

A Review of the Inference-Based Approach to Obsessive Compulsive Disorder

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Keywords

Obsessive compulsive disorder ·
Inference-based approach · Obsessional doubt ·
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Summary

Although cognitive behavioral therapy, often in the form of exposure and response prevention, is the most common treatment for obsessive compulsive disorder (OCD), individuals with certain subtypes of OCD show no or minimal benefit (e.g., individuals with overvalued ideation or egosyntonic obsessions). Given the mitigated success of treatments based on behavioral and cognitive behavioral models, OCD researchers have turned their attention to more exclusively cognitive theories and treatment models. The inference-based approach to OCD proposes that obsessive cognitions and appraisals stem from initial doubts and inferences. This approach focuses on the faulty reasoning processes underlying the obsessive doubts that generate OCD patients' compulsive behavior. This article presents the current status of the inference-based model and reviews the supporting evidence.

Schlüsselwörter

Zwangsstörung · Inferenzbasierter Ansatz ·
Zwanghafter Zweifel · Denkprozesse ·
Inferentielle Konfusion

Zusammenfassung

Obwohl die kognitive Verhaltenstherapie, häufig in der Form der Exposition und Reaktionsverhinderung, das in der Behandlung der Zwangsstörung am weitesten verbreitete Behandlungsverfahren darstellt, profitieren Betroffene mit bestimmten Subtypen der Zwangserkrankung (z.B. überwertigen Ideen oder ich-syntonen Zwangsgedanken) davon nur unzureichend oder gar nicht. Aufgrund der begrenzten Erfolge von auf verhaltenstherapeutischen oder kognitiv-verhaltenstherapeutischen Modellen basierenden Verfahren hat sich die Forschung vermehrt ausschließlich kognitiven Theorien und Behandlungsmodellen zugewandt. Der inferenzbasierte Ansatz zur Behandlung der Zwangsstörung geht davon aus, dass zwangstypische Kognitionen und Bewertungen von vorausgehenden Zweifeln und Inferenzen herrühren. Dieser Ansatz konzentriert sich auf die fehlerhaften Denkprozesse, die dem zwanghaften Zweifeln zugrunde liegen, welches Zwangsverhalten auslöst. Die vorliegende Arbeit fasst den gegenwärtigen Stand des inferenzbasierten Modells und die es stützenden empirischen Befunde zusammen.

Introduction

The aim of this article is to present the current status of the inference-based cognitive model of obsessive compulsive disorder (OCD) and to review the supporting evidence and suggest future research directions. OCD is a serious mental health problem which is estimated across national epidemiological studies to affect 1–3% of the population and is, therefore, the fourth most common mental disorder [Weissman et al., 1994]. OCD is characterized by the preoccupying obsessional doubt that harm, error distress or bad luck will occur if repetitive compulsive actions are not undertaken to neutralize the risk. Treatments of choice include pharmacotherapy and cognitive behavioral therapy (CBT) either alone or in combination [Expert Consensus Guidelines Series, 1997; Schruers et al., 2005]. Although these interventions are clinically effective [Abramowitz, 1998], they do not usually reduce the obsessions to a subclinical level [Fisher and Wells, 2005]. There is a risk of relapse and a sizeable minority of OCD patients refuse or abandon treatment (up to 40%) [Steketee, 1993]. Further some specific subtypes of OCD patients show no or minimal benefit (e.g., those with overvalued ideation or egosyntonic obsessions) [O'Dwyer and Marks, 2000; Veale, 2006].

