Self-Compassion and Depression, Anxiety, and Resilience in Adults with Epilepsy

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Highlights

- The present study examined self-compassion in people with epilepsy (PWE)
- Higher self-compassion predicted lower depression and anxiety and higher resilience
- These findings highlight the possible importance of self-compassion in PWE
- Self-compassion in PWE is worthy of further investigation

Abstract

Background

Research suggests that people with epilepsy (PWE) are more likely to experience depression and anxiety than the general population. Given the adversity associated with the condition, resilience may also be important. However, to date resilience has been largely overlooked in the epilepsy literature. Self-compassion has been widely associated with improved psychological wellbeing and, to a lesser extent, resilience. However, the relationship between self-compassion and depression, anxiety, and resilience in PWE has not been examined.

Objectives

Using a quantitative cross-sectional survey design, the aim of the present study was to examine the extent to which self-compassion predicted depression, anxiety, and resilience when controlling for demographic and illness-related variables.

Methods

Adults with epilepsy were invited to take part in a survey online or in epilepsy or neurology clinics. Two-hundred and seventy participants completed the survey and data were analyzed using hierarchical multiple regression models.

Results

In this sample of PWE, self-compassion significantly predicted lower depression and anxiety and higher resilience when other significant sociodemographic and illness-related variables had been taken into account.

Conclusions

The findings of the present study indicate that self-compassion could be an important factor in determining psychological outcomes for adults with epilepsy and its role is worthy of further exploration to help improve psychological outcomes for PWE.

Keywords Epilepsy; Self-Compassion; Depression; Anxiety; Resilience

1. Introduction

1.1 Epilepsy and psychological wellbeing

Epilepsy is a chronic neurological condition characterized by recurrent seizures that can affect sensory, motor and autonomic function, consciousness, emotional state, memory, cognition, and behavior [1, 2]. Depression is highly prevalent in PWE [3] and a biopsychosocial model has been proposed for understanding this phenomenon [4, 5]. Some common pathogenic mechanisms for depression and epilepsy have been proposed [6] and seizure frequency and seizure recency may be important predictors, although their precise role remains debated [4]. Epilepsy medications can contribute to depression or alternatively enhance mood [7-9]. Sociodemographic factors including age, gender, education, employment and income have also predicted depression in some studies but not all [4]. Promising psychological variables may include emotional aspects of recovery from seizures, fear of injury, activity restriction, embarrassment, social support, neuroticism, stressful life events and a past history of psychological difficulties [4, 10] although psychological variables generally have not been well researched [4].

Anxiety is also highly prevalent in PWE [11], even for those whose seizures are well controlled [12] and again is probably best understood from a biopsychosocial perspective. Indeed, many PWE experience both anxiety and depression [6]. Common pathogenic mechanisms have been suggested for anxiety and epilepsy [6, 12] and seizure frequency and certain types of epilepsy are associated with higher anxiety in some studies, but findings are not consistent [11, 13-17]. Female gender, unemployment and lower education have been associated with anxiety in some studies but not all [14, 16-21]. Age of onset [16, 20, 22], and duration similarly are not consistent predictors [13, 14, 18]. Medication can reduce or increase anxiety [12] and perceived medication side effects can be associated with anxiety [17, 23]. Sleep [24] and exercise [25] may also be important. Possible psychological predictors include health locus of control, impact of epilepsy, mood-related constructs (including neuroticism and self-esteem), stigma, coping, illness representations,

accepting responsibility, self-efficacy, self-illness enmeshment and social support [8, 14, 21, 23], although coping is the only psychological variable to have been consistently studied [8].

1.2 Self-compassion and psychological wellbeing

One psychological variable which may be important for PWE is self-compassion. Self-compassion has been defined as the act of being kind and understanding towards oneself in the face of difficult experiences, recognizing one's own experiences as part of the shared human condition rather than viewing them as isolating, and sitting mindfully with painful thoughts or feelings rather than over-identifying with them [26]. In the general population, self-compassion has been shown to predict improved psychological wellbeing and reduced distress [27-31]. It is particularly important in protecting against feelings of shame and negative self-evaluation [32-34], which can be a problem for PWE [35, 36] and thus self-compassion could be important for PWE; those who are high in self-compassion should experience greater psychological wellbeing e.g. [37, 38].

1.4 Resilience

In addition to reducing depression and anxiety, self-compassion has been associated with resilience [39-41] although few studies have measured this directly. Resilience has been defined simply as "an outcome of successful adaptation to adversity"[42]. Within this definition, two elements are important: recovery, or how people "bounce back" from a stressful event [43]; and sustainability, or the capacity to continue forward in the face of adversity [44]. While it has been examined for example in other health conditions [45-47], it has been largely overlooked in the epilepsy literature [48].

1.5 Research aims and hypotheses

Using a quantitative design, the aim of the current study was to identify whether self-compassion predicted additional variance in measures of depression, anxiety, and resilience when other socio-demographic and illness-related variables, previously shown to be possible predictors of depression and anxiety had been accounted for. It was hypothesized that self-compassion would be negatively

associated with depression and anxiety and positively associated with resilience, even when other potential influencing sociodemographic variables had been taken into account.

2. Method

2.1 Design

The study used a quantitative cross-sectional survey design to examine predictors of depression, anxiety, and resilience in PWE. Feedback on the design was obtained from a panel of service user representatives from the UK charity Epilepsy Action (the Epilepsy Action Research Network; EARN).

2.2 Participants and recruitment

A predictive power calculation for a linear multiple regression with six predictors suggested that to achieve power of .8 with a medium effect size of .2 (as indicated in other studies of self-compassion e.g. [28]) at a probability level of $p = .05$ required 75 participants. Epilepsy Action supported recruitment by advertising the study on their website, newsletter, and social media channels. Recruitment took place between October 2016 and January 2017. Participants were asked to read a patient information sheet and to provide consent by completing a consent form. A debrief sheet was provided at the end of the survey.

