

DO WE NEED A COGNITIVE THEORY FOR OBSESSIVE-COMPULSIVE DISORDER?

YES, WE DO

Francesco Mancini, Barbara Barcaccia

Abstract

Nowadays a general trend in psychiatry and clinical psychology, claiming to explain mental illness and Obsessive-Compulsive Disorder (OCD) in particular as a neurological disease, seems to be in ascendant. The purpose of this position paper is to rebut this perspective on OCD and demonstrate that an Appraisal Theory (AT) of the disorder, is necessary and sufficient in order to account for proximal determinants in the genesis (proximal determinants) and maintenance of OC symptomatology.

In the first part of this paper we shall rebut seven arguments against AT, while in the second part we shall answer two questions: 1) Are goals and beliefs necessary for OC symptoms? 2) Are goals and beliefs sufficient for OC symptoms? In the third part we shall answer three more questions: 1) Are cognitive deficits necessary for OC symptoms? 2) Are cognitive deficits sufficient for OC symptoms? 3) Do cognitive deficits really exist or are they better accounted for as cognitive biases?

It will be demonstrated that goals and beliefs are necessary and sufficient as proximal determinants of OCD, whereas cognitive deficits appear neither necessary nor sufficient.

Conceptualising OCD as a neurological disease founded on cognitive deficits does not add to the understanding of the disorder, since those problems which at a superficial level might look as cognitive deficits are much better accounted for by cognitive *biases*: distress caused by obsessional intrusions leads to a particular way of processing information, due to the person's goals and beliefs, therefore determining motivated, even though sometimes automatized, attempts at solution.

Key words: obsessive-compulsive disorder, appraisal theory, goals, beliefs, cognitive deficits

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Introduction

The purpose of this position paper is to demonstrate that an Appraisal Theory (AT) of Obsessive-Compulsive Disorder (OCD) is necessary in order to account for proximal determinants in the genesis (proximal determinants) and maintenance of obsessive-compulsive symptomatology. As stated by Broekens and colleagues (2008), the basic concept of most appraisal theories is that the subjective cognitive evaluation of events is responsible for emotion, and that the personal meaning or evaluation is called appraisal. Even though physiological changes and other non-cognitive factors affect the appraisal of events, cognitive appraisal is a very important determinant of emotions. According to Brosch *"The common core of most appraisal theories is the assumption that emotional responses [and conducts-Authors' addition] are elicited as the organism evaluates the relevance of environmental changes for its well-being"* (Brosch 2013, p.370).

Goals (i.e. desires, needs, values) and beliefs (i.e. cognitions, representations, assumptions) are necessary and sufficient proximal determinants of behaviours (Castelfranchi and Paglieri 2007). If we consider how

this can apply to OCD, this means that goals and beliefs are necessary and sufficient determinants of obsessive-compulsive symptoms, and that the following sequence is plausible:

Goals + beliefs → anxiety → solution attempts = compulsions, rumination, etc.

In this presentation we shall not discuss which goals and beliefs are involved in OCD, but for the sake of simplicity, it will be assumed that the following goals and beliefs are the proximal determinants of OC symptoms: the goal of preventing guilt, the goal of preventing disgusting contamination, the belief that being guilty or contaminated is an unbearable experience, the goal of reducing the costs of OC symptomatology.

In the first part of this paper we shall rebut seven arguments against appraisal theories, while in the second one we shall answer two questions: 1) Are goals and beliefs necessary for OC symptoms? 2) Are goals and beliefs sufficient for OC symptoms?

In the third part we shall answer three more questions: 1) Are cognitive deficits necessary for OC symptoms? 2) Are cognitive deficits sufficient for OC symptoms? 3) Do cognitive deficits really exist or are they better accounted for as cognitive biases?

