



Moral reasoning in obsessive-compulsive disorder

Shana A. Franklin^a, Richard J. McNally^{a,*}, Bradley C. Riemann^b

^aHarvard University, United States

^bRogers Memorial Hospital, United States

ARTICLE INFO

Article history:

Received 21 October 2008

Received in revised form 4 November 2008

Accepted 4 November 2008

Keywords:

Obsessive-compulsive disorder

Cognitive bias

Moral reasoning

Excessive responsibility

ABSTRACT

An inflated sense of responsibility often characterizes patients with obsessive-compulsive disorder (OCD). In this study, we asked OCD patients ($n = 20$) and control participants ($n = 18$) to resolve a series of moral dilemmas embedded in hypothetical scenarios. Each scenario required participants to choose one of two undesirable courses of action, both involving loss of life. The utilitarian option required them to act, thereby causing the death of one person, but indirectly saving the lives of others whose death would otherwise have occurred. The other option involved no action on their part, but their failure to act resulted in the deaths of people. The groups did not differ significantly in the options chosen, or in their latencies to resolve moral dilemmas. However, within the OCD group, the higher patients' scores on the Responsibility Attitude Scale, the less likely they were to act to kill one person to save the lives of others. In summary, these data imply a stronger association between moral reasoning patterns and responsibility attitudes than to OCD per se.

© 2008 Elsevier Ltd. All rights reserved.

1. Moral reasoning in obsessive-compulsive disorder

Psychologists have identified cognitive characteristics of obsessive-compulsive disorder (OCD) that figure in the maintenance, and perhaps the etiology, of this syndrome (McNally, 2000; Muller & Roberts, 2005). For example, many patients with OCD seem characterized by an inflated sense of personal responsibility for preventing harm (Rachman, 1993; Salkovskis, 1985). Salkovskis et al. (2000) expressed it as:

The belief that one has power which is pivotal to bring about or prevent subjectively crucial negative outcomes. These outcomes are perceived as essential to prevent. They may be actual, that is, having consequences in the real world, and/or at a moral level. (p. 350)

A heightened sense of responsibility correlates positively with severity of OCD symptoms (Salkovskis et al., 2000).

Related to this core assumption is the belief that failing to prevent harm is the moral equivalent of deliberately causing harm (Wroe & Salkovskis, 2000). For example, OCD patients may regard failing to remove a stone from the sidewalk lest an elderly person trip on it as equally reprehensible as trying to harm someone by deliberately placing a stone in his or her path.

Another feature of the moral psychology of OCD is thought-action fusion (TAF; Rachman, 1993). TAF has two aspects. First, individuals characterized by heightened TAF superstitiously believe that merely having unacceptable thoughts make them more likely to happen. A mother with elevated TAF is likely to appraise occasional thoughts about harming her baby as indicating that she harbors homicidal urges that will eventually lead to her murdering her child. Second, those with heightened TAF tend to equate having bad thoughts with actually carrying them out. Having an unacceptable thought about killing one's baby is the moral equivalent of murder. Elevated levels of TAF often characterize people with OCD (Shafraan, Thordarson, & Rachman, 1996).

The aforementioned studies indicate that understanding the moral psychology of OCD may illuminate its etiology. Researchers, however, have yet to study reasoning about moral dilemmas in patients with OCD. In fact, how people reason about choosing between two morally unacceptable courses of action has traditionally been a focus of philosophy (Thomson, 1985) rather than experimental psychopathology. Consider two variants of the canonical trolley problem:

You are a bystander watching a runaway train with broken brakes. The train is headed toward five people working on the track. On a connecting track only one person is working. The train will kill whoever is in its way.

You stand next to a switch that allows you to change the track the train is on. Should you keep the train on the track headed for five people or change it to the track headed for one person?

* Corresponding author at: Department of Psychology, Harvard University, 33 Kirkland Street, Cambridge, MA 02138, USA. Tel.: +1 617 495 3853; fax: +1 617 495 3728.

E-mail address: rjm@wjh.harvard.edu (R.J. McNally).

In this example, the utilitarian option – switching the train to the other track, thereby sparing five lives at the expense of one life – requires active intervention by the agent whose flip of the switch kills a person who otherwise would have lived.

Now consider this version:

You are a bystander watching a runaway train with broken brakes. The train is headed toward five people working on the track and it will kill them if no action is taken. Next to you stands a very large person. If you push him onto the track, the train will kill him, but doing so will prevent the train from killing the five people working on the track down the line. Do you take no action or push the person in front of the train?

