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The effect of mindfulness-based approaches on epilepsy patients: A systematic review

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Abstract

Objective: This study was conducted to systematically examine the effects of mindfulness-based approaches on patients with epilepsy. *Methods:* PRISMA criteria were taken as the basis for creating the systematic review protocol and writing the article. In this systematic review, the literature search was performed by searching randomized controlled trials and quasi-experimental studies from Pubmed, Scopus, Cochrane, and Web Of Science databases between 2019 and 2024. The systematic review followed PRISMA guidelines. Inclusion and exclusion criteria were determined using the PICOS method, and 5 studies were included. These studies included in the review were evaluated according to the Joanna Briggs Institute (JBI) critical appraisal lists according to their types. *Results:* Five studies, including 3 randomized controlled studies and 2 quasi-experimental studies, were included in our systematic review study. In the studies included in the research, a mindfulness-based approach was applied to epilepsy patients. In all studies included in the scope of the research, it was concluded that a mindfulness-based approach reduced anxiety symptoms in epilepsy patients, improved cognitive balance of emotions and ability to react, increased sexual function, and reduced gender-related distress. The mindfulness-based approach improved the quality of life and reduced symptoms of depression in both group and individual adults with epilepsy.
Conclusion: In line with these results, a mindfulness-based approach is beneficial to alleviate symptoms and develop coping mechanisms in epilepsy patients. In this direction, it is thought that more studies with high levels of evidence evaluating the effectiveness of a mindfulness-based approach are needed. In addition, awareness-based approach training protocols can be developed for mental health professionals, and in-service training can be provided and applied on different patient groups to contribute to the field.

Keywords: Epilepsy, stress, mindfulness, patient, awareness

INTRODUCTION

Epilepsy, a chronic neurological disorder affecting 65 million people worldwide, crosses social, demographic, and geographical boundaries.[1,2] Epilepsy is a nervous system disease characterized by more than two recurrent epileptic seizures within a year.[3] In addition, symptoms such as thyroid crisis, hyperglycemia and hypoglycemia, migraine, movement and balance disorders, weight gain, fatigue, blurred vision, poor concentration, feeling dizzy, fainting, syncope, mental status change and confusion, and sleep disorders are observed during the disease process.[4] Stress, anxiety, or depression is a major triggering factor in the development of seizures in epilepsy. The prevalence of depression in patients with epilepsy decreases the quality of life.[5] Information on the etiology, diagnosis, and treatment of epilepsy is constantly being updated. Antiepileptic drugs are mainly used in the pharmacological treatment of epilepsy. The fact that individuals need to use medication for a lifetime brings psychological, social, and economic problems. It has been observed that anti-epileptics are not completely successful in preventing epileptic seizures. Nonpharmacological treatment may be used in case of side effects of pharmacological agents or to reduce physical and psychological problems occurring in the patient before and after a seizure.[6] Nonpharmacological treatment is a treatment method that is used other than

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drugs. The ketogenic diet, neurostimulation, yoga, psychoeducation, progressive muscle relaxation exercises, vagus nerve stimulation, deep brain stimulation, self-management, and epilepsy surgery in adults are among nonpharmacological treatments.[7] An awareness-based approach is an easily applicable and low-cost form of treatment. Many studies with high-quality values showing that this approach is an effective treatment are available in the literature. In addition, a mindfulness-based approach is of great importance in the treatment of epilepsy and associated complications.[8] Mindfulness therapy, which is frequently used among cognitive behavioral therapies, is a mental treatment method that includes the development of mindfulness, i.e. 'paying attention' self-awareness, non-judgmental observations, and acceptance of bodily states, thoughts, emotions, and sensations in the present moment, where the individual is controlled to focus his/her attention on the present moment.[9-11] Mindfulness-based interventions (mindfulness) are effective in reducing stress, and physical and psychological pain in patients with epilepsy.[12] In a meta-analysis study conducted by Johannsen *et al*. (2022), it was found that mindfulness-based therapies target the basic processes of anxiety and depression by increasing conscious attention, decentering, and acceptance and are beneficial on these.[13] In a study conducted by Lai *et al*. (2021) on adults with epilepsy, it was found that mindfulness therapy improved quality of life and reduced depression symptoms in both groups and individuals.[14,15] Similarly, Lin *et al*. (2019) found that it was effective in increasing sexual function and reducing gender-related distress in women in a study conducted in Iran.[16] This review was conducted to systematically examine the effects of a mindfulness-based approach on symptoms in patients with epilepsy. The research question of this study is thus 'What are the effects of a mindfulness-based approach on the disease in epilepsy patients?

