THE EFFECTIVENESS OF ENRICHED COGNITIVE-BEHAVIORAL THERAPY (ECBT) ON CLINICAL SYMPTOMS, QUALITY OF LIFE, AND SEXUAL SELF-EFFICACY IN MEN WITH PSYCHOLOGICAL ERECTILE DYSFUNCTION (ED): A CASE STUDY

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Abstract: *according to the high prevalence of erectile dysfunction and its effects on various dimensions of these patients' lives, the purpose of the present study is to evaluate the impact of the enriched cognitive-behavioral therapy (ECBT) on the improvement of clinical symptoms, quality of life, and sexual self-efficacy of men with erectile dysfunction.*
In this multiple baseline experimental single case study, five subjects with erectile dysfunction were selected by purposive sampling method among clients of psychological and psychiatric clinics and urologists in Mashhad, Iran. The data were collected by BREF WHOQOL, IIEF and SSES-E questionnaire at pretest and post-test stages. Patients received 16 to 20 sessions of individual and the presence of couples enriched cognitive-behavioral therapy, after which the results were analyzed by effect size and remission rate.
Remission rate was obtained 49/51, 43/35, 24/2, respectively for clinical symptoms, sexual self-efficacy and quality of life, which shows high improvement of subjects in clinical symptoms of erectile dysfunction and sexual self-efficacy. Also, an effect size of enriched cognitive-behavioral therapy was obtained as 3/96, 5/98 and 1/89, respectively, which indicates that the most effectiveness of enriched cognitive-behavioral therapy is on sexual self-efficacy and clinical symptoms of erectile dysfunction variables.
Enriched cognitive-behavioral therapy was effective in the treatment of patients with erectile dysfunction, increasing the sexual self-efficacy and quality of life in these patients. This therapy method can underlie the applied research in treating erectile disorder dysfunction.
Keywords: *Enriched Cognitive-Behavioral Therapy, Erectile Dysfunction, Clinical Symptoms, Quality of Life, Sexual Self-Efficacy.*

ЭФФЕКТИВНОСТЬ РАСШИРЕННОЙ КОГНИТИВНО-ПОВЕДЕНЧЕСКОЙ ТЕРАПИИ ДЛЯ УЛУЧШЕНИЯ КЛИНИЧЕСКИХ СИМПТОМОВ, КАЧЕСТВА ЖИЗНИ, А ТАКЖЕ ПОЛОВОЙ САМОЭФФЕКТИВНОСТИ У МУЖЧИН С ПСИХОЛОГИЧЕСКОЙ ЭРЕКТИЛЬНОЙ ДИСФУНКЦИЕЙ

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Аннотация: *задачей данного исследования является выявление степени эффективности расширенной когнитивно-поведенческой терапии, используемой для улучшения клинических симптомов, качества жизни, а также половой самоэффективности пациентов с эректильной дисфункцией, являющейся весьма негативным фактором, влияющим на различные аспекты жизни человека. Для проведения исследования, среди пациентов психиатрических клиник и урологических кабинетов Мешхеда (Иран) было выбрано пять кандидатов с соответствующим диагнозом. С каждым из пациентов было проведено от 16 до 20 сеансов расширенной когнитивно-поведенческой терапии. Результаты исследования представлены в данной статье.*
Ключевые слова: *расширенная когнитивно-поведенческая терапия, эректильная дисфункция, клинические симптомы, качество жизни, половая самоэффективность.*

Introduction

American Psychiatric Association (APA) has defined the erectile dysfunction (sexual impotence) as a persistent or recurrent inability to attain or to maintain until completion the sexual activity, an adequate erection, which causes marked distress or interpersonal difficulty [11]. The erectile dysfunction is one of the most prevalent sexual disorders in men, and it is reported that the world prevalence rate of erectile disorder in 1995 has been more than 150 million persons and it will reach to 322 million persons by 2025 2].

Various risk factors can contribute to erectile dysfunction. In 20 to 50 percent of the cases, there is an organic cause for erectile dysfunction, the most important of which include diabetes, cardiovascular diseases, kidney and urinary tracts diseases, surgery operations, etc. [3] Also, the age factor is one of the most essential mentioned causes of erectile dysfunction, and many studies have shown that erectile dysfunction is associated with aging4].

Psychological factors are suggested as the primary cause of erectile dysfunction in about 10 to 30 percent of cases 5]. These include performance anxiety [67], fear of failure in sexual performance [8]. failure expectancies, and attentional focus[910], depression, anxiety, and lack of self-esteem [11,121314,15,16,17,18]. In the youth, various psychological factors are influential, such as emotional stress, psychosocial events, lifestyle, conviction, trauma in the past, etc.19].