To be eligible for inclusion, participants were required to self-report a diagnosis of epilepsy, to be at least 18 years old, and to be able to understand English and complete a survey. People who had experienced seizures but did not have an epilepsy diagnosis were excluded. The questionnaires used were not all validated in other languages; therefore non-English speakers were not able to take part.

2.3.3 Data collection and measures

Data were collected via a survey comprising questions about sociodemographic and clinical information alongside the standardized measures outlined below. Electronic versions of the measures were administered using the Qualtrics platform, a web-based survey and data collection software licensed for use by Lancaster University staff and students.

2.3.3.1 The Liverpool Seizure Severity Scale 2.0 ([LSSS], [49])

The LSSS is a 13-item scale designed to quantify a PWE's own perceptions of their typical seizure severity. Items include ratings of loss of consciousness, headaches, injuries, and confusion. This measure has been used in previous epilepsy research (e.g. [50]) and has demonstrated high internal consistency (a = .66 -.87).

2.3.3.2 The Neff Self-Compassion Scale ([SCS], [26])

The SCS is a 26-item scale designed to measure three elements of self-compassion: self-kindness, mindfulness, and a sense of common humanity. No research has been identified into self-compassion in people with epilepsy (PWE), therefore no precedent has been set for the use of this measure. However, this is a widely used measure of self-compassion [51, 52] and has demonstrated high internal consistency (a = .92).

2.3.3.3 The Hospital Anxiety and Depression Scale ([HADS][53])

The HADS is a 14-item scale designed to measure depression and anxiety in clinical populations. The measure contains 7 items relating to anxiety and 7 items relating to depression. This measure has been used in previous epilepsy research (e.g.[4, 8]) and has been shown to have satisfactory construct validity and psychometric properties in PWE ([54]). The HADS-D has also been shown to be a valid and reliable psychometric instrument in terms of screening for depressive disorders in PWE [55].

2.3.3.4 The Brief Resilience Scale ([BRS], [56])

The BRS is a 6-item scale designed to measure resilience. The measure includes items designed to assess a person's ability to bounce back or recover from stress. There is a lack of research into resilience in epilepsy populations [57], therefore no precedent has been set in regard to suitable measures. However, this measure has been identified as one of the most reliable scales measuring this construct [58].

2.4 Analysis

Statistical analyses were completed using IBM SPSS, Version 22. Correlation analyses were completed for all of the main variables. Normality of the distributions was checked by examining the skew and kurtosis of data. The Liverpool Seizure Severity Scale was not normally distributed therefore non-parametric Spearman's rho tests of correlation were used.

Clinical and sociodemographic variables that were found to be significantly associated with each of the outcome variables were then entered into a hierarchical regression model for that outcome, followed by self-compassion as the main predictor variable of interest. In order to input non-binary categorical variables into the regression model (i.e. employment status, level of education, and relationship status), these were recoded into binary categorical variables in SPSS (i.e. employed/unemployed, higher education/below higher education, in a relationship/not in a relationship). The predictor variables were entered into the model in three steps: 1) Sociodemographic variables - age, employment status, 2) Illness-related variables - seizure severity (LSSS), seizure type, and 3) Self-compassion (SCS). The outcome variables were: 1) Depression (HADS), 2) Anxiety (HADS), and 3) Resilience (BRS).

2.5 Ethical Considerations

Participant wellbeing and issues of data protection were considered carefully throughout. Ethical and research governance approval to complete the research and recruit from the hospital was provided by an NHS Research Ethics Committee and local Research and Development department via the UK Health Research Authority integrated system.

3. Results

A total of 327 participants consented to take part in the study. Of these, 305 were recruited online and 22 from epilepsy clinics. Independent *t* -Tests were carried out to compare the variable means of the clinical and online samples; no significant differences were identified between the two groups in relation to all of the main variables ($p > .01$), with the exception of level of education, which was found to be higher in the online sample ($t = 3.141$, $p = .004$). Of the 327 survey responses, 59 contained missing data. Fifty-seven were excluded from statistical analyses due to

missing data on three or more main variables. Many of these participants did not complete demographic questions; therefore it was not possible to compare those with missing data to those who completed the survey. In the remaining two cases, data was imputed for missing BRS responses using mean substitution. This provided a total of 270 responses that were included in statistical analyses.

3.1 Sample characteristics

An overview of the sociodemographic and clinical characteristics of the sample are provided in Table 1. *[Table 1 here]*

Descriptive statistics and Cronbach's α coefficients for the standardized questionnaires are provided in Table 2. The mean seizure severity score of the sample was 32.93 out of 100, which was marginally lower than other similar studies of epilepsy populations [59, 60]. However, for participants who had not experienced a seizure in the last four weeks, a score of zero was indicated on the Liverpool Seizure Severity Scale, as per the authors' guidelines [49]. This applied to 41% of the sample, lowering the overall average score of seizure severity. The mean depression score of 7.94 placed this above the recommended clinical cut-off score of ≥ 7 for depression in an epilepsy population [61]; this was higher than other similar studies e.g. [e.g. 62, 63]. The mean anxiety score was higher still at 11.01, placing this in the moderate clinical range and well above the recommended cut-off score of ≥ 8 in an epilepsy population [61]; this was again higher than other similar studies [62, 63] The α coefficients for responses observed in the present study (0.83-0.94; see Table 2) indicated high internal consistency.

[Table 2 here]

3.2 Correlational analyses

Spearman's rho correlations between all demographic, illness, and outcome variables are provided in Table 3.

