

Epilepsy and psychological interventions: A systematic review study

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ABSTRACT

Objectives. Epilepsy is a debilitating disease that can have long-term unpleasant psychological consequences. For this purpose, various psychological interventions have been provided to improve the quality of life of these patients. In this review study, the effectiveness of these interventions has been surveyed.

Materials and methods. This study was conducted through a systematic review method from January 2010 to April 2021. Keywords such as quality of life, clinical trials and randomized clinical trials, epilepsy, seizure, psychology, intervention, chronic disease, empowerment, psychotherapy and psychological interventions were searched in PubMed, Scopus, and Google Scholar indexing databases. Out of 1866 articles found, 13 articles were selected for review.

Results. The surveys showed that psychological therapies increase the quality of life, social functioning, self-care behaviors, memory, self-esteem, job and social adjustment of many epileptic patients. On the other hand, according to the results, with the improvement of mental health of patients with epilepsy, we saw a reduction in stress, anxiety, depression, pain intensity, seizure, suicidal ideation and social stigma of patients with epilepsy.

Conclusion. Various psychological interventions lead to a reduction in psychological problems in patients with epilepsy. It causes patients to be in good mental health, accept their pain and show less recurrence of their disease. For this purpose, it is necessary to pay more attention to the psychological health of patients with epilepsy in medical centers to reduce the incidence of mental disorders and improve the health of epileptic patients.

Keywords: psychology, seizure, epilepsy, systematic review

INTRODUCTION

Epilepsy is one of the most well-known and common disorders of the nervous system, which is the most common in human societies after various types of stroke and heart attack [1]. The disease affects patients' lives to such an extent that one in 21 men and one in 28 women experience epileptic attacks during their lifetime [2]. Epilepsy involves repetitive attacks that these people experience [3]. Drug-resistant epilepsy can challenge the sources of

coping and cause particular anxiety about seizures that may be a significant impediment to the patient's social functioning and independence. These patients also have psychological, physical and social adjustment problems. Also, social stigma can be a predictor of psychosocial problems for these patients [4]. These psychosocial problems may be more disabling and detrimental to the quality of life than the attacks themselves [5]. This means that aspects of the life of people with epilepsy can be considered as the goal of psychological therapies. A number of

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studies have focused on therapies that address a range of disorder-related problems [6].

However, access to psychological therapies designed specifically for patients with epilepsy is an exception [7]. Studies show that psychological interventions will be more effective in reducing anxiety and improving medication acceptance and social competence, but the strengthening of experimental methods is needed [8]. Some studies show the beneficial effects of cognitive-behavioral therapies, care-based approaches and multi-component educational interventions on improving adjustment, social functioning and quality of life [9].

Epilepsy can have devastating economic, social and cultural consequences for people with epilepsy [10]. On the other hand, epilepsy is related to a range of biological aspects and psychological pathology, among which depressive disorder is the most common psychological disorder among people with epilepsy [11]. Many epileptic patients have reported the effect of stress on the frequency and severity of epilepsy [12]. Many of the known causes of epileptic attacks, such as tumors and brain damage, or alcohol withdrawal, which in some cases lead to epilepsy, are themselves stressors, and recent stressors, especially chronic stress, can be the cause or diagnosis of epilepsy [13]. One in three people with epilepsy will experience some form of depression during their lifetime, and depression is more common in people with epilepsy than in others. In addition, people with a family history of depression are at higher risk for depression [14]. Anxiety in epilepsy can be classified based on its time relationship to seizure events. Accordingly, people experience anxiety before, during and after seizures. Pre-seizure anxiety lasts for hours or days and post-seizure anxiety lasts for up to seven days after seizures [15].

