Research Report

A COMPARATIVE STUDY OF CLINICAL CHARACTERISTICS, COURSE OF ILLNESS, SUBSTANCE USE PATTERN, AND QUALITY OF LIFE BETWEEN PATIENTS WITH BIPOLAR AND UNIPOLAR DEPRESSION

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ABSTRACT

Background: Distinguishing between unipolar and bipolar depression is critical for effective management. This study aims to compare the clinical characteristics, illness trajectory, substance use patterns, and quality of life in patients with unipolar and bipolar depression. **Methods:** A cross-sectional study including 140 patients diagnosed with unipolar or bipolar depression per DSM-5 criteria was conducted. Participants were evaluated using the Hamilton Depression Rating Scale (HDRS), Brief Psychiatric Rating Scale (BPRS), WHO Quality of Life-BREF (WHOQOL-BREF), Alcohol Use Disorders Identification Test (AUDIT), and the Fagerstrom Test for Nicotine Dependence. Socio-demographic and clinical data were analysed using descriptive and inferential statistics. **Results:** Patients with Bipolar Depression (BD) had significantly higher symptom severity, with mean HDRS scores of 21.59 (SD = 5.05) compared to 17.64 (SD = 4.43) in Unipolar Depression (UD) ($p < 0.001$), and BPRS scores of 44.10 (SD = 7.99) vs. 37.91 (SD = 8.55), respectively ($p < 0.001$). Psychotic symptoms were more common in the BD group (64.3%) compared to the UD group (34.3%) ($p< 0.001$). Regarding the course of illness, BD patients had an earlier age of onset (mean = 25.61 years, SD = 7.31) than UD patients (mean = 36.23 years, SD = 8.04; $p < 0.001$), a greater number of depressive episodes ($p < 0.001$), longer average duration of episodes ($p = 0.009$), and more frequent hospitalizations ($p < 0.001$). In terms of quality of life, psychological domain scores were significantly lower in the BD group (mean = 41.63, SD = 13.47) compared to the UD group (mean = 48.71, SD = 13.34; $p = 0.004$). **Conclusion:** Bipolar depression presents with greater severity, recurrence, and psychotic symptoms, impacting overall psychological well-being.

Keywords: Unipolar depression, Bipolar depression, Clinical characteristics, Quality of Life.

INTRODUCTION

Bipolar and unipolar depression are often clinically indistinguishable, contributing to frequent misdiagnosis. Studies estimate a delay of 7 to 10 years from the onset of symptoms to the accurate diagnosis of bipolar disorder, often resulting in inappropriate treatment, treatment resistance, or a manic switch. Mixed symptoms, psychomotor agitation, early age of onset, a greater number of prior episodes, and a family history of bipolar disorder are also more frequently seen in bipolar depression.[1]

Bipolar depression is more often associated longer illness duration, higher frequency of hospitalizations, and increased prevalence of substance use, particularly alcohol and cannabis. Additional findings include higher rates of insomnia, mood-related somatic symptoms, and poor insight in patients with mixed features, all of which may reflect an underlying vulnerability to bipolarity[5].

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Quality of life (QOL) impairments are common in both unipolar and bipolar depression; however, individuals with bipolar depression often report disproportionately lower psychological well-being, even when symptom severity is comparable. This may reflect deeper emotional distress, greater cognitive disruption, and a higher burden of hopelessness, all of which contribute to increased functional impairment and suicide risk[3].Long-term functional impairment is substantially higher in bipolar I and II disorders compared to unipolar depression, underscoring the chronicity and greater morbidity associated with bipolarity[6].

Given the high prevalence of unipolar and bipolar depression in tertiary care centres, this study aims to compare clinical characteristics, illness trajectory, substance use patterns, and quality of life in both conditions. Understanding these distinctions will help tailor more effective treatment strategies and enhance patient outcomes.

MATERIALS AND METHODS

This cross-sectional study was conducted at a tertiary care centre in South India, after the approval of ethics committee, to compare the clinical characteristics, course of illness, substance use patterns, and quality of life between patients diagnosed with unipolar and bipolar depression based on DSM-5 criteria. The study was conducted from December 2022 to June 2024.