Standard CBT involves primarily the administration of exposure and response prevention (ERP). This behavioral technique dating from the 1960s [Meyer, 1966] pairs systematic behavioral (or mental) exposure to the feared object (or thought) with a prevention of rituals or safety behaviors designed to neutralize the anxiety. Cognitive restructuring may be added in line with current cognitive thinking that it is the appraisal the person attributes to the intrusive thought which engenders obsessional distress. Such cognitive treatment will tend to focus on the pre-existing beliefs a person may hold, which sensitize them to intrusive thoughts and result in adverse reactions. This cognitive model is termed the 'cognitive appraisal model' (CAM) and claims that the causal and maintaining cognitive factor in OCD is not the initial doubt or 'intrusion' whose content may be anyway commonly experienced among the general population. It is rather the importance and interpretation attributed to the thought due to underlying beliefs [Frost and Steketee, 2002]. 6 such OCD-related beliefs have been identified by consensus among an international OCD cognitions working group and are measured via the obsessive beliefs questionnaire (OBQ) [Obsessive Compulsive Cognitions Working Group, 2005] as follows: over-responsibility, over-estimation of threat, over-importance of thoughts, over-control of thoughts, excessive perfectionism and intolerance of uncertainty. The existence of one or all of these belief traits renders the person unable to let a common otherwise passing thought go by without reacting obsessively and maintaining the thought in play.

Despite its appealing elegance and general acceptance in the literature, the CAM rarely forms an independent basis for

clinical practice. In fact, the consensus is that cognitive modalities do not add substantially to behavioral interventions, and ERP remains the component of choice for CBT [Fama and Wilhelm, 2005]. Furthermore, OCD-related cognitions, as identified by CAM, are not specific to OCD, and the presence of appraisals does not distinguish reliably between OCD and other anxiety groups [Tolin et al., 2006]. Over half of any given sample with OCD does not score high in the OBQ belief domains [Taylor et al., 2006; Calamari et al., 2006; Polman et al., 2011]. There is no convincing evidence from longitudinal studies that the presence of cognitive appraisals bears a strong causal relation with the onset of OCD [Abramowitz et al., 2007] or uniquely predicts treatment outcome [Coles et al., 2008]. Appraisals may be activated as an instrumental consequence of OCD rather than cause the disorder [Mancini et al., 2002]. The appraisal model focuses on downstream consequences of OCD and neglects a key component of doubt which features at the start of the obsessional sequence [O'Connor, 2003]. OCD then remains for a significant number of people an intractable problem with a strong cognitive component.

The Inference-Based Approach

The inference-based approach (IBA) deviates from other cognitive models of OCD in that it does not conceptualize the origin of obsessions in intrusive cognitions or in appraisals of those cognitions [O'Connor et al., 2005]. Instead, this approach proposes that specific cognitions and appraisals stem from initial doubts and inferences. Rather than identifying specific mental content, the IBA identifies the reasoning processes that form the justification for a particular doubt. The faulty inference precedes the identification of the specific threat and the subsequent appraisal of its implications [Wu et al., 2009]. This obsessional sequence is illustrated from the client's view in figure 1.

So a key distinction between IBA and CAM is the sequence of events in the formation of obsessions, beginning with the doubt (fig. 1). The IBA makes 3 important and original claims: (1) OCD begins with a doubt, (2) the doubt is an inference, not an intrusion, (3) if the doubt is eliminated, all other consequences, appraisals and behaviors also disappear. Therapy should hence be designed to address the doubt.

Most OCD Begins With a Doubt

Individuals with OCD are obsessed by the idea that they *could* have caused harm, *may have* made an error, *might have* experienced a sacrilegious thought. When, for example, people with OCD doubt whether the hands are clean or that the door is locked, they are already caught in the obsession at this point because the doubt is a product of obsessional rea-

Fig. 1. The IBA model: case conceptualisation.

