CBT and medication in depression (Review)

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Abstract. Depression is a serious problem, primarily for the patient, but in-extenso, for society. The World Health Organization has long signaled an increase in the number of cases of mental health problems globally and, in particular, an increase in the number of people suffering from depression. In the context in which the most effective solutions are sought for the reduction and even remission of depressive symptoms. In the present review literature is analyzed on two current treatment modalities for depression: Cognitive behavioral therapy (CBT) and antidepressive medication (ADM). Both modalities act by the same internal mechanisms, in the same order, but studies found also differences between the ADM and CBT effects depending on early traumatic experiences of the patients, cognitive and genetic variables, other epigenetic factors and patient's history. A literature review is presented, which systematically collects actual data and synthesizes previous research findings in the field of depression treatment using ADM and CBT.

Contents

1. Introduction

Mood disorders are mental health conditions including depression, bipolar disorder, and other variants of these disorders (1). They are among the most prevalent mental disorders in the world. According to the World Health Organization (WHO), over 300 million people suffered from depression in 2017. In 2015, 4.4% of the global population was suffering from depression and it was more common among females (5.1%) than males (3.6%). There was an increase in the number of people suffering from depression between 2005 and 2015 by 18.4% (2).

Depression is characterized by sadness, loss of interest and pleasure, feelings of guilt, feeling of worthlessness, low appetite, fatigue, and poor concentration. Consequently, emotional flattening is acknowledged, with hypo-mobile facies and reduction of body language (3). People with depression can also complain of physical symptoms without apparent physical causes. Depression can be long lasting or recurrent, affecting people's ability to work and cope with daily life. In its most severe form, depression can lead to suicide.

Bipolar disorder affects approximately 45 million people worldwide (4). It usually consists of both depressive and manic episodes, which have periods between them of normal moods. Manic episodes involve a high or irritable mood, over-work, fast speech, excessively high self-esteem, and a decreased need for sleep. People suffering from manic attacks without depressive episodes are also considered to have bipolar disorder.

Over 25% of all patients suffer from chronic depression and for most of them, major impairment in occupational and social functioning can be observed. Most of the depressive patients will experience recurrences after they recover (5).

2. Current treatment of depression

The objective of treatment in acute cases is to lower the symptoms and provide relief. The result of treatment may be in the form of a response (visible improvement in the patient's condition) or remission (total or major absence of symptoms) (6).

Antidepressant medication should continue for 6 months in patients with remission, to avoid the risk of relapse (5).

Besides ADM, other therapeutic forms are used in the treatment of depression, cognitive-behavioral psychotherapy (CBT) being often associated with the medication.

i) ADM. ADMs are divided into several major classes, including long-standing types of drugs, such as monoamine oxidase inhibitors (MAOIs) and tricyclic antidepressants (TCAs). In the last 10-15 years, the treatments include agents that block the reuptake of serotonin, norepinephrine, or dopamine. Selective serotonin reuptake inhibitors (SSRIs) are the most prescribed ADMs to date, although the newer serotonin/noradrenaline-reuptake inhibitors (SNRIs) have been widely used for some time (5).

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Table I. Comparison between ADM and CBT: A review of published studies.

Authors/Refs.	ADM	CBT	Comments
DeRubeis and Strunk (5)	Efficient	Efficient	Both ADM and CBT have the same efficiency, acting by the same mechanisms. CBT is more enduring.
O'Donnell *et al* (11)	Efficient	Efficient	Statistical analysis indicated that both ADM and CBT are efficient. The study analyses also the treatment by ADM and CBT which has as a result increasing of efficiency
Dunlop *et al* (12)	Efficient	Efficient	When remission is the goal, the neuroimaging and statistical analysis indicated that CBT should be used. In situations where avoiding treatment failure is the goal, the analysis indicates that CBT should not be the initial treatment. The study argue strongly that brain state subtypes of heterogeneous major depressive disorder patients may reflect their biological capacity to benefit differentially from treatments with ADM or CBT.
Buhmann *et al* (13)	Small effect	No effect	The study aimed at PTSD on refugees. The depression was not the main focus, but some results on this disorder indicated a significant, but small improvement in observer-rated symptoms of depression in patients receiving treatment with sertraline and mianserin. No effect of psychotherapy and no interaction between treatment with psychotherapy and medicine.
Huijbers *et al* (14)	Efficient	Efficient	The study measured the outcomes of mixed treatment (CBT-MBCT and ADM) and the effect of continuing CBT and discontinuing medication. The findings reflect an increased risk of relapse/recurrence for patients withdrawing from ADM after having participated in MBCT for recurrent depression. The overall course of depression severity during the 15-month follow-up period was similar in both groups It is important to take into consideration that the results suggest that CBT and ADM works together in a more efficient way in the treatment of depression.
Beshai *et al* (15)	No evaluation of treatment	No evaluation of treatment	The study focused on psychoeducation regarding CBT and ADM treatments in depression. Changes in perceptions regarding ADM or CBT lead to a better therapeutic compliance. Psychoeducation could have a positive effect in increasing the treatment efficacy by acceptance, either ADM, CBT or both.
Dimidjian *et al* (16)	Efficient	Efficient, but not at the same level as BA therapy	The results of this study indicate that Behavioral Activation (BA) is comparable in efficacy to ADM, the current standard, and more efficacious than CBT, one of the best-supported psychotherapies, among more severely depressed participants. The results also provide further confirmation of the importance of initial severity in the analysis of treatment outcome; differential treatment effects were observed only among those patients who were more severely depressed.
Sinniah *et al* (17)	No evaluation	Efficient	The findings of the study indicate that psychosocial intervention, in particular CBT, were shown to be effective in the treatment of depressive symptoms. Also the study suggests that CBT is effective in treatment of depressive symptoms with suicidal ideation.

