Internet administration of the Dimensional Obsessive-Compulsive Scale: a psychometric evaluation

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ABSTRACT

The Dimensional Obsessive-Compulsive Scale (DOCS) was designed to address the current limitations of existing obsessive-compulsive (OC) symptom measures and is a self-report questionnaire that assesses the severity of the four most empirically supported OC symptom dimensions. The aim of this study was to examine the psychometric properties of a Swedish version of the DOCS when administered via the Internet. Internal consistency, factor structure, and convergent and discriminant validity were examined in a sample consisting of 101 patients diagnosed with obsessive-compulsive disorder. The DOCS sensitivity to treatment effects were examined in a sample consisting of 48 patients treated with Internet-delivered cognitive behavioral therapy were the main intervention was exposure with response prevention. Results showed that the internal consistency was high. The DOCS also showed adequate convergent and discriminant validity, as well as fair sensitivity to treatment effects. The factor analysis supported the DOCS four-factor solution. In summary, the results from the present study give initial support that the DOCS can be administered via the Internet with adequate psychometric properties.

1. Introduction

Obsessive-compulsive disorder (OCD) is a debilitating psychiatric condition, affecting between 2–3% of the population worldwide (Weissman et al., 1994). Diagnostic criteria, according to the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM-IV-TR*; American Psychiatric Association, 2000), include the presence of obsessions and/or compulsions that are time consuming and cause distress and functional impairment. The obsessions and compulsions are characterised by a thematic diversity (Foa et al., 1995), and factor analytic studies have consistently shown that certain obsessions and compulsions tend to cluster together to form specific symptom dimensions (e.g., Mataix-Cols, Rosario-Campos, & Leckman, 2005; McKay et al., 2004). The most empirically supported symptom dimensions include: (a) contamination-related obsessions and cleaning compulsions; (b) obsessions about being responsible for harm or for causing mistakes and checking compulsions; (c) obsessions about order and symmetry and ordering/arranging compulsions; and (d) unacceptable obsessional thoughts concerning sex, violence

and religious themes and compulsions aimed to neutralize these obsessional thoughts (Abramowitz et al., 2010; Mataix-Cols et al., 2005; McKay et al., 2004). Increasing evidence suggests that a dimensional approach for categorizing symptoms may be of value in genetic, neurobiological, and studies of treatment response (Leckman et al., 2010; Mataix-Cols et al., 2005).

A wide range of instruments assessing obsessive-compulsive symptoms exists (for a review see Grabill et al., 2008). There are, however, a number of limitations with existing measures, including that they do not measure avoidance behavior and they often confound symptom severity with the range of symptoms present. Accordingly, Abramowitz et al. (2010) came to the conclusion that a measure for assessing obsessive-compulsive (OC) symptoms should: (a) assess the severity of empirically established OC symptom dimensions (excluding hoarding) in a conceptually consistent manner; (b) measure symptom severity as a function of multiple empirically supported parameters; (c) include an assessment of avoidance behavior; (d) assess symptom severity independent of the number, range, or types of different obsessions and compulsions; and (e) remain fairly brief and easy to administer in clinical and research settings with clinical and non clinical individuals. With this in mind the Dimensional Obsessive-Compulsive Scale (DOCS; Abramowitz et al., 2010) was developed. The DOCS is a self-rating questionnaire that assesses the

severity of the four most empirically supported symptom dimensions (contamination, responsibility for harm and mistakes, symmetry/ordering, and unacceptable thoughts; Mataix-Cols et al., 2005; McKay et al., 2004), as well as empirically supported parameters of severity (frequency, avoidance, distress, and functional interference; Deacon & Abramowitz, 2005). To date only one psychometric investigation of the DOCS has been published, reporting a stable factor structure, high internal consistency for the total score ($\alpha=.93$), and subscales ($\alpha=.83-.96$), adequate test-retest ($r=.55-.66$) over a 12-week interval, good discriminant and convergent validity, as well as sensitivity to treatment effects and diagnostic sensitivity (Abramowitz et al., 2010). Given this, the DOCS holds promise as an OC symptom measure, but further investigations of the psychometric properties are warranted. Moreover, recent research has found that Internet-delivered cognitive behavior therapy (ICBT; for a description of ICBT see G. Andersson, 2009) can be effective in the treatment of OCD. To date, one randomized controlled trial (RCT) were ICBT was significantly better than online supportive therapy, and two pilot studies have been published with reported effect sizes pre treatment to post treatment on the Yale-Brown Obsessive Compulsive Scale (Y-BOCS) of $d=1.55$, 1.56, and 1.53 (E. Andersson et al., 2011, 2012; Wootton et al. 2011). In ICBT research, questionnaires are administered over the Internet. This administration format has been found to yield adequate psychometric properties in studies on panic disorder, social anxiety disorder, depression, and OCD (e.g., Carlbring et al., 2007; Coles, Cook, & Blake, 2007; Hedman et al. 2010; Holländare, Andersson, & Engström, 2010). However, it cannot be taken for granted that self-report measures have equivalent properties when administered online as in their paper-and-pencil formats, and separate psychometric evaluations of the administration formats have been recommended (Buchanan, 2003).