Part one

Arguments against Appraisal Theories (AT) and their rebuttal

We may now consider and rebut the seven arguments against Appraisal Theories:

- 1) Some individuals have high propensity to guilt feelings and disgust, without suffering from OC symptoms. Indeed, according to appraisal theories, goals and beliefs are necessary and sufficient for OC symptoms, but high propensity does not necessarily imply the beliefs that being guilty or contaminated is catastrophic. Actually, an individual can have such propensities, but not the belief that being guilty or contaminated is catastrophic, and therefore, he/she will not engage in rituals and compulsions.
- 2) The second argument against AT regards the fact that some OC patients do not have high propensity to guilt feelings and disgust, and they might even show less propensity to guilt and disgust than other individuals, who do not suffer from OCD. In our opinion this argument could falsify the appraisal theory *only if* AT maintained that *all* individuals with the goals of preventing guilt and disgusting contamination and the beliefs that being guilty or contaminated is catastrophic, do have a strong propensity to guilt and disgust. On the contrary, appraisal theories state that goals and beliefs are necessary and sufficient for OC symptoms, but goals and beliefs do not necessarily imply high propensity to guilt and disgust. In fact, there could be a patient with a specific fear of being blasphemous and offending God, causing OC symptoms, but this does not imply that he/she should hold a high propensity to feel guilty in other, non-critical, domains. So, his/her guilt feelings might be restricted to a very specific moral domain, grounded, e.g., on a strict religious education. A patient may suffer from a severe fear of contamination, even in absence of a high disgust propensity, if he/she is afraid only of a very specific form of contamination. Actually, it is very easy that OC patients fear a very specific substance, but not others equally "contaminating". Let us consider, for instance, the case of a young lady who was obsessed by the idea of being contaminated by white and sticky objects, e.g. sugar, presumably as a consequence of an early sexual abuse. While she strongly avoided anything that might be assimilated to "whiteness" and "stickiness", she was not afraid of being contaminated by other kinds of disgusting items, e.g. she could easily use public restrooms, which is an item of the Disgust Scale Revised (DS-R, Haidt et al. 1994, modified by Olatunji et al. 2007). It is not surprising that this patient had a low score at the DS-R, a scale whose items regard types of contamination which did not worry the patient, and did not regulate her compulsions (e.g. "*I never let any part of my body touch the toilet seat in public restrooms*").

Regarding other two arguments against AT, there are two solutions coherent with a strong version of AT and one solution coherent with a weak version of AT. The two arguments against AT go as follows:

- 3) The goal of preventing a contamination, represented as unbearable, might be an ingredient of Specific Phobia and not only of Obsessive-

Compulsive Disorder.

- 4) The belief of being severely guilty can be an ingredient of depression even in non-OC patients.

As above-mentioned, it is possible to rebut these two arguments by proposing three solutions:

- A) AT, in a strong version, could admit that fear of guilt or of contamination are necessary, but not sufficient for OC symptoms, and some more specific beliefs would be necessary, e.g. those pertaining to thought-action fusion.
 - B) AT, still in a strong version, can uphold that fear of guilt or of contamination are necessary and sufficient. However, it is possible that two distinct types of guilt are involved in different disorders: we maintain that in OCD *deontological* guilt is involved, while in depression interpersonal or *altruistic* guilt is entailed (O'Connor et al. 1999, O'Connor et al. 2002, Weiss 1993). In the same line, we know that a specific type of disgust, the moral one, with distinct physiological features (Ottaviani et al. 2013), is involved in OCD (Rachman 2004, Rachman et al. 2011) while physical disgust is entailed in specific phobia.
 - C) Moreover AT, in a weak version, could admit that fear of guilt or of contamination are necessary, but not sufficient for OC symptoms, and that other factors, e.g. inhibition deficit, are needed.
- 5) Another argument against appraisal theories regards the classification of OCD, which is described in The Diagnostic and Statistical Manual of Mental Disorders (5th ed., DSM-5 American Psychiatric Association 2013) either by the presence of obsessions, or of compulsions, or of both. So, according to the DSM 5, there might be patients who present only with obsessions, suggesting the possibility of obsessions not followed by solution attempts. Nevertheless, these patients, instead of recurring to mental compulsions such as specific formulas, might use other kinds of solutions, e.g. rumination. For the sake of clarity, we shall resort to an example: Davide had intrusive thoughts, such as "*If my parents die, then I can get their inheritance*". He interpreted these thoughts as evidence of him being a psychopath willing to kill his parents for money. Davide did not perform neither overt nor covert compulsions (mental rituals), instead he would ruminate for hours imagining to kill his father, trying desperately to find out that he was horrified by this possibility, and therefore that he could never be willing to make such a gesture. So Davide did not recur to formulas, repetition of words or numbers in a strict order, but still he went to great lengths to solve his obsessive intrusion by checking repeatedly whether his feelings, in imagining the scene, were really of horror or not.
 - 6) The penultimate argument against AT regards the simultaneous presence of intentionality and compulsivity within a conduct: can a behaviour be intentional and, at the same time, compulsive, i.e. performed against the patient intention? It seems an oxymoron, but this is not surprising at all, being quite a common case scenario: we