METHODS

The aim of this systematic review is to examine the studies on the effect of mindfulness-based approach on the disease in epilepsy patients and to determine the benefits of mindfulness-based approach to alleviate symptoms and develop coping mechanisms in epilepsy patients. PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols) criteria were taken as the basis for the creation of the systematic review protocol and the writing of the article. The literature search was conducted in 2019-2024. International articles published in Pubmed, Scopus, Cochrane, and Web of Science databases published between 2019 and 2024 constituted the universe of the study in line with the English keywords and word groups determined by MeSH (Medical Subjects Headings) terms. The keywords epilepsy, stress, mindfulness, patient, and awareness were used in the search. Randomized controlled trials and quasi-experimental studies examining the effect of a mindfulness-based approach on the disease in epilepsy patients with the keywords ''epilepsy and stress'', ''epilepsy and mindfulness'', ''epilepsy and patient or awareness'' were included. Inclusion and exclusion criteria were determined using the PICOS method and 5 studies were included. Systematic review PRISMA guidelines were followed.

Inclusion and exclusion criteria

Inclusion criteria were: Individuals with clinically diagnosed epilepsy (16 years and older); Randomized controlled trials and quasi-experimental studies on mindfulness-based approach; Studies in which routine care or a different intervention is applied. Exclusion criteria were: Individuals without epilepsy; Practices other than pharmacological and/or mindfulness-based approach; Studies without routine care or other intervention.

Selection of the study

The choices made independently by the two researchers were compared and a consensus was reached on different views. Data (Pubmed) were excluded due to duplication inference. Duplications from other databases were made by the researchers by reviewing the titles and abstracts. As a result of the search, a total of 478 studies (Pubmed: 229, Cochrane:42, Scopus: 108 Web of Science: 29) that met the inclusion criteria were obtained. A total of 5 studies, including 3 randomized controlled trials and 2 quasi-experimental studies, were included in the study. The PRİSMA flow diagram showing the selection process of the study is given in Figure 1.

Separation and analysis of the study

The titles and abstracts of the studies were first read and evaluated, and then the articles whose full texts were accessed were examined in detail.

A standard data extraction form was developed by the authors to summarize the data and the data were evaluated accordingly. The data extraction form was used to collect data on the authors, year, location, design, sample size and characteristics, frequency, and duration of mindfulness-based approach implementation, and measurement questionnaires used in the studies included in the systematic review.

Assessment of methodological quality

The quality assessment of the studies was conducted independently by two researchers. The independent assessments made by the researchers were then compared and a final consensus was reached on the different opinions. In addition, the Joanna Briggs Institute-Meta Analysis Statistical Assessment and Review Instrument (JBI-MAStARI) checklists developed by the Joanna Briggs Institute (JBI) were used to assess the methodological quality of the studies in this review (https://jbi.global/critical-appraisal-tools). The instrument was used to assess the methodological quality of randomized controlled and quasi-experimental trials. The methodological assessment of Randomized Controlled trials consists of 13 questions, and the total score ranges from 0-13 points, while the methodological assessment of quasi-experimental studies consists of 9 questions and the total score ranges from 0-9 points. For each item, the answer "Yes" is evaluated as 1 point, "No," "Unspecified," and "Not applicable" are evaluated as 0 points. A high score indicates high methodological quality in the study.[13,16] Randomized studies were found to be of high quality, with scores of 9, 8, 9, and quasi-experimental studies with scores of 7 and 6.