The aim of this study was to examine the psychometric properties of a Swedish version of the DOCS when administered via the Internet in a clinical sample. We hypothesized that the DOCS would show good internal consistency and that it would show good convergent validity with the Y-BOCS (Goodman et al. 1989) and the Obsessive-Compulsive Inventory-Revised (OCI-R; Foa et al. 2002), and weaker correlations with the Montgomery-Åsberg Depression Rating Scale Self-assessment (MADRS-S; Svanborg & Åsberg, 1994), a measure of depression. We also examined the DOCS sensitivity to treatment effects in a sample treated with ICBT. Based on previous trials of ICBT for OCD (E. Andersson et al., 2011, 2012; Wootton et al., 2011), and the effect sizes gained on similar measures, we hypothesized that the DOCS would show large effect sizes pre to post treatment.

2. Method

2.1. Translation

The DOCS questionnaire was translated to Swedish by a psychologist with extensive experience in OCD and then back-translated to English by a native English speaker with a PhD in psychology. Finally, it was crossed-checked and approved by the original authors of the DOCS (Abramowitz et al., 2010).

2.2. Participants

The sample consisted of 101 adult patients with a diagnosis of OCD who were taking part in a RCT evaluating the efficacy of ICBT for OCD administered over a 10-week period, for more details see E. Andersson et al. (2012). Patient characteristics are presented in Table 1.

Table 1
Patient characteristics ($N=101$).

Variable	
Gender (n)	
Women	67
Men	34
Age (yr)	
Mean age (S.D.)	34 (13)
Min-max	18–67
Occupational status (n)	
Working full-time	55
Student	14
Part-time work	25
Full-time sick leave	1
Unemployed	5
Retired	1
Eduaction (n)	
Primary school	2
High school	27
University < 3	21
University ≥ 3	51
Psychotropic medication (n)	
SSRI	18
SNRI	2
Benzodiazepines	2
Antihistamines	1
OCD duration (yr)	
Mean length (S.D.)	18 (13)
Min-max	1–55

Note. SSRI=Selective serotonin reuptake inhibitors; SNRI= serotonin-norepinephrine

2.3. Measures

2.3.1. Dimensional Obsessive-Compulsive Scale (DOCS; Abramowitz et al., 2010)

The DOCS is a self-report questionnaire consisting of 20 items assessing four OC symptom domains (a) contamination, (b) responsibility for harm, injury or bad luck, (c) unacceptable obsessional thoughts and, (d) symmetry, completeness, and exactness. The responder first reads a description of the symptom dimension, with examples of common obsession and compulsions that occur within that specific dimension. Following each description are five items (rated 0 to 4) that measures (a) time occupied by obsessions and rituals, (b) avoidance behavior, (c) distress, (d) functional interference, and (e) difficulty disregarding the obsessions and refraining from doing compulsions. The DOCS have a total score, as well as a score for each of the subscales (i.e., each of the four symptom dimensions). Scores range between 0 to 20 for the subscale(s), and from 0 to 80 for the total scale. Good to excellent internal consistency have been reported for the total scale ($\alpha=.93$) and subscales ($\alpha=.83-.96$), and adequate test-retest ($r=.55-.66$ over a 12-week interval; Abramowitz et al., 2010).

2.3.2. Yale-Brown Obsessive Compulsive Scale (Y-BOCS; goodman et al., 1989)

The Y-BOCS, clinician-rated version, consists of 10 items with a total score ranging from 0 (no symptoms) to 40 (extreme symptoms). Good inter-rater reliability ($r=.80-.99$), test-retest reliability ($r=.81-.97$ over a 2 week interval), and moderate to good internal consistency ($\alpha=.69-.91$) has been reported (Goodman et al., 1989; Kim, Dysken, & Kuskowski, 1990).