Previous studies have stated that patients afflicted with this disorder have fundamental problems in terms of quality of life, self-esteem, satisfactory interpersonal relationships, marital satisfaction, sexual self-efficacy, mental adaptability, a sense of belonging, and loneliness [1920,21,22,23]. Thus, paying attention to these cases is inevitable for treating the sexual dysfunctions, especially the erectile dysfunction in men.

World Health Organization, defines the quality of life as: “the individual’s perceptions about his life position, concerning the culture and value system in which he lives and is under the influence of his desired goals, expectations, and standards” [[24]]. Patients with erectile dysfunction experience less satisfactory sexual relationships [25]. This defect in satisfying sexual relationships increases the level of complexes, relationship conflicts, and less sexual activities26]. McCabe and Matic have also proved that patients afflicted with erectile dysfunction, as well as their partners experience a significant decrease in the level of sexual activity, self-esteem, and quality of life20].

Also, sexual self-efficacy considers the cognitive functional aspects of erection and adaptability as well as the level of sexual self-confidence and assurance in men, and evaluates men’s beliefs, regarding the manner of sexual relationship and erection in some sex situations27]. Latini and his colleagues, found a relationship between the intensity of erectile dysfunction and the sense of sexual self-efficacy and self-confidence towards having an appropriate erection for sexual activity. The senses of self-esteem and self-efficacy arise from these patients’ automatic thoughts and negative inefficient beliefs and attitude.2122].

The research done on the treatment of the erectile dysfunction reports the effects of behavioral [6,8], cognitive[11]], cognitive-behavioral [28,29,30] methods. It also reports effect of systematic desensitization [31,32] in the erectile dysfunction.

The cognitive-behavioral therapy for sexual problems is focused on several factors, including sex training (bibliotherapy, anatomy and sexual organs, sexual cycle and sexual response, myths and wrong shared beliefs, and the correct intercourse techniques and positions), cognitive restructuring (recognizing and restructuring the negative automatic thoughts, inefficient beliefs and schemata), communication practices (the manner of expressing thoughts and emotions), and sensate focus technique [3334,35]. Also, behavioral techniques such as systematic desensitization and Kegel exercises are influential in the treatment of erectile dysfunctions [31,36].

Adding such influential techniques, as systematic desensitization and the encounter techniques, appropriate for each patient, as well as behavioral techniques, such as Kegel exercises and cognitive techniques, such as relaxation to the cognitive-behavioral models suggested by Caballo[35]] and Leahy, Holland, and McGinn [37], made this treatment plan what can be called the enriched cognitive-behavioral therapy. Thus, this research aims to evaluate the effectiveness of the enriched cognitive-behavioral therapy in the improvement of clinical symptoms, quality of life, and sexual self-efficacy of men suffering from erectile dysfunction.

Methodology

Participants: The present study is a semi-experimental study, with a single case, multiple-baseline design, in which five subjects afflicted with erectile dysfunction have been selected by purposive sampling method from those who referred to psychological and psychiatric clinics and urologists. The inclusion criteria were the patients who received a diagnosis of erectile dysfunction based on diagnostic criteria of the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV-TR) [1], the age range between 20 to 50 years old and minimum high school level of education. Subject excluded from the study based on the exclusion criteria such as receiving psychotherapy or pharmacotherapy treatment in the last two months, having comorbid psychological or physical disorder, having urologic problems or considerable organic defects, having severe psychological disorders (e.g., substance abuse, mental retardation) and having no spouse or a fixed sexual partner.

Procedure: In the first and second sessions, research tools were presented to the subjects, and the baseline was provided as the pre-test. Then the subjects were underwent the enriched cognitive-behavioral therapy for 16 to 20 sessions, which had been designed according to the therapy models by Leahy et al. 37] and Caballo35]. Each therapy session lasted for 45 to 50 minutes, and some of these sessions were held by the presence of the couples. Also, in each session, some assignments were given to them individually or in pairs. After the end of the sessions, the research tools were presented again and were considered as the post-test. Before the beginning of the treatment program, a form concerning their consent to participate in the research had been presented to them to make them aware of their rights. Also, some explanation regarding the topic and general process of the research was presented to them. In the introduction and briefing session, all their probable questions were answered.