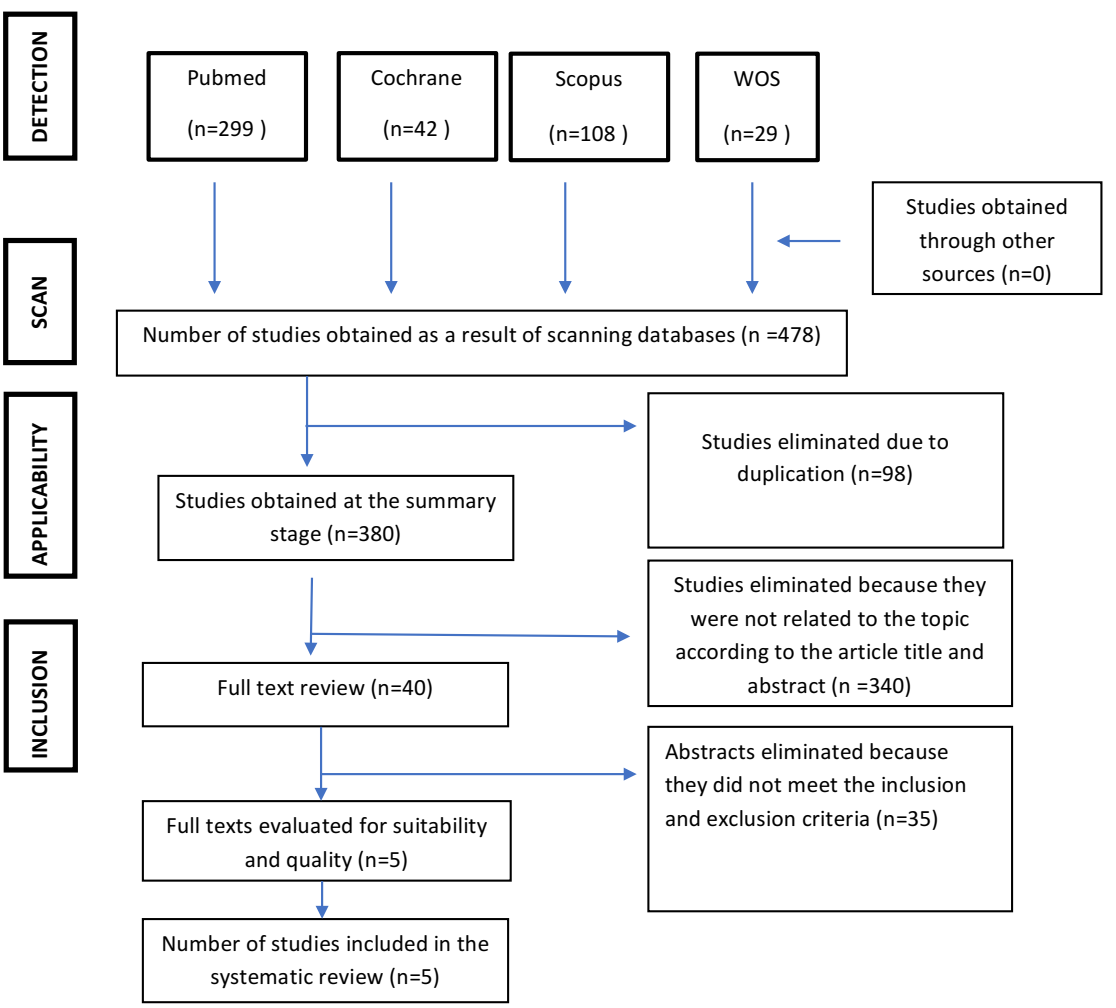

Figure 1: Prisma flow diagram

RESULTS

This systematic review was conducted to evaluate the effects of mindfulness-based approach applied to epilepsy patients. The study included 3 randomized controlled studies and 2 quasi-experimental studies that met the criteria for the study. The findings obtained from the studies were grouped under the headings of "Where and by whom the study was conducted, number of participants, duration of intervention and application, parameters and measurement tools evaluated when the applications were performed again, and results" (Table 1).

