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Original Research

Impact of Psychiatric Comorbidity on Quality of Life and Disability in Refractory Focal Epilepsy: A Comparative Cross-Sectional Study

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ABSTRACT:

Background: Refractory focal epilepsy is frequently complicated by psychiatric comorbidities, which may substantially influence quality of life and functional disability. **Objective:** To compare quality of life and disability among subjects with refractory focal epilepsy with and without psychiatric comorbidities. **Methods:** A comparative cross-sectional study was conducted among 70 subjects with refractory focal epilepsy, divided into those with psychiatric comorbidities (n=35) and those without (n=35). Sociodemographic and clinical variables were recorded, quality of life was assessed using WHO-QOL BREF, and disability was evaluated using WHODAS. **Results:** Subjects with psychiatric comorbidities demonstrated significantly lower scores across all quality of life domains and significantly higher disability scores across most functional domains compared to those without psychiatric comorbidities ($p<0.001$). Medical comorbidities were more prevalent in the psychiatric comorbidity group ($p=0.028$). **Conclusion:** Psychiatric comorbidities significantly worsen quality of life and increase disability in refractory focal epilepsy, highlighting the need for integrated neuropsychiatric care.
Keywords: Refractory focal epilepsy; Psychiatric comorbidity; Quality of life; Disability

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INTRODUCTION

Epilepsy is a chronic neurological disorder characterized by recurrent unprovoked seizures and is associated with considerable morbidity and disability worldwide. In particular, refractory focal epilepsy—defined as failure to achieve sustained seizure freedom despite adequate antiseizure medication trials—accounts for a large proportion of individuals with impaired functioning and reduced health outcomes [1]. While seizure control remains a primary treatment goal, increasing evidence demonstrates that psychiatric comorbidities such as depression, anxiety, and other mental health disorders occur at significantly higher rates in people with epilepsy compared to the general population, exerting a profound influence on patients' overall well-being [2,3].

Several large observational studies have highlighted the high prevalence of psychiatric disorders among people with epilepsy, reporting that between one-quarter to one-half of patients exhibit symptoms of depression and/or anxiety. These comorbidities persist across demographic and cultural settings and contribute independently to poorer clinical outcomes [3,4]. Importantly, studies examining individuals with refractory forms of epilepsy have documented even higher rates of mood disturbances, with anxiety and depressive symptomatology negatively correlating with overall quality of life, irrespective of seizure frequency or severity [5].

Quality of life (QoL), as measured by instruments like the Quality of Life in Epilepsy inventory (QOLIE), encompasses physical, emotional, cognitive, and social domains, all of which may be adversely affected by psychiatric comorbidity [6]. Research in diverse populations has shown that psychiatric symptoms are among the strongest predictors of reduced QoL, exceeding even seizure severity in their impact on daily functioning and satisfaction with life [7,8]. Furthermore, psychiatric disorders have been linked to increased disability, social stigmatization, and impaired participation in education and employment, highlighting the broad implications of untreated comorbidity on functional outcomes [2,9].

Despite this, there remains a paucity of comparative studies specifically addressing the effect of psychiatric comorbidity on QoL and disability in refractory focal epilepsy. Existing evidence suggests that individuals with co-occurring psychiatric disorders report significantly lower QoL scores and higher disability levels compared to those without such comorbidity, underscoring the need for integrated neuropsychiatric assessment and management in this population [1,5,10]. Clarifying the relationship between psychiatric comorbidity and patient-reported outcomes in refractory focal epilepsy will inform targeted interventions to improve overall prognosis and enhance the quality of care.

MATERIAL AND METHODS

This comparative cross-sectional study was conducted in the Department of Neurology of a tertiary care teaching hospital after obtaining approval from the Institutional Ethics Committee. The study population comprised subjects diagnosed with refractory focal epilepsy attending the neurology outpatient and inpatient services during the study period. Refractory focal epilepsy was defined as failure to achieve sustained seizure freedom despite adequate trials of at least two appropriately chosen and tolerated antiseizure medications. A total sample size of 70 subjects was included in the study and divided into two groups based on the presence or absence of psychiatric comorbidity.

Subjects aged 18 years and above with a confirmed diagnosis of refractory focal epilepsy for a minimum duration of one year were eligible for inclusion. Patients with progressive neurological disorders, severe cognitive impairment precluding reliable questionnaire responses, acute medical illness, substance dependence, or previously diagnosed major psychiatric disorders predating the onset of epilepsy were excluded from the study. Written informed consent was obtained from all participants prior to enrolment.