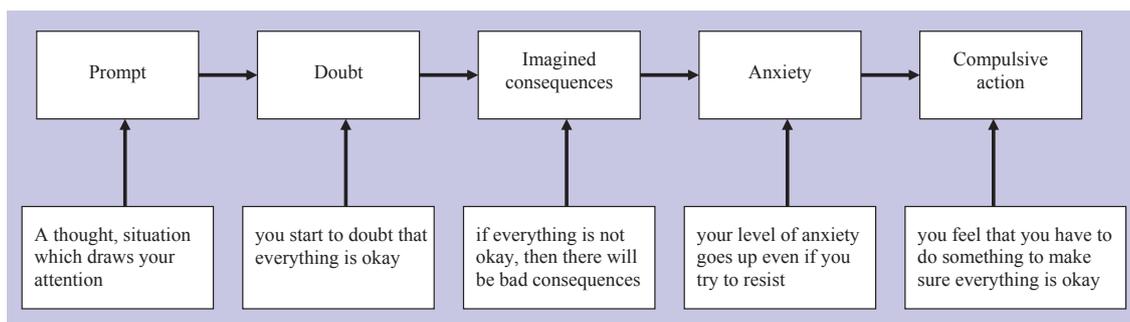
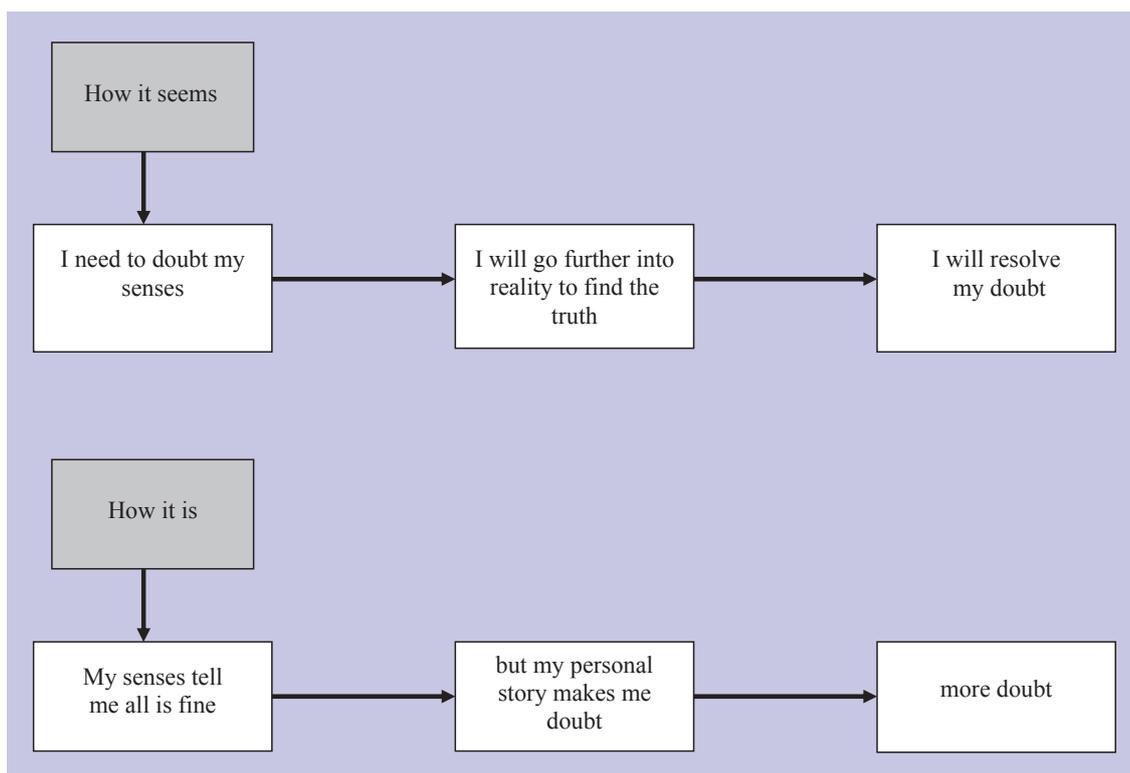


Fig. 2. Doubting the senses.



soning. The person pursues the doubt believing they will become more certain, and without realizing that at this point they are already *in* the obsession and that further doubting will only rehearse the obsession (fig. 2). Of course, when the person acts on the doubt through performing rituals, the doubt seems even more real. Then the obsessional doubt is no longer a regular doubt. It is a subjectively generated obsessional doubt different from normal everyday doubt.

In pure obsessions with no overt neutralisation, the person likewise confuses the thought about a possibility with the actual experience of the thought content. A common obsession concerns desired sexual orientation, whether hetero- or homosexual. So a person may think ‘I visited a gym full of men. Perhaps that means I’m gay’ and confuse this thought with a genuine desire for men. The person then begins to doubt sexual orientation on the basis of confusing the thought about a possibility with a genuine desire.