The researches were conducted in France (Bauer *et al*., 2019)[17], Iran (Lin *et al*., 2019)[18], Malaysia (Lai *et al*., 2021)[19], Switzerland (Mehrabi, and Tavakoli, 2020)[20], Malaysia (Lim, *et al*., 2024).[21] It was determined that the minimum sample size was 7[17] and the maximum sample size was 220.[18] While 1 of the studies was conducted in neurology clinics located in three different cities of a country, the other 4 studies were conducted in a single center (Table 1). The population of the quasi-experimental study by Bauer *et al*. (2019)[17] consisted of 7 people and was based on mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT). The therapy was conducted by an expert therapist. A neurologist and a clinical researcher specializing in epilepsy meditation participated in the sessions. The program consisted of 6 weekly sessions of 2.5 hours and the program topics included introduction to the program and mindfulness practices; integrating mindfulness practices into daily life, becoming aware of sensations, thoughts, and emotions; becoming aware of the relationship between emotions and thoughts; coping with unpleasant feelings and emotions; coping with seizures, lifestyle, and balance. The intervention was repeated after 3 months. At the end of the therapy, an ethnographic diary was kept and she wrote her observations after each session. In the study, people with different types of intractable epilepsy reported that they benefited from mindfulness interventions. They benefited from the intervention in terms of problems affecting the quality of life, uncertainties associated with seizures, and coping mechanisms. Two important new strategies for coping with seizures emerged: acceptance and control. However, there was no noticeable effect on seizure frequency.

The randomized controlled study by Lin *et al*. (2019)[18] was conducted in 15 neurology clinics in Iran on elderly women with sexual dysfunction consisting of 220 people diagnosed with epilepsy over the age of 65 in 15 neurology clinics in Iran. Written informed consent was obtained from the patients. Women with epilepsy, together with their partners (and husbands) and health care providers, were divided into 3 groups according to different types of interventions.1) patient and partner, 2) patient and health care provider, and 3) usual care. Measurements of all participants were completed at baseline, i.e. before the randenization, and 1 and 6 months after the intervention was completed. The female sexual function index was used to assess primary outcomes. For secondary outcomes, the revised version of the Female Sexual Distress Scale (FSDS), Personal Assessment of Intimacy in Relationships Scale (PERS), Sexual five-way awareness test (FFMQ-S), International index of erectile function (IIEF), Hospital anxiety and depression scale (HADS), Quality of life in epilepsy inventory (QOLIE-31), Patient-Doctor relationship questionnaire (PDRQ-9), and Sexual attitudes and beliefs survey (SABS) scales were used. In the standard epilepsy care group in the study, all outcome measures remained unchanged or worsened; in the patients and partners group, the Female sexual distress scale, intimacy in relationships, Sexual awareness, erectile function index, hospital anxiety and depression scale, epilepsy quality of life outcome measures improved; for the mindfulness-based cognitive therapy for sexuality control group, all outcome measures improved. The PPHP group showed greater improvement in patients' sexual intimacy, partners' sexual intimacy and partners' emotional intimacy, and greater improvement in patients' sexual intimacy at one-month follow-up than the PP group at 6-month follow-up.

Mehrabi, and Tavakoli, (2020)[20] conducted a pretest-posttest quasi-experimental study to investigate the effects of mindfulness-based stress reduction intervention on epileptic patients' cognitive emotional regulation and cognitive-affective reactivity (depression, dysfunctional attitudes, and automatic thoughts). The participants in the study were female members of Isfahan epilepsy association. The individuals were between 15-50 years old and diagnosed with epilepsy by a neurologist. Twenty-four people participated in the study, 12 in the case group and 12 in the control group. The experimental group received 8 sessions of 2 60-minute sessions. Nothing was applied to the control group. After the 3rd session, 3 members of the experimental group were excluded due to personal problems. Control group participants were matched with the remaining members of the experimental