In this version, the utilitarian solution to the moral dilemma requires direct, personal contact with one's victim, all in the service of saving other lives. Despite the consequential equivalence of the utilitarian options in these scenarios, scientists have found that many participants are more reluctant to act in the second one than in the first (Greene & Haidt, 2002). That is, they find it less acceptable to push someone in front of a train than to flip a switch, even though acting in both cases saves the same number of lives.

The heightened sense of responsibility associated with OCD suggests that these patients might differ from control participants in one of two ways. On the one hand, excessive concern with responsibility may increase likelihood of patients choosing to act and to do so from utilitarian calculation (i.e., deliberately killing one person to save the lives of others). On the other hand, excessive concern with *personal* responsibility may increase likelihood of patients not acting, and therefore passively permitting the deaths of more people. To test these hypotheses, we had patients with OCD and control participants respond to 10 moral dilemma scenarios and 5 control scenarios. Each moral dilemma involved two options: acting according to the utilitarian principle of minimizing aggregate deaths versus not acting, and thereby passively permitting more deaths to occur. We also tested the hypothesis that OCD patients would take longer to arrive at their decisions relative to control participants. We based this prediction on findings relevant to difficulties in decision-making often characteristic of OCD patients (Foa et al., 2003). Finally, we investigated the relation between moral reasoning and severity of OCD symptoms and endorsement of responsibility attitudes.

2. Method

2.1. Participants

The OCD group consisted of 20 patients from Rogers Memorial Hospital (7 women, 13 men) who ranged in age from 19 to 55 years old ($M = 30.3$, $S.D. = 10.6$). Each met criteria for OCD as confirmed by a mental health professional who administered the Structured Clinical Interview for DSM-IV (SCID; Spitzer, Williams, Gibbon, & First, 1996). Their Yale-Brown Obsessive-Compulsive Scale (Y-BOCS; Goodman et al., 1989) scores ranged from 8 to 39 ($M = 25.9$, $S.D. = 8.5$). One additional patient decided not to complete the study almost immediately after beginning the moral reasoning task, and hence her data are not included in any analysis.

We asked all suitable patients in the OCD program whether they might be interested in participating in the study. Their participation was voluntary. Harvard University's committee on human subjects approved the consent form and protocol.

The control group consisted of 18 individuals employed at Rogers Memorial Hospital (10 women, 8 men) who ranged in age from 21 to 58 years old ($M = 33.6$, $S.D. = 11.2$). Control participants had responded to flyers posted at the hospital. Although they had

no known mental illness, these individuals did not undergo a structured psychiatric interview before participating.

2.2. Psychometric measures

OCD patients were administered the Y-BOCS upon their beginning treatment at Rogers Memorial Hospital, and it was readministered approximately every 2 weeks as a means of tracking progress in the treatment program. For this study, we reported the results from the most recent administration of the Y-BOCS.

Members of the OCD group and the control group completed the Responsibility Attitude Scale (RAS; Salkovskis et al., 2000) immediately before the experimental task. Salkovskis et al. reported that OCD patients scored statistically significantly higher on the RAS than did patients with other anxiety disorders who, in turn, scored statistically significantly higher than did nonanxious control participants.

2.3. Stimulus materials

The stimulus materials consisted of 15 brief scenarios comprising 3–6 sentences each. Ten scenarios concerned moral dilemmas, each requiring participants to indicate which of two courses of action they would take if they confronted such dilemmas in real life (Greene & Haidt, 2002; Greene, Nystrom, Engell, Darley, & Cohen, 2004). In one (utilitarian) alternative, the participant acted, thereby directly killing a human being, but saving the lives of others. In the second alternative, the participant did not act, and therefore did not directly kill a human being. However, in the second alternative, the participant's failure to act resulted in more deaths than in the first alternative.

Another five scenarios required participants to choose one of two courses of action. These control scenarios did not involve moral dilemmas. We included them to test whether OCD patients would take longer than control participants would to decide which of two courses of action they would take in the moral dilemma scenarios. For each scenario, the computer recorded how long the participant took to read the scenario and how long the participant took to reach a decision about the course of action.