[Table 3 here]

Several demographic variables were found to correlate with the outcome variables. Employment status was correlated with depression (being employed was associated with lower depression; ρ = -.183, $p < .005$), and resilience (being employed was associated with higher resilience; ρ = .158, $p < .01$), but not anxiety. Age was positively correlated with resilience (ρ = .138, $p < .05$), and negatively correlated with anxiety (ρ = -.197, $p = .001$), but not depression. Gender, level of education, and relationship status were not correlated with any of the main outcome variables. Illness-related variables were found to be significant. Seizure severity was positively correlated with depression (ρ = .255, $p < .001$) and anxiety (ρ = .202, $p = .001$), and negatively correlated with resilience (ρ = -.208, $p = .001$). Seizure type also correlated with anxiety (generalized seizures were positively associated with anxiety; ρ = .142, $p < .05$), but not depression or resilience. Medication use was not associated with any of the main outcome variables. Self-compassion was significantly negatively correlated with depression (ρ = -.585, $p < .001$) and anxiety (ρ = -.608, $p < .001$), and positively correlated with resilience (ρ = .595, $p < .001$). Self-compassion and seizure severity were not significantly correlated ($p = .466$).

3.3 Hierarchical multiple regression analyses

Variables which were found to be significantly correlated with the outcome variables depression, anxiety, and resilience were entered as predictor variables into the regression models. Sociodemographic variables were entered into the first stage of the models, followed by illness-related variables in the second stage, and self-compassion in the third and final stage as the main variable of interest. The regression models were therefore structured as follows:

Predictor variables:

1) Sociodemographic variables: age, employment status
2) Illness-related variables: seizure severity (LSSS), seizure type
3) Self-compassion (SCS)

Outcome variables:

1) Depression (HADS)

2) Anxiety (HADS)

3) Resilience (BRS).

The results of the multiple hierarchical regression analyses are provided in Table 4 (a-c).

[Tables 4 a-c here]

The data were checked in SPSS to ensure that the main assumptions of multiple regression were met (dependent and independent variables were linearly related, residual terms were uncorrelated, no heteroscedasticity was present, errors were normally distributed, and no multicollinarity was present).

The regression analyses for depression indicated that Steps 1 and 2 of the model accounted for 10.8% of the variance in the outcome. Self-compassion was found to increase the explanatory power of the final model to 44.6%. . Self-compassion therefore explained 33.8% % of the variance in depression (R^2 change), and the overall model was significant ($F = 39.942$, $p < .001$). In the final model, the variables that were found to be significant were seizure severity ($\beta = .252$, $p < .001$), employment status ($\beta = -.115$, $p < .01$) and self-compassion ($\beta = -.596$, $p < .001$).

The regression analyses for anxiety indicated that Steps 1 and 2 of the model accounted for 10.9% of the variance in the outcome. Self-compassion was found to increase the explanatory power of the final model to 42.8%. Self-compassion therefore explained 31.9% of the variance in anxiety (R^2 change), and the overall model was significant ($F = 37.127$, $p < .001$). In the final model, the variables that were found to be significant were seizure severity ($\beta = .182$, $p < .001$), seizure type ($\beta = .102$, $p < .01$) and self-compassion ($\beta = -.579$, $p < .001$).

Finally, regression analyses for resilience indicated that Steps 1 and 2 of the model accounted for 8.7% of the variance in the outcome. Self-compassion was found to increase the explanatory power of the final model to 42.2%. Self-compassion therefore explained 33.4% of the variance in resilience (R^2 change), and the final model was again significant ($F = 36.150$, $p < .001$). In the final model, the variables that were found to be significant were seizure severity ($\beta = -.176$, $p < .001$) and self-compassion ($\beta = .593$, $p < .001$).

4. Discussion

4.1 Self-compassion and psychological wellbeing in epilepsy

The aim of the current study was to identify whether self-compassion predicted additional variance in measures of depression, anxiety, and resilience when other socio-demographic and illness-related variables had been accounted for. The findings showed that self-compassion predicted additional variance in each of the three models (anxiety, depression and resilience).

These findings may be explained in part by the protective role of self-compassion. Self-compassion can reduce self-criticism, shame and negative self-evaluation which PWE can experience as a result of their condition and stigmatizing attitudes they encounter [36, 64, 65]. People with epilepsy can experience high levels of enacted stigma, including social exclusion, negative attitudes and discrimination [64, 66]. This can be then internalized as felt stigma, which includes shame and a fear of enacted stigma [64, 66], which can be accompanied by physiologic and psychological threat responses [66]. Stigma is known to be related to depression in PWE [67]. However, there is an increasing body of evidence to suggest that self-compassion can help to protect against shame and negative self-evaluation, and lead to better mental health outcomes [32-34]. Thus treating oneself with kindness, being mindful and recognizing common humanity, which are aspects of self-compassion [26], may help self-soothing [33] and reduce threat responses and therefore reduce felt stigma and depression.

The impact of self-compassion on depression may also be explained in part by the effect of rumination. In the general population rumination mediates the relationship between self-compassion and depression, whereby those higher in self-compassion, ruminate less and thus experience lower depression [68]. Thus increased self-compassion may also lead to reduced rumination and thus reduced depression for PWE.

The findings also indicate that higher levels of self-compassion are associated with lower levels of anxiety in this population. This partially replicates previous findings from a study of people diagnosed with social anxiety, where self-compassion was found to be lower in those with a clinical

diagnosis of social anxiety disorder; lower self-compassion was also associated with greater fear of evaluation from others [69]. These findings may be explained in part by the impact of self-compassion on cognitive processing. In the general population, the relationship between self-compassion and anxiety has been shown to be mediated by positive and negative automatic thoughts [70] in one study and by worry and rumination in another [68]. Those who are high in self-compassion, experience fewer negative automatic thoughts, more positive automatic thoughts and less rumination and worry, which in turn leads to lower anxiety. Thus a similar mechanism may be operating for PWE.