Clinical symptoms of erectile dysfunction, sexual self-efficacy, and quality of life were evaluated both before and after the enriched cognitive-behavioral therapy through performing the Brief World Health Organization Quality of Life questionnaire (WHOQOL- BREF), the Sexual Self-Efficacy Scale-Erectile Functioning (SSES-E), and the International Index of Erectile Function Questionnaire (IIEF). To explore and analyze the behavioral data, the effect size method and remission rate were used in this research38].

Research Tools

The questionnaires used during the research are the following:

- The sexual history and demographic characteristics questionnaire.
- International Index of Erectile Function Questionnaire (IIEF), which is a short 15-item questionnaire, evaluating such points as erectile functioning (6 items), orgasmic functioning (2 items), sexual desire (2 items), intercourse satisfaction (3 items), and overall satisfaction (2 items). The maximum score obtained in IIEF questionnaire is 30 for the Erectile Function. In this field the scores 25-30 are considered as lacking dysfunction, 19-24 as having low dysfunction, 13-18 as having low to moderate dysfunction, 7-12 as having moderate dysfunction, and 0-6 as having severe dysfunction39]. Internal consistency using Cronbach's alpha was 0.73 to 0.92 for the five items and 0.91 in general, and the rate of its reliability, using test-retest, varies from 0.64 to 0.84 for the five items40].
- The World Health Organization Quality of Life – BRIEF Questionnaire (WHOQOL-BRIEF), which is the shortened form of the hundred-question quality of life questionnaire of the World Health Organization (WHOQOL-100), exploring the quality of life in the four domains of health, including physical health domain, psychological health domain, social relationships domain, and environmental health domain. The World Health Organization quality of life questionnaire has been standardized in Iran. Usefy et al.41 [41] have reported Cronbach's alpha coefficient for the four domains of this questionnaire as 0.76 to 0.82.
- The Sexual Self-Efficacy Scale-Erectile Functioning (SSES-E) questionnaire, evaluation the cognitive aspects of erectile functioning and adaptability in men and their beliefs about the manner of having sexual relationship and erection. This questionnaire's domains include satisfactory and fearless sexual relationship, keeping the erection during the sexual intercourse, assurance about the sexual encounter, reaching to orgasm, and having sexual desire for the next times. Cronbach's alpha coefficient for this scale is 0.95 and has been estimated as 0.82 to 0.91 for the five factors27].

Results:

Table 1. Shows demographic data and previous treatment history of 5 subjects of study

	Age	Education	Marital status	Marital duration	Dysfunction duration	Previous treatment	Medication before treatment	Alcohol, smoking and drag use	Co morbid disorders
Subject 1	34	Bachelor	Divorced	3 years	10 months	Medication	Sildenafil	-	Low sexual desire, anxiety, and stress
Subject 2	33	Diploma	Married	4 years	1 year	-	-	Alcohol and smoking	Low sexual desire, premature ejaculation
Subject 3	41	Medical doctorate	Married	17 years	1 year	Medication	Tadalafil	Alcohol and smoking	-
Subject 4	28	Master	Single	-	6 months	-	-	Alcohol	Premature ejaculation
Subject 5	36	Diploma	Married	3 years	3 months	-	-	Smoking and methadone	Substance use, premature ejaculation, and low sexual desire

Table 1: Demographic information of all 5 subjects by details According to Table 2, it can be stated that remission rate in the variables under study has been significant. The amount of changes in the scores' average for the research variables has been high. Moreover, it has been the highest for the erectile dysfunction's clinical symptoms.

Table 2. Remission rate of study's variables by subjects

	QOL	SSES-E	IIEF
Subject 1	27.17	51.96	41.18
Subject 2	29.27	44.79	54.90
Subject 3	18.27	37.50	40.32
Subject 4	16.96	33.04	40
Subject 5	29.33	49.45	71.15
Total Remission Rate	24.20	43.35	49.51

The rate of increase in the amount of average score of the erectile dysfunction's clinical symptoms (the IIEF scores, which consist of such domains as the erectile functioning, orgasmic functioning, sexual desire, satisfaction from intercourse, and the overall satisfaction) has had a significant improvement clinically, at the end of the therapy in comparison to the baseline (the overall remission rate is 49.51 percent). These results prove the first assumption of this research, which had predicted the improvement of clinical symptoms in the patients suffering from erectile dysfunction after the enriched cognitive-behavioral therapy.