The sample size was calculated using the formula: $n = \frac{Z^2_{1-\alpha/2}[P_1(1-P_1)+P_2(1-P_2)]}{d^2}$where:

- n is the sample size.
- $Z_{1-\alpha/2}$represents the critical value from the standard normal distribution corresponding to the desired confidence level.
- P_1 is the expected proportion of the outcome in the first group.
- P_2 is the expected proportion of the outcome in the second group
- d is the minimum clinically or practically significant difference between the two proportions (P_1- P_2)

Assuming a 95% confidence interval and 80% power, based on the prevalence of severe depression in the bipolar group (80%) and unipolar group (60%) according to a study[7] conducted in South India, the required minimum sample size was 64 in each group.

A total of 70 patients, each aged 18‑65 years, were recruited from the psychiatry outpatient and inpatient departments, with inclusion criteria requiring a confirmed diagnosis of either unipolar or bipolar depression (current depressive episode). Patients with major psychiatric comorbidities or cognitive impairments were excluded. Consecutive sampling was used to select participants who met the inclusion criteria. Socio-demographic and clinical characteristics were collected from clinical history, including age of onset, episode frequency, hospitalizations, psychotic symptoms, and family history. Standardized assessment tools were used: Hamilton Depression Rating Scale (HDRS) for depression severity, Brief Psychiatric Rating Scale (BPRS) for psychiatric symptoms, WHO Quality of Life-BREF (WHOQOL-BREF) for quality of life, Alcohol Use Disorders Identification Test (AUDIT) for alcohol dependence, and Fagerstrom Test for Nicotine Dependence for nicotine use. All assessment scales were administered simultaneously to ensure consistency. Statistical analysis was conducted using SPSS software, with descriptive and inferential tests such as independent t-tests and chi-square tests to compare groups, and correlation analyses to assess relationships between clinical

symptoms and quality of life. Ethical approval was obtained from the Institutional Ethics Committee, and informed consent was secured from all participants, ensuring confidentiality and voluntary participation.

RESULTS

A total of 140 participants (70 in each group) were included in the study. Females were more affected in both groups, with 43 cases (61.4%) in Unipolar Depression (UD) and 38 cases (54.3%) in Bipolar Depression (BD)(Table 1).Regarding marital status, married individuals formed the majority in both groups, with 44 cases in UD and 40 cases in BD. However, divorced or separated individuals were significantly more common in BD (12 cases) compared to UD (5 cases).When considering educational background, no cases of individuals without a formal educationwere recorded in either group. Intermediate-level education was more common in BD (24 cases) compared to UD (16 cases). However, diploma and graduate holders were more prevalent in UD (20 and 15 cases, respectively) than in BD(Table 1).Occupational distribution revealed that unskilled workers had a higher prevalence of BD (25 cases) compared to those in the UD category (19 cases), while homemakers and professionals were more affected by UD. (Table 1).Family structure and living environment also played a role in depression prevalence. Nuclear families had the highest prevalence of both UD (52 cases) and BD (61 cases), while joint family structures had fewer cases. Additionally, UD was more prevalent in rural areas (31 cases), whereas BD was more common in urban areas (28 cases) (Table 1).

Table 1: Comparison of Clinical Characteristics in Patients with Unipolar and Bipolar Depression

Clinical Characteristics	Unipolar Depression	Bipolar Depression	Test	P-value
Insomnia	38 (54.3%)	47 (67.1%)	χ^2 = 1.92	0.166
Hypersomnia	12 (17.1%)	9 (12.9%)	χ^2 = 0.56	0.456
Decreased Appetite	32 (45.7%)	37 (52.9%)	$\chi^2 = 0.72$	0.397
Increased Appetite	4 (5.7%)	12 (17.1%)	Fisher's Exact Test	**0.035**
Fatigue	38 (54.3%)	31 (44.3%)	$\chi^2 = 1.13$	0.288
Anhedonia	40 (57.1%)	34 (48.6%)	$\chi^2 = 1.03$	0.309
Difficulty in concentrating	36 (51.4%)	38 (54.3%)	$\chi^2 = 0.36$	0.548
Postpartum Onset	5 (7.1%)	8 (11.4%)	Fisher's Exact Test	0.231
Feelings of Guilt	27 (38.6%)	33 (47.1%)	$\chi^2 = 0.79$	0.373
Suicidal thoughts/ ideations	31 (44.3%)	42 (60.0%)	$\chi^2 = 2.78$	0.095
Deliberate self-harm	16 (22.9%)	12 (17.1%)	$\chi^2 = 0.73$	0.392
Decreased Psychomotor Activity	31 (44.3%)	37 (52.9%)	$\chi^2 = 0.52$	0.470
Increased Psychomotor Activity	5 (7.1%)	11 (15.7%)	$\chi^2 = 1.67$	0.197
Psychotic symptoms	24 (34.3%)	45 (64.3%)	$\chi^2 = 9.97$	**0.002**
Delusions	21 (30.0%)	39 (55.7%)	$\chi^2 = 6.58$	**0.010**
Hallucinations	3 (4.3%)	6 (8.6%)	Fisher's Exact Test	0.136

