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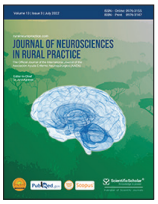

Original Article

Anxiety, depression, and psychosocial adjustment in people with epilepsy

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ABSTRACT

Objective: Effect of psychological disorders on social functioning in people with epilepsy (PWE) is not extensively reported. We evaluate psychosocial functioning in PWE attending an outpatient clinic and aim to understand the differences in psychosocial functioning between anxiety, depression, and coexisting anxiety and depression in PWE.

Materials and Methods: A prospective evaluation of psychosocial functioning of 324 consecutive adult PWE attending outpatient epilepsy clinic was done using self-reported Washington Psychosocial Seizure Inventory. The study population was divided in four groups – without psychological disorders, anxiety, depression, and both anxiety and depression.

Results: The mean age of study population was 25.90 ± 6.22 years. Anxiety was noted in 73 (22.5%), depression in 60 (18.5%), and both anxiety and depression were seen in 70 (21.6%) and the rest had normal psychosocial function. There were no significant differences across all the four sub-groups for sociodemographics. Psychosocial functioning did not differ significantly between PWE with normal psychosocial function and PWE with anxiety alone. However, psychosocial functioning scores were worse in PWE with depression and PWE with both anxiety and depression when compared to PWE with normal psychosocial function.

Conclusion: In the present study of PWE attending an outpatient epilepsy clinic, one-fifth of PWE had both anxiety and depression. Psychosocial functioning in PWE with anxiety was similar to otherwise healthy/normal PWE, whereas PWE with depression showed poor psychosocial functioning. Role of psychological interventions on psychosocial aspects of epilepsy should be studied extensively in future.

Keywords: Psychosocial function, Epilepsy, Burden, Anxiety, Depression

INTRODUCTION

Globally, nearly 50 million people live with epilepsy and approximately one-third of all people with epilepsy (PWE) have coexisting anxiety and/or depression.[1] The prevalence of anxiety and depression is highest in PWE with pharmacoresistant epilepsy.[2] Anxiety and depression in PWE are frequently the resultant of social stigma, distress, unemployment, low self-esteem, isolation, and low social competence.[3,4] PWE may exhibit anxiety and depression with accompanying suicidal ideation.[5,6] The relationship between epilepsy and anxiety and/or depression is bi-directional affecting outcomes of epilepsy surgery, compliance to anti-seizure medications (ASMs), and increasing the chances of drug refractory epilepsy, especially in newly diagnosed PWE.[7]

Depression is observed in up to 35% PWE[8,9] and is associated with poor quality of life, increased suicidal risk and lower tolerance to ASMs.[10] Importantly, negative impact of depression in PWE is independent of epilepsy-related factors such as type of seizure, focus, and side affected.[11] In addition, the presence of depressive symptoms has the greatest negative impact on social functioning and mean quality of life (QoL), precipitating suicidal ideation.[12] Anxiety is the other psychological comorbidity often reported in patients with focal epilepsies.[13,14] Anxiety is known to affect QoL in PWE but at a lower severity than depression, where PWE with anxiety do not exhibit suicidal traits unlike PWE with depression.[7] In few PWE, clinical manifestations of depression can coexist with anxiety.[15] Early differentiation of depression from anxiety may help initiate early management. Optimizing psychosocial adjustment in PWE requires an approach that extends beyond controlling seizures.[16,17]

Although existing psychological evaluation tools assess anxiety and/or depression, ability to evaluate social impact

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Received: 24 June 2022 **Accepted:** 09 August 2022 **EPub Ahead of Print:** 02 November 2022 **Published:** 27 January 2023 **DOI**: 10.25259/JNRP-2022-6-40

of psychological disorders and identify coexistence of both anxiety and depression is a major limitation.[7] In fact, quality of life is decreased more with the combination of anxiety and depression than it is with either anxiety or depression alone.[18] Therefore, simultaneous screening for coexistence of anxiety and depression in PWE may help prevent impairments in QOL.[7] However, the prevalence of both anxiety and depression together in PWE is seldom investigated. In the present study, we aim to understand the differences in psychosocial functioning between anxiety, depression, and coexisting anxiety and depression in PWE.

