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PII: S1059-1311(22)00181-9
DOI: https://doi.org/10.1016/j.seizure.2022.08.002
Reference: YSEIZ 4401

To appear in: *Seizure: European Journal of Epilepsy*

Received date: 15 April 2022
Revised date: 3 August 2022
Accepted date: 9 August 2022

Please cite this article as: Ángel JM Gargiulo , Mercedes Sarudiansky , Alejandro Videla , Nicolás Lombardi , Guido P Korman , Silvia Oddo , Luciana D´Alessio , Perceived stress, resilience, and stress coping in patients with drug resistant epilepsy and functional dissociative seizures, *Seizure: European Journal of Epilepsy* (2022), doi: https://doi.org/10.1016/j.seizure.2022.08.002

**Highlights**

- Depression and anxiety are psychiatric disorders related to chronic stress
- Levels of perceived stress, resilience, and the styles of stress coping were studied
- Patients with functional dissociative seizures (FDS) showed higher levels of depression and anxiety
- Patients with DRE (drug resistant epilepsy) and FDS showed higher levels of stress variables compared to controls
- Similar levels of perceived stress, resilience and stress coping were found in FDS and DRE

# Perceived stress, resilience, and stress coping in patients with drug resistant epilepsy and functional dissociative seizures

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## Abstract

### Purpose

Depression and anxiety are psychiatric disorders related to chronic stress, commonly found in patients with drug-resistant epilepsy (DRE) and functional dissociative seizures (FDS). The present study compares the levels of perceived stress, resilience, and the styles of stress coping among patients with DRE (n=60), FDS (n=28), and controls (n=31).

**Methods**

We performed a cross-sectional study. All patients underwent Video Electroencephalography to confirm the diagnosis and completed the psychiatric assessment (SCID I and II of DSM IV) supported by several instruments validated in Spanish.

**Results**

FDS scored higher in perceived stress (p = 0.004) with lower levels of resilience compared to controls (p = 0.01). Stress coping subscales show higher scores in negative self-focus and hostility in patients with FDS compared to controls (p=0.003). Similarly, DRE patients scored higher in perceived stress (p = 0.001), and presented lower levels of resilience (p = 0.004) with higher levels of hostility compared to controls (p=0.02). However, no significant differences were found between FDS and DRE on stress coping variables. Anxiety scores and depression rates were higher in the FDS group compared to DRE (p=0.008) and higher in DRE compared to controls (p<0.05). A positive correlation between depression and perceived stress was found (r = 0.6, p=0.0001).

**Conclusions**

Our results delineate a more detailed picture of the psychological profile of this population, emphasizing the importance of stress factors in patients with FDS and DRE. Combined intervention strategies which enhance stress coping may be appropriate to direct treatment and psychotherapy.

**Keywords**

Psychopathology
Anxiety
Depression
Psychogenic nonepileptic seizures
Functional neurological disorders

## 1. Introduction

Epilepsy is a common disorder of the brain characterized by unprovoked and recurrent seizures due to abnormal neuronal activity (1). Functional dissociative seizures (FDS) are diagnosed in the presence of disturbing changes in behavior, cognition, or emotion that resemble epileptic seizures but lack the electrophysiological correlates or clinical evidence for epilepsy (2). This condition, also known in the literature as psychogenic

nonepileptic seizures, is poorly recognized among clinicians and is diagnosed between 20% and 30% of patients referred to specialized epilepsy centers, often considered by mistake as having resistant epilepsy (3,4). Drug-resistant epilepsy (DRE) is defined as failure to achieve seizure control (freedom from seizures for 12 months or three times the longest pre-intervention inter-seizure interval, whichever is longer), with at least two trials of well-tolerated, appropriately chosen, and adequately scheduled antiepileptic drugs (AEDs) (5). FDS and DRE are associated with high levels of depression and anxiety disorders (6). These psychiatric disorders have been extensively associated with chronic stress and a dysregulation of the hypothalamus-pituitary-adrenal (HPA) axis (7).

Depression and anxiety are prevalent comorbid disorders among patients with DRE (8–10) and have been associated with a worsened seizure frequency and severity, lower quality of life (QOL), and higher morbidity and mortality in these patients (8,11). The relationship between depression and epilepsy appears to be complex and bidirectional (12,13). The underlying pathogenic mechanisms of depression in epilepsy are still unknown. It has been proposed that chronic stress enhances epileptic discharges probably by activating inflammatory pathways leading to depressive behavior (14–16). Stress is one of the most frequently reported seizure precipitants in patients with epilepsy (17–21), and HPA axis disturbances have been consistently described in different models of epilepsy (16,22–26).