A further important finding of this study was that self-compassion predicted increased resilience. PWE typically face high levels of adversity and, therefore, resilience is likely to be valuable to protect against feelings of depression and anxiety often associated with the condition. It has been suggested that increased resilience in other populations may be explained by self-compassion acting as an adaptive emotional regulation strategy which protects against the activation of negative schemas triggered by adverse experiences [71]. Self-compassionate thoughts may also promote an acceptance of suffering as something that is universal, and people may therefore be less likely to attend to the negative aspects of their situation; they may instead be better able to control negative reactions to experiences which cause discomfort [72]. Self-compassion has also been shown to reduce the tendency for harsh self-criticism [73] and to increase the capacity for optimism and feelings of self-efficacy [41, 74, 75].

Given this is a simple cross-sectional study, all the mechanisms proposed above can only be tentatively suggested and further research would be needed to indicate the direction of these relationships and certainly some may be bidirectional. Similarly the details of these causal mechanisms require further exploration.

4.2 Limitations

The majority of the sample was recruited online and probably largely via a UK charity, thus it was not possible to verify with certainty that all respondents met the inclusion criteria. Mainly online

recruitment is likely to have biased the sample and it may not be representative of the PWE population. For example, approximately 76% of the sample was female, whereas females have a marginally lower risk of developing epilepsy than males [76]. Furthermore, 73% of participants identified as White British, therefore other ethnic backgrounds were comparatively under-represented. Only 8.1% of participants were aged over 60, even though the incidence of epilepsy is higher in older adults [77], although the mode categorical age (31-50 years) was comparable to means of other studies e.g. [78, 79]. Finally the sample were highly educated (approximately 40% of participants were educated to degree level or above, with only 6% having no qualifications).

The use of self-report measures is open to bias [80] and is sensitive to culture [81]. Although the HADS has been utilized in many previous studies in epilepsy [4, 8], and its use here enables comparisons with other findings, a recent study has queried its utility as a screening tool in clinical practice suggesting it may not be adequately sensitive [14] and may not capture all aspects of anxiety in PWE.

While the proportion of the sample taking medication was recorded, we did not note whether participants were taking multiple medications, which may hinder comparisons with other similar studies.

4.3 Further Research

This study highlights a possible link between self-compassion and better psychological outcomes in PWE which is worthy of further investigation. It could be useful to better understand how self-compassion is experienced in PWE via qualitative research, perhaps involving samples of PWE identified as being either high or low in self-compassion. This could be followed up with additional quantitative research to examine predictors of self-compassion in PWE, incorporating longitudinal methods which would allow researchers to examine causal relationships between these variables [82]. Studies in the general population are beginning to elucidate psychological mechanisms involving self-compassion which contribute to reduced distress, for example by exploring the role

of rumination and negative automatic thoughts [68, 70], and such studies could also be usefully replicated and extended with PWE.

While it would perhaps be premature to suggest any interventions based on the findings of this one small cross-sectional study, it is perhaps worth noting here that compassion-focused therapy has been found to reduce shame and negative self-evaluation and improve mood for those with mental health problems [38, 83, 84] as well as in brain injury [85] and chronic pain [86]. This therapy aims to develop self-soothing and foster self-compassion [37]. Should further work extend our study and find a protective role for self-compassion for PWE, this therapy may also be worth future exploration for this population.

4.4 Conclusions

The findings of the present study suggest that self-compassion may be an important factor in determining psychological outcomes for adults with epilepsy. Whilst sociodemographic and illness-related variables have been demonstrated here and elsewhere to contribute to the wellbeing of people in this population, the present study suggests that higher self-compassion is associated with improved psychological outcomes such as lower depression and anxiety and higher resilience. However, this study was cross-sectional, with some limitations regarding the sample and thus further investigation of the role of self-compassion in PWE is warranted.

Conflict of interest

We wish to confirm that there are no known conflicts of interest associated with this publication and there has been no significant financial support for this work that could have influenced its outcome.

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References

[1] Fisher RS, Boas WvE, Blume W, Elger C, Genton P, Lee P, Engel J. Epileptic Seizures and Epilepsy: Definitions Proposed by the International League Against Epilepsy (ILAE) and the International Bureau for Epilepsy (IBE). Epilepsia 2005;46: 470-472.

[2] Stein MA, Kanner AM. Management of Newly Diagnosed Epilepsy. Drugs 2009;69: 199-222.

[3] Fiest KM, Dykeman J, Patten SB, Wiebe S, Kaplan GG, Maxwell CJ, Bulloch AGM, Jette N. Depression in epilepsy: A systematic review and meta-analysis. Neurology 2012;80: 590-599.

[4] Lacey CJ, Salzberg MR, D'Souza WJ. Risk factors for depression in community-treated epilepsy: Systematic review. Epilepsy & Behavior 2015;43: 1-7.

[5] Elliott JO, Richardson VE. The biopsychosocial model and quality of life in persons with active epilepsy. Epilepsy & Behavior 2014;41: 55-65.

[6] Kanner AM. Psychiatric issues in epilepsy: The complex relation of mood, anxiety disorders, and epilepsy. Epilepsy & Behavior 2009;15: 83-87.

[7] Bosak M, Turaj W, Dudek D, Siwek M, Szczudlik A. Depressogenic medications and other risk factors for depression among Polish patients with epilepsy. Neuropsychiatric Disease and Treatment 2015;11: 2509.

[8] Gandy M, Sharpe L, Perry KN. Psychosocial predictors of depression and anxiety in patients with epilepsy: A systematic review. Journal of Affective Disorders 2012;140: 222-232.