MATERIALS AND METHODS

A prospective evaluation of psychosocial functioning of 324 consecutive adult PWE attending outpatient epilepsy clinic at a tertiary care center was done between April 2016 and March 2018. Severe psychiatric dysfunction, cognitive and behavioral disturbances, and failure to obtain an informed consent formed the exclusion criteria. All the participants were evaluated by neurologist and a clinical psychologist.

Participants were assessed for psychosocial functioning using the self-reported Washington Psychosocial Seizure Inventory (WPSI) clinical scale which includes 132 questions about the quality of life of epilepsy patients [Appendix 1]. The inventory (WPSI) developed by Dodrill *et al.*,[19] and validated extensively[20-22] is a comprehensive and objective assessment of psychosocial problems spanning across seven areas of psychosocial concerns including family background and adjustment, emotional adjustment, interpersonal adjustment, vocational adjustment, financial status and adjustment to seizure medicine, and medical management. In the self-reported questionnaire (WPSI), the PWE responds with a "true" or "false" for each question and higher scores on WPSI indicate impaired functioning or poorer adjustment. Based on the scores on WPSI, the study population was divided into four groups, PWE with no psychosocial dysfunction, PWE with anxiety, PWE with depression, and PWE with both anxiety and depression.

Data analysis

After confirming the homogeneity of the data, all continuous variables were reported as mean and standard deviation, whereas all categorical variables were expressed as frequency/percentages. Comparison between groups was done using independent student *t*-test for continuous variables and Chi-square test for categorical variables. $P < 0.05$ was considered significant. All statistical analysis was done using SPSS version 20.0 for Windows, IBM Computers, New York.

RESULTS

The mean age of the entire study population (n = 324) was 25.90 ± 6.22 (range 18–40 years) with a mean age of onset of seizures 14.29 ± 7.65 years. While epilepsy was refractory in 193 (59.6%), 26 (8.0%) were eligible and awaiting epilepsy surgery. There were no significant differences across all the four sub-groups for age, age at onset of seizures, gender, sociodemographics, literacy, and marital status. Among the entire study population of 324, anxiety was noted in 73 (22.5%), depression in 60 (18.5%), and both anxiety and depression were seen in 70 (21.6%) [Table 1]. The average number of ASMs tried in PWE in the present study was 3.26 ± 1.23; with a significantly ($P < 0.05$) higher number of ASMs required in in PWE with depression and PWE with both anxiety and depression.

Domains of WPSI

In the entire study population (n = 324), the mean score on family background was 2.51 ± 1.04, emotional adjustment 16.41 ± 3.04, interpersonal adjustment 3.92 ± 1.03, vocational adjustment 3.79 ± 1.74, financial adjustment 1.33 ± 0.58, adjustment to seizures 10.84 ± 1.89, and adjustment to medicine and medical management 3.91 ± 0.90.

Table 1: Comparison between groups for demographic and clinical variables (n=324).

Variable	PWE and Normal Psychosocial function (n=121)	PWE and Depression (n=60)	PWE and Anxiety (n=73)	PWE with Anxiety and Depression (n=70)
Age (years)	26.17±6.18	26.08±6.68	25.62±5.78	25.59±6.43
Women (%)	69 (39.2%)	34 (19.3%)	35 (19.9%)	38 (21.6%)
Urban (%)	89 (37.9%)	46 (19.6%)	51 (21.7%)	49 (40.9%)
Graduate (%)	75 (62.0%)	33 (55.0%)	43 (58.9%)	35 (50.0%)
Lower socio-economic class (%)	10 (8.3%)	7 (11.7%)	10 (13.7%)	16 (22.9%)
Married (%)	55 (45.5%)	23 (38.3%)	31 (42.5%)	28 (40.0%)
Joint family (%)	69 (57.0%)	36 (60.0%)	41 (56.2%)	47 (67.1%)
Age of onset of seizures (years)	15.69±7.68	12.63±7.81	13.74±7.36	14.01±7.54
Number of ASMs	2.87±0.97*	4.10±1.47‡	2.72±0.83	3.77±1.21