Depression and anxiety are also widespread among patients with FDS, even at a higher rate than patients with epileptic seizures (27,28). Also, trauma-related psychiatric conditions such as post-traumatic stress disorders and dissociative disorders are particularly relevant among patients with FDS (27,28). There is abundant evidence in the literature that chronic stress may be involved in the pathogenesis of depression and anxiety, and longitudinal studies of anxiety patients showed that stress appears to precede depression (29,30). The strong links between anxiety, depression, and stress are also supported by neurobiological research (7,31) and neuroimaging studies (32). Nevertheless, stress-related variables were less studied among patients with FDS. Specifically, few authors have studied stress coping and its perception in FDS (33–35) and in DRE (36–38), and also few studies about resilience in these populations were done (39,40).

In a previous study of our group, we found higher psychopathology severity among patients with FDS compared to DRE ones (6). In this study, we analyzed a different cohort of patients with DRE, FDS, and a control group to quantify and compare the levels of perceived stress, resilience, and stress-coping levels and the relationship with psychiatric symptoms. We aim to find different psychopathological patterns in these groups of patients. Some authors reported that depression might have different features in patients with epilepsy, and an in-depth understanding of the variables interweaving in these phenomena might help clinicians (41). Stress-related factors might be essential to understanding the psychopathologic and psychiatric mechanisms and implementing treatment and psychotherapy.

## 2. Materials and Methods

### 2.1 Patient selection

We performed a cross-sectional study on ambulatory patients attending the Epilepsy centers of the Ramos Mejía Hospital and El Cruce Hospital in the greater Buenos Aires area. Both services act as a referential center for local and foreign patients. During 2017 and 2020, consecutive patients admitted to the VEEG units were recruited. Once the diagnosis of DRE and FDS was established, patients with DRE were referred for evaluation to the epilepsy surgery program, and FDS cases to a specifically designed psychoeducational program. Complete neuropsychological and psychiatric assessment evaluation and MRI with epilepsy protocol for temporal lobe were performed after a standardized VEEG study. Controls were selected from their companions with similar sociodemographic features.

### 2.2 Video-EEG evaluation

For prolonged EEG monitoring, a Stellate-Bioscience ® EEG with a 200-Hz sample rate was used in both centers. All ictal recordings were obtained using the international 10–20 system with additional temporal electrodes of the 10–10 system. Referential montages and longitudinal–bipolar and transverse bipolar montages were included in the analysis.

### 2.3 Inclusion and exclusion criteria

Subjects between 18 and 65 years of age were included, given that this is the age of the population that attends our centers. FDS diagnostic criteria were defined according to video-EEG monitoring as follows: 1-atypical paroxysmal behavioral episodes recorded without electroencephalographic ictal activity (at least one attack recorded) and 2- an absence of clinical, electro-encephalographic, or neuroimaging evidence suggestive of epilepsy; absence of neurological nor medical disorder explaining the atypical paroxysmal behavior (exclusion criteria). Epileptic seizures and DRE were diagnosed if at least one characteristic clinical event with simultaneous ictal EEG abnormalities was recorded. Subtypes of the epileptic syndrome were diagnosed according to ILAE nomenclature (42). DRE was defined following the cited ILAE criteria (5). Subjects were divided into three groups: patients with FDS, patients with DRE, and healthy controls. The control group was mainly composed of family members without psychiatric or neurological diseases. They volunteered to participate in the study and received no financial compensation. They were evaluated with the same battery of scales as the patients and by a psychiatrist.

We excluded patients with both types of seizures (FDS + epilepsy), paroxysmal events of other medical etiologies (e.g., transient ischemic attacks, vasovagal syncope, sleep disorders, and nonepileptic myoclonus), history of mental retardation (attending a

special school), and or an IQ < 70 according to the Wechsler Adult Intelligence Scale (WAIS) (43), and lack of precise diagnosis after appropriate evaluation, or patients who refused informed consent, or who did not complete all diagnostic tests.