can act intentionally, despite our will. There are two well-known possibilities, both relevant for understanding compulsions. The first one is the so called *akrasia*, i.e. the failure of the will. Magri and Mancini (1991) described as *akratic* the behaviour of someone who intentionally acts against his/her own best judgement, despite knowing that it would be possible and advisable (more favourable) to act differently. A typical example might concern the behaviour of a man who goes on a diet and then fails to stick to it, even though he is absolutely convinced that the diet is his best choice and it is in his best interest. Thus, it is not surprising at all if a patient, while washing compulsively, acknowledges that his/her best choice would be refraining from washing. The second possibility regards the situations in which people act intentionally, but at the same time they feel compelled to act that way. This happens when we cannot choose the domain of choice. If a gunman tells us “Give me your wallet, or I’ll kill you”, we choose, very likely, to give him our wallet. In so doing, we act intentionally, but meanwhile we feel obliged to act that way, because we did not choose to find ourselves faced with such a choice. Something very similar can happen when we are woken up by the alarm clock, knowing very well that we have to get out of bed and go to work, but at the same time we would prefer to go on sleeping (Mancini and Semerari 1991).

- 7) We can now consider the last argument against Appraisal Theories: “*results of clinical trials investigating cognitive and behavioral therapies for OCD challenge the added value of cognitive interventions over and above behavior therapy consisting of exposure and response prevention (E/RP) for OCD*” (Anholt 2014, p.185?). There are some data, though, confirming the effectiveness of cognitive therapy, without behavioural interventions (e.g. Vos et al. 2012). Moreover, it is still unclear how E/RP exactly works. Habituation, in effect, does not seem to play a central role (Tyron 2005). Instead, two cognitive explanations of how E/RP works – falsification of negative expectations and acceptance of risk – have been proposed. The first one is not very convincing, because we know that E/RP is effective also, e.g., in patients who fear HIV contamination, even if the falsification of this fear is impossible before some weeks. The hypothesis that E/RP is a way for practising acceptance of risks appears to be more convincing and relevant (Mancini and Gragnani 2005, Saliani et al. 2011, Balestrini et al. 2011).

At this point we can draw a preliminary conclusion: the arguments against AT deserve some critics and caveats.

In the following part of the article, we shall answer two questions: 1) Are goals and beliefs necessary for OC symptoms? 2) Are goals and beliefs sufficient for OC symptoms?

Part two

Goals and beliefs are necessary and sufficient conditions to explain obsessive-compulsive symptoms

We maintain that goals and beliefs are necessary in order to explain the OC symptomatology. This depends on three reasons:

