AN UPDATE ON THE COGNITIVE BEHAVIOR THERAPY OF OBSESSIVE COMPULSIVE DISORDER IN ADULTS

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Abstract

Obsessive-compulsive disorder (OCD) is a chronic anxiety disorder with an estimated lifetime prevalence in adults of 2-3%. Our aim is to provide an overview of the development of effective psychological treatments for OCD, together with a systematic literature review of the latest research in the field. An extensive literature search was performed to identify relevant articles in several databases including MEDLINE, PUBMED and PsycINFO, using the following keywords: obsessive–compulsive disorder, cognitive-behavioural therapy, exposure, response prevention, cognitive therapy. Controlled trials have demonstrated that cognitive-behavioral therapy (CBT) is an effective treatment for OCD. CBT is at least as effective as medication and shows good benefits at follow up. Nevertheless, more studies are still needed, mainly focusing on long-term follow-up, group-treatment and the combined use of CBT with SSRIs. A prefrontal cortico-striato-thalamic brain system is involved in the mediation of OCD symptoms. Recent research has demonstrated that CBT for OCD can systematically modify cerebral metabolic activity in this cortico-subcortical circuit in a manner which is significantly related to clinical outcome.

Keywords: obsessive–compulsive disorder, cognitive-behavioural therapy, exposure, response prevention, cognitive therapy

Obsessive-compulsive disorder (OCD) is one of the most frequent anxiety disorders, with a lifetime prevalence of 2-3%. OCD is an anxiety disorder characterized by intrusive ideas (obsessions) and repetitive behaviors (compulsions) which produce personal suffering, significantly affect the patient’s life function.
quality of life or interfere with the daily activities (Jenike, 2001; Kuelz, 2006) and interpersonal relationships.

Among the most frequent obsessions are fear of contamination, pathological doubt, somatic preoccupation, need for symmetry, aggressive or sexual thoughts. Frequent compulsions include repetitive hand washing, repeated checks, repetitive counting, collecting etc. Patients are, in most cases, aware of their unreasonable behavior. In order to fulfill DSM-IV criteria, a patient must have either obsessions or compulsions or both types of symptoms. While obsessions are anxiety-producing, compulsions are anxiolytic.

Until the 60’s, the perspective on OCD was pessimistic, being regarded as a chronic disorder, resistant to treatment. This vision was due to the failure of psycho-analytical therapy (Cottraux, Bouvard, & Milliery, 2005). However, in the 60’s, two great progresses were made in the OCD therapy, demonstrating for the first time the efficacy of behavior therapy, through exposure and response prevention (Victor Meyer in 1966) and the efficiency of clomipramine in the treatment of OCD symptoms (in Spain, by Juan Jose Lopez - Ibor in 1968).

OCD is the mental disorder, with probably, the most progresses in the last 20 years regarding psycho-pharmaceutical and psycho-therapeutic treatment. For a long time, OCD has been regarded as the window towards unconscious functioning, being attributed to unconscious conflicts. Today, OCD is seen as a good example of a neuropsychiatric disorder, mediated by dysfunctions in some specific neuronal circuits, accessible by specific psychopharmaceutical and psychotherapeutic means. As a result of a number of functional neuroimaging studies, it has been concluded that OCD symptoms appear mainly as a result of hyperactivity in the orbito-fronto-subcortical circuit (caudate nucleus and thalamus) (Ardelean, & Suciu, 2006). Further studies are needed to establish the nature and origin of this dysfunction, with the integration of the neuroanatomical, neurochemical, neurogenetic and neuroimmunologic data.

The treatment of OCD is an example of the benefic effects that modern research can have in a relatively short time. Unlike the 80’s, when OCD was considered unresponsive to treatment, nowadays, it is known to be a frequent mental disorder, which responds to treatment interventions, despite the fact that it is probably the most difficult anxiety disorder to treat.