2.3.3. Obsessive Compulsive Inventory – Revised (OCI-R; Foa et al., 2002)

The OCI-R is a self-report questionnaire consisting of 18 items assessing six symptom domains (washing, checking, obsessing,

neutralizing, ordering and hoarding) on a five-point Likert scale ranging from 0 (not at all) to 4 (very much). Scores range between 0 to 12 for the subscales, and 0 to 64 for the total scale. In a sample consisting of OCD patients good to excellent internal consistency have been reported for the total scale ($\alpha=.81$) and subscales ($\alpha=.82–.90$), as well as good to excellent test-retest reliability for the subscales ($r=.74–.91$ over a 2 week interval; Foa et al., 2002).

2.3.4. Montgomery-Åsberg Depression Rating Scale Self-assessment (MADRS-S; Svanborg & Åsberg, 1994)

The MADRS-S is the self-report version of the Montgomery-Åsberg Depression Rating Scale (MADRS; Montgomery & Åsber, 1979), and measures severity of depression. The scale consists of nine items, each measuring a different symptom (mood, feelings of unease, sleep, appetite, ability to concentrate, initiative, emotional involvement, pessimism, and zest for life) on a seven-point scale with a total score ranging from 0 to 54. Good to excellent test-retest reliability have been reported ($r=.80–.94$; Svanborg & Åsberg, 1994), as well as a high correlation ($r=.87$) between the MADRS-S and the Beck Depression Inventory (BDI) in a comparative study (Svanborg & Åsberg, 2001). Carlbring et al. (2007) reported a high internal consistency for online administration of the MADRS-S ($\alpha=.82$).

2.4. Procedure

The treatment trial was advertised in national newspapers and participants were recruited by referral from primary care physicians, mental health professionals and through self-referral. Participants in the study first completed an online screening. Following the screening the participants were interviewed via telephone. All included participants fulfilled the DSM-IV-TR (2000) criteria for OCD according to the structured clinical interview for mental disorders (First, Gibbon, Spitzer, Williams, & Benjamin, 1999). Assessors were either licensed psychologists or clinical psychology M.Sc. students in their final year of training. All assessors had received extensive training in psychiatric diagnostics by a senior psychiatrist who also reviewed each case. The exclusion criteria were (a) having undergone CBT for OCD during the last two years, (b) current psychological treatment, (c) current alcohol or drug abuse, (d) extreme OCD (Y-BOCS > 31; Goodman et al., 1989), (e) minimal OCD symptoms (Y-BOCS < 12; Simpson, Huppert, Petkova, Foa, & Liebowitz, 2006), (f) OCD symptoms primarily associated with hoarding, (g) history of psychosis or bipolar disorder, (h) suicidal ideation, (i) Axis II diagnosis that could jeopardise treatment participation, and (j) physical illness that could interfere with ICBT.

Data were collected at the pre and post treatment phase of the previously mentioned clinical trial. The Y-BOCS, clinician-rated version, was administered via telephone interview. The DOCS, OCI-R and MADRS-S were administered via the Internet. Participants were instructed to log on to a secure webpage and fill out the questionnaires. Unique codes were used to identify each responder. The questionnaires, administered via the Internet, had the same wording as the paper-and-pencil versions, and the participants could go back and review their answers before submitting them. Internet administered self-report questionnaires measuring symptom severity in affective and anxiety disorders, including the original version of the OCI-R and MADRS-S, have previously been reported to maintain their psychometric properties when compared to the paper-and-pencil versions (Carlbring et al., 2007; Coles et al., 2007).

To examine the construct validity of the DOCS we used the following criteria derived from Campbell and Fiske (1959): (a) the intercorrelations among the DOCS, Y-BOCS, and OCI-R should be large and significant (convergent validity), (b) the correlation between the DOCS and MADRS-S should be weaker than the correlations between the DOCS, Y-BOCS, and OCI-R because the MADRS-S measures a different construct (discriminant validity), and (c) the reliability measure, in this case Cronbach's alpha, should be larger than all other correlations.