Psychomotor activity was assessed, revealing that BD had a higher prevalence of decreased psychomotor activity (37 cases) and increased activity (11 cases) compared to UD (31 and 5 cases, respectively). However, the difference did not reach statistical significance ($\chi^2 = 5.35$, $p = 0.069$)The presence of psychotic symptoms, delusions, and hallucinations was significantly higher in Bipolar Depression (BD) compared to Unipolar Depression (UD), with 45, 39, and 6 cases, respectively, in BD. In contrast, UD had 24, 21, and 3 cases. In contrast, fatigue, anhedonia, and hypersomnia were slightly more prevalent in UD. Moreover, suicidal thoughts and self-harm were more

frequent in BD, indicating a higher risk of self-injurious behaviours in this group. (Table1)

Bipolar Depression had an earlier onset, with the majority of cases (93%) occurring before 40 years of age, including 28 cases under 20 years. In contrast, Unipolar Depression exhibited a broader distribution, with the highest prevalence in the 20-40 years age group (34 cases), followed by 40-60 years (26 cases).The number of episodes varied significantly between Unipolar Depression (UD) and Bipolar Depression (BD). UD predominantly had fewer episodes, with 41 cases reporting fewer than five episodes. In contrast, BD was associated with a higher number of depressive episodes, with 38 cases experiencing 5-10 depressive episodes and 13 cases exceeding 10 depressive episodes. A chi-square test ($\chi^2 = 15.51$, $p = 0.0004$) indicated a statistically significant difference in the number of episodes between the two groups. The mean duration of depressive episodes also differed between the two disorders. In UD, the mean duration of depressive episodes was found to be 91.28 days. In contrast, the mean duration of depressive episodes in BD was found to be 144.57 days, indicating a statistically significant difference in mean episode duration ($t = 2.69$, $p = 0.009$).Hospitalization trends further highlighted the severity of BD compared to UD. UD had fewer hospitalizations, with 54 cases having 0-5 hospitalizations. BD had significantly more hospitalizations, with 39 cases falling within the 5-10 range and 9 cases exceeding 10 hospitalizations. Manic episodes were not taken into consideration when recording the number of hospitalizations. The chi-square test ($\chi^2 = 30.54$, $p < 0.001$) confirmed a highly significant difference. (Table 2)

Table 2: Course of Illness in Patients with Unipolar and Bipolar Depression

Category	Unipolar Depression (N=70)	Bipolar Depression (N=70)	Test	P-Value
Age of Onset <20 years	10 (14.3%)	28 (40.0%)	$\chi^2 = 13.91$	**<0.001**
Age of Onset 20-40 years	34 (48.6%)	37 (52.9%)		
Age of Onset 40-60 years	26 (37.1%)	5 (7.1%)		
Episodes <5	41 (58.6%)	19 (27.1%)	$\chi^2 = 15.51$	**0.0004**
Episodes 5-10	25 (35.7%)	38 (54.3%)		
Episodes >10	4 (5.7%)	13 (18.6%)		
Average Duration of Depressive Episodes	91.28 Days	144.57 Days	t = 2.69	**0.009**
Duration 3-6 months	26 (37.1%)	38 (54.3%)	$\chi^2 = 4.31$	**0.038**
Duration >6 months	7 (10.0%)	12 (17.1%)		
Hospitalizations 0-5	54 (77.1%)	22 (31.4%)	$\chi^2 = 30.54$	**<0.001**
Hospitalizations 5-10	15 (21.4%)	39 (55.7%)		
Hospitalizations >10	1 (1.4%)	9 (12.9%)		

The Hamilton Depression Rating Scale (HDRS) revealed significantly higher depression severity in Bipolar Depression (BD) (Mean = 22.31) compared to Unipolar Depression (UD) (Mean = 19.06), with a statistically significant difference ($t = -2.783$, $p = 0.006$). Similarly, the Brief Psychiatric Rating Scale (BPRS) showed higher psychiatric symptom severity in BD (Mean = 45.01) compared to UD (Mean = 39.43), with a significant difference ($t = -2.762$, $p = 0.007$).Similarly, the Brief Psychiatric Rating Scale (BPRS) was also significantly higher in BD (Mean = 45.01) than in UD (Mean = 39.43, $t = -2.762$, $p = 0.007$).

