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The specificity of belief domains in obsessive–compulsive symptom subtypes

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Abstract

The aim of this study was to investigate specificity of belief domains in obsessive–compulsive disorder (OCD) symptom subtypes (rumination, impulse phobia, washing, checking, precision and non-specific). One hundred and twenty-six OCD participants completed the *Obsessive Beliefs Questionnaire* (OBQ-44) and the *Padua Inventory* prior to treatment. Analyses of covariance revealed that the participants in the rumination symptom subtype scored higher on Importance/Control of Thoughts than the participants in the washing subtype when we controlled for anxiety. This difference was nearly significant when we controlled for depression. Regression analyses controlling for negative mood states revealed that Responsibility/Threat Estimation predicted rumination scores, Perfectionism/Certainty predicted checking and precision scores, and Importance/Control of Thoughts predicted impulse phobia scores. Implications for future research and treatment are discussed.

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1. Introduction

About 80–99% of the non-clinical population experience intrusive thoughts, images or impulses that are similar in content to people suffering from obsessive–compulsive disorder (OCD) (Purdon & Clark, 1993; Rachman & de Silva, 1978; Salkovskis & Harrison, 1984). Cognitive models postulate that people with OCD appraise the occurrence and content of their intrusions as significant and meaningful, on the basis of particular dysfunctional beliefs (Obsessive Compulsive Cognitions Working Group [OCCWG], 1997; Rachman, 1998; Salkovskis, 1985, 1989). Consequently, intrusions escalate into obsessions, whereas normally a person would not consider the occurrence and content of intrusions to have a special significance (Rachman, 1998; Salkovskis, 1989).

The OCCWG originally concluded that six rationally derived belief domains were of central importance in OCD: Inflated responsibility, overimportance of thoughts, control of thoughts, overestimation of threat, intolerance of uncertainty and perfectionism (OCCWG, 1997). The *Obsessive Beliefs Questionnaire* (OBQ; OCCWG, 2001, 2003) was developed to assess these six belief domains. High correlations between the OBQ subscales and further analysis on this instrument led the OCCWG to a revision of the OBQ, the OBQ-44, which combines dimensions in three empirically derived belief domains: Responsibility/Threat Estimation, Perfectionism/Certainty and Importance/Control of Thoughts (OCCWG, 2005).

OCD is a heterogeneous psychopathology that can be divided into four or five symptom subtypes (Tolin, Woods, & Abramowitz, 2003), commonly: rumination, impulse phobia, washing, checking and precision. However, the notion of OCD symptom subtypes is problematic. OCD symptom subtypes have significant secondary symptoms. For example, the impulse phobia symptom subtype has been associated with additional secondary obsessions of symmetry, and the washing symptom subtype has been associated with additional secondary concerns about aggression and checking (Calamari, Wiegartz, & Janeck, 1999; Calamari et al., 2004).

Presently, there is no gold standard method to identify OCD symptom subtypes and criteria have remained ambiguous. However, the reliable identification of OCD symptom subtypes has already been established in several symptom questionnaires, which have been developed through empirical research (e.g. Foa et al., 2002; Sanavio, 1988).

Belief domains could play a role in the delineation of OCD symptom subtypes (McKay et al., 2004). It has been suggested that specific OCD symptom subtypes are characterized by specific belief domains (Freeston, Rhéaume, & Ladouceur, 1996; Lee & Kwon, 2003; Rachman & Shafran, 1998; Sookman & Pinard, 2002). So far, all of the proposed relationship between the belief domains and the OCD symptom subtypes are based on the rationally derived belief domains. It has been proposed that inflated responsibility is of particular importance for the checking symptom subtype (Rachman, 1993; Rachman, Thordarson, Shafran, & Woody, 1995). Yao, Cottraux, and Martin (1999) concluded that the responsibility belief domain was more associated with aggressive obsessional themes (impulse phobia symptom subtype). According to Sookman and Pinard (2002), the checking symptom subtype may be more characterized by intolerance to uncertainty than the washing symptom subtype. It has also been argued that the overimportance of thoughts and the need to control thoughts belief domains would be more characteristic of the impulse phobia and the rumination symptom subtypes than the washing and checking symptom subtypes (Lee & Kwon, 2003). Tables 1 and 2 summarize the empirical

Table 1

Empirical support for specificity of rationally derived belief domains in OCD symptoms^a

Belief domains	Tolin et al. (2003) ^b	Emmelkamp and Aardema (1999) ^c
	Non-clinical sample (<i>N</i> = 562) Regression analyses	Non-clinical sample (<i>N</i> = 305) Regression analyses
Inflated responsibility	None	Precision
Overestimation of threat	Washing Rumination (neutralizing)	Checking Precision
Perfectionism	Precision (ordering)	Precision Washing
Intolerance of uncertainty	None	None
Overimportance of thoughts	Rumination (neutralizing)	Rumination Checking Washing Impulse phobia
Need to control thoughts	Impulse phobia (obsessing)	None

^a Results controlled for depression and/or anxiety are reported.