Two forms of treatment have proven effective in clinical controlled studies of adults diagnosed with OCD: cognitive behavioral therapy and psychopharmacological treatment with selective serotonin reuptake inhibitors (SSRI) (Storch & Merlo, 2006). The purpose of the treatment (psychopharmacological or psychotherapeutic) is to diminish symptoms and lead to functional improvement, so that the patient can have a normal life. A modest percentage of patience become symptom-free.

Freud was first to separate the entity named “obsessive neurosis” (Zwangneurose) from other clinical conditions which were grouped together under the common term of “neurasthenia” (Kempke & Luyten, 2007). Even so,
traditional psychodynamic psychotherapy, used in the 70’s, is not efficient in the
treatment of obsessions and compulsions (Abramowitz, 2006). The
psychoanalytic therapy of OCD is based on the conceptualization of OCD as
being traceable to the constant conflict between the Ego and the SuperEgo, on one
hand, and sexual and aggressive impulses that come from the Id, on the other
hand (Kempke & Luyten, 2007). Even experienced psychoanalysts admit that
OCD continues to be resistant to their efforts (Munford, Hand, & Berman, 1994).
In modern psychiatric literature there is no data regarding patients whose
obessionality has gotten better only through this method (Jenike, 2001). Also,
there are so far no convincing data regarding an important clinical effect of
family/couple therapy in the treatment of OCD. (NICE guidelines, 2005).
Cognitive behavioral psychotherapy, combining behavioral and cognitive
techniques is the most frequently used psychological treatment for OCD. For a
significant percentage of patients, this psychotherapeutic approach is the first and
only treatment method that they would need.

The aim of the current study is to offer a literature review on current
therapeutic approaches and their support in the treatment of OCD.

Method

An extensive literature search was performed to identify relevant articles
from 1990 to 2009 in several databases, including MEDLINE, PUBMED and
PsycINFO. The main key words used were obsessive-compulsive disorder,
cognitive-behavioural therapy, exposure, response prevention, cognitive therapy.
The search was limited to studies published in English.

Results and discussion

Descriptions of behavioral techniques useful in OCD therapy have been
around for more than a century. Actually, even Janet (quoted by Marks, 1981)
described with great precision what we today call exposure therapy, using the
term “exposure”. Large scale application of the method described by Janet was
minimal, because in the same period, Freud developed the psychoanalytic theory
of obsessive neurosis, which, for a long time, diverted the attention of therapists
from the behavioral therapy of OCD.

In 1966, Victor Meyer described an approach in OCD intervention called
exposure and response prevention (ERP) and presented for the first time the
results of a clinical study of 15 inpatients. Ten out of the 15 patients responded
very well to the method of treatment proposed, and the rest showed a partial
improvement (Abramowitz, 2006). The treatment relied in the supervision of the
patients by the nurses to stop them from washing their hands. Meyer
conceptualized and developed the behavioral therapy of OCD starting from the
research of Richard Solomon and his team, who developed an elegant animal
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model of OCD. The approach proposed by Meyer was adopted on a large scale by therapists and its efficiency has been confirmed in multiple controlled studies, conducted by Rachman and his collaborators in the 70’s. Subsequently, researchers described the cognitive processes of OCD, which opened the way for the cognitive approach of the disorder.

Controlled studies in the last years indicate that behavior therapy, through ERP, is an extremely efficient therapy for OCD, even if these studies used different versions of the method (exposure supervised by the therapist vs. self controlled exposure), different formats (individual sessions vs. group therapy) or different intensities (regarding the frequency and period of the session) (Cordioli, Heldt, Braga et al., 2003; Fals-Stewart, Marks, & Schafer, 1993; Foa, Liebowitz, Kozak et al., 2005; Greist, Marks, Baer, et al. 2002; Lindsay, Crino, & Andrews, 1997). In the traditional method, patients learn, with the help of a therapist, to expose themselves to certain stimuli (e.g., toilets, door knobs, public telephones) which intensify their obsessive thoughts and, also, how to resist responding to those thoughts in a compulsive manner (e.g. not washing their hands, not checking things repeatedly). Exposure can take place in real life, in vivo, (e.g. at home or in a public toilet) or in an imaginary form (e.g., in the case of patients with obsessions with religious content). The purpose of exposure is to teach the patient to tolerate anxious experiences, rather than avoiding them.