Participants were evaluated using a structured proforma to record sociodemographic details, clinical characteristics of epilepsy including age at onset, duration of illness, seizure frequency, and treatment details. Psychiatric comorbidity was assessed using standardized diagnostic criteria based on the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, through clinical evaluation by a qualified psychiatrist. Based on this assessment, subjects were categorized into two groups: those with coexisting psychiatric comorbidities and those without psychiatric comorbidity.

Quality of life was assessed using a validated epilepsy-specific quality of life instrument, administered in a language understood by the participant. Disability was evaluated using a standardized disability assessment scale appropriate for neurological disorders. All assessments were conducted in a single session to minimize recall bias and ensure uniformity.

The collected data were entered into a Microsoft Excel spreadsheet and analyzed using appropriate statistical software. Continuous variables were expressed as mean and standard deviation, while categorical variables were expressed as frequencies and percentages. Comparisons between the two groups were performed using the independent t-test for continuous variables and the chi-square test for categorical variables. A p-value of less than 0.05 was considered statistically significant.

RESULTS

The sociodemographic characteristics of the study participants are summarized in Table 1. The mean age of subjects with psychiatric comorbidities was 34.2 years, whereas those without psychiatric comorbidities had a mean age of 29.8 years. Male predominance was observed in both groups, with 54.3% males in the comorbidity group and 57.1% males in the non-comorbidity group. A higher proportion of unmarried participants was seen among subjects with psychiatric comorbidities (60.0%) compared to those without (42.9%). Nuclear family structure was common in both groups (71.4% each). Lower educational attainment up to high school was more frequent in the comorbidity group (77.1%) compared to the non-comorbidity group (51.4%). Unemployment was observed in 68.6% of subjects with psychiatric comorbidities versus 54.3% in those without. Most participants belonged to the middle-income group (₹30,000–₹60,000), accounting for 74.3% in the comorbidity group and 60.0% in the non-comorbidity group. Urban residence predominated in both groups, more so in those without psychiatric comorbidities (85.7%) (Table 1).

Table 2 depicts the comparison of clinical variables between the two groups. The mean age of onset of epilepsy was 13.1±9.6 years in subjects with psychiatric comorbidities and 14.8±8.1 years in those without, showing no statistically significant difference (p=0.418). The mean duration of illness was longer in the comorbidity group (21.4±10.8 years) compared to the non-comorbidity group (15.2±9.0 years), though this difference did not reach statistical significance (p=0.071). Complex focal seizures were more common in both groups. Aura was reported by 45.7% of subjects with psychiatric comorbidities and 65.7% of those without. Medical comorbidities were significantly more frequent in the psychiatric comorbidity group (25.7% vs 5.7%, p=0.028), while other clinical variables did not show significant associations (Table 2).

The comparison of quality of life domains assessed using the WHO-QOL BREF is shown in Table 3. Subjects with psychiatric comorbidities had significantly lower scores across all domains. The mean physical health score was 43.1±11.4 in the comorbidity group compared to 52.8±8.7 in those

without (p<0.001). Psychological domain scores were 50.6±8.9 versus 58.4±7.1 (p<0.001). Social relationship and environmental domain scores were also significantly lower in subjects with psychiatric comorbidities (52.3±12.6 vs 64.1±9.2 and 44.7±7.2 vs 65.0±5.6, respectively). The overall quality of life score was markedly reduced in the comorbidity group (47.8±8.1) compared to the non-comorbidity group (60.2±6.4) (Table 3).

Table 4 presents the comparison of disability scores assessed using WHODAS. Subjects with psychiatric comorbidities demonstrated significantly higher disability across most domains. Scores for getting around, self-care, life activities, and participation in society were significantly higher in the comorbidity group, with the total disability score being 96.2±8.7 compared to 81.1±6.1 in those without psychiatric comorbidities (p<0.001). The domain of understanding and communicating showed a borderline difference (p=0.062) (Table 4).

The mean quality of life and disability scores among different psychiatric diagnoses are summarized in Table 5. Subjects with major depressive disorder and psychosis exhibited the lowest mean quality of life scores (61.4±7.9 and 67.2±4.3, respectively) and the highest mean disability scores (104.6±6.2 and 106.1±2.1, respectively). In contrast, subjects with substance use disorder demonstrated comparatively higher quality of life scores (78.6±4.1) and lower disability scores (85.2±7.3) (Table 5).