^b Belief domains were derived from the OBQ and symptom subtypes were derived from the Obsessive–Compulsive Inventory-Revised (Foa et al., 2002).

^c Belief domains were derived from the Obsessive–Compulsive Beliefs-Research Inventory (unpublished data), which is a precursor of the OBQ, and symptom subtypes were derived from the PI-R. In this study, Inflated responsibility was considered as Responsibility; Overestimation of threat was considered as Harm/Risk Probability; Perfectionism was considered as Personal Standards; Intolerance of uncertainty was considered as Concern over Mistakes and Decision Making; Overimportance of thoughts was considered as Thought/Action Fusion, Magical Thinking, Over-Importance Given to Thoughts and Consequences of Having the Thoughts; Need to control thoughts was considered as Control.

support for specific belief domain-OCD symptom subtype links. Studies are contradictory and so far there is no current model to offer strong predictions about the specificity of the empirically derived belief domains in OCD symptom subtypes. For example, checking and washing symptoms might be distinguished by inflated responsibility according to Rachman and Shafran (1998), but by intolerance to uncertainty according to Sookman and Pinard (2002). Thus, it is unclear which of the empirically derived belief domains (Responsibility/Threat Estimation or Perfectionism/Certainty) differentiate between checking and washing symptoms. The specificity of belief domains in OCD symptom subtypes requires further empirical support (Clark, 2002; McKay et al., 2004; OCCWG, 2003).

So far, no study has categorized participants on the basis of OCD symptom subtype and investigated group differences on belief domains through analyses of variance. The present study investigates whether specific OCD symptom subtypes are associated with specific belief domains in an OCD sample using controlled analyses of covariance (ANCOVAs) and hierarchical regression analyses, and on the basis of the empirically derived belief domains questionnaire (OBQ-44).

Table 2

Empirical support for specificity of empirically derived belief domains in OCD symptoms^a

Belief domains	OCCWG (2005) ^b OCD sample ($n = 179$) Regression analyses	Tolin et al. (submitted for publication) ^c OCD sample ($N = 99$) Regression analyses
Responsibility/Threat Estimation	Washing Rumination (harming thoughts)	Washing Rumination (mental neutralizing)
Perfectionism/Certainty	Precision (grooming) Checking	Precision (ordering) Impulse phobia (obsessing)
Importance/Control of Thoughts	None	Impulse phobia (obsessing)

^a Results controlled for depression and anxiety are reported.

^b Belief domains were derived from the OBQ-44 and symptom subtypes were derived from a revision of the Padua Inventory (Burns et al., 1996).

^c Belief domains were derived from the OBQ-44 and symptom subtypes were derived from the Obsessive–Compulsive Inventory-Revised.

2. Method

2.1. Participants

The data for the present study were obtained from the pre-treatment files of French-speaking OCD patients who participated in clinical studies in Montreal, Canada. Diagnosis was based on semi-structured interview (ADIS-IV; Brown, DiNardo, & Barlow, 1994) or clinical interview by a trained psychiatrist using DSM-IV criteria (American Psychiatric Association, 1994) subsequently confirmed by an experienced clinical psychologist. Entry criteria for inclusion in the study were (i) a primary diagnosis of OCD, (ii) no evidence of current substance abuse, and (iii) no evidence of current or past schizophrenia, bipolar disorder or organic mental disorder. The initial sample in this study consisted of 126 OCD patients. Seventy-five (60%) were female and 51 (40%) were male. Mean age was 38.74 ($SD = 11.15$).