PWE: Persons with epilepsy. *Indicates significant depression between Normal PWE and PWE with Depression, ‡Indicates significant difference between normal PWE and PWE with Anxiety and depression

The average score across all four groups for family background and adjustment to medical management was not significantly different, as shown in [Table 2]. In the remaining domains of WPSI, the scores did not differ significantly between PWE with normal psychosocial function and PWE with anxiety alone. However, in these domains, the scores were worse in PWE with depression and PWE with both anxiety and depression when compared to PWE and normal psychosocial function, as shown in [Table 2].

On comparison between PWE with depression (n = 60) versus PWE with anxiety (n = 73), there was no difference for gender and age distribution between the groups. However, more number of PWE and depression had refractory epilepsy (78.3% vs. 47.9%; $P < 0.001$) and required higher number of ASMs (4.10 ± 1.74 vs. 2.71 ± 0.83; $P < 0.001$). On comparison of WPSI scores, the scores on family back ground were not significantly different ($P > 0.05$) between the groups. PWE with depression had better scores for vocational adjustment and adjustment for seizure medication than PWE with anxiety alone. However, all other scores were significantly worse in PWE with depression than PWE with anxiety, as shown in [Figure 1]. On comparison of PWE with both anxiety and depression with other PWE groups, there was no significant difference for sociodemographics, as shown in [Table 1]. However, PWE with both anxiety and depression had significantly lower psychosocial functioning than PWE with anxiety alone and PWE with normal psychosocial function. On the contrary, psychosocial functioning was not significantly different between PWE with depression alone versus PWE with both anxiety and depression, as shown in [Table 2].

DISCUSSION

In the present study, we aimed to evaluate psychosocial functioning in PWE attending an outpatient epilepsy clinic with a single instrument, WPSI. We report that nearly one-fifth of PWE in the present study have both anxiety and depression. While 20% PWE reported anxiety alone, depression was observed in 18.5%. Psychosocial functioning in PWE with anxiety is similar to otherwise healthy/normal PWE. However, PWE with depression and PWE with both anxiety and depression showed poor scores on domains of psychosocial functioning.

The prevalence of anxiety alone in the present study is similar to the 11–25% average reported in PWE. Similarly, the prevalence of depression is similar to the established global prevalence of 9–37% among PWE.[7] In addition, we report

Table 2: Mean score on various WPSI domains (n=324).

Variable	PWE and normal Psychosocial function (n=121)	PWE with depression (n=60)	PWE with anxiety (n=73)	PWE with anxiety and depression (n=70)
Family background	2.41±1.16	2.57±0.92	2.41±1.10	2.74±0.82
Emotional adjustment	14.36±2.29*†	16.43±2.67	17.41±2.04	18.93±2.97‡
Interpersonal adjustment	3.64±1.00*	4.22±0.97	3.82±0.88	4.29±1.10‡
Vocational adjustment	4.50±1.71*	3.45±1.64	4.08±1.83	2.56±0.82‡
Financial adjustment	1.13±0.36*	1.43±0.64	1.19±0.39	1.74±0.77‡
Adjustment to seizure	11.00±1.87*	10.15±1.97	11.34±1.54	10.67±2.02
Adjustment to medical management	3.82±0.57	3.72±1.25	4.03±0.62	4.14±1.17

PWE: Persons with epilepsy. *Indicates significant depression between Normal PWE and PWE with Depression, †Indicates significant difference between Normal PWE and PWE with Anxiety, ‡Indicates significant difference between normal PWE and PWE with Anxiety and depression. WPSI: Washington psychosocial seizure inventory

