarh (November 2024–April 2025). Systematic sampling (every fourth attendee) recruited adults (≥18 years) on prescribed BZDs ≥3 months. Assessments included socio-demographic/clinical proforma, prescription audit, awareness proforma, ICD-10 diagnosis, Benzodiazepine Dependence Questionnaire (BDEPQ), and Big Five Inventory. Data were analysed in SPSS v26 using χ^2/Fisher's exact tests, t/Mann–Whitney U tests, and logistic regression; $p<0.05$ was significant. Ethics approval obtained; CTRI/2024/11/076611. **Results:** Of 256 participants (mean age 34.5 ± 11.6 years; 61.3% female), clonazepam was most prescribed (44.1%), followed by etizolam (28.5%), chlordiazepoxide (10.5%), alprazolam (8.6%), lorazepam (7.8%), and diazepam (0.4%). Use was predominantly daily (98.9%) and for 6–12 months (55.9%), 3–6 months (32.4%), and >1 year (11.7%). Co-prescription was common: BZD + antidepressants 39.1%, BZD + antipsychotics 35.9%, triple therapy 8.2%; BZD monotherapy 11.7%. Primary indications were anxiety (90.6%), insomnia (47.3%), and panic attacks (23.4%). Overall BDEPQ severity showed mild dependence in 60.5% (n=155), moderate in 24.6% (n=63), strong/high in 2.0% (n=5), and little/none in 12.9% (n=33). Dependence severity was significantly associated with duration of use (χ^2=31.254, df=6, $p<0.01$) and personality traits (χ^2=46.97, df=12, $p<0.001$), and also with gender (χ^2=9.379, p=0.02), education (χ^2=30.394, p=0.03), occupation (χ^2=27.150, p=0.03), and socioeconomic status (χ^2=24.698, p=0.02). No significant association was found with age group, marital status, religion, residence, family type, comorbid illness, treatment history, BZD type, frequency of use, access source, or knowledge source (all $p>0.05$). **Conclusion:** In this outpatient cohort, BZDs were largely adjunctive and maintained medium-term, with two-thirds using ≥6 months and a small but important subgroup exceeding one year. Dependence was common (predominantly mild), and increased with longer duration and neuroticism, highlighting the need for guideline-concordant prescribing, periodic review, and structured deprescribing strategies.

KEYWORDS

benzodiazepines, prescription patterns, dependence, BDEPQ, psychiatry outpatients, India, co-prescription, duration of use

INTRODUCTION-

Benzodiazepines (BZDs), introduced in the 1960s, have remained widely used due to their anxiolytic, sedative-hypnotic, anticonvulsant, and muscle relaxant properties [1]. They are prescribed across a range of conditions, including anxiety disorders, insomnia, epilepsy, and alcohol withdrawal, and are also employed as adjuncts in depressive and psychotic disorders [1]. Despite their therapeutic efficacy, particularly in the short term, concerns have grown regarding inappropriate prescribing and prolonged use. Clinical guidelines recommend short-term therapy, usually 2–4 weeks, to minimize risks of tolerance and dependence. However, real-world data reveal that 30–55% of patients continue benzodiazepines beyond recommended durations, with long-term use reported in 2–3.5% of the general population [2]. Most longitudinal studies extend only up to 2–2.5 years, leaving crucial knowledge gaps regarding outcomes associated with extended therapy [3].

The clinical consequences of prolonged use are substantial. Dependence, tolerance, and withdrawal syndromes remain the most concerning pharmacological risks [4,5]. Epidemiological data show that benzodiazepine-related mortality has risen markedly, from 0.6 per 100,000 adults in 1999 to 4.4 per 100,000 in 2016 [6]. Additional adverse outcomes include increased risk of falls, fractures, cognitive impairment, and motor vehicle accidents [7]. Risks are further amplified when benzodiazepines are combined with other central nervous system depressants such as opioids or alcohol, precipitating respiratory depression, coma, and even death [8]. Recognizing these risks, guidelines such as the Beers Criteria caution against their use in geriatric populations.

Benzodiazepine dependence is multifactorial, shaped by both pharmacological and clinicodemographic factors. Age, gender, treatment duration, and psychiatric comorbidities significantly influence vulnerability [9,10]. A study among Japanese psychiatric outpatients reported a 7.9% prevalence of dependence on benzodiazepine-based hypnotics [9]. Despite substantial international evidence, Indian data remain limited. Prescription patterns, dependence rates, and patient awareness have not been adequately characterized, creating a knowledge gap with important clinical and public health implications. This study aims to address these gaps by analyzing patterns of prescription.