2.2. Measures

2.2.1. Revised version of the Obsessive Beliefs Questionnaire (OBQ-44) (OCCWG, 2005)

The OBQ-44 assesses belief domains. On the 44 items of the OBQ-44, scores range from 1 (disagree very much) to 7 (agree very much). The OBQ-44 shows excellent internal consistency for the different subscales ($\alpha = 0.89$ – 0.93 in the OCD group). The factor structure was consistent across two OCD samples and a student sample. The subscales are moderately intercorrelated in the OCD sample ($r_s = 0.42$ – 0.57). In our sample, the French version of the OBQ-44 had excellent internal consistency ($\alpha = 0.89$ – 0.92). Its subscales were moderately intercorrelated ($r_s = 0.41$ – 0.64) and highly correlated with the OBQ-44 total score ($r_s = 0.78$ – 0.90). The correlations between the subscales and a measure of obsessional and compulsive behaviors (PI-R; see below) are generally higher than with measures of depression and anxiety (BDI, BAI; see below).

2.2.2. *Padua Inventory-Revised (PI-R)* (van Oppen, Hoekstra, & Emmelkamp, 1995)

The PI-R is based on the Padua Inventory (Sanavio, 1988) and assesses obsessive–compulsive behaviour. On the 41 items of the PI-R, scores range from 0 (not at all) to 4 (very much). There are five subscales on the PI-R: Impulse phobia, washing, checking, rumination and precision. The PI-R shows good internal consistency ($\alpha = 0.77$ – 0.93 in the OCD sample) (van Oppen et al., 1995). The French version of the PI (60 items) shows excellent validity and satisfactory test–retest correlations. Factor analysis has replicated Sanavio's (1988) original factors (Freeston, Ladouceur, Letarte et al., 1994).

2.2.3. *Yale-Brown Obsessive Compulsive Scale (Y-BOCS)* (Goodman et al., 1989a; Goodman et al., 1989b)

The clinician's version of the Y-BOCS assesses the severity of the OCD symptoms. On the 10 items of the Y-BOCS, scores range from 0 (no symptom) to 4 (extreme symptoms). The original instrument shows excellent interrater reliability for the Y-BOCS total score ($r = 0.98$), and good reliability ($\alpha = 0.88$ – 0.91) (Goodman et al., 1989b). The French version (Mollard, Cottraux, & Bouvard, 1989) has excellent internal consistency, and convergent and discriminant validity are satisfactory (Bouvard et al., 1992).

2.2.4. *Beck Depression Inventory (BDI)* (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961)

The BDI assesses depressive symptoms. The BDI total score range is from 0 to 63. The original instrument shows excellent internal consistency (split-half reliability: 0.93). In two studies, correlations between clinician ratings and the BDI scores were 0.65 and 0.67 (Beck et al., 1961). The French version of the BDI shows excellent internal consistency and satisfactory test–retest reliability (Bourque & Beaudette, 1982).

2.2.5. *Beck Anxiety Inventory (BAI)* (Beck, Epstein, Brown, & Steer, 1988)

The BAI assesses the severity of anxiety. On each of the 21 items of the BAI, scores range from 0 (not at all) to 3 (severely—I could barely stand it). The original instrument shows high internal consistency ($\alpha = 0.91$), good test–retest reliability (0.75), moderate convergent validity ($r = 0.51$) and good discriminant validity ($r = 0.25$) (Beck et al., 1988). The French version of the BAI shows good internal consistency and satisfactory test–retest stability, convergent and discriminant validity (Freeston, Ladouceur, Thibodeau, Gagnon, & Rhéaume, 1994).

2.3. *Analyses*

2.3.1. *ANCOVAs and analyses of variance (ANOVAs)*

To investigate if OCD symptom subtypes differed from one another on the OBQ-44, we conducted two series of one-way ANCOVAs with the symptom subtypes (rumination, washing, checking, non-specific [see below]) as independent variables and the OBQ-44 subscales and total score as dependent variables, controlling for anxiety (BAI) and depression (BDI) separately. Subtype differences were also investigated on other clinical measures (PI-R, Y-BOCS, BDI and BAI total scores) using ANOVAs. Data were normally distributed except for Perfectionism/Certainty in the non-specific subtype. Variance was homogeneous for all subscales except for Importance/

Control of Thoughts. However, in analyses of variance, the sampling distribution of F remains generally insensitive to minor violations of assumptions (Keppel, 1982).

