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Obsessive–compulsive symptoms: The contribution of obsessional beliefs and experiential avoidance

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ABSTRACT

Experiential (emotional) avoidance (EA), a core concept in acceptance and commitment therapy, involves an unwillingness to endure upsetting emotions, thoughts, memories, and other private experiences; and is hypothesized to play a role in obsessive–compulsive disorder (OCD). The present study examined how well EA, relative to traditional cognitive–behavioral theoretical constructs such as dysfunctional core beliefs about intrusive thoughts, predicts obsessive–compulsive (OC) symptoms. A sample of 353 non-clinical participants completed measures of EA, core "obsessive" beliefs, and OC symptoms. Individuals reporting greater levels of OC symptoms endorsed more obsessive beliefs and EA relative those with lower levels of OC symptoms, even when accounting for general levels of psychological distress. Among those with more OC symptoms, EA did not show relationships with obsessive beliefs. Moreover, EA did not add significantly to the prediction of OC symptom dimensions over and above the contribution of general distress and obsessive beliefs. Obsessive beliefs, meanwhile, contributed significantly to the prediction of OC checking and obsessing symptoms after accounting for EA. It appears the construct of EA is too general to explain OC symptoms over and above cognitive–behavioral constructs such as core obsessive beliefs, which are more specific.

Experiential (emotional) avoidance (EA), a core concept in the field of acceptance and commitment therapy (ACT), involves an unwillingness to endure upsetting emotions, thoughts, memories, and other private experiences (e.g., body sensations). This unwillingness leads to unhealthy efforts to resist, escape, and avoid such experiences (Hayes, Wilson, Gifford, Follette, & Stroahl, 1996). EA is thought to play an important role in maladaptive behaviors and psychopathology (Zvolensky & Forsyth, 2002), and accordingly, is receiving increased research attention. Findings from this emerging body of work suggest EA is associated with depression, anxiety, trauma, and reduced quality of life (Hayes et al., 2004). EA has also been hypothesized to play a role in several psychological disorders, including substance abuse, post-traumatic stress disorder, trichotillomania, generalized anxiety disorder and panic (e.g., Chawla & Ostafin, 2007).

Some authors (Eifert & Forsyth, 2005) have suggested that EA plays an important role in obsessive–compulsive disorder (OCD). The symptoms of OCD include (a) unwanted, anxiety-evoking thoughts, images, and impulses (*obsessions*; e.g., images of germs, thoughts of violence), and (b) urges to perform behavioral or mental acts (*neutralizing* and *compulsive rituals*; e.g., hand washing, reassurance-seeking, thought suppression) in effort to resist the obsession and reduce the associated anxiety. Looking at this definition, it could be argued that EA is a main characteristic of OCD since this disorder involves resistance to, and escape from, upsetting private experiences—in this case, unwanted obsessional thoughts. In the only empirical study addressing OCD from an EA perspective, Twohig, Hayes, and Masuda (2006) tested an eight-session ACT treatment with four individuals with OCD and anecdotally reported that OCD symptom reduction was associated with reductions in EA. Because of the small sample, however, the relationship between EA and OCD symptoms was not systematically explored. The purpose of the present study, therefore, was to examine this relationship more precisely. We specifically sought to evaluate how well the construct of EA, relative to other well-researched cognitive–behavioral theoretical constructs, predicts obsessive–compulsive (OC) symptoms.

Cognitive–behavioral formulations of OCD (e.g., Rachman, 1997, 1998; Salkovskis, 1996) propose that clinical obsessions arise from maladaptive interpretations of otherwise normal negative intrusive (unwanted) thoughts. Research indicates that up to 90% of the population at large experiences the same kinds of cognitive intrusions as do those with OCD (Rachman & de Silva, 1978). Whereas individuals *without* OCD recognize the senseless

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nature of unwanted intrusions, those *with* OCD appraise these intrusions as highly significant, threatening, and needing to be controlled. Following Beck's (1976) cognitive theory of emotion, these appraisals are thought to be based on dysfunctional core beliefs overestimating threat, personal responsibility, the importance of (and need to control) thoughts, and the need for perfectionism and certainty (i.e., so-called *obsessive beliefs*; Obsessive Compulsive Cognitions Working Group, 2001, 2003, 2005). The misinterpretations of intrusive thoughts lead to obssesional anxiety, as well as efforts to reduce such distress via avoidance, neutralizing, and compulsive rituals. These responses end up being counterproductive because they cue additional intrusive thoughts and reinforce assumptions about the significance and dangerousness of the intrusion, thus perpetuating a vicious cycle.

Three lines of empirical evidence provide strong support for the cognitive–behavioral model of OCD. First, cross-sectional studies of clinical and non-clinical samples indicate that OC symptoms are associated with obsessive beliefs and interpretations of intrusive thoughts as significant, threatening, and in terms of responsibility for harm (e.g., OCCWG, 2003; Salkovskis et al., 2000; Shafran, Thordarson, & Rachman, 1996). Second, laboratory experiments in which misinterpretations of intrusive thoughts were experimentally induced (e.g., Rassin, Merckelbach, Muris, & Spaan, 1999) indicate that the presence of obsessive beliefs evoke distress and neutralizing behaviors similar to that observed in individuals with OCD. Third, prospective studies suggest that obsessive beliefs serve as risk factors for the development of OC symptoms following a stressful event such as giving birth and becoming a parent (e.g., Abramowitz, Khandker, Nelson, Deacon, & Rygwall, 2006, Abramowitz, Nelson, Rygwall, & Khandker, 2007; Coles & Horng, 2006).

