

A Meta-Analysis of the Effect of Acceptance Commitment Therapy on Obsessive-Compulsive Disorder

Xiong Ai^{1,a}, Hu Maorong^{2,b}

¹College of humanities, Jiangxi University of Traditional Chinese Medicine Nanchang, China

²The First Affiliated Hospital of Nanchang University Nanchang, China

Abstract—objective: this study aimed to explore the effect of acceptance commitment therapy (ACT) on Obsessive compulsive disorder (OCD). Methods: randomized controlled trials of the effect of ACT on obsessive-compulsive disorder were searched in the Cochrane Library, PubMed, Web of Science, EMBASE and Google Scholar databases, and the measurement data of the Yale-Brown Obsessive Scale(Y-BOCS) test scores were meta-analyzed using Revman5.3 software. Results: The study included 5 eligible literatures, with a total sample of 275 persons. The results of meta-analysis on the effect of ACT alone showed that ACT had a better effect on OCD than other treatment methods (MD = -3.76, Z = 4.41, P≤0.05). Meta-analysis results of ACT combined SSRIs therapy showed that ACT combined therapy was better than SSRIs alone (MD = -7.18, Z =6.59, P ≤ 0.05). Conclusion: acceptance commitment therapy can effectively treat OCD.

1 Introduction

Obsessive compulsive disorder (OCD) is associated with anxiety and depression, with compulsive thinking and behavior as its main symptoms. It has a high prevalence and disability rate, and has a serious impact on the lives of patients and their families. It is the fourth most common mental disorder after depression, alcohol dependence and phobia [1]. The common clinical treatment of OCD is drug therapy, and selective serotonin reuptake inhibitors are one of them. At present, the new progress of non-drug therapy for OCD has attracted much attention [2]. Psychotherapy is one of the primary treatment methods in the prevention and treatment guidelines for OCD [3]. However, as first-line psychotherapy, the incidence of Exposure and Response preventive (ERP) is high, and many patients still have obvious symptoms of compulsion after treatment [4]. Its structured treatment and symptom-oriented characteristics make it difficult for many OCD patients in China to adapt, so it is of great significance to pay attention to the new generation of OCD cognitive behavioral technology.

Acceptance commitment therapy (ACT), as a representative of the third generation of cognitive behavioral therapy, can help patients change from "action thinking mode" to "existing thinking mode" [5], improve psychological flexibility, learn to accept, and thus better improve patients' compulsion symptoms. Studies have also shown [6] that patients treated with ACT show higher treatment acceptability, integrity and patient satisfaction. Taking functional contextualism as the philosophical background and Relational Frame theory (RFT) as the theoretical basis [7], ACT believes that the root cause of

people's psychological pain and psychological problems lies in psychological rigidity [8]. In order to improve the rigid psychology of individuals, ACT is committed to building individual psychological flexibility. Centering on psychological flexibility, ACT proposes a flexible hexagon of acceptance, cognitive dissociation, contact with the present, self-view, value clarification and commitment.

In order to explore whether ACT is better than other treatments for OCD and prove that ACT is indeed an effective treatment, this study explored the relative efficacy of ACT under different control conditions through systematic literature retrieval and meta analysis, so as to provide a basis for the selection of clinical practice of OCD.

2 Objects and methods

2.1 Retrieval strategy

Two complementary methods were used for literature retrieval: ① Retrieval of published English literature databases including Cochrane Library, PubMed, Web of Science, EMBASE and Google Scholar. The search term is "OCD" or "obsessive compulsive disorder" or "obsessive compulsive disorder", "ACT" or "acceptance and commitment therapy". The search time is from 2010 to January 2020. Extract the title, abstract and full text of relevant literature. ② A meta-analysis of previously published studies on acceptance therapy and obsessive compulsive disorder was searched, and empirical literatures related to this study were selected after reading the full text.

^aE-mail: 1358878633@qq.com ^bE-mail: maron13@126.com

2.2 Inclusion criteria

English literature; Randomized controlled trials (RCTs); Subjects were patients with obsessive-compulsive disorder, and the diagnostic criteria were DSM-IV or DSM-V; The severity of Compulsive symptoms before and after treatment is measured by the Yale-Brown Compulsive Scale .

2.3 Exclusion criteria

duplicate publications; Full text downloads are not available and authors cannot be contacted due to database restrictions; Lack of literature on control group and experimental data.

2.4 Implementation process

Inclusion and exclusion of literature according to established search strategies and criteria. The specific steps are as follows: read the title and abstract of the literature, and select the literature relevant to the study. After excluding the inaccessible literature and non-English literature, read the full text of the literature and select the literature that meets the standard. Extraction and collation of included literature data. It includes subjects, authors, years, number of people, interventions, and outcome measures: mean and standard deviation of Y-BOCS scores before and after treatment.

2.5 Literature quality evaluation

Quality evaluation was conducted according to the Cochrane Risk Bias Table. The evaluation criteria mainly include blind method, allocation and concealment, and randomness. After independent evaluation by 2 researchers, the results were checked in both directions. If the final results were not consistent, the decision was negotiated.