[9] Barry JJ, Ettinger AB, Friel P, Gilliam FG, Harden CL, Hermann B, Kanner AM, Caplan R, Plioplys S, Salpekar J, Dunn D, Austin J, Jones J. Consensus statement: The evaluation and treatment of people with epilepsy and affective disorders. Epilepsy & Behavior 2008;13: S1-S29.

[10] Lacey CJ, Salzberg MR, D'Souza WJ. What factors contribute to the risk of depression in epilepsy?—Tasmanian Epilepsy Register Mood Study (TERMS). Epilepsia 2016;57: 516-522.

[11] Beyenburg S, Mitchell AJ, Schmidt D, Elger CE, Reuber M. Anxiety in patients with epilepsy: Systematic review and suggestions for clinical management. Epilepsy & Behavior 2005;7: 161-171.

[12] Brandt C, Mula M. Anxiety disorders in people with epilepsy. Epilepsy & Behavior 2016;59: 87-91.

[13] Swinkels WAM, Van Emde Boas W, Kuyk J, Van Dyck R, Spinhoven P. Interictal Depression, Anxiety, Personality Traits, and Psychological Dissociation in Patients with Temporal Lobe Epilepsy (TLE) and Extra-TLE. Epilepsia 2006;47: 2092-2103.

[14] Gandy M, Sharpe L, Perry KN, Miller L, Thayer Z, Boserio J, Mohamed A. Anxiety in epilepsy: A neglected disorder. Journal of Psychosomatic Research 2015;78: 149-155.

[15] Alsaadi T, El Hammasi K, Shahrour TM, Shakra M, Turkawi L, Almaskari B, Diab L, Raoof M. Prevalence of depression and anxiety among patients with epilepsy attending the epilepsy clinic at Sheikh Khalifa Medical City, UAE: A cross-sectional study. Epilepsy & Behavior 2015;52: 194-199.

[16] Munger Clary HM, Snively BM, Hamberger MJ. Anxiety is common and independently associated with clinical features of epilepsy. Epilepsy & Behavior 2018;85: 64-71.

[17] Pham T, Sauro KM, Patten SB, Wiebe S, Fiest KM, Bulloch AGM, Jetté N. The prevalence of anxiety and associated factors in persons with epilepsy. Epilepsia 2017;58: e107-e110.

[18] Mensah SA, Beavis JM, Thapar AK, Kerr MP. A community study of the presence of anxiety disorder in people with epilepsy. Epilepsy & Behavior 2007;11: 118-124.

[19] Kimiskidis VK, Triantafyllou NI, Kararizou E, Gatzonis SS, Fountoulakis KN, Siatouni A, Loucaidis P, Pseftogianni D, Vlaikidis N, Kaprinis GS. Depression and anxiety in epilepsy: the association with demographic and seizure-related variables. Ann Gen Psychiatry 2007;6: 28.

[20] Brandt C, Schoendienst M, Trentowska M, May TW, Pohlmann-Eden B, Tuschen-Caffier B, Schrecke M, Fueratsch N, Witte-Boelt K, Ebner A. Prevalence of anxiety disorders in patients

with refractory focal epilepsy- a prospective clinic based survey. Epilepsy & Behavior 2010;17: 259-263.

[21] Peterson CL, Walker C, Shears G. The social context of anxiety and depression: Exploring the role of anxiety and depression in the lives of Australian adults with epilepsy. Epilepsy & Behavior 2014;34: 29-33.

[22] Baker GA, Jacoby A, Buck D, Brooks J, Potts P, Chadwick DW. The quality of life of older people with epilepsy: findings from a UK community study. Seizure 2001;10: 92-9.

[23] Jacoby A, Snape D, Lane S, Baker GA. Self-reported anxiety and sleep problems in people with epilepsy and their association with quality of life. Epilepsy & Behavior 2015;43: 149-158.

[24] Lee S-A, Han S-H, No Y-J, Jo K-D, Kwon J-H, Kim JY, Shin D-J. Sleep hygiene and its association with mood and quality of life in people with epilepsy. Epilepsy & Behavior 2015;52: 225-229.

[25] de Lima C, de Lira CAB, Arida RM, Andersen ML, Matos G, de Figueiredo Ferreira Guilhoto LM, Yacubian EMT, de Albuquerque M, Tufik S, dos Santos Andrade M, Vancini RL. Association between leisure time, physical activity, and mood disorder levels in individuals with epilepsy. Epilepsy & Behavior 2013;28: 47-51.

[26] Neff KD. The Development and Validation of a Scale to Measure Self-Compassion. Self and Identity 2003;2: 223-250.

[27] Neff KD, Faso DJ. Self-Compassion and Well-Being in Parents of Children with Autism. Mindfulness 2014;6: 938-947.

[28] Soysa CK, Wilcomb CJ. Mindfulness, Self-compassion, Self-efficacy, and Gender as Predictors of Depression, Anxiety, Stress, and Well-being. Mindfulness 2013;6: 217-226.

[29] Van Dam NT, Sheppard SC, Forsyth JP, Earleywine M. Self-compassion is a better predictor than mindfulness of symptom severity and quality of life in mixed anxiety and depression. Journal of Anxiety Disorders 2011;25: 123-130.

[30] Barnard LK, Curry JF. Self-Compassion: Conceptualizations, Correlates, & Interventions. Review of General Psychology 2011;15: 289-303.

[31] Macbeth A, Gumley A. Exploring compassion: A meta-analysis of the association between self-compassion and psychopathology. Clinical Psychology Review 2012;32: 545-552.

[32] Ferreira C, Pinto-Gouveia J, Duarte C. Self-compassion in the face of shame and body image dissatisfaction: Implications for eating disorders. Eating Behaviors 2013;14: 207-210.