- 1) If there is an emotion, there is also a corresponding belief/goal. OC symptoms include negative emotions, e.g. anxiety, and negative emotions imply a discrepancy between a perceived/represented state of the world and a goal. One could rebut this statement arguing that, according to DSM 5, there might be compulsions without anxiety. This is certainly true, but it is possible only when compulsions and avoidances have become an automatized routine, very successful (from the patient’s perspective) in preventing threats. However, if the patient is interrupted while performing the automatic routine (the ritual), then anxiety rapidly appears.
- 2) Compulsions are different from mechanical, robotic and repetitive behaviours observed in other disorders, such as neurological diseases, e.g. frontotemporal dementia (FTD) and, instead, seem to be goal-directed, showing typical markers of motivated behaviour (Rachman 2002). Even in those cases in which it might seem a form of automatized behaviour, rituals are performed purposefully: the patient can start performing compulsions not for preventing guilt or contamination but for preventing or reducing the cost of the OC symptomatology. An individual with OCD can wash his hands not because he is afraid of being contaminated, but because he wants to prevent family reproach for his rituals. An example will better clarify this concept: Lucy was a 40 years old lady, and she had contamination obsessions. She was scared of bringing germs into her house, causing infections to family members or guests. In order to prevent the contamination and the subsequent guilt, she would stop outside her place and check whether she had touched a contaminating substance. She would often find something “dangerous”, and would start long washing rituals. But sometimes she would start her rituals even in the absence of doubt. Apparently there were no obsessions underlying those compulsions, and the latter seemed carried out without reason. But looking more carefully at her washing rituals in those situations, it is easy to find out that Lucy had a clear motivation for such behaviours: when her husband caught her carrying out the rituals, became mad at her and verbally very aggressive. This was very distressing for the patient, and this is the reason why, even when she got back home certain not to be contaminated, she would start performing rituals: “*Now I know for sure that I’m not contaminated, but I know I’m obsessive, and very likely later on I’ll become doubtful, and will feel the urge to wash. I guess this will happen after 7.00 pm., when my husband will be back home from work. I don’t want to be rebuked again, I can’t bear it. So I’d better start washing right now!*”. Also in this case the ritual is clearly carried out on purpose, in a non-mechanical way. We know that compulsions reduce fear, but they can also imply distress, since patients are aware that they lose time performing them, and that rituals cause family conflict. This suggests that compulsions are goal-directed, and not just reinforced by distress reduction.

In order to prove that compulsive conducts are not mechanical and automatic behaviours, we shall resort to Martin and Tesser’s work (2009), according to whom there are five evidence-based markers of motivated

behaviour: *persistence until...*, *equifinality*, *docility*, *affect*, *effort*.

- a) The first marker is *persistence until*: it refers to the tendency of an organism to continue to pursue a goal until it has attained it (Miller et al. 1960, Bowlby 1969, Pallini and Barcaccia 2014). If a person is searching for food, e.g., and subsequently finds it, eats it, and finally stops searching, then it is reasonable to assume that the person was motivated to eat it. The typical patient's answer to the question: "*why do you wash your hands?*" is "*because I want to prevent a contamination*". The opponents of AT could refute that this is not the right answer, being instead only an *a posteriori* rationalization. On the contrary, we can trust that this is the right answer 1) if the patient stops the washing ritual as he/she reaches an acceptable sensation of being clean and dispels all doubts of still being dirty; 2) if, when the patient is forced to stop a washing ritual, i.e. due to water cut, he/she will restart the ritual as soon as the water is available again; 3) if, when the patient does not have any sensation, nor doubt of being dirty, he/she does not start washing compulsions. In other words, rituals have their own stop-rules: compulsions persist until the patient suspects or fears harm to self or others, and if there is no such fear, then they do not start at all.
- b) The second marker is *equifinality*: it refers to the ability to attain a goal through more than one means. A person motivated to satisfy his hunger, e.g., could eat a salad, a sandwich, or some cookies, or a slimming bar, or could take a diet pill. We can observe this marker also in OC behaviour, since if patients with contamination obsessions cannot wash their hands, then they change their behaviour maintaining the same goal: they avoid to touch themselves with dirty hands, they ruminate about the possibility of being contaminated, they ask for reassurance, they look for other ways to clean other than using water, e.g., with disinfectant. Moreover, if a solution works, then patients do not search for other solutions. If they feel reassured, e.g., then they will not start the washing rituals.
- c) A third marker is *docility*: it refers to the tendency of an organism to settle ultimately on the most efficient means of attaining a goal. A person may learn, for example, that eating a sandwich satisfies his hunger more than cookies or than a diet pill. Examining carefully the history of the patient's OCD, one can notice that the washing compulsions are optimized and ritualized. The patient may stop using the hand towel in order to avoid to get dirty again or may use a nailbrush to clean the nails. According to Carr (1974), ritualizing is for optimizing compulsions.
- d) A fourth marker may help in identifying motivated behaviours: *affect*. Progress towards a goal has been shown to be associated with positive affect, whereas moving away from a goal has been shown to be associated with negative affect. In OCD

we observe that if the washing compulsions are going well, the distress decreases, while, if the washing compulsions are hampered, the distress increases.