group. The participants of both groups were then administered the Cognitive Emotion Regulation Questionnaire (CERQ) (2001), Beck's Depression Inventory (BDI) (1979), Dysfunctional Attitude Scale Questionnaire (DAS) (1978), and Negative Automatic Thoughts Questionnaire (NATQ (1980) in three phases: pretest, posttest, and follow-up phases. Both experimental and treatment groups answered the same questionnaires in the pretest immediately after the intervention and 75 days later. The results of the study showed that there was a significant difference ($p<0.01$) between positive and negative emotion regulation strategies, prevalence of negative thoughts, dysfunctional attitudes, and depression scores in the pretest, posttest, and follow-up phases.

Lai *et al*., (2021)[19] conducted a randomized controlled blind single-center study in Malaysia and included a total of 28 patients, 14 cases, and 14 controls. A total of 2.5 hours of mindfulness-based approach was applied to the intervention group, and no intervention was applied to the control group. Patients aged 16 and over diagnosed with epilepsy were included. The case and control groups were evaluated before the intervention, immediately after the intervention, and 6 weeks after the intervention. Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI-II), Life Satisfaction Scale (SWLS), Quality of Life Inventory in Epilepsy (QOLIE-31), Satisfaction with Life (SWLS), Mindfulness Level (MAAS) were used as measurement tools. As a result of the study, when the participants who participated in the mindfulness-based intervention were compared with the control group, a significant decrease in depression level ($p=0.001$), a significant increase in mindfulness level ($p=0.027$), and epilepsy quality of life inventory ($p=0.001$) were observed after the intervention. However, the change in anxiety inventory and life satisfaction scale was not significant. It can be concluded that mindfulness therapy improves the quality of life and reduces depression symptoms in both group and individual adults with epilepsy. According to the study, a 6-week mindfulness-based intervention is effective in reducing psychological distress, increasing awareness levels, and enriching quality of life and satisfaction among adult individuals with epilepsy. It showed clinical improvement in more than 40% of individuals with epilepsy. The beneficial effects of mindfulness-based intervention on depression continued at 6 months and weekly follow-up compared to individuals in the control group.

Lim *et al*. (2024)[21] conducted a pilot randomized controlled trial in Malaysia in which 20 people were divided into two groups, with 10 in the intervention group and 10 in the control group. Participants in the intervention group received 20 minutes of mindful breathing exercises in their preferred language (English, Malay, or Chinese) via the messaging platform WhatsApp. Meanwhile, participants in the waiting list and control groups were not given any intervention but were given the option to receive the treatment after completing a six-week follow-up. The intervention group was shown a guided video and told to exercise twice a week for two weeks, while the waiting list control group was shown only the video after completing the study. Weekly reminder messages were sent via WhatsApp to do the breathing exercises at least twice a week for the first 2 weeks of the intervention. At the end of the 2 weeks, participants were sent a follow-up message with evaluation questionnaires. They were then encouraged to continue the exercise whenever they wanted. At the end of the 6 weeks, participants were sent a second follow-up message with evaluation questionnaires. The frequency of application was asked at each follow-up to ensure that they followed the instructions. Finally, participants were encouraged to use the video as a coping tool to relieve symptoms of depression or anxiety after completing the follow-up survey. The groups were assessed using the Neurological Disorders Depression Index (NDDI-E), Generalized Anxiety Disorder (GAD-7), Quality of Life Inventory in Epilepsy (QOLIE-31), and Mindfulness Attention Awareness Scale (MAAS) at three time points: Baseline, 2 weeks post-intervention, and 4 weeks post-intervention. A 20-minute mindfulness breathing exercise has an immediate effect in improving depression and quality of life in patients with epilepsy. Compared with the wait-list control group, participants in the intervention group showed significant improvement in depression level 2 weeks post-intervention ($p = 0.022$). Generalized anxiety disorder improved significantly at 2 weeks post-intervention and 4 weeks post-intervention. The overall score on the epilepsy quality of life inventory in the intervention group improved significantly at 2 weeks post-intervention ($p = 0.036$) and 4 weeks post-intervention ($p = 0.031$) compared with the waiting-list control group. The attentional awareness scale showed an increased score at 4 weeks post-intervention ($p = 0.025$).

