

The Effects of a Mindfulness Intervention on Obsessive-Compulsive Symptoms in a Non-Clinical Student Population

Marijke Hanstede, MA,* Yori Gidron, PhD,† and Ivan Nyklíček, PhD*

Abstract: This controlled pilot study tested the effects of a mindfulness intervention on obsessive compulsive disorder (OCD) symptoms and tested the psychological processes possibly mediating such effects. Participants with OCD symptoms (12 women, 5 men) received either mindfulness training ($N = 8$) or formed a waiting-list control group ($N = 9$). Meditation included 8 group meetings teaching meditative breathing, body-scan, and mindful daily living, applied to OCD. The intervention had a significant and large effect on mindfulness, OCD symptoms, letting go, and thought-action fusion. Controlling for changes in “letting go,” group effects on change in OCD symptoms disappeared, pointing at a mediating role for letting go. This may be the first controlled study demonstrating that a mindfulness intervention reduces OCD symptoms, possibly explained by increasing letting go capacity. If replicated in larger and clinical samples, mindfulness training may be an alternative therapy for OCD.

Key Words: Obsessive-compulsive symptoms, mindfulness, meditation, letting-go, thought-action fusion.

(*J Nerv Ment Dis* 2008;196: 776–779)

One of the most personally disabling anxiety disorders is obsessive-compulsive disorder (OCD). Studies show an average lifetime prevalence of 2% to 2.5% for OCD in different countries (Torres and Lima, 2005). There is an average time period of 17 years between onset of symptoms and appropriate treatment (Jenike, 2004; Singh et al., 2004). Given that about 37% to 50% of OCD patients do not benefit from exposure and response prevention, a main OCD treatment (Stanley & Turner, 1995), alternative interventions may be needed. One such intervention is a mindfulness-based intervention.

*Centre of Research on Psychology in Somatic Disease (CoRPS), Department of Medical Psychology, Tilburg University, Tilburg, The Netherlands; and †School of Health Sciences and Social Care, Brunel University, Uxbridge, UK.

Send reprint requests to Yori Gidron, PhD, School of Health Sciences and Social Care, Brunel University, Uxbridge, UB8 3PH, UK. E-mail Yori.Gidron@brunel.ac.uk.

Copyright © 2008 by Lippincott Williams & Wilkins

ISSN: 0022-3018/08/19610-0776

DOI: 10.1097/NMD.0b013e31818786b8

Mindfulness-based interventions seem suitable for treating OCD for several reasons. The meaning and significance people give to symptomatic intrusions in OCD are an important factor in causing and maintaining OCD (Rachman, 1997). Because mindfulness meditation advocates nonjudgmental awareness and acceptance of every thought, feeling, or sensation (Bishop et al., 2004), the attached significance to intrusions can be reduced by mindfulness (Baer, 2003). Of relevance, mindfulness also teaches “letting go” of bothering thoughts and feelings. Letting go may reduce the need to perform a “compensatory” compulsion related to obsessive thoughts (APA, 1994) and may decrease the risk of attaching significance, both of which could decrease OCD symptoms (Rachman, 1997).

A central aspect of OCD is thought-action fusion (TAF), when thoughts are given the same value as, or are believed to be absolute determinants of real actions (Rachman, 1997). By practicing mindfulness, one learns to perceive thoughts just as mental events, and observe the difference and lack of absolute association between thoughts and real actions.

In OCD, patients try to suppress thoughts, which could paradoxically lead to more intrusions (Wegner and Schneider, 1987) especially in OCD (Tolin et al., 2002). Mindfulness can teach to stop thought suppression by practicing acceptance (Miller et al., 1995), noticing that one’s associated anxiety decreases without compensatory compulsions (Rachman, 1997).

Previous studies found mindfulness interventions to be helpful for social anxiety and panic disorder (Dalrymple, 2005; Kabat-Zinn et al., 1992) and for an OCD case (Singh et al., 2004). Mindfulness also modulated the orbital-frontal cortex-anterior cingulate gyrus-nucleus caudate circuitry (Schwartz, 1999), which is overactive in people with OCD. Finally, long-term meditation affected the basal ganglia, which plays a role in rumination (Graybiel, 1998) and is thus of relevance to OCD (National Collaborating Centre for Mental Health, 2006).