Obsessional Doubts are Inferences About a State of Affairs

A key claim of the IBA is that obsessional doubts are inferred on the basis of an invalid reasoning process. The reasoning narrative is revealed by simply asking the person to justify the inferred doubt.

Therapist: ‘You’ve been married 10 years with 3 children; you’ve never had a homosexual affair or been attracted to a same sex relation. What makes you doubt whether you are heterosexual?’

Client: ‘Well, I had a close girlfriend when I was 14 and sometimes when I slept over we shared a bed, and soon after I saw a film where a man was married all his life and came out as gay, and then there was a live show featuring all these couples who had come out in late life and the impact on their families and children, and then since I got married young, I’m asking myself maybe I do not really know my

sexuality and maybe I'm in denial and....' [O'Connor et al., 2009].

The hallmark of such narratives is the weight accorded to 'maybes', that is to hypothetical possibilities. In reasoning terms, essentially, the narratives convincingly replace confidence in the senses (and the self) with a doubting inference based on remote possibilities, and/or lead the person astray from a common sense approach, in which interacting with the situation is congruent with goals and perceived task demands: the person adopts instead irrelevant and unrealistic criteria. A number of reasoning devices serve to enforce this credibility in doubt such as: *over-categorisation* (fusing categories of object or people together: 'this table could be dirty because the other table was dirty'), *apparently comparable events* (viewing distinct independent events as comparable: 'my friends garage door sprang open so mine could as well'), *out of context facts* (applying abstract facts without adapting them to the situation: 'I could be infected because it's a fact that microbes exist'), *reasoning on the basis of purely imaginary events* (chaining sequences together in an imaginary story: 'I saw the red stain and I imagined it was blood, and that the blood was dripping on me, and so I could be contaminated').

A key reasoning device that replaces normal inference in OCD contexts is *inverse inference*. A person without OCD may reason 'this pole has prints on it, so there may have been a lot of people touching it'; the person with OCD infers reality the opposite way, or inversely 'because this pole *could have been* touched by a lot of people, it is most likely to be dirty even if I see nothing'. The inverse inference conclusion (the pole is most likely dirty) trumps the senses and precludes reality testing (the conclusion may be held despite observation, suggesting that the pole is in reality clean). In fact, a typical reaction of people with contamination fears is to expressly avoid looking at their hands or whatever is presumed infected for fear of becoming even more anxious.

We use the term reasoning *devices* rather than reasoning *errors*, since these devices can form a reasonable basis for questioning under some circumstances. For example, hearing about someone else's garage door springing open may reasonably provoke thoughts about our own garage door if it is the same make. But in the obsessional case, such information will form the basis for over-investment in a possibility remote from the 'here and now', which will trump and often contradict a more realistic view. These reasoning devices seem exclusive to OCD and recent factor analysis suggests they can be grouped into the 2 main components of *inferential confusion*, namely: *reliance on imagined possibility* and *distrust of the senses* [Aardema et al., 2009b]. In the following 2 examples, we see how a doubting inference can be generated in the face of contradictory sense information solely on the basis of a convincing reasoned 'bridging' narrative.

Sense information: 'My hands look perfectly clean... but... maybe...'

Story (bridging narrative): 'There were invisible germs on the pole I touched and the invisible germs might have jumped onto my skin because microbes exist and I won't be protected because the microbes might be capable of burrowing into my skin.'

Obsessional inference: 'So maybe my hands are really contaminated even if they look clean.'

Sense information: 'The door appears locked... but maybe...'

Story (bridging narrative): 'When I closed the door I accidentally jarred the mechanism and maybe the key didn't turn in the lock completely. The door never seems flush with the frame. Maybe that means it's not closed. I've read about doors mysteriously swinging open. A friend of mine thought he'd locked the door but found he hadn't.'