2.6 Statistical analysis

Revman5.3 software was used in the meta analysis to draw forest map. The X2 test was used to determine the existence of heterogeneity. If the results show that $P > 0.1$, $I^2 < 50\%$, it indicates that the included literatures show homogeneity, and the combination of statistics requires the use of fixed-effect model; If the results show that $P < 0.1$ and $I^2 > 50\%$, it indicates that heterogeneity exists among the included literatures. In this case, the possible reasons

for heterogeneity need to be analyzed, or the random effect model should be used in the calculation of the combined statistics. Publication bias was evaluated according to whether the funnel plot was symmetrical or not.

3 the results

3.1 General information of the included literature

Upon retrieval the Cochrane Library, PubMed, EMBASE, Web of Science, Google Scholar five English database, a total of 263 literatures were obtained. According to the title and abstract of the obtained literature, after excluding 244 irrelevant literatures, 19 related literatures were obtained. The literatures that cannot obtain the full text and those that do not meet the standard are discarded after reading the full text. In the end, 5 articles [9, 10, 11, 12, 13] were included in this study. Among the 14 excluded articles, 2 [14, 15] 's measurement data did not include the Yale-Brown Compulsive Scale, 2 were repeated publications of included studies, 1 [16] was not a randomized controlled trial, 2 were not in English, 1 [17] lacked specific measurement data, and 6 were unable to obtain full text. A total of 275 subjects were included in the 5 literatures, and the study volume of each sample ranged from 32 to 79 cases. The treatment methods of the control group included SSRIs and ERP, PRT, CBT and NT. The duration of treatment is as short as 6 weeks and as long as 10 weeks. Three of the five articles compared the efficacy of ACT alone with other treatments. Three articles compared the efficacy of ACT combination therapy with monotherapy without ACT. The literature inclusion process is shown in Figure 1, and the basic characteristics of the included literature are shown in Table 1

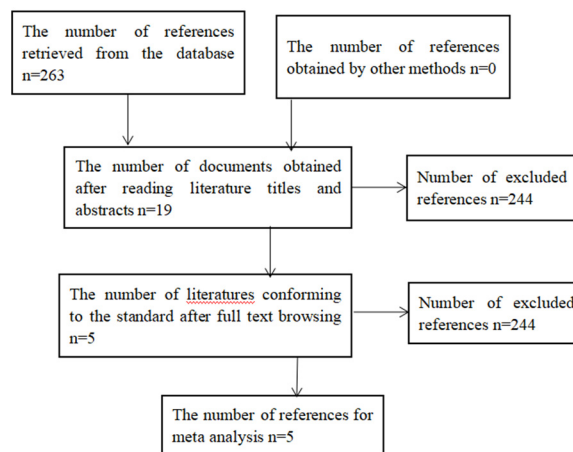


Fig 1. The flow chart

Table1. Feature table of included literature

author	year	number	interventions	Outcome indicators	measurement data
Michael P. Twohig	2010	41/38	ACT, once a week for an hour for 8 weeks; PRT once a week for an hour for 8 weeks	Y-BOCS ; BDI-II ; QOLS	M/SD

Michael P. Twhig	2018	30/28	ERP+ACT, twice a week, 2 hours a time for 8 weeks; ERP, twice a week, 2 hours a week for 8 weeks	Y-BOCS ; DOCS ; BDI-II ; AAQ-II; OBQ ;	M/SD
Yaghoob Vakili	2014	10/11/11	ACT ,8 weeks; SSRI, 10 weeks; ACT + SSRIs, 10 weeks	Y-BOCS; BDI-II ; BAI	M/SD
Farzaneh Rohani	2018	23/23	ACT + SSRIs, once a week for 16 weeks; SSRIs, 16 weeks	Y-BOCS ; BDI-II ; RRS ; AAQ-II	M/SD
Mehdi Esfahani	2015	15/15/15/15	ACT, 10 weeks, 1 hour per week; TPT, 6 weeks, 1 hour per week; NT, 8 times for 1 hour each time; Control group, waiting	YBOCS	M/SD

a). ACT treats

3.2 B. Meta analysis results

3.2.1 Effect size test

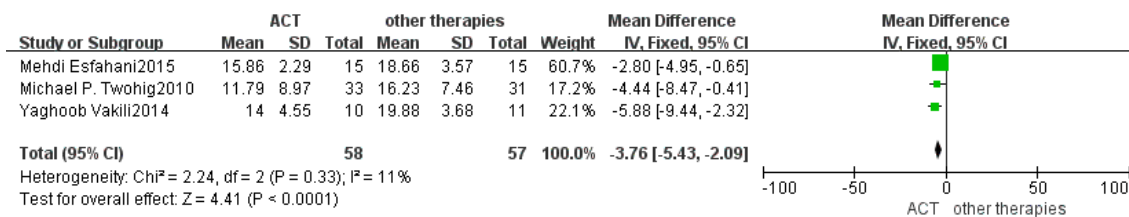


Fig 2. ACT treats forest map

Three references were included in the meta-analysis of ACT alone and other treatments, and the heterogeneity test found that the heterogeneity of the three studies was statistically insignificant (Q =2.24, P > 0.1), and the data were combined using a fixed-effect model. The combined effect of ACT alone and other treatments was MD = -3.76, Z = 4.41, P<0.05, and the combined effect was statistically significant. The rhombus representing MD combined with