The first line of treatment for epilepsy is medication, however, the effectiveness of some psychological interventions on the psychological damage of people with epilepsy has been confirmed [16]. Epilepsy patients are prone to depression due to frequent exposure to uncontrollable events and fear of having seizures in social settings and fear of being misunderstood by others leads to the strengthening of dysfunctional beliefs in them [17]. On the other hand, persistent seizures and cognitive dysfunction lead to a decline in quality of life in people with epilepsy [18]. In the meantime, cognitive-behavioral therapy, by targeting spontaneous thoughts, changes patients' basic beliefs about the history of failure due to epilepsy and this leads to improved mood and depression. Activity planning also helps epileptic patients to improve their quality of life by reducing failure to achieve daily plans and valuing any increase in daily activity levels [19]. On the other hand, patients experience the first epileptic attack

following stressful events and in many cases, stress is effective in the repetition of seizures [20]. In this regard, coping skills training helps people with epilepsy to become familiar with the relationship between epilepsy and stress and gradually by using appropriate coping techniques, stress management methods, social support seeking methods and positive reinterpretation of epileptic attacks, coping with disease avoidance and actively dealing with problems minimize stress [21]. Epileptic patients are at a low level in terms of psychological well-being [22]. On the other hand, when faced with an emotional situation, feeling good and optimistic is not enough to control emotion, but epileptic patients need to use the best cognitive function in these situations. In this regard, emotion adjustment-based intervention enhances the psychological well-being of epileptic patients by increasing the ability to understand emotions, modify experience, express and tell the emotions [23]. Because people with epilepsy have a lower quality of life than the general population and other chronic diseases [24], progressive muscle relaxation prevents the production of negative thoughts and emotions such as anxiety and stress and neutralizes the effects of increased muscle pressure on the body. As a result, by reducing the number of epileptic attacks, the quality of life of patients increases [24,25]. Mindfulness Treatment by emphasizing a non-judgmental approach to inner experiences over time and increasing awareness and acceptance of life events related to epilepsy, conscious attention and emphasis on being present and exposed to pleasant feelings and thoughts and not avoiding emotions and accepting them leads to cognitive and behavioral changes and thus improves the quality of life in patients with epilepsy [26]. In acceptance and commitment therapy, patients are taught to give meaning to their problems and accept the socio-psychological consequences of epilepsy, to avoid verbal rules and assessments through diffusion, to live in the present, to act in the direction of their chosen values through committed action and to find their chosen orientation despite the stigma caused by the disease [27].

Overall, epilepsy, along with psychological problems, has profound effects, leading to impaired daily functioning and deterioration of the patient's quality of life, decreased marriage rates, increased unemployment and high mortality. Psychosocial stress, especially depression and anxiety, are factors that increase the risk of suicide in these patients [28]. Epilepsy affects adaptation skills and the ability to cope with the problems of a chronic illness by creating dysfunctional fundamental beliefs. The beliefs of these patients differ from those of a normal person and are reinforced by negative experiences related to epilepsy and lead to high levels of depres-

sion and chronic anxiety [29]. In this regard, the present review was conducted to investigate the psychological interventions affecting epilepsy.

MATERIALS AND METHODS

This study was conducted through a systematic review method in studies published in the period from January 2010 to April 2021. PubMed, Scopus, Google Scholar and Science Direct indexing databases were surveyed. To search the articles, the terms quality of life, clinical trials and randomized clinical trials, epilepsy, seizure, psychology intervention, chronic disease, empowerment, psychotherapy and psychological interventions were used. In order to search the keywords in detail, each of the words was searched in combination with epilepsy, and finally, 1866 articles were found that the searched keywords were in the title or content of the article. The titles of the articles and abstracts were reviewed by two researchers, and a large number of articles were removed from the review due to duplication, irrelevance, and lack of inclusion criteria. Finally, 13 articles were selected and reviewed. Figure 1 shows the steps for reviewing references. Publication of articles in a specific period of time, publication in the Persian or English language and research on people with epilepsy were among the criteria for entering articles. Qualitative and single-case articles, case reports and articles based on pharmacological and medical interventions were considered as exclusion criteria. To review the articles, the

standard critique framework of health articles [30] and Sidant and Braden's approach in reviewing and evaluating behavioral interventions [31] were used. To review the articles, the indicators of the authors' last names and year of publication, type of intervention or theoretical framework, country of research, number of participants in the research, method of intervention and outcome of the study were considered.