2.3.2. Regression analyses

We used hierarchical regression analyses to investigate if OBQ-44 belief domains (independent variables) predicted PI-R OCD subscales (dependent variables) after we controlled for negative mood states (depression and anxiety). We entered the BDI and the BAI in steps 1 and 2, followed by the OBQ-44 subscales in step 3. Only the OBQ-44 subscales correlated to the criterion variable were entered in step 3. The regression analyses were calculated with the data of the total sample ($N = 126$).

2.4. OCD symptom subtypes for the ANCOVAs and ANOVAs

Because there is no standard way of subtyping OCD, we relied on the PI-R subscales to determine a participant's predominant OCD symptom subtype (rumination, impulse phobia, washing, checking and precision subtypes) for the ANCOVAs and ANOVAs. Van Oppen et al.'s (1995) revision was used because it assesses the main subtypes of obsessions (except obsessional slowness and hoarding), and because its factor structure is stable across samples (OCD, anxious [other than OCD] and non-clinical) (van Oppen et al., 1995). The criteria for categorizing a participant into an OCD symptom subtype was a mean score greater or equal to 2.0 on at least one of the PI-R subscales and a highest PI-R subscale mean score at least 0.5 greater than any other PI-R subscale mean scores. The 2.0 criteria ensured the inclusion of only participants whose mean subtype score was in the range between "quite a lot" and "very much" on the PI-R subscales (indicating more severe OCD symptoms), and the 0.5 criteria logically implies that people are in a recognizably different category in terms of the PI-R subscales. Fifty-five participants met these criteria. We considered that the participants who were not categorized into an OCD subtype ($n = 71$) formed a non-specific symptom subtype.

Participants in the impulse phobia ($n = 1$) and precision symptom subtypes ($n = 3$) were excluded because of a small sample size. Also, because the rumination subscale contains items identified by Freeston, Ladouceur, Rhéaume et al. (1994) which measure either worry or obsessions, the participant in the rumination symptom subtype who also had a comorbid generalized anxiety disorder diagnosis was excluded, because it was considered that this participant could be more prone to interpret the rumination items as worry items instead of OCD items. In order to further validate the subtype classification for the participants categorized into one of the three specific symptom subtypes and retained for the ANCOVAs and ANOVAs, the PI-R categorization was compared with the independent evaluators' Y-BOCS interview assessment of primary obsession/compulsion. The comparison yielded a 92% agreement. In the three discordant cases, the primary subtype was still present but accorded a lower clinical priority. These three participants were included in the analyses. The final sample consisted of 121 participants, divided into four symptom subtypes: Rumination ($n = 18$), washing ($n = 18$), checking ($n = 14$) and non-specific ($n = 71$). Demographics of the symptom subtypes are depicted in Table 3. There were no significant differences for the age of participants across symptom subtypes.

Table 3
Demographic variables for the OCD symptom subtypes

OCD subtypes and <i>n</i>	Demographic variables		Mean age in years
	Gender		
	Female	Male	
Rumination (<i>n</i> = 18)	7	11	37.33 (SD = 13.91)
Washing (<i>n</i> = 18)	15	3	40.65 (SD = 9.22)
Checking (<i>n</i> = 14)	9	5	38.15 (SD = 11.31)
Non-specific (<i>n</i> = 71)	41	30	39.14 (SD = 11.06)
Total	72 (60%)	49 (40%)	38.97 (SD = 11.22)

SD = Standard deviation.

3. Results

Scores of symptom subtypes on clinical measures are shown in **Table 4**.

3.1. ANCOVAs and ANOVAs

When we controlled for anxiety (BAI), the ANCOVAs were significant for Importance/Control of Thoughts [$F(3, 116) = 3.22, p < .05$], but not for Responsibility/Threat Estimation

Table 4
Symptom subtype scores (means and standard deviation (in parentheses))