It has been proven that ERP which leads to behavior modification can finally produce cognitive modification.

ERP is based on the premise that obsessions are conditionally harmful stimulants (i.e., anxious) which usually provoke an active answer of avoidance or a compulsion. The compulsions’ role is to reduce obsessive fear and/or to prevent the feared event (e.g., contamination) (Clark, 2005). Response prevention is an essential component of the treatment method because performing these rituals to reduce anxiety will prematurely interrupt the exposure, and the patient will never have the opportunity to learn, in the first place, that the situation that is making him/her anxious is not dangerous and, second, that anxiety diminishes by itself if the ritual is not performed.

Therapy sessions are held at least once a week and the duration of a session can go up to 2 hours. Although, in general, 12-16 therapy sessions are needed, the length of therapy depends on the symptoms and the severity of functional impairment (Storch, 2006). Therapy is initiated by building a hierarchy of the situations that trigger the obsessionality, which takes place in 2-3 sessions dedicated to the gathering of information. Ranking is based on subjective units of distress (SUDS). Distress is usually expressed on a 0 to 100 scale, 100 being the activity most feared, and 0 being a neutral situation that does not produce fear. Patients are exposed, for approximately 90 minutes, to situations that trigger an anxiety of moderate intensity, being advised to abstain from performing the compulsion (i.e., response prevention). Exposure not only takes place during therapy sessions but also between sessions, as homework. Exposure is performed
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according to certain general rules, as well as to specific ones for every type of obsession, that are handed in writing to the patient. The most intense exposure that patients can tolerate is the most efficient (for example, it is indicated that patients must never wash their hands, and never check repeatedly, or just check once etc.). Habituation emerges, through repeated exposures with response prevention, so that, even if the obsessive ideas persist, the situations cause less anxiety (Clark, 2005).

Schwartz and collaborators (1996) developed a new technique called “The Four Step Method” with the purpose of increasing patients’ ability to perform exposure and response prevention on their own, without a therapist being present. This technique, which has been called “biobehavioral” by the authors, is described in “Brain Lock”, a self-help book for patients. The efficiency of this method has been confirmed, even for its phone version (Taylor, 2003). The purpose of this method is to control the response to obsessive thoughts and not obsessions themselves. We briefly describe the 4 steps:

Step 1: Relabel
- the purpose of this step is to teach patients to recognize their obsessions and compulsions and to label them
- patients are advised to look at their obsessions as “false messages” of the brain

Step 2: Reattribute
- the purpose of this step is to reattribute the intensity of the thoughts to the real cause, OCD
- the key to this step is realizing that the intensity of obsessive thoughts is due to a biochemical imbalance in the brain, and that is why they don’t just disappear. Patients are encouraged to visualize these parts of the brain that don’t function as they should, with the purpose of helping them understand that their symptoms are due to a dysfunction of the brain and do not represent reality

Step 3: Refocus
- the purpose of this step is to overcome obsessive thoughts by focusing attention on a constructive activity (alternative behavior) instead of performing compulsions
- patients are advised to perform useful constructive and pleasant cognitive or physical activities (e.g., talking walks, listening to music or hand craft)
- the alternative is to continue the activity interrupted by the obsessive thoughts, efficiency being high if the activity requires concentration and involves other people or if it is incompatible with compulsive behavior
Step 4: Re-value

- the purpose of this step is to value other aspects of the patients’ life, besides obsessions and compulsions, and to regard them as worthless distractions
- this step involves re-valuing the importance of the obsessive thoughts, after completing the first steps