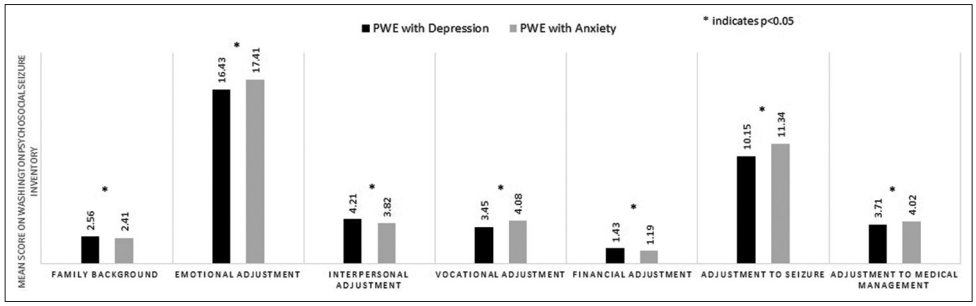

Figure 1: Comparison among people with epilepsy for depression versus anxiety.

that more than one-fifth of PWE have both anxiety and depression. The overall prevalence of psychosocial disorders in the present study at nearly 63% is higher than the existing literature probably, because the participants were a relatively small number of PWE attending an outpatient clinic. Our observation that nearly 20% of PWE have both anxiety and depression is important, because the National Comorbidity Survey[23] has demonstrated that depressed individuals with a history of anxiety disorders are at increased risk for hospitalization, suicide attempt, and greater impairment from the depression. Therefore, PWE with both anxiety and depression could be monitored more frequently and closely.

Overestimating the risk of an epileptic episode and underestimating the ability to handle such an episode may predispose a person to anxiety. The fear of physical and mental harm from an unpredictable seizure may result in a person with epilepsy isolating themselves. This can lead to the avoidance of social situations, which may add to feelings of depression. Anxiety has been associated with a number of epilepsy related factors, such as earlier age of onset, poor seizure control, presence of adverse effects of ASMs, and increased seizure activity and seizure severity.[14]

In the present study, depression was seen in 18.5% of PWE, less than the 30–35% reported by Tellez-Zenteno *et al*.[9] These findings may be due to factors in a relatively small study population that consisted of only PWE attending an outpatient clinic and that we have segregated PWE with depression only from those with both anxiety and depression. A number of epilepsy related factors have been associated with depression such as temporal lobe epilepsy, high seizure frequency, and refractory epilepsy.[10,11,24] Similar to the existing literature, we report that depression is more often reported in PWE with epilepsy refractory to management.

Psychosocial adjustment in the seven domains of WPSI

The pattern of psychosocial difficulties observed in this study was similar to the study by Lau *et al*.[25] Family members' perceptions of epilepsy are an important factor in adjustment of the family. Thompson and Upton[26] reported that negative parental attitudes may be formed from the social stigma attached to epilepsy, and consequently, these attitudes may lead to maladaptive parenting and, in turn, difficulties for the PWE. Brodie *et al*.[27] suggested that the condition of epilepsy causes distress for the individual, which leads them to react with anger and hostility. This, in turn, may cause the family to react critically, again causing more distress for the individual, and completing the vicious circle. Thus, suggesting that the relationship between the epilepsy and the psychosocial outcome of the family may not be a linear relationship, but circular. The clinical implications of these findings suggest that psychological interventions like counseling should not only aim PWE but also the caregivers to be more effective.

Similar to Lau *et al*.,[25] we report that PWE with depression has more interpersonal adjustment problems compared to others. PWE with depression has more unemployment and vocational adjustment at their work place compared to others. Nuhu *et al*. reported social difficulties experienced by PWE and reported that 14.1% have been denied leadership role; 37.3% performed poorly at work.[28]

In the present study, number of ASMs was significantly more in PWE with depression and PWE with anxiety and depression. It is interesting that persons who have more seizures also tend to be less well-adjusted to ASMs. Perhaps, as the Health Belief Model[29] states, health-care action depends on the patient's perception of the seriousness of his/her illness and belief. It is possible that persons who have more seizures may perceive that their medical treatment is not helping them; therefore, they may choose not to follow recommendations for medical care.

Strengths and limitations

Most of the questions that form WPSI are related to epilepsy, and therefore, inclusion of otherwise healthy non-epilepsy control group was not considered. An important limitation of the present study is that our observations are based on a single instrument administered on a limited cohort of PWE attending an outpatient epilepsy clinic. Our findings may not be consistent at community level; therefore, our findings should be interpreted with caution. The normative values for WPSI in the country of the origin of this study have not been reported previously. However, in the present study, PWE with normal psychosocial function were considered as controls for comparative analysis. Role of psychological interventions on psychosocial aspects of epilepsy should be studied extensively in future.