Table 1. Comparison of Sociodemographic Details in Subjects With and Without Psychiatric Comorbidities (n=70)

Variable	Comorbidities Present (n=35)	Comorbidities Absent (n=35)
Mean age (years)	34.2	29.8
Gender		
Males	19 (54.3%)	20 (57.1%)
Females	16 (45.7%)	15 (42.9%)
Marital status		
Single	21 (60.0%)	15 (42.9%)
Married	14 (40.0%)	20 (57.1%)
Type of family		
Nuclear	25 (71.4%)	25 (71.4%)
Joint	10 (28.6%)	10 (28.6%)
Educational status		
High school	27 (77.1%)	18 (51.4%)
Diploma/Graduate	8 (22.9%)	17 (48.6%)
Employment status		
Unemployed	24 (68.6%)	19 (54.3%)
Employed	11 (31.4%)	16 (45.7%)
Monthly family income (₹)		
≤30,000	6 (17.1%)	5 (14.3%)
30,000–60,000	26 (74.3%)	21 (60.0%)
≥60,000	3 (8.6%)	9 (25.7%)
Area of domicile		
Rural	5 (14.3%)	3 (8.6%)
Urban	28 (80.0%)	30 (85.7%)
Suburban	2 (5.7%)	2 (5.7%)

Table 2. Association of Clinical Features in Subjects With and Without Psychiatric Comorbidities

Variable	Comorbidities Present (n=35)	Comorbidities Absent (n=35)	p-value
Age of onset (years)	13.1±9.6	14.8±8.1	0.418
Duration of illness (years)	21.4±10.8	15.2±9.0	0.071
Type of seizure			0.744
Simple	13 (37.1%)	11 (31.4%)	
Complex	22 (62.9%)	24 (68.6%)	
Aura present	16 (45.7%)	23 (65.7%)	0.123
Post-ictal confusion present	10 (28.6%)	12 (34.3%)	0.793
Status epilepticus present	4 (11.4%)	4 (11.4%)	1.000
>1 AED	34 (97.1%)	35 (100%)	1.000
Drug compliance present	32 (91.4%)	34 (97.1%)	0.614
EEG compliance present	24 (68.6%)	28 (80.0%)	0.298

Medical comorbidities present	**9 (25.7%)**	**2 (5.7%)**	**0.028***
Previous psychiatric disorder present	**5 (14.3%)**	**2 (5.7%)**	**0.430**
Family history of seizures present	**2 (5.7%)**	**3 (8.6%)**	**1.000**

Table 3. Comparison of Quality of Life (WHO-QOL BREF) Using Mann-Whitney U Test

QoL Domain	Comorbidity Present (n=35) Mean±SD	Comorbidity Absent (n=35) Mean±SD	p-value
Physical health	**43.1±11.4**	**52.8±8.7**	**<0.001****
Psychological factors	**50.6±8.9**	**58.4±7.1**	**<0.001****
Social relationships	**52.3±12.6**	**64.1±9.2**	**<0.001****
Environmental factors	**44.7±7.2**	**65.0±5.6**	**<0.001****
Overall QoL	**47.8±8.1**	**60.2±6.4**	**<0.001****

Table 4. Comparison of Disability (WHODAS) Using Mann-Whitney U Test

WHODAS Domain	Comorbidity Present (n=35) Mean±SD	Comorbidity Absent (n=35) Mean±SD	p-value
Understanding & communicating	**12.9±3.0**	**11.1±2.0**	**0.062**
Getting around	**14.3±2.2**	**10.8±1.7**	**<0.001****
Self-care	**6.9±1.2**	**5.9±0.8**	**<0.001****
Getting along with people	**13.4±1.5**	**11.9±1.6**	**0.002***
Life activities	**23.8±2.1**	**19.9±1.7**	**<0.001****
Participation in society	**25.3±2.4**	**22.1±2.5**	**<0.001****
Total disability score	**96.2±8.7**	**81.1±6.1**	**<0.001****

Table 5. Mean Quality of Life and Disability Scores Among Different Psychiatric Comorbidities

Psychiatric Comorbidity	n	Mean QoL (Raw Score)	Mean Disability Score
Major depressive disorder	**8**	**61.4±7.9**	**104.6±6.2**
Dysthymia	**12**	**64.7±6.4**	**98.8±7.1**
Panic disorder	**5**	**73.6±4.1**	**86.9±8.4**
Substance use disorder	**6**	**78.6±4.1**	**85.2±7.3**
Psychosis	**4**	**67.2±4.3**	**106.1±2.1**