Recently, the treatment of OCD through ERP started being studied on large samples of patients and control groups, so that firm conclusions can be drawn regarding the efficiency of this method. The existing data suggest the fact that behavioral therapy by ERP is at least as efficient as psychopharmacological therapy in some cases, and can be superior to medication regarding the risk, costs and long term benefits (Jenike, 2001). Also, the rate of relapse after therapy is lower in the case of ERP compared to the treatment with selective serotonin reuptake inhibitors (SSRIs). On the long term, this psychotherapeutic technique may thus be superior to SSRIs regarding cost-effectiveness (Marks, 1997). Controlled studies assessing the results of ERP conducted in the last 15 years, in different countries, observed a response rate between 63% (Stanley & Turner, 1995) and 90% (Riggs & Foa, 1993). The improved clinical condition was maintained for 2 years or more, after therapy sessions (Wilhelm, Tolin, & Steketee, 2004). However, these results have to be carefully interpreted, because ERP is not a homogeneous concept, a factor influencing the results of different studies. For example, exposure sessions controlled by the therapist seem to be more efficient than the self-controlled ones. Also, total response prevention seems to be more efficient than the partial prevention.

Recently, several meta-analyses have been published (some of them criticized for including into analysis studies with methodological problems) regarding the relative efficacy of ERP, SSRI therapy, or their combination (Schruers, Koning, Luermans, Haack, & Griez, 2005). Van Balkom, Van Oppen, Vermeulen, Van Dyck, Nauta and Vorst (1994) have proven that behavioral therapy is more efficient than SSRIs, and the combination of behavioral therapy and SSRIs has a superior effect compared to SSRI alone. In another meta-analysis Kobak, Greist, Jefferson, Katzelnick and Kobak (1998) have found no difference between ERP, SSRIs, and the combination of the two methods. Also, some therapists use cognitive techniques in addition to exposure and response prevention therapy, which can influence the final results.

Among the disadvantages of ERP is the fact that approximately 25-30% of the patients refuse to perform exposure (Emmelkamp & Foa, 1983; Kozak et al., 2000) and 28% give up therapy (Kozak et al., 2000). Another disadvantage is the weak efficiency in patients with mental compulsions or in the case of patients that present with hording or religious and sexual obsessions (Abramowitz, Franklin, Schwartz, & Furr, 2003; Mataix-Cols, 2002; Rufer, Fricke, Moritz, & Kloss, 2006).
Recent studies have proven that behavioral psychotherapy in OCD can systematically modify the brain metabolic activity in a way that is correlated with clinical improvement (Schwartz, 1998).

Schwartz, Stoessel, Baxter, Martin and Phelps (1996), using positron emission tomography (PET) to correlate the answer to treatment in OCD, with the activity of certain brain structures, compared behavioral therapy with pharmacotherapy (fluoxetine). Scans performed before treatment showed an increased activity in the caudate nucleus in all patients. Patients were split into two groups. Some received only behavioral therapy, while others only pharmacotherapy (i.e., fluoxetine). Approximately 70% of the patients in both groups responded to the treatment. The PET exam, after the treatment, showed a decreased activity in the right caudate nucleus, only in the case of the patients that responded to treatment, regardless of the modality of treatment. This study suggested the existence of certain biological markers for OCD, as well as the fact that psychological intervention can favorable modify the functional neuroanatomy of the patients. This is a very important study, with multiple implications regarding the future of psychotherapy. Psychiatrists have always assumed that psychotherapy can modify brain activity, and we now have increasing scientific evidence of this. The precise way in which psychotherapy normalizes the activity of the cortical-subcortical circuit involved in the physiopathology of OCD is yet to be discovered.

The success of behavioral interventions underlines the power that behavior and suggestion have over the way in which the brain functions. Both medication and behavioral therapy lead to modifications of brain biochemistry in the paths that control OCD symptoms; while medication generates a passive modification, behavioral therapy leads to similar changes, but in a more active way, by changing response to obsessive thoughts.

Cognitive techniques, which can be, and often are, added to behavioral therapy, are addressed to the false believes in OCD. These techniques are of great value in the case of the patients presenting mainly obsessions, without obvious compulsions.