[33] Johnson EA, O'Brien KA. Self-Compassion Soothes the Savage EGO-Threat System: Effects on Negative Affect, Shame, Rumination, and Depressive Symptoms. Journal of Social and Clinical Psychology 2013;32: 939-963.

[34] Leary MR, Tate EB, Adams CE, Batts Allen A, Hancock J. Self-compassion and reactions to unpleasant self-relevant events: The implications of treating oneself kindly. Journal of Personality and Social Psychology 2007;92: 887-904.

[35] Räty LKA, Söderfeldt BA, Wilde Larsson BM. Daily life in epilepsy: Patients' experiences described by emotions. Epilepsy and Behavior 2007;10: 389-396.

[36] de Souza EAP, Salgado PCB. A psychosocial view of anxiety and depression in epilepsy. Epilepsy & Behavior 2006;8: 232-238.

[37] Gilbert P. Introducing compassion-focused therapy. Advances in Psychiatric Treatment 2009;15: 199-208.

[38] Gilbert P, Irons C. Focused therapies and compassionate mind training for shame and self attacking. In: Gilbert P, editor. Compassion: Conceptualisations, Research and Use in Psychotherapy. London, UK: Routledge; 2005, p. 263–325.

[39] Kemper KJ, Mo X, Khayat R. Are Mindfulness and Self-Compassion Associated with Sleep and Resilience in Health Professionals? The Journal of Alternative and Complementary Medicine 2015;21: 496-503.

[40] Neff KD, McGehee P. Self-compassion and Psychological Resilience Among Adolescents and Young Adults. Self and Identity 2010;9: 225-240.

[41] Smeets E, Neff K, Alberts H, Peters M. Meeting Suffering With Kindness: Effects of a Brief Self-Compassion Intervention for Female College Students. Journal of Clinical Psychology 2014;70: 794-807.

[42] Reich JW, Zautra AJ, Hall JS. Handbook of adult resilience. New York, NY: Guildford Press; 2010.

[43] Masten AS. Ordinary magic: Resilience processes in development. American Psychologist 2001;56: 227-238.

[44] Bonanno GA. Loss, Trauma, and Human Resilience: Have We Underestimated the Human Capacity to Thrive After Extremely Aversive Events? American Psychologist 2004;59: 20-28.

[45] Rowland JH, Baker F. Introduction: Resilience of cancer survivors across the lifespan. Cancer 2005;104: 2543-2548.

[46] Yi JP, Vitaliano PP, Smith RE, Yi JC, Weinger K. The role of resilience on psychological adjustment and physical health in patients with diabetes. British Journal of Health Psychology 2008;13: 311-325.

[47] Zautra AJ, Johnson LM, Davis MC. Positive Affect as a Source of Resilience for Women in Chronic Pain. Journal of Consulting and Clinical Psychology 2005;73: 212-220.

[48] Taylor J, Jacoby A, Baker G, Marson AG, Ring A, Whitehead M. Factors predictive of resilience and vulnerability in new-onset epilepsy. Epilepsia 2011;52: 610-618.

[49] Scott-Lennox J, Bryant-Comstock L, Lennox R, Baker GA. Reliability, validity and responsiveness of a revised scoring system for the Liverpool Seizure Severity Scale. Epilepsy Research 2001;44: 53-63.

[50] Viteva EI. Seizure frequency and severity: How really important are they for the quality of life of patients with refractory epilepsy. Annals of Indian Academy of Neurology 2014;17: 35-42.

[51] Neff KD, Toth-Kiraly In, Yarnell LM, Arimitsu K, Castilho P, Ghorbani N, Guo HX, Hirsch JK, Hupfeld J, Hutz CS, Kotsou I, Lee WK, Montero-Marin J, Sirois FM, De Souza LK, Svendsen JL, Wilkinson RB, Mantzios M. Examining the Factor Structure of the Self-Compassion Scale in 20

Diverse Samples: Support for Use of a Total Score and Six Subscale Scores. Psychological Assessment 2018.

[52] Strauss C, Lever Taylor B, Gu J, Kuyken W, Baer R, Jones F, Cavanagh K. What is compassion and how can we measure it? A review of definitions and measures. Clinical Psychology Review 2016;47: 15-27.

[53] Zigmond AS, Snaith RP. The Hospital Anxiety and Depression Scale. Acta Psychiatrica Scandinavica 1983;67: 361-370.

[54] Lin C-Y, Pakpour AH. Using Hospital Anxiety and Depression Scale (HADS) on patients with epilepsy: Confirmatory factor analysis and Rasch models. Seizure: European Journal of Epilepsy 2017;45: 42-46.

[55] Wiglusz MS, Landowski J, Michalak L, CubaE,a WaJ. Validation of the Hospital Anxiety and Depression Scale in patients with epilepsy. Epilepsy & Behavior 2016;58: 97-101.

[56] Smith BW, Dalen J, Wiggins K, Tooley E, Christopher P, Bernard J. The brief resilience scale: Assessing the ability to bounce back. International Journal of Behavioral Medicine 2008;15: 194-200.

[57] Ring A, Jacoby A, Baker GA, Marson A, Whitehead MM. Does the concept of resilience contribute to understanding good quality of life in the context of epilepsy? Epilepsy & Behavior 2016;56: 153-164.

[58] Windle G, Bennett KM, Noyes J. A methodological review of resilience measurement scales.(Research)(Report). Health and Quality of Life Outcomes 2011;9: 8.

[59] Bautista RED, Tannahill Glen E. Seizure severity is associated with quality of life independent of seizure frequency. Epilepsy & Behavior 2009;16: 325-329.

[60] Rapp S, Shumaker S, Smith T, Gibson P, Berzon R, Hoffman R. Adaptation and evaluation of the Liverpool Seizure Severity Scale and Liverpool Quality of Life battery for American epilepsy patients. Quality of Life Research 1998;7: 467-477.