95%CI appeared to the left of the invalid vertical line of the forest map, indicating that there was a difference in efficacy between the two groups and that ACT alone was more effective than other therapies. See Figure 2 for the data.

b). ACT combined with SSRIs therapy

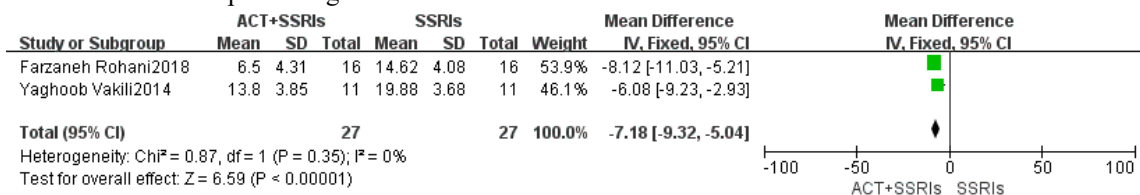


Fig 3. ACT combined with SSRIs therapy forest map

Three references were included in the meta-analysis of ACT combination therapy and ACT free monotherapy. However, in the heterogeneity test, three studies showed significant heterogeneity (Q=13.53,P<0.1). When analyzing the causes of heterogeneity, it was found that one study was a randomized controlled trial of ACT combined with ERP versus single ERP, while the other two were randomized controlled trials of ACT combined with SSRIs versus single SSRIs. Because the heterogeneity of the first item was too high, it was eliminated. The heterogeneity of the other two studies was tested again, and the results showed that the heterogeneity was not significant (Q =0.87, P > 0.1), and the data were

combined using a fixed-effect model. After combining the data, the combined effect was MD=-7.18,Z =6.59, P<0.05, and it was statistically significant. The rhombus representing THE 95% CI of MD was shown to the left of the invalid vertical line of the forest map, which not only revealed the difference in efficacy between the two groups, but also indicated that ACT combined treatment was superior to SSRIs treatment. See Figure 3 for the data.

3.2.2 Bias analysis

Funnel plot was used for the analysis of publication bias. Funnel plot of ACT treatment alone and ACT combined

treatment was relatively symmetric, so it was considered that the publication bias was within the permissible range and the influence was not significant.

4 Discuss

Self-compulsion and self-counter-compulsion coexist in the consciousness of OCD patients [18]. Not only compulsive thoughts can cause compulsive behaviors, but also compulsive behaviors can give rise to compulsive ideas [19]. Compulsive symptoms are not only reflected in obsessive thoughts and behaviors, but also progressively aggravated in these thoughts and behaviors. As the first drug in the treatment of OCD, SSRIs require a longer treatment time and a larger dose compared with the treatment of anxiety, depression and other diseases [20]. In addition, some studies have shown that although SSRIs alone has some effect on the treatment of OCD, there are still 40%-60% patients who are ineffective after treatment [21-22]. However, the drop-off rate and rejection rate of ERP in psychotherapy are relatively high, and most patients who complete the therapy have no obvious effect. The researchers found that the effect of CBT was ahead of the key intervention content assumed by CBT theory, which means that the improvement of compulsive symptoms cannot be reasonably explained by CBT [23]. Foreign clinical studies have shown that ACT can effectively intervene the thoughts and behaviors of patients with OCD, and ACT has been effective in the treatment of OCD [16, 24]. Therefore, this study conducted a meta-analysis on the efficacy of ACT and other treatments for obsessive-compulsive disorder. The results showed that the diamond pattern in the forest map was located to the left of the invalid vertical line, and the two did not intersect, indicating that the difference between the two groups was statistically significant, and ACT was more effective than other treatments for obsessive-compulsive disorder. In the meta-analysis of the forest map of the efficacy of ACT combined treatment and SSRIs alone, the diamond pattern was on the left side of the invalid vertical line and did not intersect with the vertical line, indicating that the difference between the two groups was statistically significant, and ACT combined treatment was superior to SSRIs alone. However, there was a high-risk implementation bias in the meta-analysis. The two studies were not blinded and the placebo effect could not be assessed. Moreover, this study has some shortcomings: firstly, the included literature and sample size are limited, which may reduce the reliability of the results; secondly, there will be some differences between different treatment methods; finally, the included literature in this paper are all English literature, so we should be cautious about their representative inferences in China. In view of the above deficiencies, it is still necessary to expand the number of included literatures and samples in the future. Besides, after sufficient empirical research on obsessive-compulsive disorder by ACT in China, a meta-analysis of local nature should be conducted to enhance its representativeness in China.

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