The second assumption had predicted the effectiveness of the enriched cognitive-behavioral therapy in the improvement of quality of life for men afflicted with erectile dysfunction. Table 2 shows that the overall remission rate in the subjects' quality of life variable is 24.2, which is lower than the other variables, but shows an acceptable change in the level of subjects' quality of life, which includes such domains as physical health, psychological health, social relationships, and environmental health. The increase in the subjects' scores in the quality of life scale and the acceptable remission rate confirm the second assumption of the research.

According to the obtained results concerning the third assumption of this research, which shows that the overall remission rate is 43.35, and considering the increase in the level of subjects' scores in post-test, it can be concluded that there has been significant improvement in the subjects' sexual self-efficacy and this confirms the third assumption concerning the effectiveness of the enriched cognitive-behavioral therapy in the improvement of sexual self-efficacy in men afflicted with erectile dysfunction.

Table 3. The effect size of the enriched cognitive-behavioral therapy on the study variables regarding the difference between the scores' average in pre-test and post-test

Mean	Standard deviation	Mean	Standard deviation	Effect size
(M)	(SD)	(M)	(SD)	(d cohen)
57.60	12.12	101.00	8.00	5.98
71.20	17.24	93.00	15.23	1.89
31.40	11.80	60.60	8.82	3.96

According to Cohen's classification and the information from Table 3, it can be deduced that the effect size of the clinical symptoms (IIEF) and sexual self-efficacy (SSES-E) variables is 3.96 and 5.98 respectively, which is the highest amount among the study variables. This effect size suggests that these variables have had a significant change in post-test compared to pretest which, in turn, shows the highest effectiveness of the enriched cognitive-behavioral therapy in these variables. Also, the quality of life variable with the effect size of 1.89 has high effect size in Cohen's classification despite having the least effect size and effectiveness in the enriched cognitive-behavioral therapy among the variables. It shows the effectiveness of this therapy program in the subjects' quality of life variable.

Discussion

This study aimed to examine the effectiveness of the enriched cognitive-behavioral therapy on the improvement of clinical symptoms, quality of life, and sexual self-efficacy in men with erectile dysfunction. Thus, five subjects afflicted with erectile dysfunction underwent enriched cognitive-behavioral therapy. Having compared and analyzed the obtained data of this research, the research variables and the results of other studies, the following has been reported:

The results of this research suggest that the increase in the average scores of the erectile dysfunction's clinical symptoms (the IIEF scores, including the erectile functioning, orgasmic functioning, sexual desire, intercourse satisfaction, and overall satisfaction), have had a significant improvement at the end of the therapy process, in comparison to the baseline. Also the effect size, according to Cohen's definition, showing the significant effect of the enriched cognitive-behavioral therapy on the erectile dysfunction's clinical symptoms. This amount of effect size confirms the effectiveness of the techniques used in the enriched cognitive-behavioral therapy (such as Systematic desensitization, Sensate focus technique, sex training, Kegel exercises, Relaxation, Bibliotherapy, watching educational movies, Cognitive techniques, etc.).

The results of this research are consistent with those obtained in other research4243,33,44,32,45,46,47,48,49,50]. Similarly, in a study by McCabe33 [33], which had explored the effectiveness of cognitive-behavioral therapy on the erectile dysfunction in heterosexual men and spouses. After ten weeks of cognitive-behavioral therapy on the men who had a sex partner, it was proved that the rate of the erectile dysfunction in these patients decreased from 71.1% in the baseline to 35.6% in the post-test.

In another study, which explored the effectiveness of a systematic treatment, including training the communication skills and sensate focus technique, aiming to treat erectile dysfunction in the men who used to take Sildenafil, the results showed that the use of behavioral techniques were more influential than only taking Sildenafil and has more effects on erectile functioning, sexual satisfaction, and the number of sexual intercourses43]. The treatment used in this research, as the structural components of the therapy, had the same components as the present study

McCabe et al.44] reported the effectiveness of Internet-based psychological therapy models. The obtained results showed that the men who completed the program gained a significant improvement in their erectile functioning, the rate of satisfaction, and the quality of the sexual relationships. Anderson et al.42] have done research, aiming at the exploration of the effectiveness of Internet-based cognitive-behavioral therapy (ICBT) in the treatment of erectile dysfunction. This program consisted of 7 weeks of web-based therapy, with the support of a therapist through email contact. Also in this research, the IIEF Scale was used three times: before the therapy, after the end of the therapy, and six months after the end of the therapy. The results showed a significant improvement in the erectile function of those who had received the therapy, in comparison to the control group.