This study preliminarily examined the effects of a mindfulness intervention on OCD symptoms, and tested the possible mediating role of changes in letting go and TAF in these effects. We hypothesized that mindfulness training would reduce OCD symptoms, and that these effects would be mediated by increases in letting go and decreases in TAF.

TABLE 1. Scores on Outcome Measures of Experimental and Control Groups: Means and Standard Deviations at Pre- and Post-Test and F-Scores of the Time \times Group Interactions

	Experimental		Control		F
	Pre	Post	Pre	Post	
OCD-complaints	31.13 (7.70)	17.13 (7.47)	22.67 (11.02)	21.67 (8.56)	12.48*
Mindfulness	35.75 (9.56)	56.00 (15.16)	36.75 (7.34)	34.78 (10.92)	29.26*
Thought-action fusion	28.88 (17.46)	18.25 (10.54)	21.75 (7.98)	24.44 (9.95)	7.13*

*Significant at $p < .05$ level.

METHODS

Participants and Design

We recruited students from Tilburg University, The Netherlands, with a score of “much” or “very much” on 1 or more of the items of an OCD symptoms scale (see below). Students scoring >32 on the OCD scale, with previous OCD therapy or severe psychiatric/somatic conditions, not mastering Dutch, were excluded.

Initially, 67 students responded to advertisements, 30 filled the OCD scale, of whom 17 (12 women, 5 men) fully participated. Nine served as controls and 8 formed the experimental group. Age ranged between 19 and 41 (mean = 25.7 years). Duration of symptoms ranged from 2 to 20 (mean = 9.77 years). The study was approved by the ethics committee of the Department of Medical Psychology, Tilburg University.

The present study employed a quasi-experimental controlled design. Participants were allocated to the intervention or wait-list control group, using quasi random assignment; the first participant was assigned to the experimental group, the second to the control group, and so on. Controls received the intervention at the end of the study.

Materials, Measures and Intervention

Gender, age, comorbid psychological, and physical conditions, receiving treatment for OCD symptoms and duration of OCD symptoms were assessed at baseline.

To evaluate the intervention, we used the obsessive-compulsive inventory-revised (OCI-R; Foa et al., 2002), the mindfulness questionnaire (MQ; Chadwick et al., 2005), and the TAF scale (Shafran et al., 1996).

The mindfulness intervention included eight 1-hour meetings, teaching meditative breathing, and a 4-step sequence for handling psychological experiences (noticing, putting no energy, observing flow, returning to one’s breathing), “body scan” (Miller et al., 1995), how to be mindful, and adopting the 4-step sequence to obsessions and compulsions. “homework” encouraged practicing meditation gradually up to 30 min/d. Analogies (e.g., observing wagons of a passing train) were used to facilitate comprehension of tasks (e.g., letting go).

Procedure

Participants provided informed consent, completed all background and baseline scales, received an article about

mindfulness (Gieles, 2006), and were allocated to groups. Two months later, participants received the second set of questionnaires for reassessment.

Statistical Analyses

Equality of groups was first tested. A 2-way mixed-design ANOVA, with time and group, was used to test the main research questions. The role of mediators (letting go and TAF) was accepted if a significant time \times group interaction was found for OCI-R and both mediators, if letting go or TAF correlated with OCI-R scores, and if the time \times group interaction no longer affected OCI-R scores after controlling for either mediator.

RESULTS

The means and standard deviations of the outcome variables for both groups are displayed in Table 1. Of all background and baseline variables tested, groups differed only on “duration of complaints” [$F(1, 15) = 5.05, p = 0.04$]; the experimental group reported a longer history of OCD complaints than controls (12 years vs. 7.11 years). Hence, analyses concerning OCI-R scores were also conducted controlling for duration of complaints.

Concerning mindfulness, a time \times group interaction effect was found [$F(1, 14) = 29.26, p < 0.001, \eta^2_p = 0.68$]. Mindfulness increased in the experimental group [$F(1, 7) = 31.83, p = 0.001$], but not in controls [$F(1, 7) = 0.991, p = 0.353$]. Concerning OCI-R, a significant time \times group interaction was found [$F(1, 15) = 12.48, p = 0.003, \eta^2_p = 0.454$; Fig. 1]. There was a decrease in OCD symptoms in the experimental group [$F(1, 7) = 31.36, p = 0.001$] but not in controls [$F(1, 8) = 0.141, p = 0.717$]. This interaction remained significant when controlling for duration of complaints [$F(1, 14) = 6.84, p = 0.02$].