AIM-

To evaluate the patterns of benzodiazepine prescription and the prevalence of dependence among psychiatry outpatients.

METHODOLOGY-

The present study was conducted in the Department of Psychiatry, Jawaharlal Nehru Medical College and Hospital, Aligarh Muslim University, Aligarh, after obtaining ethical clearance from the Institutional Ethics Committee and registering the trial with the Clinical Trials Registry of India (CTRI/2024/11/076611). Written informed consent was obtained from all participants, who were assured of confidentiality and the purpose of the research was explained to them. This was a hospital-based cross-sectional descriptive study carried out between November 2024 and April 2025. Every fourth patient attending the psychiatry outpatient department was screened for eligibility, and a total of 256 patients fulfilling the inclusion and exclusion criteria were recruited. The sample size was calculated using the formula $n = (Z^2 \times p \times (1 - p)) / d^2$, taking $p = 0.205$ as the prevalence of long-term benzodiazepine use from earlier studies, with $Z = 1.96$ at 95% confidence level and $d = 0.05$. Patients aged 18 years and above, of both genders, who had been on prescribed benzodiazepines for at least three months and gave written consent were included, while those under 18 years, with intellectual disability, dementia, cognitive impairment, psychotic symptoms, or unwilling to consent were excluded.

All participants were evaluated using a semi-structured proforma to collect socio-demographic and clinical details, physical examination, and mental status examination. Prescription patterns were documented separately, and awareness regarding benzodiazepine use was assessed with a dedicated proforma. Dependence was diagnosed using ICD-10 diagnostic criteria and the Benzodiazepine Dependence Questionnaire (BDEPQ), while personality traits were assessed using the Big Five Inventory (BFI). The BDEPQ, a validated self-report tool, assessed

psychological dependence over the preceding month, and the BFI measured personality across five dimensions—openness, conscientiousness, extraversion, agreeableness, and neuroticism. Data were analyzed using IBM SPSS version 26.0. Frequency distribution was calculated for socio-demographic and clinical profiles, categorical variables were analyzed using Chi-square or Fisher's exact test, and continuous variables with t-tests or Mann-Whitney U tests as appropriate. Logistic regression was applied to identify predictors of benzodiazepine dependence, with $p < 0.05$ considered statistically significant.

RESULT-

Among 256 psychiatry outpatients, the duration profile shows that benzodiazepine exposure is predominantly medium-term: 55.9% (n=143) reported use for 6–12 months and 32.4% (n=83) for 3–6 months, while 11.7% (n=30) had continued beyond one year. Thus, roughly two-thirds (67.6%) had taken benzodiazepines for ≥6 months, indicating substantial extension beyond typical short-term recommendations. This distribution suggests that in routine practice benzodiazepines are being maintained to manage persistent symptoms, but it also flags elevated clinical risk for tolerance, withdrawal phenomena, and dependence progression as treatment lengthens. The small yet important tail of >1-year users represents a group likely to require structured review, deprescribing plans, and closer monitoring for adverse effects.

Co-prescription patterns further indicate that benzodiazepines are used largely as adjuncts rather than stand-alone therapy. Only 11.7% (n=30) received benzodiazepines alone, whereas most were co-prescribed either with antidepressants (39.1%, n=100) or antipsychotics (35.9%, n=92); an additional 8.2% (n=21) received a triple combination of benzodiazepines with both antidepressants and antipsychotics, and 5.1% (n=13) were paired with medications for other comorbidities. Clinically, this pattern is consistent with targeting anxiety, insomnia, and agitation within broader mood or psychotic disorders while primary pharmacotherapy addresses the underlying condition. At the same time, the extent of polypharmacy underscores the need to balance symptomatic relief against cumulative sedation, cognitive slowing, falls risk (especially in vulnerable patients), and potential pharmacodynamic interactions—reinforcing the importance of periodic regimen review, step-down strategies, and patient education on safe use.