Obsessional inference: 'So maybe the door is not locked.' As a result of the bridging narrative, a remote or imagined possibility trumps sense information and leads the person up to an invalid doubting inference, through inferential confusion. The problem here is not the perception of reality. We know that people with OCD perceive reality as well as others and are able to distinguish unreal from real images [Brown et al. 1994]. The problem is that absorption in a narrative leads the person to doubt their initial sense information. The solution then, in principle at least, may be to restore the person's confidence in the initial sense information and associated cognitions through recognition of the invalidity of the doubting inference.

Grenier et al. [2010] found that belief in obsessional doubt as a real possibility was normally distributed and formed a measure distinct from degree of belief in anticipated consequences following the doubt (which was also normally distributed). The test/retest reliability of the degree of obsessional doubt over 2 weeks was excellent (0.85) and distinct obsessions led to distinct values of doubt.

Reasoning studies by Pélissier et al. [2009] and Aardema et al. [2009a] have found that people with OCD are more likely than controls to accord remote possibility a higher weight when making inferences than reality-based information. This impact of possibility is independent of existing mood states and global lack of confidence. This confusion of possibility with reality and subsequent distrust of the senses has been operationalized by a questionnaire measuring inferential confusion.

Inferential Confusion Questionnaire

To assess the presence and strength of inferential confusion, Aardema and colleagues [Aardema et al., 2005b] developed the inferential confusion questionnaire (ICQ). This measure of inferential confusion was demonstrated to successfully distinguish a group of OCD patients from a non-clinical control group and a mixed anxiety group, and showed strong relationships with delusional symptoms [Aardema et al., 2005b]. The extended version of the questionnaire (ICQ-EV) includes all

reasoning processes related to inferential confusion: over-reliance on possibility, absorption into imaginary sequences at the expense of reality, irrelevant associations, and category errors.

So, examples from the ICQ include: 'I often react to a scenario that might happen as if it is actually happening', 'I am sometimes more convinced about what might be there than what I actually see.' So here, the person will become absorbed into the possibility that there is dirt rather than in the reality of seeing dirt. As noted, people with OCD often reason in an inverted way, saying that it is possible that many people walked on this floor so therefore it could be dirty, rather than seeing dirt on the floor and then inferring there could have been people walking over it.

Another item is: 'I sometimes invent stories about what might be there without paying attention to my senses', 'I can imagine something and end up living it.' So OCD experiences fitting here would be someone who thinks a red stain is blood then imagines it is blood and how it could be infected and dangerous, and ends up convinced that the stain is blood, purely on the basis of an imaginary narrative.

Other items on the ICQ-EV touch the ability of people with OCD to become absorbed in remote possibilities and distrust themselves and their senses. Also, a dissociative experience in OCD can be understood from the perspective of an IBA model, which holds that inferences turn into obsessions when the person crosses over from the real world of perception into the world of the imagination [O'Connor et al., 2005a]. This cross-over point is identifiable and is reported by clients as a transition from reality to non-reality, sometimes accompanied by varying amounts of detachment and derealization [Aardema et al., 2005a]. The ICQ is a key predictor of dissociation in OCD [Aardema and Wu, 2011]. It may be that people with OCD become absorbed into an obsessional bubble when they repeat their imaginary narrative. They become so immersed in the imagination that they are sometimes unable to disengage and go back to reality.

An Inference-Based Therapy Addressing Doubt will Alleviate Other Symptoms

If obsessional doubt is eliminated, other aspects of obsessional thinking and behavior are affected. Grenier et al. [2008] reported that although belief in anticipated consequences can decrease without a change in obsessional doubt, a change in obsessional doubt always accompanied a change in consequences. This finding is logical since the consequences are only likely if the initial doubt is probable. The IBT protocol is organized in a series of cumulative stages. The major steps are:

- (1) To establish the nature of the obsessional doubt and to educate in distinguishing obsessional doubt from authentic doubt; criteria for identifying obsessional doubt in-

clude: the subjective origin of the doubt, its unresolvability, and its opposition to sense information.

