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When doubting begins: Exploring inductive reasoning in obsessive-compulsive disorder

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ABSTRACT

The objective of this study was to test the hypothesis that inductive reasoning plays a role in obsessional doubting by comparing an OCD sample with a non-OCD control group in performance of an inductive reasoning task. The 'Reasoning with Inductive Arguments Task' (RIAT) measures inductive performance using arguments drawn from both given vs. self-generated sources and containing neutral vs. OCD-related content. Both an OCD group recruited from clinical referrals and a control group recruited from the general population were compared on performance of the RIAT. People with OCD tended to doubt an initial conclusion much more than controls in the light of subsequent alternative conclusions given by the experimenter. There were no significant differences between the two groups in the self-generated condition. The OCD group doubted more regardless of whether the items were OCD-relevant or neutral. The control group also doubted the initial conclusions but not to the same extent as the OCD group in the 'given' condition and their degree of doubting did not differ between self-generated or given items. People with OCD may create doubt because they are giving too much credit to mental models given from external sources.

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1. Introduction

Obsessive-compulsive disorder (OCD) is the fourth most serious mental health problem affecting between 2% and 3% of the adult population (Kessler et al., 2005). Although prevalence varies with age (Bebbington, 1998), there is reason to believe that it is under reported (Rasmussen & Eisen, 1992). OCD is characterised by unwanted and repetitive thoughts revolving around themes like contamination, fear of making mistakes, fear of harming oneself or others and need for order and symmetry. The obsessions are usually accompanied by anxiety which triggers compulsions (mental or physical acts) that serve to counteract or neutralize the feared consequences of the obsessions. Recent research has focused on both cognitive products and processes involved in OCD.

1.1. Reasoning in OCD

Initial paradigms looking at reasoning and OCD concerned decision making, probabilistic reasoning and formal reasoning research. Decision making involves people drawing one conclusion instead of another. Studies measuring decision making typically involve participants choosing whether or not they need more information before drawing a conclusion. So for example, Milner, Beech, and Walker (1971) compared a group of people with and without OCD in their performance on an auditory signal detection task. Participants decided whether they needed additional trials before stating if a faint tone (embedded in white noise) was present or not. In this study, people with OCD requested a higher number of trials than people in the control group and the authors concluded that people with OCD gathered evidence to an abnormal extent. In the case of probabilistic reasoning, a form of inductive reasoning takes place where one extrapolates from a given premise to draw a plausible conclusion. Studies exploring probabilistic reasoning involve some decision making with the addition of giving weight to ones own conclusions, in the form of a percentage. For example in a standard probabilistic reasoning task, Volans (1976) tested participants using two jars (A & B) containing an equal proportion of beads of two different colours, each with an 85/15 ratio. The beads of one jar were drawn until the participant had sufficient evidence to say which jar had been chosen, which implied decision making. But in two of the four conditions tested, participants also had to give probability estimates for the next colour of bead to be drawn. Patients with OCD formed one of the three groups tested, along with patients with phobias, and a non-psychiatric control group. The probability estimates of the OCD group deviated significantly more from the norm than did the phobic and non-psychiatric group. These results suggest that OCD participants exhibited a different style of reasoning and the results were replicated by Fear and Healy (1997). Finally, more standard forms of testing reasoning have examined how participants draw conclusions using fixed premises in a deductive format and how people use abstract forms of reasoning (when solving arithmetic problems for example). Formal reasoning was examined by Reed (1977) where OCD and psychiatric control participants were tested on their deductive and inductive reasoning performances. Differences between the two groups were observed in the deductive reasoning arithmetic task where the OCD group performed better, and in the inductive task where their performance was inferior to the psychiatric control group. So, results from decision-making reasoning studies show consistently that OCD participants are more cautious and require more information before drawing conclusions, while formal reasoning studies suggested that it may be the *mechanisms* of reasoning that are peculiar to OCD and not the *content* of obsessions per se.

Earlier, clinical observations of O'Connor and Robillard (1995, 1999) had led these authors to hypothesize the existence of a particular inductive reasoning style creating and maintaining obsessions. Typically, people with OCD will conclude that danger 'might be' present or that there is a possibility of harm without being certain about the harm but rather being invested in the possibility. For example: 'I know it's unlikely to occur but even if there is a 1% chance that it will, then I can't take the risk'. Since then, O'Connor and collaborators (O'Connor, 2002; O'Connor & Aardema, 2003; O'Connor, Aardema, & Pelissier, 2005) have investigated reasoning processes in OCD (Pelissier & O'Connor, 2002) and developed the concept of 'inferential confusion' (Aardema, O'Connor, Emmelkamp, Marchand, & Todorov, 2005; O'Connor & Aardema, 2003) which proposes that in people with OCD, inductive reasoning strategies lead them to confuse remote possibilities with reality.