The results of the research are consistent with the studies of Munjack et al. [[45]], who tried to treat the erectile dysfunction with rational-emotive therapy, Auerbach and Kilmann32], who used the systematic desensitization to cure the erectile dysfunction, and those researches who used the ban on intercourse, training, and role play to treat the erectile dysfunction51]. In Everaerd and Dekker's study[50]], the use of sex therapy, systematic desensitization, and the rational-emotive therapy for treating the sexual dysfunction in men were explored. The results show the effectiveness of these treatments in men's sexual dysfunction and are consistent with the present research results.

Wiley et al.[46]], who used Masters and Johnson's Therapy and Vacuum pump to cure the sexual relations, found more or less the same results. No difference between psychotherapy with and without the Vacuum pump was reported. In two pieces of research by Banner and Anderson47] and Melnik and Abdu48], which compared the psychotherapy with Sildenafil to using only Sildenafil, some results concerning the treatment of erectile dysfunction appeared to be similar to the present research. The meta-analysis of Melnik et al.'s study49] was done aiming at the exploration of the effectiveness of psychological interventions with oral medications, local injection, and vacuum tools. In short, the results of this research suggest the consistency with the results obtained in the present research.

The results of this research showed the increase in the post-test scores' average of quality of life and the sexual self-efficacy variables, compared to the baseline. The remission rate and the significant increase in the scores' average, as well as the effect size, suggest the effectiveness of the enriched cognitive-behavioral therapy on the two components, the sexual self-efficacy and the quality of life for the men afflicted with erectile dysfunction. The high rate of the effect size for the sexual self-efficacy can be attributed to the high sexual self-confidence gained through the therapy process, and the decrease in sexual anxiety as a result of behavioral practices and imagined encounter (systematic desensitization), in the real context (sensate focus technique) and also the increase in the patient's and his sex partner's sexual knowledge. The cognitive practices, the decrease in the conflict between spouses, the communication skills, and the decrease in the comorbid disorders in the patients were among the influential factors of the enriched cognitive-behavioral therapy in the quality of life component. These results are consistent with those of the previous research2352,53,54, 55,56,57, 21,58].

Rosen et al. 23] showed the effects of curing the men afflicted with erectile dysfunction and depression symptoms on the quality of life, sexual function, and mood. A strong correlation between the amount of erectile functioning and the general quality of life and mood has been observed. It suggested that the changes in erectile functioning were associated with the improvement in the mood and quality of sexual life, which is itself under the influence of the improvement of satisfaction from spouse and family life and satisfaction from life. Bocchio et al. [[52]] also declared that treating the erectile dysfunction results in the decrease in the psychological distress and the improvement in the quality of life in these patients. The results of this research are consistent with those of Ponizovsky's research [53] regarding the quality of life of men afflicted with erectile dysfunction. Idung et al.55] and Hassan et al.54] declared that after treating the erectile dysfunction in the spouses, their quality of life scores increased significantly.

Althof et al.57] and Latini et al. [[21]] reported similar results, concerning sexual self-efficacy for patients afflicted with erectile dysfunction. Also, Martínez-Jabaloyas et al.58] found a significant improvement in all the domains of self-confidence in curing erectile dysfunction with Sildenafil. In this field, Althof et al. [56] reported similar results about the increase in self-confidence after treating erectile dysfunction.

According to the results of the present research and other relevant studies, it can be deduced that regarding the high prevalence and the increase in the prevalence rate of erectile dysfunction in men and the direct and indirect effects of this dysfunction, whether in individual, or interpersonal levels, and the quality of life of these people, it is necessary for the experts and therapists in the field of psychological disorders and urologists to pay more attention to the appropriate therapy approaches to reduce the psychological symptoms and the problems related to this dysfunction, and the improvement of interpersonal and marital relationships of them. It was shown by various studies, which results were consistent with this one, that the erectile dysfunction affects the individual's life aspects, as well as it negatively affects his partner's life aspects. Thus, a treatment which covers most of their life aspects should be used. Not only does the research confirm the effectiveness of the enriched cognitive-behavioral therapy in the clinical symptoms of the men afflicted with erectile dysfunction, but also shows that it has had high effectiveness in the other components like sexual self-efficacy and quality of life.

Limitations

Because of the limited number of the samples, the overgeneralization of the results is limited. Due to the time limitation, the periods of evaluation in the pretest and post-test of the present research were 16 to 18 weeks. It also seems necessary to have a multiple-month follow-up period. Exploring the effectiveness of the enriched cognitive-behavioral therapy with a higher number of samples and exploring the variables associated with the subjects' sex partners can be taken into consideration in the future research.

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