Substance use patterns, as measured by the Alcohol Use Disorder Identification Test (AUDIT), revealed slightly higher mean scores in BD (11) compared to UD (8.08), but the difference was not statistically significant ($t = -1.38$, $p = 0.175$). Similarly, nicotine dependence scores were slightly higher in BD (Mean = 5.43) compared to UD (Mean = 4.62), though this difference was also not statistically significant ($t = -0.93$, $p = 0.358$).

Assessment of quality of life (WHOQOL-BREF) showed that physical health scores were

slightly higher in UD (Mean = 20.24) than BD (Mean = 18.58), though not significant (t = 1.652, p = 0.101). However, psychological health scores were significantly higher in UD (Mean = 18.03) compared to BD (Mean = 14.61), showing a highly significant difference (t = 3.665, p < 0.001). There were no significant differences in social relationships (t = 1.130, p = 0.260) or environmental factors (t = 1.499, p = 0.136) between the two groups. (Table 3)

Table 3: Comparison of mean scores of Clinical Scales and Quality of Life

Measure	Unipolar (Mean ± SD)	Bipolar (Mean ± SD)	t-value	p-value
HDRS	17.64 ± 4.43	21.59 ± 5.05	4.76	**< 0.001**
BPRS	37.91 ± 8.55	44.10 ± 7.99	4.32	**< 0.001**
AUDIT	3.84 ± 2.33	4.74 ± 2.57	1.98	**0.050**
Fagerstrom	1.89 ± 1.65	2.17 ± 1.92	0.93	**0.353**
QOL - Physical	52.43 ± 13.89	50.19 ± 12.58	0.97	**0.333**
QOL - Psychological	48.71 ± 13.34	41.63 ± 13.47	2.91	**0.004**
QOL - Social	52.57 ± 17.57	50.67 ± 16.64	0.63	**0.530**
QOL - Environmental	58.24 ± 13.53	55.53 ± 13.06	1.15	**0.251**

Correlation analysis indicated that HDRS scores strongly correlated with BPRS scores (r = 0.61 in UD, r = 0.50 in BD), suggesting that higher depression severity was associated with greater psychiatric symptom burden in both groups. Additionally, social relationships and environmental factors were found to correlate more strongly with psychological health in BD, highlighting the multidimensional impact of BD on overall well-being.

Table 4: Correlation Between Clinical Variables and Quality of Life

Correlation	**Unipolar Depression (r, p)**	**Bipolar Depression (r, p)**
HDRS & BPRS	**0.61 < 0.001**	**0.50 < 0.001**
HDRS & Physical Health	-0.16 0.18	-0.20 0.09
HDRS & Psychological Health	-0.20 0.098	**-0.31 0.009**
HDRS & Social Relationships	-0.08 0.49	-0.18 0.13
HDRS & Environment	**-0.24 0.045**	**-0.28 0.02**
BPRS & Psychological Health	**-0.28 0.02**	**-0.36 0.002**
BPRS & Social Relationships	-0.15 0.21	**-0.24 0.04**
BPRS & Environment	-0.23 0.051	**-0.33 0.006**

The correlation matrix for Unipolar Depression (UD) reveals that the Hamilton Depression Rating Scale (HDRS) shows a strong positive correlation with the Brief Psychiatric Rating Scale (r = 0.61), indicating that higher depression severity is linked to more severe psychiatric symptoms. Additionally, HDRS has a modest positive correlation with Psychological Health (r = 0.20), suggesting that greater depression severity is associated with lower psychological well-being. A negative correlation between HDRS and Environment (r = -0.24) indicates that patients with more severe depression tend to perceive their environmental conditions more negatively. Similarly, Social Relationships have a weak negative correlation with Environment (r = -0.23), implying that poorer social relationships are associated with worse perceptions of the living environment in UD patients.