[61] Wiglusz MS, Landowski J, Michalak L, Cubała WJ. Validation of the Hospital Anxiety and Depression Scale in patients with epilepsy. Epilepsy & Behavior 2016;58: 97-101.

[62] Endermann M, Zimmermann F. Factors associated with health-related quality of life, anxiety and depression among young adults with epilepsy and mild cognitive impairments in short-term residential care. Seizure 2009;18: 167-175.

[63] Gómez-Arias B, Crail-Meléndez D, López-Zapata R, Martínez-Juárez IE. Severity of anxiety and depression are related to a higher perception of adverse effects of antiepileptic drugs. Seizure 2012;21: 588-594.

[64] Bandstra NF, Camfield CS, Camfield PR. Stigma of Epilepsy. The Canadian Journal of Neurological Sciences 2008;35: 436-440.

[65] Jacoby A, Austin JK. Social stigma for adults and children with epilepsy. Epilepsia 2007;48: 6-9.

[66] Jacoby A. Epilepsy and stigma: An update and critical review. Current Neurology and Neuroscience Reports 2008;8: 339.

[67] Baker D, Eccles FJR, Caswell HL. Correlates of stigma in adults with epilepsy: A systematic review of quantitative studies. Epilepsy & Behavior 2018;83: 67-80.

[68] Raes F. Rumination and worry as mediators of the relationship between self-compassion and depression and anxiety. Personality and Individual Differences 2010;48: 757-761.

[69] Werner KH, Jazaieri H, Goldin PR, Ziv M, Heimberg RG, Gross JJ. Self-compassion and social anxiety disorder. Anxiety, Stress & Coping 2012;25: 543-558.

[70] Arimitsu K, Hofmann SG. Cognitions as mediators in the relationship between self-compassion and affect. Personality and Individual Differences 2015;74: 41-48.

[71] Trompetter HR, de Kleine E, Bohlmeijer ET. Why Does Positive Mental Health Buffer Against Psychopathology? An Exploratory Study on Self-Compassion as a Resilience Mechanism and Adaptive Emotion Regulation Strategy. Cognitive Therapy and Research 2016;41: 459-468.

[72] Perez-Blasco J, Sales A, Meléndez JC, Mayordomo T. The Effects of Mindfulness and Self-Compassion on Improving the Capacity to Adapt to Stress Situations in Elderly People Living in the Community. Clinical Gerontologist 2015;39: 90-103.

[73] Neff KD, Hsieh Y-P, Dejitterat K. Self-compassion, Achievement Goals, and Coping with Academic Failure. Self and Identity 2005;4: 263-287.

[74] Neff KD, Rude SS, Kirkpatrick KL. An examination of self-compassion in relation to positive psychological functioning and personality traits. Journal of Research in Personality 2007;41: 908-916.

[75] Iskender M. The Relationship Between Self-Compassion, Self-Efficacy, and Control Belief about Learning in Turkish University Students. Social Behavior and Personality: an international journal 2009;37: 711-720.

[76] McHugh JC, Delanty N. Epidemiology and Classification of Epilepsy: Gender comparisons. International Review of Neurobiology 2008;83: 11-26.

[77] Wallace H, Shorvon S, Tallis R. Age-specific incidence and prevalence rates of treated epilepsy in an unselected population of 2 052 922 and age-specific fertility rates of women with epilepsy. The Lancet 1998;352: 1970-1973.

[78] Amaral RM, Andrade Filho AS, Britto RM, Lopes GVD. Association between epilepsy and depression. Journal of the Neurological Sciences 2015;357: e142-e143.

[79] Kwan P, Yu E, Leung H, Leon T, Mychaskiw MA. Association of subjective anxiety, depression, and sleep disturbance with quality-of-life ratings in adults with epilepsy. Epilepsia 2009;50: 1059-1066.

[80] Robins RW, Fraley RC, Krueger RK. Handbook of Research Methods in Personality Psychology. New York: Guilford Press; 2009.

[81] Hamamura T, Heine SJ, Paulhus DL. Cultural differences in response styles: The role of dialectical thinking. Personality and Individual Differences 2008;44: 932-942.

[82] Arjas E, Parner J. Causal Reasoning from Longitudinal Data*. Scandinavian Journal of Statistics 2004;31: 171-187.

[83] Braehler C, Gumley A, Harper J, Wallace S, Norrie J, Gilbert P. Exploring change processes in compassion focused therapy in psychosis: Results of a feasibility randomized controlled trial. British Journal of Clinical Psychology 2012;52: 199-214.

[84] Gilbert P, Procter S. Compassionate mind training for people with high shame and self-criticism: overview and pilot study of a group therapy approach. Clinical Psychology & Psychotherapy 2006;13: 353-379.

[85] Ashworth F, Clarke A, Jones L, Jennings C, Longworth C. An exploration of compassion focused therapy following acquired brain injury. Psychology and Psychotherapy: Theory, Research and Practice 2015;88: 143-162.

[86] Penlington C. Exploring a compassion-focused intervention for persistent pain in a group setting. British Journal of Pain 2018: 1-8.