A limitation of this systematic review is that only studies conducted between 2019 and 2024

Table 2: Characteristics of the researches evaluated in the study

Author-Year-Country	Participants	Intervention	Parameters and measurement tools assessed	Applications	Results (Summary)	Quality Score
Bauer *et al*., (2019)[17] France Quasi-Experimental Study	Intervention Group:7 There is no control group.	A mindfulness-based intervention consisting of 6 weekly sessions of 2.5 hours each of the parameters applied	A mindfulness-based intervention was conducted over six weeks with seven adults with epilepsy. Semi-structured interviews were conducted by telephone immediately after the end of the intervention and repeated later. 3 months. Preliminary thematic analysis allowed themes to be identified and grouped into main categories.	3 months later	The study shows that people with different types of resistant epilepsy report benefits from mindfulness interventions. Problems affecting quality of life, uncertainties caused by seizures and coping mechanisms benefited from the intervention. Coping with seizures has also revealed two important new strategies: acceptance and control. But there was no noticeable effect on seizure frequency.	**6**
Lin *et al*., (2019)[18] Blind Randomized Controlled Trial in Three Iranian cities (Tehran, Karaj and Qazvin)	N:220 PH:220 PPHP:220 n:220 TAU:220	Case group: PP: MBTC-S PPHP: MBTC-S Control group TAU: Standard epilepsy care WWE (Women with epilepsy) and their partners in the PP and PPHP groups participated in eight-week sessions of mindfulness-based cognitive cognitive therapy for sexuality. Three separate sessions of sexual counselling were held in the PPHP group. PP: Patient And Partner PPHP: Patients, Partners and Healthcare Providers MBTC-S: Cognitive behavioural therapy for sexuality	1. Female sexual function index (used to assess the primary outcomes) Secondary outcomes;1. Revised version of the female sexual distress scale (FSDS) 2. Scale of personal assessment of intimacy in relationships (COUPLES)3. Sexual five-way sexual awareness test (FFMQ-S) 4. International index of erectile function (IIEF) Hospital anxiety and depression scale 5. Quality of life in epilepsy inventory (QOLIE-31) 6. Patient-Doctor relationship questionnaire (PDRQ-9) 7. Sexual attitudes and beliefs survey (SABS)	After 1 month and 6 months	Although it is a common belief that sexual function and interest may change with age, it has been shown that age has no significant relationship with sexual function (p= 0.617 for FSFI and 0.318 for FSDS). Mindfulness-based cognitive therapy for sexuality work is effective in improving sexual function and reducing sex-related distress in women with epilepsy. It was found that the mindfulness cognitive therapy technique performed better in the group of patients, partners and healthcare providers than in the group of patients with epilepsy at the 6-month follow-up.	**9**

Lai *et al*., (2021)[19] Malaysia Randomized Controlled Trial	Total: 28 4 control 14 Cases	**Intervention group:** Mindfulness Based Cognitive Therapy **Control group:** Routine treatment performed Case and control groups were assessed at three time points (T0: Baseline before randomisation, T1: 6 weeks immediately after the intervention and T2: 6 weeks after completion of the intervention).	1. Beck Anxiety Inventory (BAE) 2. Beck Depression Inventory (BDE-II) 3. Life Satisfaction Scale (SWLS) 4. Quality of Life Inventory in Epilepsy (QOLIE-31) 5. Awareness Level (MAAS) was used as a measurement tool.	6 months later	Participants who participated in MBI showed a significant decrease in BDI-II (P=0.001) and a significant increase in MAAS (p=0.027) and QOLIE-31 (p=0.001) compared to the control group. Participants who participated in MBI showed a significant decrease in BDI-II (P=0.001) and a significant increase in MAAS (p=0.027) and QOLIE-31 (p=0.001) compared to the control group. The trend was similar in the 6-week follow-up; All outcome measures of the MBI except BAI and SWSL remained significant ($p < 0.05$). Beyond the 6-week intervention, RCI analysis showed a significant improvement in mindfulness levels (45.45% vs. 21.43%, p=0.009), depression (45.45% vs. 0.00%, p=0.016), quality of life (45.45%). 14.29%, p=0.017) with MBI compared to the non-intervention phase. Mindfulness therapy improves quality of life and reduces symptoms of depression in adults with epilepsy, both in groups and individually.	**8**