For Bipolar Depression (BD), the correlation matrix highlights a moderate positive correlation between HDRS and BPRS (r = 0.50), confirming that greater depression severity is associated with more severe

psychiatric symptoms in BD. A modest positive correlation between HDRS and Psychological Health (r = 0.18) suggests that higher depression scores are linked to lower psychological well-being in BD as well. Interestingly, Psychological Health is positively correlated with Social Relationships (r = 0.18) and Environmental Quality (r = 0.13), indicating that better psychological well-being is associated with better social interactions and environmental perceptions in BD patients. However, Physical Health shows a weak negative correlation with Environment (r = -0.22), implying that poorer physical health may lead to a more negative perception of environmental conditions in BD. (Table 4)

DISCUSSION

Our results indicate that BD tends to manifest earlier, with a majority of cases occurring before the age of 40. In contrast, UD exhibits a broader age distribution, peaking between 20 and 40 years but also affecting older individuals. This finding aligns with prior research, suggesting that early-onset BD may have different neurobiological underpinnings compared to UD. Additionally, the female preponderance in both disorders, particularly in UD (61.42%), is consistent with previous studies indicating gender-specific risk factors, including hormonal influences and sociocultural stressors. [8, 9] The majority of patients in both groups were married, with a higher proportion of divorced or separated individuals in the BD group. This suggests that BD may contribute to relationship instability, potentially due to mood instability and impulsivity. Similar findings have been reportedin a multicentric study. [10]A higher prevalence of BD and UD in nuclear families suggests that reduced family support systems may contribute to the persistence or severity of depressive episodes. Rural populations had a higher prevalence of UD. In contrast, BD was more common in urban settings, possibly due to environmental stressors or differences in healthcare accessibility, a pattern that contrasts with findings from another study. [11]
The study revealed that fewer episodes characterize UD,and BD is associated with frequent recurrences. Additionally, BD patients required more hospitalizations and had a higher mean duration of depressive episodes. These findings align with previous literature suggesting higher relapse rates and functional impairments in BD compared to UD. [12]While psychomotor disturbances, particularly increased activity, appeared more frequently in Bipolar Depression (BD), the difference did not reach statistical significance (p = 0.069). This trend aligns with prior findings suggesting psychomotor abnormalities may be more prevalent in BD.[13]Suicidal ideation, psychotic features, and self-harm were significantly higher in BD, as was seen in an earlier study. [14]
Patients with BD had significantly higher scores on the Hamilton Depression Rating Scale (HDRS) and Brief Psychiatric Rating Scale (BPRS) compared to those with UD, indicating greater symptom severity in BD. This supports the greater prevalence of psychotic features observed in BD, a finding that is consistent with previous literature, which also reported higher HDRS and BPRS scores in patients with BD. [15,16]In terms of substance use, BD patients had higher Alcohol Use Disorder Identification Test (AUDIT) scores, but the difference between the two groups was not statistically significant. Similarly, nicotine dependence did not significantly differ between UD and BD. However, previous research suggests that alcohol use disorder is more prevalent in BD,

yet the extent of its impact on illness severity needs further exploration[17].

Despite similar physical health outcomes, which had a non-significant difference between the two groups, indicating that physical function alone may not distinguish unipolar from bipolar depression. BD patients scored significantly lower on psychological health measures than UD patients, highlighting greater emotional instability and distress in BD. This finding aligns with other studies, which reported poorer psychological well-being in BD. [18,19]In Unipolar Depression, the strong positive correlation between HDRS and BPRS underscores a more direct link between depressive severity and overall psychiatric symptom burden. This pattern differs in Bipolar Depression, where symptom severity appears more diffusely associated with quality-of-life dimensions, as seen in earlier research. [20]

The sample size for this study may not provide sufficient power to detect small to moderate differences in continuous variables. The inclusion of inpatients may have introduced a bias related to illness severity, as inpatients typically present with more acute or severe symptoms. The clinical characteristics were obtained through clinical history and mental status examination, rather than through the use of a standard diagnostic scale, which may have resulted in the exclusion of other relevant symptoms. The study's findings on substance use should be interpreted with caution, as higher rates observed in Bipolar Depression may be attributed to a larger proportion of male participants in this group.

CONCLUSION

The study shows that bipolar depression presents earlier, with more frequent, severe episodes and greater psychotic symptoms, requiring long-term mood stabilization strategies. Unipolar depression has fewer episodes, shorter durations, and better psychological well-being, suggesting a focus on symptom reduction and relapse prevention. Substance use patterns were similar in both groups. Tailored interventions addressing the specific challenges of each condition can enhance treatment efficacy, improve quality of life, and optimize long-term patient outcomes.

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