Studies conducted on moderate size groups of patients, have proven that cognitive techniques and ERP generate comparable results (Cottraux et al., 2005). The studies regarding the efficiency of cognitive techniques in OCD treatment have been fueled by the relatively high percentage of patients that refuse or give up ERP (Wilhelm et al., 2004).

The first cognitive model of OCD was proposed by Salkovskis (1989) and it is based on the idea that what differentiates OCD patients from the rest of the population is not the experience of intrusive thoughts, but the manner in which these thoughts are interpreted (Wilhelm et al., 2005). Unlike the majority of the population, that ignores these thoughts, OCD patients not only attend to them, but consider them important, and interpret them in a catastrophic manner. Ranchman and Freestone (1997) and Rheum and Ladouceur (1996) continued to elaborate on
this model, proposing that the negative and mistaken interpretation of an intrusive thought (e.g. “I am a mean person if I have these thoughts”) leads to negative emotions, which then lead to efforts of neutralizing them through compulsions. Based on these models, an international group of researchers specialized in the cognitive therapy of OCD, meeting in 1997, identified several false believes salient for OCD patients (see Table 1). The purpose of cognitive therapy is to modify these believes that supposedly have a role in the development and maintenance of the disorder.

Table 1. Beliefs typical to OCD patients

<table>
<thead>
<tr>
<th>Belief</th>
<th>Description</th>
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<tr>
<td>False estimation of danger and its</td>
<td>Exaggerated estimation of a severity or/and probability that an event will take place (e.g. “If I touch the bathroom doorknob, I might catch a lethal disease”)</td>
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<tr>
<td>consequences</td>
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<tr>
<td>Exaggerated sense of personal</td>
<td>The belief that one is to be blamed for not being able to prevent a negative event from happening to him/her or those around (e.g. “I could cause an accident if I don’t remove that piece of glass off the street”)</td>
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<tr>
<td>responsibility</td>
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<tr>
<td>Overestimation of the importance of</td>
<td>The belief that a persistent thought is important simply because it has appeared (e.g. “I probably have an unconscious tendency towards aggression, that is why I frequently have aggressive obsessions”)</td>
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<tr>
<td>the thoughts</td>
<td></td>
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<tr>
<td>Thought-action-fusion (TAF)</td>
<td>The belief that thinking about a certain event increases the likelihood of that event taking place (e.g., “If I think about my father having an accident, the risk that my father will indeed have an accident is higher”); this cognitive bias has 2 dimensions (Shafran, Thodarson, &amp; Rachman, 1996):</td>
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<td></td>
<td>- TAF-likelihood – the belief that certain thoughts can increase the probability of some events;</td>
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<td></td>
<td>- TAF-morality – the belief that the simple fact of having immoral thoughts is as unacceptable as being involved in immoral acts;</td>
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<tr>
<td>Uncertainty intolerance</td>
<td>The belief that absolute certainty in thinking and action is necessary to maximize predictability and control, with the purpose of reducing danger to self and others (e.g. “I cannot tolerate any doubt that I really turned the gas off”)</td>
</tr>
<tr>
<td>Anxiety intolerance</td>
<td>The belief that not even low levels of anxiety can be tolerated, due to the possible dangerous consequences (e.g. “I have to give in to the temptation of performing a compulsion, otherwise the anxiety will increase”)</td>
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<tr>
<td>Perfectionism</td>
<td>The belief that there is one single perfect solution to a problem, and small mistakes cannot be tolerated as they can have dangerous consequences (e.g. “I really need to find the perfect present for my friend’s birthday party”)</td>
</tr>
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</table>

Although, as mentioned above, cognitive interventions are important, especially in the case of the patients that do not present compulsions in the form of visible behavior (cases where ERP is difficult), so far, empirical data in the
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literature do not support the present tendency of concentration, especially on
cognitive processes, in the cognitive behavioral therapy for OCD (Clark, 2005).