2.4 Psychiatric assessment

A psychiatric assessment was performed by trained psychiatrists blinded to the seizure diagnosis during the period of prolonged video-EEG monitoring (usually five days). Psychiatric history was obtained from each patient and complemented by information from relatives. All patients underwent the Spanish Version of the Structured Clinical Interview for DSM IV Axis I and II disorders (SCID I and II, respectively) (44,45). Interviews were carried out in approximately 2 to 3 hours. Depression was evaluated using the BDI-II (Beck depression inventory). This is a 21-item self-report multiple-choice depression inventory used in both research and clinical settings (46). Anxiety was measured using HARS (*Hamilton anxiety rating scale)*, a hetero-applied scale that assesses the intensity of anxiety. It consists of 14 items assessing mental, physical, and behavioral aspects of anxiety. The time frame of reference is the last days (at least the last 3) in all items, except the last, in which the subject's behavior is assessed during the interview (47). Once the diagnostic protocol was completed, all patients with a current psychiatric disorder were referred for psychiatric treatment and psychotherapy.

2.5 Perceived stress assessment

Perceived stress was measured using the *PSS (perceived stress scale)* (48). It indicates the degree to which various life situations are experienced as stressful in the last month in the past month. It consists of 14 items rated on a five-point Likert-type scale, ranging from 0 to 4, with those on the positive subscale scored in reverse. The scores for the 14 items are added to obtain the total score of the PSS, with a higher score indicating higher perceived stress. It has been found to have good psychometric properties (49) and has been used in previous outpatient and community studies (50). (52)(53)(54)

2.6 Stress coping assessment

*The Stress Coping Questionnaire* is a self-reported measure assessing seven basic coping styles: (1) focused on problem-solving (FPS), (2) negative self-focus (NSF), (3) positive reassessment (PR), (4) hostility (HOS), (5) avoidance (AV), (6) seeking social support (SSS), and (7) religion (RLG) (51).

2.7 Resilience assessment

The *modified Resilience Scale* (MRS) was used to identify personal qualities benefiting resilient individual adaptation. This scale consists of 22 items that evaluate "Personal Competence" and "Self and Life Acceptance (52).

2.8 Ethical committee

This protocol was performed after we obtained approval from the Ethical Committee at Ramos Mejía Hospital and EL Cruce Hospital according to the 1964 Declaration of Helsinki. All subjects included in this study signed an informed consent approved by the Ethical Committees.

2.9 Statistical analysis

Categorical data were summarized using percentages and continuous data using the mean for central tendency and the SD for dispersion for normally distributed variables. We used the Kolmogorov– Smirnov and the Shapiro–Wilk normality test of estimated residuals to evaluate data distributions. Proportions were evaluated using the Chi-square test for independence ($\chi 2$). A p-value $< 0.05$ was considered significant, a p-value $< 0.001$ was considered very significant (2-sided, 1-$\beta$ power $\geq 0.80$). Groups were compared using the analysis of variance (ANOVA) for parametric distribution and Kruskal Wallis for non-parametric distribution. We examined the possibility of covariance between the target variables and depression, anxiety, and other psychological variables using ANCOVA. Spearman's and Pearson's correlation coefficients were used to studying the existence of a correlation between two quantitative variables. A correlation (r) was considered very high (0.9 to 1), high (0.7 to 0.89), moderate (0.50 to 0.69) and low (0.25 to 0.49). Data were stored in a Microsoft Excel spreadsheet. Statistical analyses were run using SPSS ® for Mac (version 26.0; IBM, Inc.).

## 3. Results

Between December 2017 and March 2019, 81 patients were admitted to the video-EEG unit of the Ramos Mejía Hospital, and between March 2018 and December 2019, 105 patients were admitted to the video-EEG unit of the Epilepsy Center of Hospital El Cruce. We finally included 41 patients from Hospital Ramos Mejía Hospital and 47 from Hospital El Cruce; 60 patients were diagnosed with DRE (36 women, 24 men), 28 were diagnosed with FDS (24 women, 4 men), and 31 controls (18 women and 13 men). A total of 98 patients were excluded; 28 (12,7%) patients were excluded because of mental retardation, in 12 patients (6.4%) there were doubts about the final diagnosis an or patients may have both types of seizures (FDSs + epilepsy), 32 patients (17%) did not complete all the protocol steps, 26 (12%) did not have clinical events during the procedure or the results were inconclusive.