There was a time \times group interaction concerning letting go [$F(1, 14) = 12.42, p = 0.003, \eta^2_p = 0.470$]. Letting Go increased in the experimental group [$F(1, 7) = 13.38, p = 0.008$] but not in controls [$F(1, 7) = 0.548, p = 0.483$]. Controlling for letting go, the time \times group interaction in relation to OCI-R was no longer significant [$F(1, 13) = 4.83, p = 0.059$]. A significant time \times group interaction was found for TAF [$F(1, 14) = 7.13, p = 0.018, \eta^2_p = 0.337$], with a reduction in TAF in the experimental group [$F(1, 7) = 9.47, p = 0.018$] but not among controls [$F(1, 7) = 0.228, p = 0.647$]. However, controlling for TAF,

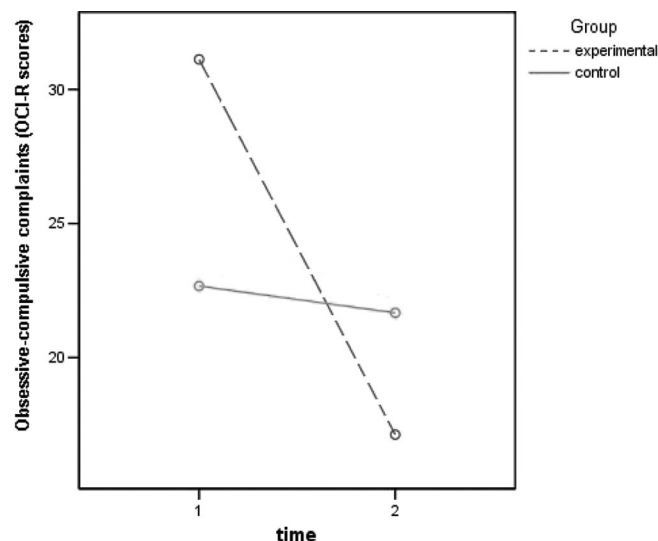


FIGURE 1. Change over time in obsessive-compulsive symptoms in the experimental group and the control group.

the time \times group interaction for OCI-R scores was still significant [$F(1, 13) = 5.25, p = 0.039$].

DISCUSSION

In this preliminary trial, we found a strong decrease of OCD symptoms as a result of our mindfulness-based intervention. This is perhaps the first study to show such an effect in a quasi-randomized controlled trial. In addition, the intervention increased levels of mindfulness and specifically letting go, and decreased TAF. Finally, our results revealed that letting go (and not TAF) may have operated as a mediator in the effects of group on OCD symptoms.

Letting go of thoughts putatively stops the process of rumination, which is prevalent in OCD (National Collaborating Centre for Mental Health, 2006). Others have found that meditation reduces rumination (Jain et al., 2007). It is also possible that when obsessive intrusions are more easily “let go,” there is less risk of interpreting them as significant, which in turn decreases OCD symptoms onset and their maintenance (Rachman, 1997).

Although meditation decreased TAF, these changes did not mediate the relationship between group and OCD symptoms at follow-up. TAF may alter OCD symptoms at a later stage, perhaps detected at a later follow-up than tested here. In addition, both groups received an article about mindfulness before the intervention. As therapeutic changes were only seen in the mindfulness group, this indicates that these effects were not because of increased knowledge or awareness about mindfulness, rather because of increased ability to let go.

Limitations for generalization of the results of this study were the small sample size, improper randomization and the fact that participants did not receive a clinical OCD diagnosis. Future studies should replicate these results with larger samples of people, with a clinical OCD diagnosis and

a long-term follow-up to test the maintenance of our observed preliminary effects.

Nevertheless, the results of this study may have important implications for clinical treatment of OCD. Stanley and Turner (1995) found 63% of patients responding favorably to exposure and response prevention (a symptom reduction of $>30\%$). Sixty percent of participants in our study responded favorably to the intervention, using a similar criterion. Thus, meditation and mindfulness may be a possible alternative therapeutic option for treating OCD symptoms, pending replication of our results in OCD patients. A mindfulness approach may provoke less distress in OCD patients than an exposure and response prevention treatment. Finally, it may be important to test for which OCD patients, mindfulness versus exposure and response prevention treatment would be beneficial.