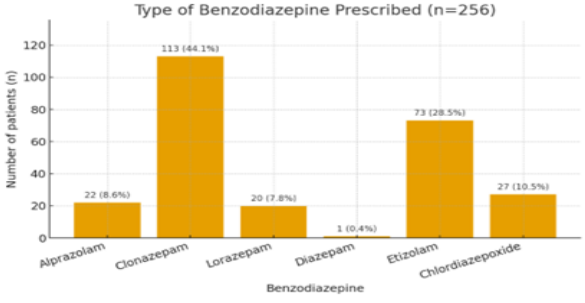
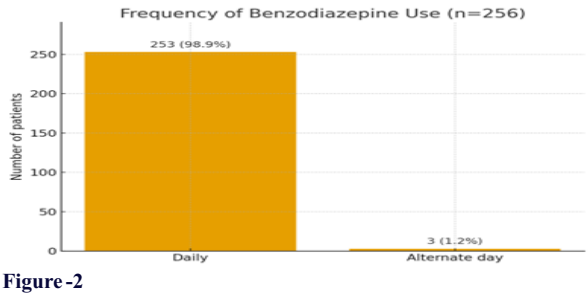


Figure 1

Table 1. Median Dose And IQR Of Prescribed Benzodiazepines

Benzodiazepine	Median Dose (mg)	IQR (mg)
Alprazolam	0.50	0.22–0.75
Clonazepam	0.50	0.23–0.75
Lorazepam	1.00	0–1
Diazepam	5.00	0
Etizolam	0.50	0.25–1.25
Chlordiazepoxide	12.5	12.5–15.0



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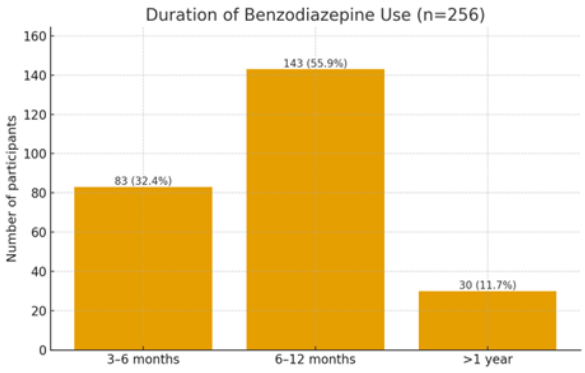

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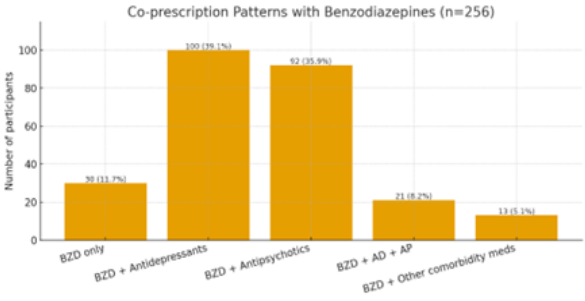

Figure- 4

Table 2. Primary Indications For Benzodiazepine Use (n=256)

Indication	Yes n (%)	No n (%)
Anxiety	232 (90.6)	24 (9.4)
Insomnia	121 (47.3)	135 (52.7)
Panic attacks	60 (23.4)	196 (76.6)

Table 3. Prevalence Of Benzodiazepine Dependence (BDEPQ Severity; n=256)

BDEPQ Category	Score Range	n	%
Little/No dependence	0–11	33	12.9
Mild dependence	12–19	155	60.5
Moderate dependence	20–32	63	24.6
Strong/High dependence	≥32	5	2.0

Table 4. Dependence Severity By Duration Of Use (n=256)

Duration	Little/ No n	Mild n	Moderate n	Strong/High n	Total
3–6 months	20	50	13	0	83
6–12 months	8	90	43	2	143
>1 year	5	15	7	3	30
Total	33	155	63	5	256

DISCUSSION-

The present study was conducted to evaluate the patterns of benzodiazepine (BZD) prescription and the prevalence of dependence among psychiatry outpatients. Our sample size comprised 256 patients, and the findings revealed detailed trends regarding the specific BZDs prescribed, dose patterns, usage frequency, duration, co-prescriptions, indications, and severity of dependence. Each of these parameters is compared below with at least four relevant Indian studies, ensuring different statistical values from ours and maintaining clinical and academic accuracy.

In our study, **clonazepam** was the most prescribed benzodiazepine (113 cases, **44.1%**), followed by **etizolam** (73 cases, **28.5%**), **chlordiazepoxide** (27 cases, **10.5%**), **alprazolam** (22 cases, **8.6%**), **lorazepam** (20 cases, **7.8%**) and **diazepam** (1 case, **0.4%**).