3.1 Psychiatric comorbidity

Demographic and psychopathological data of the studied population are summarized in Table 1. When comparing patients with FDS and DRE, statistically significant differences were found in the prevalence of psychiatric comorbidities, depressive episodes, anxiety disorders, trauma history, post-traumatic stress disorder, and personality disorders as comorbid conditions, being consistently higher among FDS cases.

Regarding psychiatric symptoms, FDS group had significantly higher BDI II scores compared to DRE (p = 0.02) and controls (p = 0, 0001). Similarly, consistently higher scores of HARS were found in the FDS group compared with DRE (p = 0.008) and controls (p = 0.0001). On the other hand, the group with DRE had significantly higher BDI II and HARS scores compared to the control group (p = 0.005, p = 0.005, respectively) (Table 2 and figure 1).

3.2 Perceived stress, resilience, and stress coping comparisons

When stress variables were explored, we found that patients with FDS had significantly higher PSS scores than controls (p = 0.003). In addition, FDS had significantly lower resilience levels than controls (p = 0.01). When stress coping strategies through the CAE scale were analyzed, we found that patients with FDS had higher levels of negative self-focus (NSF)and higher levels of hostility (HOS) compared to controls (p = 0.003 in both cases). DRE patients also had higher PSS stress scores than controls (p = 0.001) but mean values of PSS did not differ among FDS and DRE (p> 0.05) (Table 2 and Figure 1). DRE group also had significantly lower levels of resilience compared to controls (p = 0.004), but no significant differences were found between FDS and DRE (p> 0.05). (Table 2 and Figure 1). When stress coping strategies were analyzed, patients with DRE had higher hostility levels than controls (p = 0.02). However, no significant differences were found in stress coping between FDS and DRE groups (Table 2 and Figure 2).

3.3 Correlation analysis

According to the correlation analysis between quantitative variables, we found a significant, moderate, and positive correlation between HARS and BDI II (Spearman's rho = 0.7, p=0.0001) and between BDI II and PSS (Pearson's rho = 0.6, p=0.0001). Furthermore, significant and negative correlations were found between BDI II and MRS (Spearman's rho = -0.5, p=0.0001), BDI II and FPS (Pearson's rho = -0.3, p=0.001), and MRS and PSS (Spearman's rho = -0.5, p=0.0001). Further analysis showed significant and positive correlations between BDI II and NSF (Spearman's rho = 0.5, p=0001), MRS and FPS (Pearson's rho = 0.5, p=0,0001), HARS and NSF (Spearman's rho = 0.5, p=0.0001), and finally between Av and HOS (Spearman's rho = 0.4, p=0.0001) (Figure 3).

3.4 Covariance analysis

When psychiatric variables (depression and anxiety symptoms) were analyzed as covariables (ANCOVA), we found a significant association of BDI with PSS and resilience (p=0.0001 and p=0.0001) and also a significant association of BDI with HARS on negative self-focus (p=0.0001 and p=0.005) and HARS with hostility (p=0.02). However, when covariables were added to the model, we did not find that a diagnosis of FDS, DRE, or controls was associated with the variance of stress variables, suggesting that psychiatric symptoms (depression and anxiety) may be associated with perceived stress, resilience, and stress coping variance among the groups.

## 4. Discussion

In the present study, we found higher levels of perceived stress, anxiety, and depression, with lower levels of resilience and more difficulties in stress coping among FDS and DRE patients than controls. Patients with FDS have higher levels of depression and anxiety than patients with DRE. The levels of perceived stress, resilience and stress coping were higher in both FDS and DRE groups, and no significant differences were found between them. Extensive data support that chronic stress enhances depression and anxiety disorders vulnerability in the general population with psychiatric disorders (7). However, there are not many reports in the literature comparing stress-related factors among FDS and DRE patients (37). There are also few studies comparing these factors between FDS and general epileptic patients (38).