We also examined correlations between the DOCS subscales and the convergent subscales of the OCI-R, predicting strong correlations between (a) DOCS contamination and OCI-R washing, (b) DOCS responsibility and OCI-R checking, (c) DOCS unacceptable thoughts and OCI-R obsessing, and (d) DOCS symmetry and OCI-R ordering. We excluded two subscales from the OCI-R from our predictions. The OCI-R subscale *neutralizing* due to limitations reported by Abramowitz and Deacon (2006), and the OCI-R *hoarding* subscale due to absence of a corresponding subscale in the DOCS.

To evaluate the DOCS sensitivity to treatment effects we compared pre and post treatment data of 48 patients who were randomized to the treatment condition in the RCT and had no missing data post treatment. The main intervention for the 48 patients receiving ICBT was exposure with response prevention (E. Andersson et al., 2012).

2.5. Statistical analyses

Statistical analyses were conducted using IBM SPSS version 19.0, Chicago: SPSS, Inc. Cronbach's alpha and correlation coefficients were computed to determine the reliability of the DOCS. Pearson's product-moment correlation was used to investigate intercorrelations with other questionnaires. Comparisons between correlation coefficients were analyzed by using Steiger's Z test (Steiger, 1980). An exploratory factor analysis was performed to investigate the DOCS factor structure. Based on Cohen's classification (1977) large correlations were defined as $\leq .50$, medium correlations between .30 and .49, and small correlations from .10 to .29. To assess sensitivity to treatment effects a t-test was used comparing pre and post treatment data. To calculate effect sizes, we used Cohen's d (1977) formula based on mean differences and pooled standard deviations.

3. Results

3.1. Internal consistency

The Cronbach's alphas for the DOCS total score and the subscales were overall high. The correlations between the DOCS total score and subscales showed strong associations as seen in Table 2.

Table 2
Cronbach's alpha and correlations for the DOCS total score and subscales ($N=101$).

Cronbach's alpha	
Total score	.87
Contamination	.96
Responsibility for harm	.93
Unacceptable thoughts	.96
Symmetry	.94
Correlation with DOCS total score	
Contamination	.55*
Responsibility	.59*
Unacceptable thoughts	.60*
Symmetry	.66*

Note. DOCS=Dimensional Obsessive-Compulsive Scale.

* $p < .01$.

Table 3
Correlations between the DOCS subscales, OCI-R subscales, Y-BOCS, and MADRS-S ($N=101$).

Measure	DOCS subscale			
	Contamination	Responsibility	Unacceptable thoughts	Symmetry
OCI-R washing	**.85****	.04	.06	.16
OCI-R checking	.08	**.54****	.03	.20*
OCI-R obsessing	.24*	.14	**.71****	.03
OCI-R ordering	.19	.19	.04	**.61****
OCI-R neutralizing	.08	.29**	.32**	.63**
OCI-R hoarding	.12	.30**	.19	.37**
Y-BOCS	.32**	.30**	.13	.38**
MADRS-S	.11	.18	.32**	.27**

Note. DOCS=Dimensional Obsessive-Compulsive Scale; OCI-R=Obsessive-Compulsive Inventory-Revised; Y-BOCS=Yale-Brown Obsessive Compulsive Scale; MADRS-S=Montgomery Åsberg Depression Rating Scale Self-assessment. Boldface type reflects hypothesized correlations between corresponding subscales.

* $p < .05$.
** $p < .01$.

3.2. Convergent and discriminant correlations

The convergent measures OCI-R and the clinician administered Y-BOCS showed a strong, $r(99)=.76$, $p < .01$, respectively a medium correlation, $r(99)=.47$, $p < .01$, with the DOCS. The discriminant measure, MADRS-S, showed the weakest association, $r(99)=.36$, $p < .01$. The correlation between DOCS and OCI-R were significantly higher than the correlation between DOCS and Y-BOCS (Steiger's Z=3.40, $p < .001$), and the correlation between DOCS and MADRS-S (Steiger's Z=4.34, $p < .001$). The correlation between DOCS and Y-BOCS was higher, but not significantly so, than the correlation between DOCS and MADRS-S (Steiger's Z=.93, $p=.18$).

Correlations between the DOCS subscales and the supposedly convergent subscales of the OCI-R are shown in Table 3. As predicted, each of the DOCS subscales were strongly correlated with the corresponding OCI-R subscale. Correlations with non-corresponding OCI-R subscales and with the Y-BOCS, and MADRS-S only showed weak to moderate correlations, with the exception of the OCI-R neutralizing subscale that showed a strong correlation with the DOCS symmetry subscale.