Measures/ subtypes	ANCOVAs				ANOVAs			
	RESP/ THREAT	PERFEC/ CERTAIN	IMPORT/ CTRL THGT	OBQ-44	PI-R	Y-BOCS	BDI	BAI
Rumination	75.7 (18.0)	82.0 (19.8)	52.8 ^a (16.4)	210.5 (45.5)	74.0 (23.4)	27.4 (4.8)	23.7 ^{a,b,c} (10.6)	24.7 ^{a,b,c} (8.81)
Washing	62.4 (24.9)	71.3 (24.1)	35.4 ^{a,*,A;a,†,B} (14.5)	169.1 (57.1)	73.01 (19.2)	30.4 (6.4)	14.0 ^{a,***} (8.8)	16.5 ^{a,†} (10.7)
Checking	56.6 (20.1)	73.1 (22.6)	35.0 (6.6)	164.7 (38.4)	64.6 (18.1)	25.9 (5.3)	11.9 ^{b,***} (4.8)	11.8 ^{b,***} (8.8)
Non-specific	67.3 (23.9)	79.4 (22.5)	44.4 (16.7)	191.2 (52.1)	60.2 (30.8)	24.5 (5.5)	17.0 ^{c,*} (9.0)	16.7 ^{c,*} (10.3)
Total	66.6 (23.2)	75.7 (22.3)	41.5 (15.8)	187.7 (51.9)	64.7 (27.5)	25.0 (5.3)	16.9 (9.4)	17.3 (10.5)

RESP/THREAT: Responsibility/Threat Estimation; PERFEC/CERTAIN: Perfectionism/Certainty; IMPORT/CTRL THGT: Importance/Control of Thoughts; OBQ-44: OBQ-44 total score; PI-R: PI-R total score; Y-BOCS: Y-BOCS total score; BDI: BDI total score; BAI: BAI total score.

^{a,b,c} Symptom subtypes who share the same superscript (a, b or c) in the same column differ significantly from one another.

* = $p < .05$; ** = $p < .01$.

† = Trend, $p < .1$.

^AWhen controlling for BAI; ^Bwhen controlling for BDI.

[$F(3, 116) = .63, p < .60$], Perfectionism/Certainty [$F(3, 116) = .73, p < .54$] and the OBQ-44 total score [$F(3, 116) = 1.46, p < .23$]. *Post hoc* comparisons revealed that the participants in the rumination symptom subtype scored significantly higher on Importance/Control of Thoughts than the participants in the washing symptom subtype ($p < .05$).

When we controlled for depression (BDI), the ANCOVAs were significant for Importance/Control of Thoughts [$F(3, 116) = 2.68, p < .05$], but not for Responsibility/Threat Estimation [$F(3, 116) = .74, p < .53$], Perfectionism/Certainty [$F(3, 116) = .39, p < .76$] and the OBQ-44 total score [$F(3, 116) = 1.01, p < .39$]. *Post hoc* comparisons revealed that the participants in the rumination symptom subtype showed a tendency to score higher on Importance/Control of Thoughts than the participants in the washing symptom subtype ($p < .10$).

For the ANOVAs on other clinical measures (BDI, BAI, PI-R and Y-BOCS total scores), there were significant symptom subtype differences on the BDI [$F(3, 117) = 5.62, p < .01$] and the BAI [$F(3, 117) = 4.90, p < .01$] total scores, but no significant differences on the Y-BOCS [$F(3, 117) = 1.74, p < .16$] and the PI-R [$F(3, 117) = 1.92, p < .13$] total scores. *Post hoc* comparisons revealed that the participants in the rumination symptom subtype scored significantly higher on the BDI total score than the participants in the washing, checking and non-specific symptom subtypes ($p < .01, p < .01$ and $p < .05$, respectively; Bonferroni correction). The participants in the rumination symptom subtype scored significantly higher on the BAI total score than the participants in the checking and non-specific symptom subtypes ($p < .01$ and $p < .05$, respectively;

Table 5
Regression analyses results (controlling for negative mood states)

OCD symptoms	Beta	Adj. R^2	t	$p \leq$
Negative mood states and belief domains				
Rumination				
Depression	.225	.29	3.08	.003
Anxiety	.401	.46	5.35	.001
Responsibility/Threat Estimation	.319	.54	4.85	.001
Impulse phobia				
Depression	.207	.20	2.32	.022
Anxiety	.285	.28	3.17	.002
Importance/Control of Thoughts	.251	.33	3.10	.002
Washing				
Depression	.032	.02	0.31	n.s.
Anxiety	.247	.06	2.38	.019
Checking				
Depression	.021	.04	.21	n.s.
Anxiety	.170	.07	1.69	n.s.
Perfectionism/Certainty	.283	.13	3.09	.002
Precision				
Depression	.144	.09	1.40	n.s.
Anxiety	.142	.10	1.42	n.s.
Perfectionism/Certainty	.217	.13	2.37	.019

n.s. = Not significant.

Bonferroni correction) and showed a tendency to score higher on the BAI total score than the participants in the washing symptom subtype ($p < .1$; Bonferroni correction).