Regarding perceived stress, a case-control Korean study that used PSS in patients with epilepsy was found in the literature. These authors found that the level of perceived stress was significantly higher in patients with resistant epilepsy than in the well-controlled epilepsy group, defined as freedom from seizures during the preceding year. The levels of depression and anxiety were also higher in patients with resistant epilepsy compared to well-controlled epilepsy ones (53). Nevertheless, that study did not compare those patients with FDS. Another study used the PSS to assess the prevalence of stress-associated problems in patients with epilepsy, finding an association between depression and perceived stress (54). Finally, one study assessed the acceptability and feasibility of a self-help intervention aiming to reduce stress in patients with epileptic and nonepileptic seizures. Patients reported a reduction in self-reported stress (55). In this study, perceived stress was higher in both groups of patients compared to controls, but we did not find significative differences between FDS and DRE patients. Interestingly, PSS correlated positively with depression and negatively with resilience, showing that these variables might interweave.

According to our results, patients with FDS and DRE differ significantly from controls when comparing levels of resilience. The concept of resilience is classically defined as "the human capacity that allows us to face the adversities of life, overcome them and be positively transformed by them" (56). One study showed that FDS patients had lower levels of resilience than patients with epilepsy (57). Few studies reported resilience among patients with epilepsy. One study showed a positive correlation between self-efficacy, quality of life, and well-being in people with epilepsy, suggesting a modifiable factor that may promote resilience (58). Other authors showed that resilience might be associated with self-compassion and could be essential in determining psychological outcomes for adults with epilepsy. They found consistent support for the role of stress and self-efficacy, coping strategies, and perceived social support in preventing developing depression in epilepsy (59,60). A study evaluated the impact of a brief psychotherapeutic intervention on the levels of resilience, behavioral symptoms, and quality of life of patients with DRE. Improvements in these variables were observed, with concomitant reductions in depressive symptoms (40). Another group found that altered responsiveness, a semiological feature seen in patients with FDS, is a marker of lower emotional resilience, concluding that emotion management may be an important therapeutic target for these patients (39). Considering all this

information, we believe that our data highlights the importance of this variable among this specific population of patients.

Regarding stress coping factors, we found higher levels of hostility and negative self-focus in patients with FDS compared to controls and higher levels of hostility in patients with DRE compared to controls. We also found a correlation between anxiety and depression levels and negative self-focus. An Indian study found that FDS patients used Emotion-focused coping, a construct that can be considered analogic to our hostility subscale, more than problem-solving strategies (34). Myers et al. also studied stress coping in FDS patients, finding that high scores of Emotion-Focused coping strategies also had significantly high scores on diverse psychopathology factors, including elevations in depressive mood, intrusive experiences, anger state, and general anger scores. In contrast, those who used Task-Oriented and Avoidance-Focused strategies had less psychopathology, including low positive emotion scores (33). Regarding patients with epilepsy, previous studies showed that hostility might be related to AEDs' adverse effects. This effect has been mainly described for levetiracetam and topiramate (61–64). The concept of negative self-focus may also be found with other similar terms in the literature, such as low self-esteem, low self-efficacy, or low self-compassion (65,66). In this sense, similar findings were found in the literature. Clegg et al. showed in a comparative study that self-compassion was negatively related to anxiety and depression and positively related to coping efficacy, in patients with epilepsy and FDS (66). Self-compassion was also positively related to the quality of life in patients with epilepsy; however, this relationship was not significant in patients with FDS (66). In addition, we found two self-esteem studies on FDS. In both, FDS patients had significantly lower self-esteem levels than patients with epilepsy and controls (67,68). A French group reviewed the literature about stress regulation in DRE, reporting that interventions such as mindfulness or yoga, tending to reduce stress, reduced seizure frequency by about 50% (36). De Barros et al. studied gender differences in stress coping strategies between patients with DRE or FDS, finding that women presented significantly higher levels of searching for social and religious support than men (37).

When psychiatric comorbidities were compared, we found higher depression and anxiety levels among FDS than DRE patients, with similar results to previous reports in the literature (3,6,27,69–71). In addition, depression and anxiety levels significantly influenced stress-related variables when examining covariance. FDS patients have a higher prevalence of depression, anxiety, personality disorders, trauma history, and posttraumatic stress disorder (3). Similarly, other studies reported higher rates of psychiatric disorders in FDS than in patients with epilepsy (3,27,69–71). Depressive and anxiety disorders are the most frequent psychiatric disorders observed in patients with FDS (28,72). Reports also suggest a higher prevalence of depression and anxiety in patients with DRE compared to healthy controls (10,77–79). Walsh and Reuber (73) reviewed 34 studies that used a validated measure of depression between adult epilepsy and FDS samples. They found that patients with FDS demonstrated a higher prevalence of depression than patients with epilepsy, consistent with these findings and our results. Interestingly, their findings also suggest that depression in patients with FDS seemed related to relationship variables, whereas, in patients with epilepsy,

depression was associated with illness-related factors. In the same way, our results show that depression and anxiety were higher in FDS group, and stress variables were higher in both groups of patients with FDS and DRE.