2.4. Procedure

After reading and signing an informed consent form, the participant completed the RAS. The first author then explained the experimental task. Instructions also appeared on the PC laptop computer, which presented the scenarios, and recorded the participant's choices, reading times, and response times.

The participant pressed the space bar on the computer, and the first scenario appeared. This screen also told participants to press the space bar again once they had finished reading the scenario. When the participant pressed the space bar, the two alternatives, labeled 1 and 2, appeared. The participant then pressed either 1 or 2 on the keyboard to indicate which path of action he or she would follow. The next screen asked participants to indicate how they thought most people would respond, and once again, the participant pressed either 1 or 2 on the keyboard. The next scenario then appeared.

Each participant received the scenarios in a different random order. At the end of the computer task, the experimenter discussed the task with the participant to ascertain his or her reactions to the task. We then debriefed the participant and gave him or her a \$10 honorarium for participating in the study.

We used two-tailed *t*-tests for the main analyses and reported effect size *r* for each of these tests. We also provide post hoc power calculations for these analyses. Our correlational analyses were also two-tailed.

3. Results

The proportion of scenarios for which participants chose the utilitarian alternative was not significantly greater for OCD participants ($M = .55$, $S.D. = .22$) than for control participants ($M = .46$, $S.D. = .20$), $t(36) = 1.3$, $p = .20$, $r = .21$, $\text{power} = .25$. Higher Y-BOCS total scores were inversely related to the proportion of scenarios for which patients chose the utilitarian alternative, $r(18) = -.32$, although the effect was not statistically significant, $p = .18$.

Nor was the mean decision latency for the 10 moral dilemma scenarios longer in the OCD group ($M = 35.8$ s, $S.D. = 13.1$) than in the control group ($M = 35.2$ s, $S.D. = 12.9$), $t(36) = 0.13$, $p = .90$, $r = .02$, $\text{power} = .05$. The groups did not differ in their decision latency for the five control scenarios either (OCD: $M = 21.5$ s, $S.D. = 8.1$ vs. control: $M = 20.8$ s, $S.D. = 6.5$), $t(36) = 0.27$, $p = .77$, $r = .04$, $\text{power} = .05$. Nor did the groups differ in total response time (reading time plus decision time) for either the moral dilemma scenarios (OCD: $M = 31.7$ s, $S.D. = 11.5$ vs. control: $M = 30.4$ s, $S.D. = 9.6$), $t(36) = 0.35$, $p = .73$, $r = .06$, $\text{power} = .06$, or the control scenarios (OCD: $M = 21.5$ s, $S.D. = 8.1$ vs. control: $M = 20.6$ sec, $S.D. = 6.52$), $t(36) = 0.37$, $p = .71$, $r = .06$, $\text{power} = .07$.

Consistent with Salkovskis et al. (2000), the OCD group ($M = 4.0$, $S.D. = 1.1$) scored higher than the control group ($M = 2.8$, $S.D. = 1.1$) on the RAS, $t(36) = 3.04$, $p = .004$, $r = .45$, $\text{power} = .86$. Within the OCD group, the more strongly patients endorsed responsibility attitudes, the less likely they were to choose the utilitarian alternative, $r(18) = -.60$, $p = .006$. Although nonsignificant, the same pattern was evident within the control group, $r(16) = -.22$, $p = .38$. Therefore, the stronger an OCD patient's responsibility attitudes, the less likely he or she was to act to kill one person to save the lives of others.

4. Discussion

Psychologists have explored different facets of the moral psychology of OCD, but not reasoning about moral dilemmas. Our study indicates that patients with OCD exhibit more similarities than differences to control participants in this domain. The OCD group exhibited a slight, but nonsignificant, trend toward choosing more utilitarian alternatives than did the control group (55% vs. 46%), but the effect size was small ($r = .21$). However, within the OCD group, preference for the utilitarian option was inversely unrelated to OCD symptom severity. More interestingly, the stronger patients endorsed responsibility attitudes, the less likely they were to choose to kill one person to save the lives of others.

Our study has limitations. Most obviously, one can always wonder whether participants would respond differently if they confronted such moral dilemmas in real life. Although the scenarios are obviously artificial, neuroimaging research shows that reasoning about scenarios whose utilitarian option requires one to kill to save others does activate brain circuits involved in emotional decision-making (Greene et al., 2004).