- e) A fifth marker is *effort*: when individuals are motivated to attain a goal, they may expend considerable effort especially if they experience difficulty progressing towards the goal. The effort may be evaluated by physiologic parameters, Systolic Blood Pressure (SBP) and Heart Rate, but also by assessing the subjective value of the sacrifice that the patient makes in carrying out the compulsions. If the patient feels contaminated, in order to wash himself he may give up his need of eating, drinking or urinating. The sacrifices are heavier if the patient has trouble in carrying out the rituals. Effort is higher if motivation is strong and if difficulties arise in the course of the rituals.
- 3) Third argument sustaining the necessity of goals and beliefs in explaining obsessive-compulsive symptoms: the experimental or therapeutic reduction of responsibility and thus the risk of being guilty (Lopatka and Rachman 1995, Shafraan 1997, Ladouceur et al. 1995, Vos et al. 2012) implies a reduction in checking behaviours. These data suggest that checking behaviour is motivated by the goal of preventing guilt. Reducing the subjective value of being guilty, implies the reduction of every kind of OC symptoms (Cosentino et al. 2012).

We can now draw a preliminary conclusion regarding the role of goals and beliefs in explaining OCD: goals and beliefs appear to be necessary for OC symptoms.

But are goals and beliefs sufficient to explain obsessive-compulsive symptoms?

Experimental studies showed that in non clinical subjects, without obsessive features, it is sufficient to induce responsibility (Ladouceur et al. 1995), fear of guilt (Mancini et al. 2004), in particular fear of deontological guilt (D'Olimpio and Mancini 2014), to have them carry out OCD-like checking and washing behaviours. These experimental results suggest that the goal of preventing guilt can be not only a necessary but also a sufficient condition for OC symptoms.

Part three

Cognitive deficit theories and their role in explaining obsessive-compulsive symptomatology

The Cognitive Deficit Theories (CDT) assume that cognitive deficits are necessary and sufficient to explain OC symptoms. We believe that this is not the case, and we shall provide evidence in support of this assertion by answering three fundamental questions: 1) Are cognitive deficits sufficient for OC symptoms? 2) Are cognitive deficits necessary for OC symptoms? 3) Do cognitive deficits exist or are they an artefact or a bias?

- 1) We maintain that cognitive deficits are not a sufficient condition for OC symptoms, because they do not explain:
 - Why symptoms are domain-specific.

- Why symptoms change their intensity (e.g. do not explain why if responsibility decreases, the tendency to perform compulsions decreases as well).
 - Symptoms heterogeneity: why can the same deficit produce different symptoms?
 - Why micro cognitive deficits are found in other disorders (Abramowitz 2006).
 - Outcomes of cognitive therapy.
- 2) We maintain that cognitive deficits are not a necessary condition for OC symptoms, because obsessive-like symptoms can be easily induced in non-obsessive, healthy individuals: it is sufficient to induce fear of deontological guilt, in healthy subjects, to have OCD-like checking and washing behaviours (D'Olimpio and Mancini 2014).
- 3) Do cognitive deficits exist or are they an artefact? Let us now consider two important deficits which are often taken into account in order to explain obsessive-compulsive symptomatology, *reality monitoring* and *inhibition deficit*. Regarding the reality monitoring deficit, Woods et al. (2002), in their meta-analytic review, found virtually no differences between OC patients and control groups across five studies. Regarding the inhibition deficit it is well known that, in order to carry out compulsions, patients stop worth activities, as studying or playing with their children. Furthermore they are perfectly capable of inhibiting fundamental drives such as eating, sleeping, urinating or defecating. It seems that obsessive-compulsive patients have good inhibition ability. As stated by Abramovitch and Abramowitz (2014) "... compulsions in OCD are not accidental impulsive acts that result from an inability to inhibit one's responses. Rather, they are carefully planned and executed, and are usually carefully timed in response to obsessions. In clinical work with patients, it is easy to observe that individuals with OCD are able to postpone or stop their rituals in certain circumstances (e.g., to avoid embarrassment, as part of behavior therapy), which indicates intact ability to inhibit these behaviors" (Abramovitch and Abramowitz 2014, p. 346).