3.3. Factor structure

A Principal Component Analysis with a Varimax rotation was performed on the 20 items from the DOCS questionnaire on data gathered from 101 participants. The Kaiser-Meyer Olkin measure of sampling adequacy indicated that the sample was factorable (KMO=.839), and Bartlett's test of sphericity was significant (χ^2 (190)=2186.50, $p < .001$).

The first five eigenvalues were 6.16, 4.55, 3.01, 2.98, and .60. The eigenvalues dropped markedly, and below 1, after the fourth factor, supporting a four-factor solution. Together the four factors explained 83.8% of the item variance. The factor loadings ranged between .76–.95, with high communalities in the range of .74–.91. None of the items had cross-loadings that were salient (i.e. $> .30$). The factor labels proposed by Abramowitz et al. (2010) suited the extracted factors, and our analysis in this clinical sample showed even higher factor loadings and communalities than the ones reported by Abramowitz et al. (2010) using a student sample.

3.4. Sensitivity to treatment effects

Both the DOCS and the OCI-R have a total score, as well as subscale scores. In previous research (e.g., Simpson et al., 2008)

Table 4
Pre and post treatment mean scores and effect sizes for patients with obsessive-compulsive disorder treated with Internet-based cognitive behavioral therapy ($N=48$).

Measure	Pre treatment M (SD)	Post treatment M (SD)	t^a	d
Y-BOCS total	21.27 (4.61)	12.77 (6.21)	12.45*	1.55
DOCS total	25.27 (13.98)	15.17 (11.18)	5.80*	0.80
DOCS main	10.96 (4.16)	6.59 (4.25)	7.03*	1.04
OCI-R total	23.96 (13.14)	12.50 (10.15)	7.78*	0.98
OCI-R main	8.98 (3.15)	5.23 (3.18)	7.86*	1.18

Note. Y-BOCS=Yale-Brown Obsessive Compulsive Scale; DOCS=Dimensional Obsessive-Compulsive Scale; OCI-R=Obsessive Compulsive Inventory-Revised.
[a] $df=47$.
* $p < .001$.

both the OCI-R total score and subscale scores have been used as outcome measures. Taking this into consideration we calculated the total score as well as picking the subscale with the highest score (i.e., indicating "main" symptom dimension) when computing pre- and post-treatment scores (referred to as DOCS or OCI-R main). In the case of two or more subscales being equal at pre treatment (i.e., multiple "main" symptom dimensions), the mean of the subscales was used as "main" score at post treatment. All the instruments showed large effect sizes pre treatment to post treatment. The Y-BOCS yielded the largest effect size, followed by the OCI-R and the DOCS "main" subscales. The total scale of the OCI-R and DOCS showed smaller effect sizes when compared to their respectively "main" scale. Results are shown in Table 4.

4. Discussion

The aim of this study was to assess the psychometric properties of the DOCS when administered via the Internet in a clinical sample. To the author's knowledge, this is the first study to report on the psychometric properties of a Swedish version of the DOCS, and also the first to report on the psychometric properties of the DOCS when administered via the Internet. Internet administration of the DOCS demonstrated high internal consistency for the total score and subscales with Cronbach's alpha ranging from .87–.96. Strong correlations between the DOCS total score and subscales were also found, with rs ranging from .55 to .66. Furthermore DOCS showed strong to moderate correlations with OCI-R and Y-BOCS, and the weakest association with MADRS-S, indicating adequate convergent and discriminant validity. The validity of the DOCS as a dimensional measure is indicated by the strong correlation between the DOCS subscale scores and the corresponding OCI-R subscales. Even though we did not have the statistical power to do a confirmatory factor analysis, the preliminary exploratory factor analysis gives further support for the DOCS four-factor solution, where our clinical sample indicates an even clearer factor structure than in the previously studied student sample. The DOCS also exhibited sensitivity to treatment effects, with the "main" and the total scale yielding large effect sizes in a sample of 48 patients treated with ICBT. The psychometric properties of the DOCS reported in this study are in line with those previously reported by Abramowitz et al. (2010) and indicate that the DOCS is a reliable and valid instrument for assessing multidimensional OC symptom severity when administered via the Internet. Using the Internet to administer the DOCS could make it easier for the researcher to collect data, for example in studies examining the prevalence of OC symptoms in the general population. Online administration also has the potential to save money (e.g., data collection online eliminates the costs