PTSD, post-traumatic stress disorder; MBCT, mindfulness-based cognitive therapy.

ii) CBT. CBT is probably the most studied and scientifically validated therapy in the treatment of depression, although other psychological interventions could be used [i.e. hypnotic suggestions (7)]. In this form of psychotherapy, the therapist assists the patient in identifying irrational cognitive patterns starting from distorted thinking. In a second stage, the emotions associated with irrational thinking are identified, therapist and patient are working with schemata and restructuring of thoughts and then the therapist helps the patient to acquire skills to change distorted thinking, which implicitly leads to positive changes in the emotions associated with irrational thinking.

3. Brain mechanisms related to depression

According to several imagistic studies some brain mechanisms are modified in depression:

Changes in amygdala volume and activity have been observed in depressed subjects in various studies. The processing of emotion has been influenced this way and the emotional associations in memory were changed by influencing the hippocampus (5).

Changes in the prefrontal cortex (decreasing the prefrontal control). fMRI studies suggest that depressed individuals have a decreased prefrontal activity compared with healthy individuals (8-10).

Some studies have analyzed and discussed ADM, as well as CBT, and concluded that CBT is as effective as ADM, but the effects of CBT are more lasting. However, CBT and ADM act by the same mechanisms in the same order for a relief of the acute stress associated with depression (5).

4. Analysis and comparison between ADM and CBT

Eight studies were analyzed and the results are summarized in Table I. All studies investigated the effects of ADM and CBT, but each study started with specific assumptions. However, the results of the studies reach similar conclusions, suggesting that both ADM and CBT have consistent effects in the treatment of depression.

5. Discussion

The analysis of the two methods of treating depression (ADM and CBT) followed different studies, which observed and compared the results of each treatment modality or both on depressive patients. Probably the general conclusion would be that the most effective intervention in depression is a mixed one, using both ADM and CBT.

Studies in recent decades have led to the development and testing of new treatments that work best in treating depression. Studies in the field of neuroscience can improve the ability to match patients with the most effective treatments for them. The correlation between ADM and CBT should include, in addition to neuroimaging studies, assessments of other fundamental aspects that influence the onset and maintenance of depression, so that an association and an integrative view can be achieved on the symptom, imaging, cognitive and genetic elements, and the patient's history together with the results of the psychotherapeutic or drug intervention (5).

However, in this study we have to consider several important limitations and observations:

Depression was evaluated with different instruments and the results of the measurements were different according to the specificity of these scales [e.g., Hamilton Depression Rating Scale (HDRS); Beck Depression Inventory (BDI)]. These differences influenced the statistical analysis and result in the studied samples.

The study samples were from different cultures (e.g., refugees from different countries; different religions) and this influenced their visions on life and the stressful or depressing events.

The cultural differences influenced the way CBT was perceived. In this case, psychoeducation could be a good start.

Therapeutic compliance is of major importance both in ADM and CBT.

The mentioned studies have significant implications in the research on the pathophysiology of chronic forms of major depression and the treatment of chronic depression. The response to CBT and ADM in the treatment of depression may differ depending on the presence or absence of early trauma, which shows the importance of the patient's history since childhood (18,19).

The vast majority of the findings still have the same direction: The most effective intervention in depression is a mixed one, using both ADM and CBT.

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Author's contributions

CV designed the review, performed the Publons database research, analyzed the data, and wrote and revised the manuscript. CV read and approved the final manuscript and is accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Ethics approval and consent to participate

Not applicable.

Patient consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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