Are cognitive deficits real or are they better accounted for as cognitive biases?

Results of research on cognitive deficits show that they can be a *consequence* of intrusive thoughts or anxiety, or of fear of making mistakes (Abramowitz 2006). Along these lines, Clayton et al. (1999) showed that OC patients performed more poorly than normal subjects and individuals with panic disorder on timed, but not on untimed tasks. "*This raises the possibility that excessive caution or slowness in responding, rather than a memory deficit per se, hinders their performance*". (Abramowitz 2006, p.59). In this regard, the fact that patients show slower reaction times during neuropsychological tests, may be due to their problems with indecision.

The memory deficit has been particularly studied in the field of OCD, having been for long considered implied in the aetiology/maintenance of the disorder. But what it is more likely to be is that patients lose

confidence in their memory, thus they do not have a memory deficit: what seem at first glance to be memory deficits are better accounted for by *cognitive biases* (Abramowitz 2006). In fact, it is well established that most obsessive-compulsive patients engage in repetitive checking, even though their confidence in the recall of the checked action declines by perseveration of checking, and perseverative checking has been demonstrated to be not only a useless strategy but also a counter-productive one, since instead of reducing memory uncertainty, it tends to increase it (van den Hout and Kindt, 2003a, van den Hout and Kindt, 2003b, van den Hout and Kindt 2004, Rachman 2002, Salkovskis and Forrester 2002, Tolin et al. 2001, Dar 2004, Hermans et al. 2003, Hermans et al. 2008). Abramowitz effectively summarizes the results of cognitive deficits research: "*The most consistent finding emerging from the research on memory and reality monitoring in OCD is that compared to non patients, individuals with OCD show less confidence in their own memory and perception. Thus, there is strong evidence that compulsive checking results, at least in part, from decreased memory confidence, particularly in situations where there is the perception of responsibility for mistakes*" (Abramowitz 2006, p.61).

Along these lines, Abramovitch and colleagues (2013) conclude their interesting meta-analysis of 115 studies on the neuropsychology of OCD, including overall 3452 patients, stating that, taken together with the small-moderate levels of effect sizes, and the scarce evidence for familial neuropsychological impairments, neuropsychological factors are not sound candidates for endophenotypes in Obsessive-Compulsive Disorder (Abramovitch et al. 2013, p. 1169). So far, research has not demonstrated the presence of cognitive and neuropsychological deficits in OCD.

Conceptualising OCD as a neurological disease founded on cognitive deficits does not add to the understanding of the disorder, since those problems which at a superficial level might look as cognitive deficits are better accounted for by cognitive *biases*: distress caused by obsessional intrusions leads to a particular way of processing information, therefore determining motivated, non-automatic attempts at solution (Abramowitz 2006).

Conclusions

In summary, goals and beliefs seem necessary as proximal determinants of OCD symptoms and probably sufficient, whereas cognitive deficits appear neither necessary nor sufficient, instead "*are better accounted for by cognitive biases in which obsessional anxiety leads to preferential processing of threat relevant stimuli*" (Abramowitz 2006, p. 62), so the AT can account for the results of Cognitive Deficit Theories, but not vice-versa.

Cognitive deficit theories are coherent with a more general trend in psychiatry and clinical psychology, claiming to explain mental illness, and OCD in particular, as a neurological disease or impairment and not as the consequence of goals and beliefs driving the patient's life. In other words, it seems that there is a strong preference for what Dennett (2001) would call a sub-personal explanation instead of a personal one.

We do hope to have demonstrated that appraisal theories are still necessary, with their perspective on personal goals and beliefs, in order to understand and treat OC individuals.

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