associated with mailing out questionnaires to participants taking part in surveys; Buchanan & Smith, 1999), and participants can complete the questionnaires in their homes, at their convenience. Furthermore, data collected via the Internet are immediately stored online, and scripts can be used to calculate scores that can easily be imported into statistics software, thus eliminating the risk of data loss and errors that can occur when the data is being transferred from paper to a computer program by a third party (i.e., research assistant). Internet administrations of self-report questionnaires also have potential drawbacks, such as requiring the patient to have access to the Internet and fundamental knowledge on how to use a computer. Furthermore, the visual presentation of Internet-administered questionnaires can be different (e.g., layout, font size, screen resolution) from their paper-and-pencil counterparts. If the items are visually presented in different ways it can have an impact on how the responder interprets the items (e.g., Tourangeau, Couper, & Conrad, 2004). Therefore the Internet-administered version should try and mimic the paper-and-pencil version as close as possible. Environmental factors might also differ between the two administration formats (e.g., distractions when filling out the questionnaire at home, and the difference in setting if the questionnaire is filled out at a clinic or at home) that could have some impact on how the participants respond to the items.

The DOCS demonstrated a moderate ($r=.47$) correlation with the clinician administered Y-BOCS, compared to a strong ($r=.76$) correlation with the OCI-R. Also, the correlation between the DOCS and Y-BOCS was higher, but not significantly so, than the correlation between the DOCS and MADRS-S. This could be explained by the fact that while the Y-BOCS is a global measure of symptom severity, both the DOCS and OCI-R measure distress associated with specific OCD dimensions. The Y-BOCS as a measure of global symptom severity is further shown by the lower correlations with the DOCS subscales, as compared to the total scale. Both the DOCS and OCI-R are also self-assessed while the Y-BOCS was clinician administered. Federici et al. (2010) have reported that the convergence of the self-report and clinician administered version of the Y-BOCS was moderate, and one could hypothesise that this could have some impact on the correlations and effect sizes reported in the present study.

Abramowitz et al. (2010) have reported that measuring the patient's main type of obsessions and compulsions using the DOCS subscale score(s) were more sensitive in detecting treatment effects. This is also the case in the present study, and the "main" scale(s) of the DOCS were more sensitive in detecting treatment effects ($d=1.04$) compared to the total scale ($d=.80$). This can be explained by the fact that OCD patients sometimes have obsessions and compulsions that fall within several of the symptom dimensions, but that one dimension is often more severe than the other (e.g., patients main problems are associated with the contamination dimension and to a lesser extent to the symmetry dimension). The most severe symptom dimension are usually the first one being targeted in treatment, and one could expect that the largest change after treatment would occur in that dimension – as reflected by the DOCS "main" scale.

There are limitations of this study that need to be taken into account. First, we did not do a direct comparison between the paper-and-pencil version and the Internet-administered version of the DOCS, and therefore no conclusion can be drawn whether the two administration formats have equivalent psychometric properties. This is an important question that should be addressed in future studies. Furthermore none of the instruments, except MADRS-S, used in the present study have previously been validated in a Swedish population. Also, the evaluation of the treatment was carried out by telephone interview and Internet-administered questionnaires. In a previous study of this

ICBT-program for OCD the Y-BOCS yielded an effect size of 1.56 when administered face-to-face by psychiatrists, which is very similar to the effect size we received here. The DOCS is self-assessed, and the administration format was the same at both measurement points (as generally recommended by Carlbring et al., 2007). In general, previous research has found negligible differences when comparing effect sizes between paper-and-pencil administration and Internet-administration (e.g., Carlbring et al., 2007; Coles et al., 2007). However, future studies might find that the DOCS sensitivity in detecting treatment effects are different when administered via the Internet or by paper-and-pencil, as this is an empirical question yet unanswered.

Second, due to our sample size we were not able to perform a confirmatory factor analysis, nor has the test-retest reliability been possible to explore in this study. Third, we collected the data in association with a clinical trial and the psychometric properties of the measures should be tested in more clinically representative settings. Fourth, the study sample comprised of a group where a majority had a university education. Results may therefore not necessarily generalize to all individuals with OCD in the general population. Future studies evaluating the DOCS when administered via the Internet should focus on these questions.

In summary, the results from the present study give initial support that the DOCS when administered via the Internet exhibit adequate psychometric properties for measuring the multidimensional nature of OCD.

Acknowledgments

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