Mehrabi, and Tavakoli (2020)[20] Switzerland Quasi Experimental Study	Total:24 Experiment:12 Control:12	**Experimental Group:** 8 2.5-hour sessions of training. Waiting List (Control Group) Questionnaires were administered. A pretest-posttest quasi-experimental design was used to investigate the effects of Mindfulness Based Stress Reduction (MSR) intervention on epileptic patients' cognitive emotional regulation and cognitive emotional reactivity (depression, dysfunctional attitudes and automatic thoughts).	Cognitive Emotion Regulation Questionnaire (CERQ) (2001), Beck's Depression Inventory (BDI) (1979), Dysfunctional Attitude Scale Questionnaire (DAS) (1978) and the Negative Automatic Thoughts Questionnaire (NATQ, 1980) questionnaire The patients were administered in three phases including pre-test, post-test and follow-up phases.	75 Days	The results showed that there was a significant difference ($p<0.01$) between positive and negative emotion regulation strategies, prevalence of negative thoughts, dysfunctional attitudes and depression scores in pre-test, post-test and follow-up phases. MBSR intervention significantly increased the use of positive strategies in cognitive emotional regulation and decreased the application of negative strategies ($p<0.05$). According to the results, the results of the analysis revealed that there was a significant difference between positive and negative strategy scores related to emotion regulation, prevalence, belief in negative thoughts and dysfunctional attitudes ($p<0.005$). Based on the results, it can be concluded that mindfulness therapy may have important effects on improving the cognitive balance of emotions and responsiveness of epileptic patients. Therefore, participation in mindfulness-based training sessions can lead to beneficial outcomes for patients through awareness and neutral techniques.	**7**

Lim *et al.* (2024)[21] Pilot Randomized Controlled Trial Malaysia	Intervention Group: 10 Control Group:10	T0: Baseline, T1: 2 weeks after intervention, T2: 4 weeks after intervention were assessed	Neurological Disorders Depression Index (NDDI-E), Generalized Anxiety Disorder (GAD-7), Epilepsy Quality of Life Inventory (QOLIE-31) and Attention Awareness Scale (MAAS)	4 Weeks	Compared to the waitlist control group, participants in the intervention group showed significant improvement in NDDI-E at T1 ($p = 0.022$) but not at T2 ($p = 0.056$) and greater improvement in GAD-7 at T1 and T2 but not statistically significant. In the intervention group, the QOLIE-31 overall score improved significantly at T1 ($p = 0.036$) and T2 ($p = 0.031$) compared to the waitlist control group. For MAAS, there was also an increased score at T2 in the intervention group ($p = 0.025$). Our study showed a trend toward improved psychological well-being among patients with epilepsy. This intervention can be easily promoted, shared, and implemented by clinicians through different social media among patients with epilepsy. This intervention has improved access to this behavioral health intervention, especially for patients at high risk for depression and anxiety. A 20-minute mindfulness breathing exercise has an immediate effect in improving depression and quality of life in patients with epilepsy.	**9**