CONCLUSION

In the present study of PWE attending an outpatient epilepsy clinic, one-fifth of PWE had both anxiety and depression. Psychosocial functioning in PWE with anxiety was similar to otherwise healthy/normal PWE. Whereas, PWE with depression showed poor psychosocial functioning. Role of psychological interventions on psychosocial aspects of epilepsy should be studied extensively in future.

Declaration of patient consent

The study was approved by Institutional Ethics committee. Informed consent was obtained from the study participants at enrollment stage of the study.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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How to cite this article: Jayalakshmi S, Telugu R, Vooturi S, Patil A, Sirisha S, Somayajula S. Anxiety, depression, and psychosocial adjustment in people with epilepsy. J Neurosci Rural Prac 2023;14:111-8.

Appendix 1. WASHINGTON PSYCHOSOCIAL SEIZURE INVENTORY (WPSI)

1. Do you usually feel tired? - Y N
2. Were you usually happy as a child? - Y N
3. Do you need vocational counselling? - Y N
4. Are you concerned people won't like you or want you around after a seizure? - Y N
5. Do you like the area in which you live? - Y N
6. Do you find it difficult to always take your medications when you should? - Y N
7. Do you enjoy social gatherings? - Y N
8. Do you feel you are losing your mind? - Y N
9. Is your life free from problems? - Y N
10. Do you have problems in the sexual area? - Y N
11. Are you usually able to think clearly? - Y N
12. Did you ever run away from home? - Y N
13. Do your seizures keep you from driving? - Y N
14. Do you usually feel included by others? - Y N
15. Do you often have trouble sleeping? - Y N
16. Is your vocational future bright? - Y N
17. Are you always cheerful? - Y N
18. Does your doctor completely understand all of your medical problems? - Y N
19. Is inability to concentrate a problem? - Y N
20. Do you have trouble making decisions? - Y N
21. Have you ever seen a professional for counselling or psychotherapy? - Y N
22. Are you generally free from depression? - Y N
23. Have you ever felt tense or anxious? - Y N
24. Are you free from problems with your family? - Y N
25. Do you have more good days than bad? - Y N
26. Would you move if you had the opportunity? - Y N
27. Do you feel uneasy about the future? - Y N
28. Does your doctor always spend as much time with you as you would like? - Y N
29. Would you rather win than lose in a game? - Y N
30. Can you accept the limitations your seizures place on you? - Y N
31. Do you feel resentful that you have seizures? - Y N
32. Do your medications affect your complexion? - Y N
33. Do you feel useful at least most of the time? - Y N
34. Have you ever lost a job because of your seizures? - Y N
35. Have you ever been late for an appointment? - Y N
36. Do you avoid social situations because of shyness? - Y N
37. Do you need immediate psychiatric care? - Y N
38. Do you have enough money to do most of the things you want to do? - Y N
39. Would you be in another line of work if you did not have seizures? - Y N
40. Do you feel you have full control of your mind? - Y N
41. Are you content with your social contacts? - Y N
42. Do you usually feel rested when you awake? - Y N
43. Do you feel your doctor really cares about you as a person? - Y N