RESULTS

In this study, 13 studies were reviewed, two of which were conducted in Iran. The theoretical frameworks in these studies were based on CBT and combination therapies with mindfulness. Most studies have been conducted by randomized clinical trials and some studies were experimental. Most studies had a follow-up assessment, but some did not. Follow-ups fluctuated between one and three months.

Among 1866 articles related to psychological interventions affecting patients with epilepsy, in the end, 13 articles were selected and reviewed with a population of 591 patients based on inclusion and exclusion criteria. Moreover, this systematic review included studies from 9 countries, such as Iran, Australia, Malaysia, the USA, UK, China, Canada, Germany and Mexico, which indicated the importance of evaluating the effectiveness of psychological therapies on epilepsy patients around the world. Studies have shown that psychological therapies increase

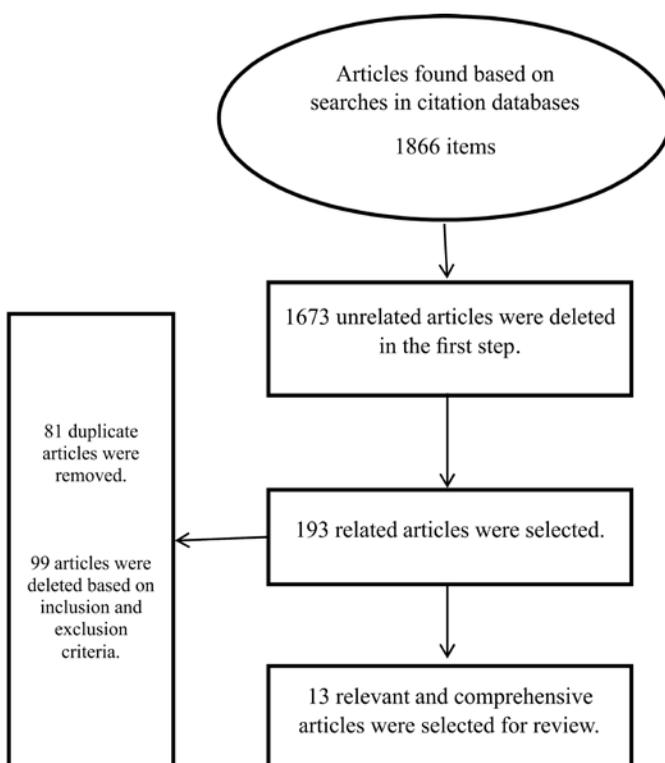


FIGURE 1. Steps for selecting articles

TABLE 1. Characteristics of the included studies

Authors and years	Intervention/s	Country	Participants	Design	follow-up	Consequences
Lai et al (2021) [32]	(MBI: 6 sessions)	Malaysia	MBI (n=14) Control (n=14)	RCT	6 weeks	Reducing psychological distress and improving the quality of life.
Chaghajerdi et al (2021) [33]	(MBCT: 8 sessions)	Iran	MBCT (n = 15) Control (n = 15)	Experimental	No	Reducing death anxiety.
Baslet et al (2020) [34]	(MBT: 12 sessions)	USA	MBT (n = 49)	Experimental	six-month	seizures frequency, intensity, and quality of life improved at treatment end.
Haut et al (2018) [35]	(PMR: 12 sessions)	USA	PMR (n=33) Control (n=34)	RCT	1, 2 and 3 months	seizure frequency and stress decreased, focused attention increased.
Mohamadpour et al (2017) [36]	(MBCT: 8 sessions)	Iran	MBCT (n=15) Control (n=15)	Experimental	No	Increase self-efficacy and reduce anxiety.
Dewhurst et al (2015) [37]	(ACT: 20 sessions)	UK	ACT (n=60)	Experimental	six-month	Reduce depression, anxiety and improve quality of life, self-esteem and job and social adjustment.
Orjuela-Rojas et al (2015) [38]	(CBT: 12 sessions) (SSRIs: eight weeks)	Mexico	CBT (n=7) SSRIs (n=8)	Experimental	6 and 12 weeks	The quality of life of both groups improved and the severity of depressive symptoms decreased; But no difference was observed between the two groups.
Tang et al (2015) [39]	(MBT: 8 sessions)	China	MBT(n=30) Control (n=30)	RCT	6 weeks	Improve quality of life, reduce anxiety and depression symptoms, and reduce the frequency of seizure and improvement in delayed memory.
Gandy et al (2014) [40]	(CBT: 8 sessions)	Australia	CBT (n = 31) Control (n = 28)	RCT	3 months	Reduce depressive symptoms, anxiety, and suicidal ideation.
Schröder et al (2014) [41]	(POIs: 9 sessions)	German	POIs (n = 38) Control (n = 40)	RCT	No	Reduce depression and decrease fatigue in quality of life.
Aliasgharpour et al (2013) [42]	(SMB: 4 sessions)	Iran	SMB (n = 30) Control (n = 30)	Experimental	1 months	Improvement in self-management behaviors.
McLaughlin and McFarland (2011) [43]	(CBT: 6 sessions)	Australia	CBT (n=18) Control (n=19)	RCT	three months	Reduce the frequency of seizures, decrease depression and improvement in social functioning.