- (2) To unravel the subjective 'story' (reasoning 'bridging' narrative) behind the primary inference.
- (3) To illustrate how the doubt goes against sense perception in the here and now and detracts from common sense.
- (4) To reveal clearly how reasoning devices lead to an arbitrary doubting inference.
- (5) To examine the power of imagination.
- (6) To utilize techniques to ground the person in reality (such as constructing an alternative realistic narrative, catching thinking before it leaves reality and crosses over to imagination).
- (7) To return the person to the world of the senses and trusting the senses and common sense.
- (8) Finally, to target the vulnerable self-theme.

Self-Theme

A key element in the therapy is unravelling the person's vulnerable self-theme since, according to IBT, this theme drives the doubts. The vulnerable self-theme often refers to the self the person feels he or she could be or become, and this fear of the imagined self may underpin disparate obsessions [Aardema and O'Connor, 2007]. The fear of being the sort of person who inadvertently causes harm could lead to extra vigilance in a range of potentially harming situations. This self-theme, according to IBT, is also itself the product of an obsessional inferential confusion reasoning process focusing on who the person could be rather than who they in reality are.

The self-theme is constructed by grouping together individual doubts to find a common theme. For example, Jurgen would not touch metal door knobs, pipes, metal objects or poles, convinced that such metals could poison him. In his narrative, justifying the doubts, he reports articles he has read on lead poisoning, how asbestos proved fatal, how your hands smell after touching metal, the magnetic properties of metals and how they are impure and attract rust. The common self-theme, derived logically from the selectivity of his obsessional doubts, is: 'I could be the type of person who would inadvertently be contaminated by metal'. The self-theme helps to underline the selective thematic nature of the OCD doubts. This exercise also highlights non-OCD areas of life where the person normally uses and trusts their senses and common sense without a recourse to doubt. For example, Jurgen does not feel the need to doubt wooden or plastic instruments where he accepts the sense information about cleanliness at face value. The IBT approach here is to reposition the person away from this feared self-theme to the recognition that the person is not in danger of being so vulnerable. In fact, Jurgen's authentic self-attributes and realistic self-experience indicate that he is not more than others at risk of contamination and has no need for extra precautions.

Case Illustrations

In order to illustrate IBT, let us follow the case of Heidi (33), a mother of 2 small children, who washes excessively. She scrubs her kitchen, her bathroom, her floor, her cupboards plus herself regularly. She is also overconcerned about her small children getting into harm's way and she insists that they do not touch or eat anything without her confirmation. She even tries to stop them from playing outside. When asked to justify her repeated washing and all her precautions, Heidi replies that she feels better being safe than sorry. When asked more specifically why she thinks that the surfaces are still dirty despite normal cleaning, she says there could still be germs despite what her senses say. So her primary doubt is: 'Maybe the surfaces are still dirty even if I cleaned them'. She then imagines all sorts of consequences, particularly for her children if they are dirty, and gets anxious; but she recognizes that if she would not doubt in the first place, no consequences would follow.

So in the case of Heidi, she justifies the logic of her doubt as follows: 'Well, microbes exist, they are invisible, you cannot see them, and although you can see with your eyes, it's what you can't see that's crucial. I watch these crime scene investigations (CSI) programs and they show up dirt with their technical devices which you couldn't see otherwise. I also read stories about children dying from licking waste papers in the street, and anyway you don't know what kids touch and sometimes their hands are dirty and you don't know and they touch things in the house and then I touch them and I'm dirty and I feel dirty just thinking about it all. You can't be too careful.'

In the next step, the therapist faces her with 2 choices – either the story comes from her or it is derived from the outside. Heidi agrees that the story is created by her, not by any outside source. However, she still thinks the OCD justification is reasonable even if it is her own story. In the next step, the therapist goes further and shows how the doubting story draws largely on the imagination and not on reality. The therapist explains the distinction between remote possibilities (events which could occur in the abstract but which are remote from the here and now) and actual probabilities (which can be calculated as likely to occur now). In particular, Heidi is requested to create doubting stories by stringing together possibilities in non-OCD situations exactly as she does in the OCD story. So in the case of Heidi, the therapist creates with her a story of how a tiger could be in the house using the same type of reasoning devices as in the OCD story. 'There is a zoo nearby. Animals escape. Visitors to safari parks have been mauled. A tiger is very quick footed. It could be camouflaged in the dark, ready to spring out at any moment.' Heidi is not really convinced by the story but she understands how a possibility can be created by reasoning devices.