44. Do you feel most people are phoney or insincere? - Y N
45. Are you satisfied with your life as it is now? - Y N
46. Do you have enough daily contact with people? - Y N
47. As a child, did you have trouble making friends? - Y N
48. Are you usually free from tension and worry? - Y N
49. Do you have someone in whom you can confide? - Y N
50. Have you ever felt sorry for yourself? - Y N
51. Does epilepsy keep you from experiencing satisfaction in the area of work or employment? - Y N
52. Are you losing your ability to think clearly? - Y N
53. Do you feel completely comfortable with your doctor? - Y N
54. Were you well accepted by your school teachers? - Y N
55. Do you often feel guilty about your thoughts? - Y N
56. Are you free from embarrassment about your seizures? - Y N
57. Do people usually listen to what you are saying? - Y N
58. Are you entirely capable of handling every situation? - Y N
59. Have you engaged in sexual practices which cause you concern or worry? - Y N
60. Is your life filled with activities that keep you interested? - Y N
61. Are you usually happy? - Y N
62. Do you frequently have trouble remembering to take your medications? - Y N
63. Do you often feel restless? - Y N
64. Do you like your doctor? - Y N
65. Do people frequently let you down? - Y N
66. Are your feelings easily hurt? - Y N
67. Have seizures ruined your life? - Y N
68. Have you ever felt like swearing? - Y N
69. Do you have enough friends? - Y N
70. Have you ever had surgery for epilepsy? - Y N
71. Does your seizure problem prevent you from getting a good job? - Y N
72. Do you feel your seizures are being controlled as well as they can be? - Y N
73. Do you have trouble meeting people? - Y N
74. Do you feel financially secure? - Y N
75. Do your medications make you less able to function? - Y N
76. Have you ever disliked someone? - Y N
77. Do you often wish you' were dead? - Y N
78. Do you have a close friend? - Y N
79. Are you comfortable being alone despite possible seizures? - Y N
80. Are you easily irritated? - Y N
81. Do you often feel over worked? - Y N
82. Are you dissatisfied with your present living situation? - Y N
83. Do you have enough money? - Y N
84. Do you always tell the truth? - Y N
85. Did your parents frequently quarrel when you were growing up? - Y N
86. Are you out of work because of your seizure problem? - Y N
87. Do you have enough self-confidence? - Y N
88. Do you sometimes wonder if you are on the wrong medication(s)? - Y N

89. Do you have frequent thoughts of suicide? - Y N
90. Are you free from aches and pains? - Y N
91. Is transportation a problem? - Y N
92. Are you fearful of accidents? - Y N
93. Do you often feel people are trying to put something over on you? - Y N
94. Are you often tense and anxious? - Y N
95. Do you feel comfortable telling others you have seizures? - Y N
96. Did you have a good relationship with your mother? - Y N
97. Do you feel trapped in your present living situation? - Y N
98. Are you anxious or uncomfortable in social situations? - Y N
99. Have you ever been angry with anyone? - Y N
100. Do you feel different or strange due to your seizures? - Y N
101. Do you recall ever having Quidodzel's disease? - Y N
102. Would you like to be closer to public transportation? - Y N
103. Do you have trouble accepting your seizure problem? - Y N
104. Would U be able to think more clearly if you did not have to take medications for your seizures? - Y N
105. Do you constantly have trouble sleeping? - Y N
106. Can you afford your present living arrangement? - Y N
107. As a child, were you often punished without cause? - Y N
108. Are you afraid people will find out you have seizures? - Y N
109. Do you frequently want to harm others? - Y N
110. Do you have a chance for vocational advancement? - Y N
111. Do you continually dread the possibility of a seizure? - Y N
112. Do you frequently find yourself in conflict With others? - Y N
113. When growing up were you involved in a lot of fights? - Y N
114. Do you usually feel at peace with yourself? - Y N
115. Do you use alcohol or drugs excessively? - Y N
116. Are you fearful you will have a seizure in an embarrassing circumstance? - Y N
117. Do you resent having to take medications for your seizures? - Y N
118. Are you free from worry about your health? - Y N
119. Do you have enough money to pay your bills? - Y N
120. Did you feel your parents really cared for you? - Y N
121. Have you always been completely comfortable in all social situations? - Y N
122. Do you feel at ease around people of the opposite sex? - Y N
123. Do you strongly dislike other people who have seizures? - Y N
124. Are you satisfied with your employment situation? - Y N
125. Have you ever been teased because of your seizures? - Y N
126. Does your doctor always take time to listen to you? - Y N
127. Are you free from concerns in the vocational area? - Y N
128. Do you hear voices when no one is around? - Y N
129. Are you comfortable going out despite possible seizures? - Y N
130. Do you have trouble expressing your opinions to others? - Y N
131. Do you have sufficient money for basic needs? - Y N
132. Did you feel secure in the home in which you grew up? - Y N