Macrodimitris et al (2011) [44]	(CBT: 10 sessions)	Canada	CBT (n=18)	Experimental	No	Reduce depression and anxiety.

Note: MBI = Mindfulness-based intervention; RCT = Randomized controlled trial; MBCT = Mindfulness-Based Cognitive Therapy; MBT = Mindfulness-based therapy; PMR = Progressive muscle relaxation; ACT = Acceptance and commitment therapy; CBT = Cognitive behaviour therapy; POIs = Psychological on-line interventions; SMB = Self-management behaviors.

the quality of life, social functioning, self-care behaviors, memory, self-esteem, job and social adjustment of many epileptic patients. On the other hand, according to the results, with the improvement of mental health of patients with epilepsy, we saw a decrease in stress, anxiety, depression, pain intensity, seizures, suicidal ideation and social stigma of patients with epilepsy.

DISCUSSION

In this study, the effectiveness of psychological interventions in epilepsy patients has been reviewed. The results showed that in addition to drug therapies, psychological interventions could reduce

anxiety, stress, depression, seizures, social stigma, death anxiety and suicidal ideation in patients with epilepsy [33,38,40]. In explaining these findings, it can be acknowledged that endangering physical and mental health, anxiety and worry, conflict with mind rumination and depressive symptoms, loss of job and educational positions and impairment in social relationships, such as a person's quality of life, have significant negative effects (19). Therefore, using methods that can eliminate mind rumination, control pain, eliminate or reduce the symptoms of anxiety and depression, change dysfunctional attitudes and increase the feeling of efficiency and life expectancy can help accept the disease and cope with it, and improve the quality of life [24]. Numer-

ous studies have confirmed the effect of psychological therapies on mental well-being, anxiety and depression, pain tolerance, mental health, and reduction of physical and mental symptoms in patients with epilepsy [34].

One of the effective therapies for the mental health of patients with epilepsy is cognitive therapy based on mindfulness [35]. This treatment expands the flexibility of cognitive activities, reduces the level of mind rumination, overgeneralization, self-critical judgments and promotes useful cognitive processes such as observation without judgment on mental content. In this way, clients are encouraged to process the experience as it is formed without judgment. Moreover, they can change their relationship with challenging thoughts and accept their feelings [16]. With the expansion of mindfulness in social processing, changes occur in various dimensions of interpersonal conflict. They concluded that self-awareness, self-regulation and gaining balance again also improved with increasing mindfulness. Furthermore, mindfulness, a sense of calm, hope and a high ability to deal with stress can boost self-confidence and inner control. With mindfulness, the individual, while maintaining his or her functional stability, also acquires the necessary flexibility in new situations [36].