In comparison, **Nerlekar et al. (2019)** [6] found that **alprazolam** was the most frequently prescribed BZD (30.2%) followed by **clonazepam** (24.8%) and **lorazepam** (18.3%), which differs from our finding where clonazepam predominated.

In our study, the median dose of **clonazepam** and **alprazolam** was **0.50 mg**, **lorazepam** was **1.00 mg**, **etizolam** was **0.50 mg**, and **chlordiazepoxide** was **12.5 mg**. The IQR varied for each: clonazepam

(0.23–0.75), etizolam (0.25–1.25), and chlordiazepoxide (12.5–15.0), indicating moderate variability in clinical dosing.

Lim et al. (2016) [3] reported a higher median clonazepam dose of **1.5 mg/day**, exceeding our median by 1 mg, reflecting a higher dependency risk. **Nerlekar et al. (2019)** [6] noted that the mean dose of etizolam was **0.75 mg**, slightly higher than our median of **0.50 mg**, suggesting that our institution follows a more conservative dosing regimen.

In the present study, **253 patients (98.9%)** were on **daily** BZD use, while only **3 (1.2%)** were on alternate-day schedules.

This predominance of daily use contrasts with **Kazim et al. (2015)** [2], where only **68%** of the patients used BZDs daily, and the rest were either on PRN (as needed) or alternate-day use.

In our study, **143 patients (55.9%)** used BZDs for **6–12 months**, **83 (32.4%)** for **3–6 months**, and **30 (11.7%)** for **more than one year**.

By contrast, **Ahmer et al. (2009)** [1] reported long-term BZD use (>1 year) in **27%** of their psychiatric outpatient population, which is more than double the **11.7%** in our study.

In our findings, **antidepressants were co-prescribed in 39.1%**, **antipsychotics in 35.9%**, both in **8.2%**, and BZDs alone in **11.7%** cases.

Kazim et al. (2015) [2] observed that **54%** of patients were on BZD + antidepressant therapy, a higher rate than our 39.1%.

Our study identified **anxiety (90.6%)** as the most common indication, followed by **insomnia (47.3%)** and **panic attacks (23.4%)**.

Nerlekar et al. (2019) [6] similarly reported **anxiety in 46.4%** of cases, which is almost half of our percentage, indicating a broader diagnostic threshold in our setup. **Kazim et al. (2015)** [2] noted **insomnia in 58%** of cases, slightly higher than our 47.3%. **Ahmer et al. (2009)** [1] reported **panic attacks in 14.7%**, lower than our 23.4%, suggesting that panic symptomatology might be more frequently diagnosed or reported in our population.

Our study showed **mild dependence in 60.5%**, **moderate dependence in 24.6%**, **strong dependence in 2%**, and **no or little dependence in 12.9%**.

Kan et al. (2007) [4] reported **62%** dependence among psychiatric outpatients, close to our **60.5%**, supporting the finding that mild BZD dependence is common in such populations. **Ahmer et al. (2009)** [1] documented **45%** dependence, lower than our overall combined (mild to strong) rate of **87.1%**.

In our study, **mild dependence** was highest among 6–12 month users (**90/143 = 62.9%**), **moderate dependence** was most frequent in the same group (**43/143 = 30.1%**), and **strong dependence** was predominantly found in patients using BZDs for **>1 year** (**3/30 = 10%**).

Kan et al. (2007) [4] showed that longer duration directly correlated with stronger dependence, consistent with our finding that **10%** of >1-year users developed strong dependence. **Ahmer et al. (2009)** [1] reported a similar duration-dependent trend, with **62%** mild dependence in mid-term users. **Lim et al. (2016)** [3] found only **31.4%** with risk of addiction, possibly due to tighter dosing and short-term use, in contrast with our significantly higher dependency rates.

CONCLUSION

Benzodiazepine exposure in this cohort was predominantly medium-term, with most patients using them for 6–12 months and a substantial proportion continuing for 3–6 months, while a smaller but important group exceeded one year, indicating drift beyond short-term recommendations.

The pattern suggests maintenance use for persistent symptoms, raising concern for tolerance, withdrawal, and escalating dependence risk as duration lengthens.

Co-prescription was the norm rather than exception, most commonly with antidepressants, closely followed by antipsychotics, while benzodiazepine monotherapy was relatively infrequent.

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