There are some limitations to note in this study. This is an exploratory study, with a small sample of patients in each group and many variables analyzed. Indeed, the interpretations of the results are preliminary and more extensive studies should be performed to confirm these results. Our Centre constitutes a tertiary epilepsy service, so the FDS sample may not fully represent the prevalence of FDS in the general population. Our sample does not represent the primary attention level. Another limitation is that control participants were older than the other groups, and there may be some unforeseen confounding variables when using controls that are relatives of patients. Because of our study's design, we were not able or could not confirm the causal relationships between variables. Therefore, future longitudinal studies will be needed. We expected more significant differences in stress coping variables compared to FDS vs. DRE, especially in the avoidance subscale(74–76). This might be attributed to the fact that many patients with DRE suffer from high levels of psychopathology, and we did not use a specific avoidance scale.

One of the strengths of this study is the systematic evaluation carried out on patients, both at the neurological and psychiatric levels. Many studies on epilepsy and FDS patients measure mental health variables without having an appropriate clinical evaluation by trained psychiatrists or psychologists using contemporary nosography (77). To the best of our knowledge, this is the first study comparing perceived stress, stress coping, resilience, and psychopathological variables among patients with FDS and patients with DRE. We believe that our results reveal a more detailed picture of the psychological profile of this population, emphasizing the importance of stress factors in patients with FDS and DRE. Given that stress factors are potentially modifiable, a better understanding of their role might give clinicians new targets to aim. These topics are widespread and studied among neurologists, but these conditions are little known in mental health, despite being a topic classically studied by psychiatry since its inception.

*CRediT authorship contribution statement*

**A.J.M. Gargiulo**: First authorship. Clinical assessment. Conceptualization, Formal analysis, Writing - original draft, Writing - review & editing. **M. Sarudiansky:** Clinical assessment collaboration **A.J. Videla:** Statistical Analysis. **N. Lombardi:** Clinical assessment collaboration **G. Korman:** Clinical assessment collaboration **S. Oddo:** Neurological Assessment and VEEG analysis **L. D'Alessio:** Supervision, Senior Authorship. Formal Analysis, Project administration, Investigation, conceptualization, Writing - original draft, Writing - review & editing.

Declaration of competing interest

None

Conflict of interest

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. Relevant ethical guidelines regulating research involving human participants were followed throughout the project. All data collection, storage, and processing were done in compliance with the Helsinki Declaration. The authors have no disclosures that could be interpreted as conflicts of interest.

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Table 1. Demographic data and psychiatric disorders according to SCID I of DSM IV

| | FDS (n=28) | DRE (n=60) | p-value |
|---|---|---|---|
| Gender (n%female) | 85 | 61 | 0,07 |
| Age, mean (SD) | 31,85 (±13,6) | 30,87(±9,1) | 0,9 |
| Psychiatric comorbidity n (%) | 27 (96) | 35 (58) | <0,0001** |
| Depression disorder n (%) | 24 (86) | 24 (40) | <0,0001** |
| Anxiety disorder n (%) | 21 (75) | 23 (38) | 0,001* |
| Personality disorder (n %) | 16 (57) | 10 (16) | <0,0001** |
| Trauma History (n%) | 18 (64) | 18 (30) | 0,002* |
| PTSD | 15 (53) | 14 (23) | 0,005* |
| Psychotic Disorder n (%) | 1 (3) | 3 (5) | 0,7 |