Acceptance and commitment-based therapy (ACT) is also the third wave of behavioral therapy and a new treatment to improve the psychological symptoms of epileptic patients [33]. The goal of ACT is to help us live a full, meaningful, rich life by accepting the pain of living unintentionally. ACT does this in two ways: first, by teaching psychological skills to endure painful thoughts and feelings and helping us to understand what is important and meaningful to us, and second, by clarifying values [27]. Therefore, the goal of ACT is to create a rich, complete and meaningful life by accepting the pain that inevitably accompanies life. In other words, the primary goal of ACT is to increase psychological flexibility. The ACT includes six core therapeutic processes: defusion, acceptance, present moment, committed action, self-as-context and values. The higher the patient's ability to be fully aware, open to the experiences and acting on the values is, the higher the quality of life he or she has. Because he or she can respond much more effectively to the inevitable problems and challenges of life [37].

In behavioral self-management intervention by teaching the right ways to express emotion, people learn the right ways to deal with problems, events and how to communicate properly with others, and this can lead to better relationships with others and a more logical interpretation of events as well as correction of communication and interpersonal problems among these patients [42]. One of the approaches to behavioral therapy is progressive mus-

cle relaxation in which a person acts by contracting and relaxing a group of muscles for general relaxation of the body. In this therapeutic approach, the patient is instructed to contract the muscles of his body in groups from head to toe, relax after counting to five and then count to ten [43]. Cognitive-behavioral therapies (CBT) believe that the cause of psychological problems in the individual is inefficient beliefs and underlying assumptions about self, world and human beings [44]. Dysfunctional thoughts and attitudes related to epilepsy and negative community reactions to this disease cause helplessness and passivity in many of these patients. By targeting these mental distortions and negative attitudes with CBT, they can be corrected and replaced with positive and constructive thoughts. Moreover, by properly accepting the disease, the daily functions and quality of life of these patients will be increased [38]. Telepsychiatry is defined as the provision of psychological care and the exchange of mental care information, to provide psychiatric services in faraway areas, which, like other branches of telemedicine, are done in three ways; store and forward, real-time and hybrid [16]. Among the benefits of telepsychiatry can be providing counseling to remote areas, intending to prevent unnecessary travel, providing counseling in psychiatric emergencies, helping patients in-home care who, for various reasons, find it difficult to leave home to see a psychiatrist, as well as providing services to patients with neurological problems such as epilepsy [34].

Overall, it can be acknowledged that various psychological interventions reduce seizures, depression, anxiety, stress, fear, mind rumination and death anxiety in patients with epilepsy. This causes patients to be in good mental health, accept their pain and show less recurrence of their disease. For this purpose, it is necessary to pay more attention to the psychological health of patients with epilepsy in hospitals to reduce the rate of mental disorders and improve the health of epileptic patients. One of the limitations of the present review study was the unavailability of the full text of some articles, which led to the non-inclusion of these articles in the review process. Furthermore, due to the filtering of some scientific databases, researchers could not access them. In addition, some studies have been descriptive and should be cautious in generalizing their results. In this regard, it is suggested that descriptive studies be conducted on the prevalence and psychological consequences of epilepsy within the country thus with proper planning, vulnerable patients can be identified, and the necessary psychological interventions can be done.

CONCLUSION

In this study, we found that epilepsy has a variety of psychological consequences for patients. But psy-

chological interventions have an effective role in improving the psychological status of these patients. In this regard, it is recommended that a comprehensive model of psychosocial rehabilitation be used that includes prevention, treatment, rehabilitation and improving the quality of life of epileptic patients and includes a set of diagnostic units, outpatient treatment, education, face-to-face and telephone counseling, family counseling, group therapy,

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