3.2. Hierarchical regression analyses

The hierarchical regression analyses (see Table 5) revealed that, when controlling for negative mood states (depression and anxiety), Responsibility/Threat Estimation predicted rumination scores. Importance/Control of Thoughts predicted impulse phobia scores. No belief domains predicted washing scores. Perfectionism/Certainty predicted checking scores. Finally, Perfectionism/Certainty predicted precision scores.

4. Discussion

The aim of the present study was to empirically investigate specificity of belief domains in OCD symptom subtypes in an OCD sample using ANCOVAs and regression analyses. The current study offers some support for the hypothesis that specific OCD symptom subtypes are associated with specific belief domains. In the ANCOVAs, a high score on Importance/Control of Thoughts was more characteristic of the participants in the rumination symptom subtype than of the participants in the washing subtype when we controlled for anxiety. When we controlled for depression, the participants in the rumination symptom subtype showed a tendency to score higher on Importance/Control of Thoughts than the participants in the washing symptom subtype. It is noteworthy that none of the three specific symptom subtypes (rumination, washing, checking) differed from the non-specific symptom subtype on the OBQ-44 in the ANCOVAs.

Symptom subtype differences were also obtained on other clinical measures. The participants in the rumination symptom subtype scored higher on the BDI total score than the participants in the washing, checking and non-specific symptom subtypes. They also scored higher on the BAI total score than the participants in the checking and non-specific symptom subtypes. Subtype differences on mood have also been observed in the literature (e.g. Calamari et al., 1999, 2004).

In the regression analyses, after controlling for negative mood states, Responsibility/Threat Estimation predicted rumination scores. These results make sense, because the rumination symptom subtype is characterized by uncertainty about one's responsibility in accidents and thinking about low-probability dangers (Sanavio, 1988). Importance/Control of Thoughts predicted impulse phobia scores. These results are consistent with Lee and Kwon's (2003) suggestion that the overimportance of thoughts and the need to control thoughts belief domains are characteristic of the impulse phobia symptom subtype. The Perfectionism/Uncertainty belief domain predicted checking and precision scores. These results are not surprising, if the checking symptom subtype is characterized by pathological doubt (uncertainty) and because the clients in the precision symptom subtype believe that their experience is not quite right and is perfectible (Frost, Novara, & Rhéaume, 2002).

Some of the differences between the current study and previous findings (Tables 1 and 2) might be due to use of: OCD versus non-clinical populations, rationally versus empirically derived belief domains, and different clinical questionnaires. For example, the study of Emmelkamp and Aardema (1999) included belief domains not used in the current study (e.g. inverse inference),

and which accounted for a large amount of variance. The links that have been consistently supported throughout studies between the empirically derived belief domains and the OCD symptoms in OCD samples are between Responsibility/Threat Estimation and rumination symptoms, and between Perfectionism/Certainty and precision symptoms.

In the present study, both the ANCOVAs and the regression analyses methods support the possibility of specificity of belief domains in OCD symptom subtypes, but the methods do not yield equivalent results. How can the differences be explained? Regression analyses do not really assess specificity of belief domains in OCD symptom subtypes, because the participants are not categorized into an OCD symptom subtype. As Calamari et al. (1999, 2004) demonstrated, the OCD symptom subtypes are characterized by dominant symptom patterns, but also by significant secondary concerns. These secondary concerns, which are not taken into account by regression analyses. Recent authors have tentatively concluded that at least some of the main OCD symptom subtypes identified in the literature could be conceptualized according to a categorical rather than dimensional model (McKay et al., 2004). ANCOVAs represent a categorical model, whereas regression analyses represent a dimensional model. In effect, regression analyses evaluate the specificity of belief domains in OCD *symptoms*, whereas ANCOVAs evaluate the specificity of belief domains in OCD symptom *subtypes*.

A limitation of the present study is that the ANCOVAs did not include the impulsive phobia and precision subtypes. However, the results give an empirically based insight into the specificity of empirically derived belief domains in OCD symptom subtypes in a sample of OCD participants, thereby potentially providing a better understanding of the etiology of OCD symptom subtypes. One implication is that treatment response could be enhanced through matching a client with a specific OCD symptom subtype to specific cognitive techniques (e.g. van Oppen & Arntz, 1994). Further clinical research could consider the relationship between belief domains and treatment outcome, because certain belief domains may be more treatment resistant than others.

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