REFERENCES

- APA (American Psychiatric Association) (1994) *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.). Washington (DC): Author.
- Baer RA (2003) Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clin Psychol: Sci Pract.* 10:125–143.
- Bishop SR, Lau M, Shapiro S, Carlson L, Anderson ND, Carmody J, Segal ZV, Abbey S, Speca M, Velting D, Devins G (2004) Mindfulness: A proposed operational definition. *Clin Psychol: Sci Pract.* 11:230–241.
- Chadwick P, Hember M, Mead S, Lilley B, Dagnan D (2005). Responding mindfully to unpleasant thoughts and images: Reliability and validity of the mindfulness questionnaire. [in press].
- Dalrymple KL (2005) Acceptance and commitment therapy for generalizes social anxiety disorder: a pilot study. [doctoral dissertation]. Drexel University, Philadelphia.
- Doug O, Hedberg J, Thoreson CE (2006) Passage meditation reduces perceived stress in health professionals: a randomized, controlled trial. *J Consult Clin Psychol.* 74:714–719.
- Foa EB, Huppert JD, Leiberg S, Langner R, Kichic R (2002) The obsessive-compulsive inventory: development and validation of a short version. *Psychol Assess.* 14:485–496.
- Gieles J (2006) Mindfulness, leven met aandacht [Mindfulness, living mindfully]. *Psychologie Magazine.* 25:63–66.
- Graybiel AM (1998) The basal ganglia and chunking of action repertoires. *Neurobiol Learn Mem.* 70:119–136.
- Jain S, Shapiro SL, Swanick S, Roesch SC, Mills PJ, Bell I, Schwartz GE (2007) A randomized controlled trial of mindfulness meditation versus relaxation training: effects on distress, positive states of mind, rumination and distraction. *Ann Behav Med.* 33:11–21.
- Jenike MA (2004) Obsessive-compulsive disorder. *N Engl J Med.* 350: 259–265.
- Kabat-Zinn J, Massion MD, Kristeller J, Peterson LG, Fletcher KE, Pbert L, Lenderking WR, Santorelli SF (1992) Effectiveness of a meditation-based stress reduction program in the treatment of anxiety disorders. *Am J Psychiatry.* 149:936–943.
- Miller JJ, Fletcher K, Kabat-Zinn J (1995) Three-year follow-up and clinical implications of a mindfulness meditation-based stress reduction intervention in the treatment of anxiety disorders. *Gen Hosp Psychiatry.* 17:192–200.
- National Collaborating Centre for Mental Health. (2006). *Obsessive Compulsive Disorder: Core Interventions in the Treatment of Obsessive Compulsive Disorder and Body Dysmorphic Disorder*. London & Leicester: The Royal College of Psychiatrists and The British Psychological Society.
- Rachman S (1997) A cognitive theory of obsessions. *Behav Res Ther.* 35:793–802.
- Schwartz JM (1999) . A role for volition and attention in the generation of a new brain circuitry: Toward a neurobiology of mental force. In Libet B, Freeman A, Sutherland K (Eds). *The Volitional Brain: Towards a Neuroscience of Free Will.* 6:115–142.
- Safran R, Thordarson MA, Rachman S (1996) Thought-action fusion in obsessive compulsive disorder. *J Anxiety Disord.* 10:379–391.

- Singh NN, Wahler RG, Winton ASW, Adkins A (2004) A mindfulness-based treatment of obsessive-compulsive disorder. *Clin Case Stud.* 3:275–287.
- Stanley MA, Turner SM (1995) Current status of pharmacological and behavioral treatment of obsessive-compulsive disorder. *Behav Ther.* 26:163–186.
- Tolin DF, Abramowitz JS, Hamlin C, Foa EB, Synodi DS (2002) Attributions for thought suppression failure in obsessive-compulsive disorder. *Cognit Ther Res.* 26:505–517.
- Torres AR, Lima MCP (2005) Epidemiology of obsessive-compulsive disorder: a review. *Rev Bras Psiquiatr.* 27:237–242.
- Wegner DM, Schneider DJ (1987) Paradoxical effects of thought suppression. *J Pers Soc Psychol.* 53:5–13.