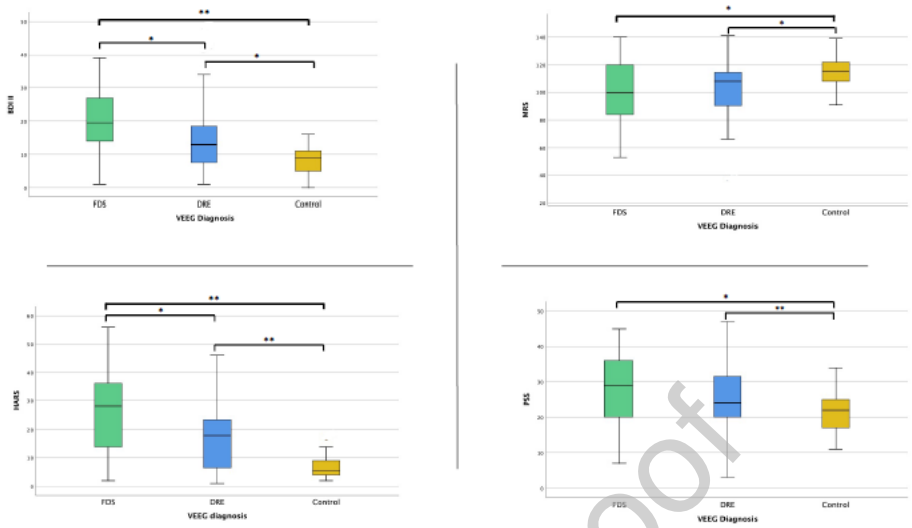
PTSD: Posttraumatic stress disorder
* p<0,05.
**p<0,001

Table 2. Anxiety, depression, perceived stress, resilience and stress coping scores in patients with FDS, DRE and controls

| | FDS (n=28) | DRE (n=60) | Controls (n=31) | p-value |
|---|---|---|---|---|
| Gender (%female) | 85 | 61 | 58 | 0,07 |
| Age, mean (SD) | 31,85 (±13,6) | 30,87 (±9,1) | 41,41 (±14,2) | 0,001 |
| HARS, mean (SD) | 26,58 (±14) | 17,14 (±11,3) | 6,85 (±4,06) | 0,0001** |
| BDI II, mean (SD) | 20,9 (±11,04) | 14,65 (±10,04) | 8,23 (±4,1) | 0,0001** |
| PSS, mean (SD) | 28,12 (±10,1) | 25,45 (±9,2) | 22,15 (±5,9) | 0,026* |
| FPS | 11,62 (±5,1) | 12,61 (±4,7) | 15,38 (±4,3) | 0,039* |
| NSF | 10,38 (±4,7) | 8,63 (±4,6) | 7,19 (±2,7) | 0,013* |
| PR | 15,04 (±4,1) | 13,9 (±3,9) | 16,38 (±3,5) | 0,07 |
| HOS | 11,38 (±4,9) | 9,82 (±4,5) | 7,23 (±4,5) | 0,009* |
| AV | 12,54 (±5,4) | 11,12 (±5,1) | 10,08 (±5,4) | 0,47 |
| SSS | 13,46 (±6,3) | 11,65 (±6,8) | 12,23 (±6,1) | 0,59 |
| RLG | 10,88 (±6,6) | 8,08 (±6,4) | 6,5 (±5,5) | 0,08 |
| MRS, mean (SD) | 100,73 (±23,5) | 103,39 (±19,9) | 113,19 (±12,1) | 0,009* |

HARS: Hamilton anxiety rating scale, BDI: Beck depression inventory, PSS: Perceived stress scale, FPS: focus on problem solving, NSF: negative self-focus, PR: positive reassessment, HOS: hostility, AV: avoidance, SSS: seeking social support, RLG: religion, MRS: modified resilience scale
*p<0.05
**p<0.001

Figure 1. Comparative analysis of BDI II, HARS, PSS and MRS




* p <0,05
**p<0,001
HARS: Hamilton anxiety rating scale, BDI: Beck depression inventory, PSS: Perceived stress scale, FDS: functional dissociative seizures, DRE: drug resistant epilepsy.