But now the therapist turns to an OCD-related example: the pen story. The therapist picks up a pen from the desk and asks if Heidi would hold it. She agrees to do so. The therapist then recounts a story of how it was lying in the street in some dog mess and he took it out because he liked it, but he just wiped it down. Now would she hold it? No, she would not hold the pen. But what has changed? The pen or the story? The therapist then recounts an alternative story about the pen being new, that he just bought it, that it has not been touched by anyone else and he is careful to clean it with wipes every time he uses it. Now will she hold it? Yes, she would. But what has changed? The pen or the story? In this way the therapist brought Heidi to realize the power of an imaginary story and how it leads away from recognition of the sense information.

This exercise also moved Heidi to the next stage of identifying the point at which the person leaves the world of the senses and crosses over into the imaginary OCD bubble. Heidi recognized that this point occurs after she had looked at a surface and seen it was clean. The therapist then explored more profoundly the invalid reasoning devices, as noted earlier, in her OCD story.

As an important sequel to this exercise, the therapist also pinpointed the difference between the way Heidi reasons in her OCD

doubt situations and other non-doubt situations in everyday life. For example, crossing the road is a dangerous activity but she does not doubt her senses here. If she sees or does not see a car approaching, she accepts this information without the need to construct a doubting story. The therapist next connects her doubts to a vulnerable self-theme which seems to link them together. In Heidi's case, when she grouped together her everyday doubts, a common self-doubt was: 'Perhaps I'm not a good mother'. This self-theme was a feared identity which she believed she could become. This OCD self is also based on illusion because the real self is usually the opposite of the OCD self. The reasoning behind the investment in a feared identity is often similar to the reasoning which produces the other OCD doubts. Clearly it is important to reposition the person towards the authentic self and away from all the effort invested in trying to be who the person cannot be since it contradicts reality.

In Heidi's case, all the 'real' evidence suggested that she was indeed a good mother and did not need to fear becoming a bad mother. Her story behind her fear of becoming a bad mother was based on remote experiences. Her own mother had once made a dismissive comment about her carelessness and how this could stop her in being a good mother. Also she had read articles on how new mothers have difficulties in coping with the situation and how failure to thrive was a common problem. In other words, the OCD self-story showed the same reasoning devices as her more immediate everyday doubt stories, and hence the story produced a convincing self-doubt.

So in the final stage of therapy Heidi accepted that she could trust her senses and her common sense when cleaning, with no need for extra effort, and she could act as she did in non-OCD situations. It should be emphasized that the perception of reality does not involve any special training in awareness or special mindfulness, but simply involves using the senses normally in a non-effortful way, without taking extra precautions.

Clinical Studies

O'Connor et al. [2005a] conducted a study designed to explore the respective treatment impacts of IBT and CBT on OCD. The results of this study demonstrated that the 3 treatments were equally effective, providing support for the role of cognitive approaches in reducing maladaptive behavior. IBT seemed to be more effective in modifying doubts. A recent open trial of IBT across all subtypes ($n = 86$) reported a very strong effect size (2.21) in pre-post-treatment [O'Connor et al., unpublished].

Interestingly, the IBA reasoning processes in more standard OCD doubts (maybe I left the stove turned on) and bizarre or over-invested doubts (maybe the dirt rays are getting under my skin and control me) are similar and both seem responsive to IBT. In an initial study [Provencher et al., 2009], 22 consecutively referred people with OCD were split into high and low conviction on the basis of their score on the overvalued ideation scale. Both groups showed an equal decrease in scores on the Yale-Brown obsessive compulsive scale (Y-BOCS) (47 vs. 36%), depression (53 vs. 46%) and obsessional beliefs (20 vs. 15%). The study was replicated in a further sample of 32 referrals (mean age = 37.2; 44% female), where again there was no significant difference between subgroups in outcome on Y-BOCS or mood scores [Taillon and O'Connor, 2009].