PP: patient and partner, PPHP: patient, partner, and healthcare providers, TAU: Treatment as usual MBTC-S: Cognitive behavioral therapy based on sexuality, Women's sexual distress scale-revised version (FSDS), Self-assessment of closeness in relationships scale (PAIRS), Sexual five-way awareness test (FFMQ-S), International index of erectile function (IIEF), Hospital anxiety and depression scale (HADS), Quality of life in epilepsy inventory (QOLIE-31), Patient-Doctor relationship questionnaire (PDRQ-9), Sexual attitudes and beliefs survey (SABS), Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI-II), Satisfaction with Life Scale (SWLS), Quality of Life in Epilepsy Inventory (QOLIE-31), Satisfaction with life (SWLS), Mindful Awareness Level (MAAS), Cognitive Emotion Regulation Questionnaire (CERQ) (2001), Beck's Depression Inventory(BDI) (1979), Dysfunctional Attitudes Questionnaire (DAS) (1978), Negative Automatic Thoughts Questionnaire(NATQ, 1980), Epilepsy Quality of Life Inventory(QOLIE-31), Attention Awareness Scale (MAAS), Neurological Disorders Depression Index(NDDI-E), Generalized Anxiety Disorder(GAD-7), Quality of Life Inventory in Epilepsy (QOLIE-31), Mindfulness Attention Awareness Scale (MAAS)

were included in the studies on the effect of the mindfulness-based approach applied to epilepsy patients on the disease.

DISCUSSION

This review sought to answer the question of what is the effect of the mindfulness-based approach on the disease in patients with epilepsy. Each of the 5 articles reviewed reported that the application of the cognitive mindfulness-based approach would be beneficial in reducing seizures, sexual functioning, psychological well-being, and stress in patients with epilepsy, and improving depression and quality of life. Wood *et al*. (2017) reported that the mindfulness-based approach applied to patients with epilepsy improved depression, quality of life, and anxiety in patients as a result of their systematic review.[22] Another study concluded that the mindfulness-based approach applied to patients with epilepsy increased self-efficacy and reduced the effects of anxiety symptoms. Patients with improved self-efficacy can better control their symptoms, monitor their medication use, avoid seizures, develop a more comprehensive personal care program for themselves, and manage their disease by providing their care.[23] Li *et al*. (2023) concluded that cognitive behavioral therapy interventions effectively improve depression and quality of life as a result of their meta-analysis. The individual mindfulness-based approach is more effective than group therapy because the mindfulness-based approach can be more sensitive to the specific needs of each patient, and the therapy focuses on improving the patient's health status by diagnosing and managing thoughts and behaviors.[24] Considering all these studies, the mindfulness-based approach helps patients with epilepsy to increase their awareness and understanding of their thoughts and feelings about their illness. It teaches patients that their thoughts about the illness are not necessarily based on reality and how to get rid of negative thoughts to manage distress. It helps individuals relate to their psychological and physical conditions in more accepting and non-judgmental ways.[25] It has been found that mindfulness-based interventions are effective in reducing anxiety, depression, and fatigue in people with lung cancer, and mindfulness practice helps them notice the automatic activation of dysfunctional thought processes such as rumination related to depression and anxiety about the future and also provides concentration skills that enable them to develop awareness. It has been concluded that patients may tend to make themselves happier through attention and emotional regulation with mindfulness meditation.[12] It is seen that the number of studies showing the effectiveness of the mindfulness-based approach in individuals with epilepsy is limited in the literature. In all studies included in the scope of the research; It has been concluded that the mindfulness-based approach in patients with epilepsy reduces anxiety symptoms, improves the cognitive balance of emotions and the ability to respond, increases sexual function, and is beneficial in reducing gender-related distress. The mindfulness-based approach has improved the quality of life and reduced depression symptoms in adult individuals with epilepsy, both individually and in groups. Therefore, the mindfulness-based approach has an important place in alleviating the symptoms of epilepsy patients and has shown that it can be applied to epilepsy symptoms.

In conclusion, according to our review, it is shown that people with different types of resistant epilepsy benefit from awareness-based approaches. Although the study results show positive results on epilepsy patients, it is recommended to work on different patient groups and larger samples to obtain high-level evidence for the literature and to contribute to science. It is recommended to conduct meta-analysis studies that include awareness-based interventions in individuals with epilepsy. In addition, awareness-based approach training protocols can be developed and in-service trainings can be provided to mental health professionals, and contributions can be made to the field by working on different patient groups.

DISCLOSURE

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