Tables

Table 1
Sociodemographic and Clinical Information (N = 270) n (%)

Age	
18-25	39 (14.4)
26-30	42 (15.6)
31-40	57 (21.1)
41-50	61 (22.6)
51-60	49 (18.1)
61-70	20 (7.4)
71 or over	2 (0.7)
Gender	
Male	64 (23.8)
Female	206 (76.2)
Relationship Status	
Single	89 (33.1)
Married or cohabiting	157 (58.0)
Other	24 (8.9)
Highest level of Education	
Degree or above	110 (40.7)
A-Level, trade or other higher education	85 (31.3)
GCSE or NVQ	50 (18.7)
Other, level unknown	9 (3.3)
No qualifications	16 (6.0)
Employment status	
Employed	122 (45.0)
Unemployed	75 (27.9)
Other	73 (27.1)
Medication	
Yes	257 (95.2)
No	13 (4.8)
Most common seizure type	
Focal (partial)	122 (45.1)
Generalized	148 (54.9)
Nationality	
British	209 (77.4)
Irish	34 (12.6)
Other	27 (10)

Table 1
Sociodemographic and Clinical Information (N = 270) n (%)

Ethnicity	
White - English/Welsh/Scottish/Northern Irish/British	197 (72.9)
White - Irish	37 (13.7)
Any other White background	19 (7)
White and Black Caribbean	4 (1.5)
White and Black African	1 (.4)
Any other Mixed/Multiple ethnic background	4 (1.5)
Indian	1 (.4)
Pakistani	3 (1.1)
Chinese	1 (.4)
Any other ethnic group	3 (1.1)

Table 2
Descriptive Statistics - Reliability Values, Means, and Standard Deviations of Main Variables

	α	*M*	SD
1. Seizure severity	0.86	32.93	32.10
2. Self-compassion	0.94	2.61	0.68
3. Depression	0.84	7.94	4.70
4. Anxiety	0.83	11.01	4.60
5. Resilience	0.87	2.74	0.86

Table 3
Spearman's Rho Correlations Between Variables

	1	2	3	4	5	6	7	8	9	10	11	12
1. Self-compassion	-	-.585**	-.608**	.595**	-.029	.190**	.089	.094	.095	-.123*	-.045	-.082
2. Depression		-	.589**	-.500**	.011	-.014	-.183**	-.041	-.093	-.073	.255**	.005
3. Anxiety			-	-.524**	.02	-.197**	-.116	.0	-.068	.027	.202**	.142*
4. Resilience				-	-.04	.138*	.158**	.06	.086	-.02	-.208**	-.068
5. Gender					-	-.140*	-.018	.027	.167**	-.078	-.047	.007
6. Age						-	.033	.08	-.074	.014	-.031	-.049
7. Employment status							-	.146*	.222**	.063	-.177*	-.025
8. Relationship status								-	.041	-.058	.001	.047
9. Level of education									-	-.083	-.031	.03
10. Medication										-	-.147*	.067
11. Seizure severity											-	-.072
12. Seizure type												-

**$p \leq .01$
*$p \leq .05$

Table 4a
Results of Hierarchical Multiple Regression for Depression

	B	SE	*Beta*	*t*	*p*	R^2 Δ R^2	Adj. R^2	*F*
Step 1 **Socio-demographic variables**						**.043** **.043***	**.035**	**5.572***
Age	-.166	.191	-.054	-.868	.386			
Employment status	-2.053	.643	-.197	-3.192	.002			
Step 2 **Illness-related variables**						**.108** **.066****	**.094**	**7.546****
Age	-.157	.185	-.051	-.847	.398			
Employment status	-1.476	.638	-.142	-2.313	.022			
Seizure severity	.038	.009	.263	4.277	.000			
Seizure type	.292	.563	.031	.519	.604			
Step 3 **Self-compassion**						**.446** **.338****	**.435**	**39.942****
Age	.212	.149	.069	1.419	.157			
Employment status	-1.200	.504	-.115	-2.379	.018			
Seizure severity	.037	.007	.252	5.186	.000			
Seizure type	-.040	.445	-.004	-.089	.929			
Self-compassion	4.231	.344	-.596	-12.301	.000			

* $p < .01$
** $p < .001$

Table 4b
Results of Hierarchical Multiple Regression for Anxiety

	B	SE	*Beta*	*t*	*p*	R^2 Δ R^2	Adj. R^2	*F*
Step 1 **Socio-demographic variables**						**.059** **.059****	**.052**	**7.901****
Age	-.652	.183	-.218	-3.561	.000			
Employment status	-1.012	.616	-.101	-1.642	.102			
Step 2 **Illness-related variables**						**.109** **.050***	**.095**	**7.606****
Age	-.632	.179	-.211	-3.529	.000			
Employment status	-.575	.616	-.057	-.933	.352			
Seizure severity	.027	.009	.193	3.144	.002			
Seizure type	1.233	.543	.136	2.269	.024			
Step 3 **Self-compassion**						**.428** **.319****	**.417**	**37.127****
Age	-.285	.147	-.095	-1.945	.053			
Employment status	-.316	.495	-.031	-.638	.524			
Seizure severity	.026	.007	.182	3.696	.000			
Seizure type	.921	.437	.102	2.108	.036			
Self-compassion	-3.974	.338	-.579	-11.765	.000			

* $p < .01$
**$p < .001$

Table 4c
Results of Hierarchical Multiple Regression for Resilience

	B	SE	*Beta*	*t*	*p*	R^2 ΔR^2	Adj. R^2	*F*
Step 1 **Socio-demographic variables**						**.052** **.052***	**.044**	**6.847***
Age	.095	.035	.169	2.751	.006			
Employment status	.277	.117	.146	2.378	.018			
Step 2 **Illness-related variables**						**.087** **.036***	**.073**	**5.952****
Age	.093	.034	.165	2.729	.007			
Employment status	.201	.118	.106	1.706	.089			
Seizure severity	-.005	.002	-.187	-3.008	.003			
Seizure type	-.111	.104	.065	-1.069	.286			
Step 3 **Self-compassion**						**.422** **.334****	**.410**	**36.150****
Age	.026	.028	.047	.947	.345			
Employment status	.151	.094	.079	1.604	.110			
Seizure severity	-.005	.001	-.176	-3.546	.000			
Seizure type	-.051	.083	-.030	-.612	.541			
Self-compassion	.767	.064	.593	11.972	.000			

* $p < .01$
**$p < .001$