Individual and group cognitive behavioral therapy (CBT) consists of the
combination, in a coherent manner, of behavioral and cognitive techniques. To
date, we are not sure which of the two psychotherapeutic methods is superior
regarding efficiency or if the combination of the two methods brings a real added
benefit (Abramowitz, 1997).

The ideal candidate for CBT is an OCD patient that doesn’t present a
severe co-morbid depression and is motivated to reducing his/her rituals. CBT is
also a useful treatment option in the case of patients that have indications against
psychopharmacological treatment (e.g., pregnant patients, patients with cardiac
problems or patients that can not tolerate the side effects of medication) (Gefen,
Storch, Gelfand, Adkins, & Goodman, 2004). The presence of a personality
disorder does not significantly affect the results of CBT (Abramowitz et al.,
1998). The results in the case of patients with mental compulsions and those
under benzodiazepine treatment are weaker (Himle, Van Etten, Janeck, & Fischer
2006), but even these patients can show a clinical improvement by CBT.

Kueltz (2006) showed an improvement in neuropsychological test results
after 12 weeks of CBT in the case of 30 patients that did not follow
pharmacological treatment, the conclusion being that CBT allows patients to think
and act in a more flexible manner that helps them develop more efficient
cognitive strategies. Although most patients respond well to CBT, symptoms
often persist. To date, complete remission is seen as unlikely (Starch & Merlo,
2006). CBT is considered the first line therapy for mild severity forms that cause
distress but do not affect social functioning. In the more severe cases, a
combination with medication is recommended.

In contrast to some opinions, recent studies indicate that, in the case of
adult patients (but not in children), combining ERP or CBT with selective
serotonin reuptake inhibitors (SSRIs) does not bring extra benefits compared to
psychotherapy alone (Prazeres, Souza, & Fontenelle, 2007). However, it seems
that adding CBT to psychopharmacological treatment lowers relapse rates after
medication is discontinued. Unlike benzodiazepines, that lower the efficacy of
CBT, SSRIs do not interfere with or reduce the effects of psychotherapy (Gefken
et al., 2004). While anti-obsessive medication displays efficacy even in severe
cases, CBT seems to have the best results in mild or moderate forms. This is why
many clinicians start treatment with a SSRI, and switch to therapy when the
effects start showing. In these cases, the rehabilitating advantages of
psychotherapy help maintain and improve the response to treatment.

Conclusions

To conclude, cognitive behavioral techniques have proven highly effective
in the treatment of anxiety disorders. Among these techniques, exposure and
response prevention (ERP) is the first psychotherapeutic method empirically validated for OCD therapy. Numerous studies have proven the efficiency of ERP, and on a smaller scale, of cognitive techniques, alone or combined with other strategies. Nevertheless, treatment rarely leads to the complete remission of symptoms. The efficacy of psychotherapy is similar to that of SSRI pharmacotherapy, but unlike SSRIs, benefits are maintained for longer periods of time. However, more studies are needed to clearly demonstrate the clinical benefits of predominantly cognitive approaches. Recent research has shown that CBT can systematically modify the metabolic activity of the brain in the cortical-subcortical circuit responsible for OCD physiopathology in a manner closely related to the clinical response observed in SSRI therapy.

Although current research on the cognitive behavior therapy of OCD has addressed many important issues, some of them still require further study. For example, more data are needed focusing on long-term follow-up, group-treatment and the combined use of CBT and SSRIs.

We conducted this literature review bearing in mind the fact that OCD is now seen as a neuropsychiatric disorder, mediated by dysfunctions in some specific cortical-subcortical circuits. So far, there is only one study (Schwartz et al., 1996) that specifically addressed the issues of cerebral metabolic rate changes after behavior therapy. We suggest that such studies should also be conducted for cognitive techniques, involving different subtypes of patients diagnosed with OCD. This type of studies will be of great importance in discovering the way cognitive behavior therapy modifies the metabolic activity in specific cerebral circuits.

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