DISCUSSION

The present comparative cross-sectional study demonstrates that psychiatric comorbidity has a substantial and independent impact on quality of life and disability among subjects with refractory focal epilepsy. In the current cohort, individuals with psychiatric comorbidities exhibited significantly poorer quality of life across all WHO-QOL BREF domains and significantly higher disability scores on WHODAS when compared to those without psychiatric comorbidities, despite comparable seizure-related clinical profiles. These findings reinforce the growing recognition that psychosocial and psychiatric factors play a critical role in determining overall disease burden in refractory epilepsy beyond seizure control alone.

In this study, sociodemographic variables such as age, gender distribution, and family type were comparable between groups, suggesting that observed differences in outcomes were not confounded by baseline demographic disparities. However, lower educational attainment and higher unemployment rates were more common among subjects with psychiatric comorbidities, which may reflect bidirectional relationships between mental health, functional impairment, and socioeconomic disadvantage. Similar associations have been reported by Josephson and Jette, who emphasized that psychiatric disorders in epilepsy significantly contribute to social exclusion and reduced participation in education and employment, thereby amplifying disability and poor life satisfaction [11].

Clinical variables including age of onset, seizure type, aura, post-ictal confusion, antiseizure medication burden, and drug compliance did not differ significantly between groups, indicating that epilepsy severity alone did not explain the marked differences in patient-reported outcomes. Notably, medical comorbidities were significantly more prevalent in subjects with psychiatric comorbidities, aligning with evidence suggesting shared biological and behavioral pathways linking chronic medical illness, mental health disorders, and functional decline [12]. This clustering of comorbidities likely compounds disability and adversely affects coping mechanisms in refractory epilepsy.

Quality of life analysis revealed that subjects with psychiatric comorbidities scored significantly lower in physical health (43.1 vs 52.8), psychological well-being (50.6 vs 58.4), social relationships (52.3 vs 64.1), and environmental domains (44.7 vs 65.0), with an overall quality of life score nearly 12 points lower than those without psychiatric comorbidity. These findings are consistent with prior studies

demonstrating that depression and anxiety are among the strongest predictors of impaired quality of life in epilepsy, often exerting a greater influence than seizure frequency or duration [13]. The psychological domain, in particular, reflects emotional distress, reduced self-esteem, and negative affect, which are hallmark features of psychiatric illness and significantly diminish subjective well-being.

Disability assessment using WHODAS further highlighted the functional consequences of psychiatric comorbidity. Subjects with psychiatric disorders showed significantly higher disability in mobility, self-care, interpersonal interactions, life activities, and social participation, with a markedly higher total disability score (96.2 vs 81.1). The borderline difference observed in understanding and communication suggests that cognitive functioning may be relatively preserved, while psychosocial and activity-based domains bear the greatest burden. Similar patterns have been reported in large multicenter studies, where psychiatric comorbidities were associated with pervasive functional impairment and reduced societal participation among people with epilepsy [14].

Subgroup analysis of psychiatric diagnoses revealed that major depressive disorder and psychosis were associated with the lowest quality of life scores and the highest disability scores, whereas panic disorder and substance use disorder demonstrated relatively better outcomes. These findings underscore the heterogeneity of psychiatric comorbidities and their differential impact on patient-reported outcomes. Severe mood disorders and psychotic illnesses are known to impair motivation, cognition, and social functioning more profoundly, thereby exacerbating disability in chronic neurological conditions. Recent evidence supports integrated neuropsychiatric care models to address these complex interactions and improve holistic outcomes in refractory epilepsy [15].

Overall, the findings of this study emphasize that psychiatric comorbidity is a critical determinant of quality of life and disability in refractory focal epilepsy. Routine screening, early identification, and comprehensive management of psychiatric disorders should be integral components of epilepsy care to optimize functional outcomes and enhance patient-centered care.

CONCLUSION

Psychiatric comorbidities significantly worsen quality of life and increase disability among subjects with refractory focal epilepsy, independent of seizure-related clinical factors. Subjects with coexisting psychiatric disorders demonstrate poorer physical, psychological, social, and environmental well-being, along with greater functional impairment across multiple domains of daily living. These findings highlight the necessity of incorporating systematic psychiatric evaluation and multidisciplinary management strategies into the routine care of patients with refractory focal epilepsy to reduce disability and improve overall quality of life.

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