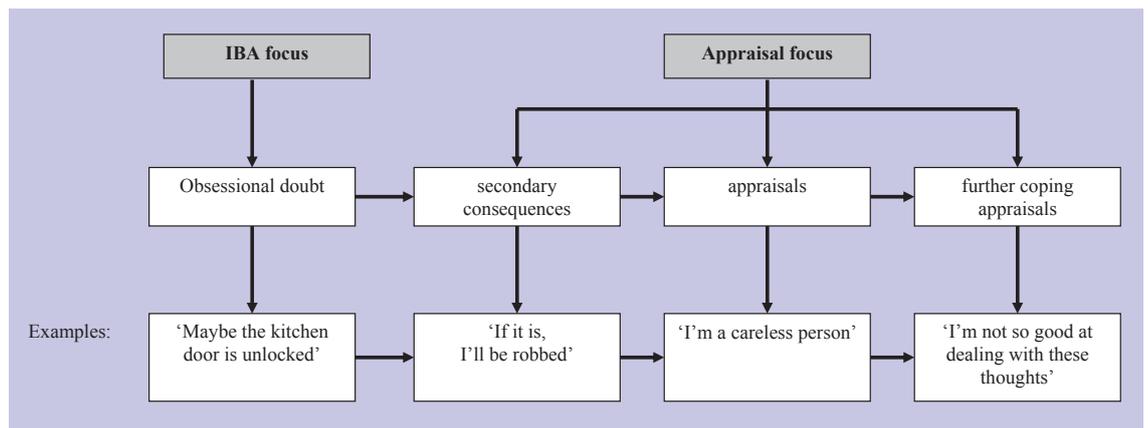


Fig. 3. Figure from O'Connor, Aardema and Pélissier [2005], p. 150, with permission.

Limitations of the IBA

Several limitations to the IBT must be acknowledged. First, a further independent replication of the model and its treatment application in diverse populations is required. It is not yet clear whether or not this approach is applicable to children, adolescents, or individuals with developmental delays. Similarly, the application of the IBA to clinical disorders other than OCD requires further development. A final limitation to the inference-based model is that, although it seems to be fairly well integrated by clients, the dissemination of IBT treatment protocols to therapists presents a challenge. The IBA is complex and requires an understanding of reasoning processes. Despite this limitation, however, the IBT appears to have the potential to generate a significant improvement in OCD patients.

The IBA: Future Directions

Several treatment studies are currently being conducted at the Fernand-Seguin Research Centre (FSRC) in Montreal, Quebec. O'Connor and colleagues are presently overseeing IBT protocol studies designed to registrate whether or not other disorders characterized by doubt and intrusive thoughts (e.g., body dysmorphic disorder, delusional disorder, eating disorders) can be explained through an IBA model, and correspondingly, can be treated with IBT.

Research investigating the efficacy of CBT for children and adolescents with OCD has been growing. Key cognitive ap-

praisals specific to adults with OCD (e.g., over-inflated sense of responsibility, misinterpretation of intrusive thoughts) have been observed in young OCD patients [Reynolds and Reeves, 2008]. More specifically, there seems to be no significant difference between cognitive appraisals in OCD and cognitive appraisals in other anxiety disorders (generalized anxiety disorder, social phobia, and panic disorder) for this population. Lahoud and O'Connor are currently exploring differences and similarities in cognitive development of inferential confusion between adolescents and adults.

Finally, a large scale randomized clinical trial is underway to compare the treatment effects of traditional CBT (combination of both ERP and CAM) with that of IBT. Such a study could provide further empirical evidence for respective cognitive-based therapies, and advance knowledge about treatment applications for OCD.

Conceptually and practically, the IBA is compatible with the CAM. These 2 models target and treat different stages in the obsessional cognitive process. O'Connor [2003] has outlined the differences between treatment based on IBA and CAM in terms of the stage of OCD targeted for intervention (fig. 3).

Future research could focus not on retaining or rejecting one or the other model, but focusing instead on the value of each model in explaining unique elements of cognitive processes in the development of OCD.

Disclosure Statement

The authors declare that they have no conflict of interest.

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