Figure 1. Comparative analysis of BDI II, HARS, PSS and MRS

* p <0,05
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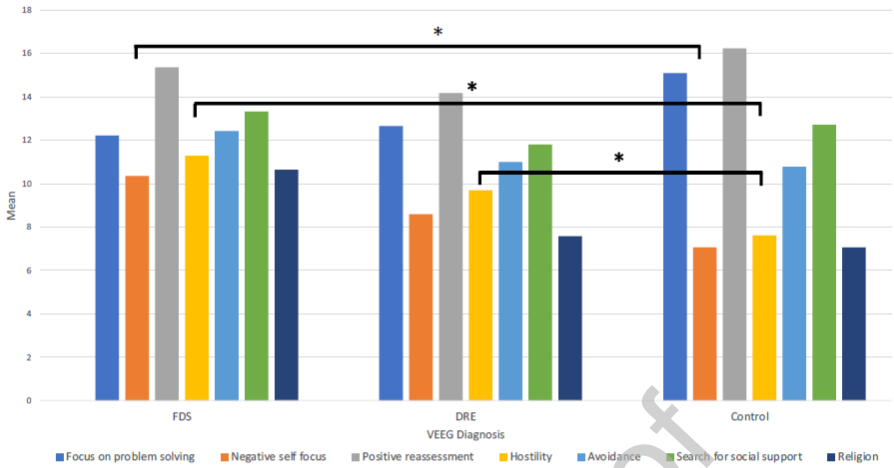
HARS: Hamilton anxiety rating scale, BDI: Beck depression inventory, PSS: Perceived stress scale, FDS: functional dissociative
seizures, DRE: drug resistant epilepsy.

Figure 2. Stress coping scale (CAE) scores in FDS, DRE and controls

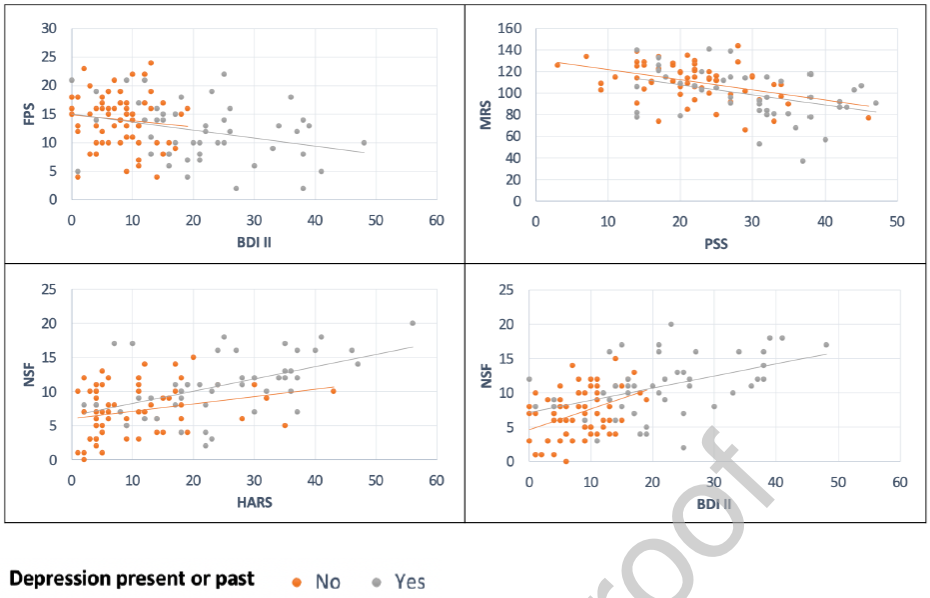



*p <0,05
FDS: functional dissociative seizures, DRE: drug resistant epilepsy.

Figure 2. Stress coping scale (CAE) scores in FDS, DRE and controls

*p <0,05
FDS: functional dissociative seizures, DRE: drug resistant epilepsy.

Figure 3. Correlation coefficients comparing anxiety and depression variables with stress and resilience variables




HARS: Hamilton anxiety rating scale, BDI: Beck depression inventory, PSS: Perceived stress scale, FPS: focus on problem solving, NSF: (negative self-focus), MRS: modified resilience scale. BDI II and FPS (Pearson's rho = -0.3; p<0,001); MRS and PSS (spearman's rho = -0, 5; p<0,001); BDI II and NSF (spearman's rho = 0.5; p<0,001); HARS and NSF (spearman's rho = 0.5; p<0,001).

Figure 3. Correlation coefficients comparing anxiety and depression variables with stress and resilience
Variables

HARS: Hamilton anxiety rating scale, BDI: Beck depression inventory, PSS: Perceived stress scale, FPS: focus on problem solving,
NSF: (negative self-focus), MRS: modified resilience scale. BDI II and FPS (Pearson's rho = -0.3; p<0,001); MRS and PSS
(spearman's rho = -0, 5; p<0,001); BDI II and NSF (spearman's rho = 0.5; p<0,001); HARS and NSF (spearman's rho = 0.5;
p<0,001).