Another possible limitation is that the scenarios involve life-threatening dilemmas. Perhaps anyone, whether suffering from OCD or not, would respond similarly in such extreme situations. For example, Foa et al. (2003) found that OCD patients, relative to control participants, took longer to make decisions about relatively

low-risk scenarios, whereas no differences were apparent for high-risk scenarios.

Accordingly, it may be useful to investigate reasoning about less dramatic moral dilemmas involving low to moderate threat or risk.

In view of this final limitation, does our study contribute to the understanding of moral reasoning in OCD? For several reasons, we think it does. First, by relying on the standard high-risk scenarios developed in previous research, we demonstrated that whatever reasoning biases do exist in OCD, they must be confined to relatively low-risk scenarios, and perhaps only to those directly pertinent to the specific concerns of the patient.

Second, similarity in moral reasoning between OCD patients and healthy control participants suggests that the disorder is not characterized by a general deficit in moral reasoning, relative to the control group. Our findings, and those of Salkovskis, Rachman, and others, imply that the scope of the problem may be confined to specific, idiosyncratic domains (e.g., excessive responsibility for certain kinds of threats).

Third, nearly identical decision latencies and response times between the OCD and control groups likewise indicates that indecisiveness in OCD may be restricted to certain contexts rather than being a global problem affecting patients with this disorder.

Fourth, moral reasoning patterns seem more strongly associated with strong responsibility attitudes than to OCD per se.

Acknowledgements

The first author conducted this research under the supervision of the second author in fulfillment of degree requirements for the Bachelor of Arts with Honors in the Department of Psychology, Harvard University. We thank Diego A. Pizzagalli for his comments on this research, and we thank the patients and staff of the Obsessive-Compulsive Disorder Center at Rogers Memorial Hospital for their invaluable assistance.

References

- Foa, E. B., Mathews, A., Abramowitz, J. S., Amir, N., Przeworski, A., Riggs, D. S., et al. (2003). Do patients with obsessive-compulsive disorder have deficits in decision-making? *Cognitive Therapy and Research*, 27, 431–445.
- Goodman, W. K., Price, L. H., Rasmussen, S. A., Mazure, C., Fleischmann, R. L., Hill, C. L., et al. (1989). The Yale-Brown obsessive compulsive scale. I. Development, use, and reliability. *Archives of General Psychiatry*, 46, 1006–1011.
- Greene, J., & Haidt, J. (2002). How (and where) does moral judgment work? *Trends in Cognitive Sciences*, 6, 517–523.
- Greene, J. D., Nystrom, L. E., Engell, A. D., Darley, J. M., & Cohen, J. D. (2004). The neural bases of cognitive conflict and control in moral judgment. *Neuron*, 44, 389–400.
- McNally, R. J. (2000). Information-processing abnormalities in obsessive-compulsive disorder. In: W. K. Goodman, M. V. Rudorfer, & J. D. Maser (Eds.), *Obsessive-compulsive disorder: contemporary issues in treatment* (pp. 105–116).
- Muller, J., & Roberts, J. E. (2005). Memory and attention in obsessive-compulsive disorder: a review. *Journal of Anxiety Disorders*, 19, 1–28.
- Rachman, S. (1993). Obsessions, responsibility and guilt. *Behaviour Research and Therapy*, 31, 149–154.
- Salkovskis, P. M. (1985). Obsessional-compulsive problems: a cognitive-behavioural analysis. *Behaviour Research and Therapy*, 23, 571–583.
- Salkovskis, P. M., Wroe, A. L., Gledhill, A., Morrison, N., Forrester, E., Richards, C., et al. (2000). Responsibility attitudes and interpretations are characteristic of obsessive compulsive disorder. *Behaviour Research and Therapy*, 38, 347–372.
- Shafran, R., Thordarson, D. S., & Rachman, S. (1996). Thought-action fusion in obsessive compulsive disorder. *Journal of Anxiety Disorders*, 10, 379–391.
- Spitzer, R. L., Williams, J. B. W., Gibbon, M., & First, M. B. (1996). Structured clinical interview for DSM-IV (SCID-IV). New York: Biometrics Research Department, New York State Psychiatric Institute. Washington, DC: American Psychiatric Press.
- Thomson, J. J. (1985). The trolley problem. *Yale Law Journal*, 94, 1395–1415.
- Wroe, A. L., & Salkovskis, P. M. (2000). Causing harm and allowing harm: a study of beliefs in obsessional problems. *Behaviour Research and Therapy*, 38, 1141–1162.