To clarify differences between the cognitive–behavioral and EA approaches, the cognitive–behavioral approach concerns the misinterpretation of intrusive thoughts as threatening based on mistaken beliefs (i.e., obsessive beliefs), whereas EA emphasizes an unwillingness to endure unpleasant internal stimuli such as negative emotions and intrusive thoughts. To further illustrate the difference in emphasis, consider Eifert and Forsyth's (2005) explanation of the EA approach to OCD: "...when people with obsessive–compulsive disorder avoiding touching a doorknob that might have germs on it, they are not doing so to avoid being contaminated. What they are doing is avoiding the negative affect associated with touching the doorknob" (p. 8). This emphasis on avoidance of negative affect is in contrast to the cognitive–behavioral perspective, which attempts to explain why the negative affect occurs in the first place (e.g., because of faulty beliefs and interpretations of the probability of contamination). EA forms the basis of ACT, which is considered to be distinct from cognitive–behavioral therapy (CBT) (Eifert & Forsyth, 2005; Twohig et al., 2006); the treatment derived from the cognitive–behavioral model (e.g., Clark, 2004).

Although the cognitive–behavioral model is empirically supported, existing studies indicate that obsessive beliefs do not account for all of the variability in OC symptoms. Thus, it is worth attending to theoretical proposals that offer unique perspectives on psychological factors that might also contribute to OCD. Due to the increased interest in EA, and to the intuitive overlaps between this construct and OC symptoms (e.g., resistance to obsessional thoughts), we examined the independent and relative contributions of obsessive beliefs and EA to the prediction of OC symptoms. In addition, as OC symptoms are highly heterogeneous (e.g., McKay et al., 2004), we considered relationships between predictor variables and individual OC symptom dimensions.

Given that EA involves resistance to remaining in contact with unpleasant internal stimuli such as intrusive thoughts, we hypothesized that individuals with more severe OC symptoms would show higher scores on a measure of this construct as compared to those with less severe OC symptoms. We also predicted that among individuals with high levels of OC symptoms, EA would show relationships with obsessive beliefs and with the various dimensions of obsessive–compulsive symptomatology. On the basis of previous research demonstrating relationships between obsessive beliefs and certain OC symptoms (e.g., OCCWG, 2005), we hypothesized that obsessive beliefs would be differentially associated with various OC symptom dimensions, except for hoarding; the status of which as an OC symptom has recently been questioned (e.g., Wu & Watson, 2005). Given that no research has examined the relative contributions of EA and obsessive beliefs in the prediction of OC symptoms, we considered our analyses addressing this issue as exploratory.

1. Method

1.1. Participants

We tested our hypotheses using a large sample of college students who scored $\geq$21 on the Obsessive–Compulsive Inventory-Revised (Foa et al., 2002, described below). An important issue concerns whether study of analogue OCD samples is relevant to understanding OCD per se. Burns, Formea, Keortge, and Sternberger (1995) conducted a series of investigations on this issue and found that nontreatment-seeking individuals scoring highly on self report measures of OC symptoms (a) often met diagnostic criteria for OCD, (b) evidenced stability of symptoms over time, and (c) exhibited similar associated features (e.g., depression and generalized anxiety) as patients diagnosed with OCD. Thus, they concluded that results of psychopathology studies using analogue OC samples as described above are relevant to understanding the symptoms of patients diagnosed with OCD. Moreover, because a sensitive and specific clinical cutoff score on the OCI-R has been identified (Foa et al., 2002), we elected to use this approach.

A sample of 353 self-selected undergraduates enrolled in introductory psychology courses at a large university in the Southeast United States completed a computer-administered online questionnaire packet for this study. This group included 247 women (70.0%) and 106 men (30.0%) (which is identical to the gender distribution of the introductory psychology participant pool at large) and had a mean age of 19.3 years (S.D. = 2.75). From this initial pool, two groups of participants were formed on the basis of scores on the OCI-R. The first group of highly obsessive–compulsive individuals (High-OC) included participants whose total OCI-R score was $\geq$21 (n = 91). The second group was comprised of those scoring $<$21 on the OCI-R (Low-OC; n = 263). This score was chosen because Foa et al. (2002) determined it was the optimal OCI-R total score for correctly classifying individuals with OCD and nonanxious individuals (sensitivity = 65.6%, specificity of 63.9%). Demographic characteristics of each group are presented in Table 1. As can be seen, there were no differences in age, gender make-up, or ethnic diversity across the two groups.

1.2. Procedure

Participation in this study was available to all undergraduate students enrolled in introductory psychology classes at the study site. These classes include a research participation requirement and all participants received course credit for their participation in the study. The study was reviewed and approved by the University IRB.

After signing up for the experiment via an Internet-based software program, participants provided consent to participate

Table 1
Demographic and clinical characteristics for the High-OC and Low-OC groups

Variable	High-OC (n=91)	Low-OC (n=263)	Test of the difference
Demographic characteristics			
Mean age (S.D.)	18.94 (2.32)	19.44 (2.88)	$t = 1.45$, $p > .10$
No. of female (%)	64 (70.3)	183 (69.8)	$\chi^2 = 1.09$, $p > .20$
Racial/ethnic background			$\chi^2 = 8.97$, $p > .05$
No. of White (%)	60 (65.9)	192 (73.3)	
No. of African Amer. (%)	16 (17.6)	35 (13.4)	
No. of Asian (%)	7 (7.7)	18 (6.9)	
No. of Latino (%)	6 (6.6)	8 (3.1)	
No. of others (%)	2 (2.2)	9 (3.4)	
Clinical characteristics			
OCI-R			
Washing	4.51 (2.81)	.83 (1.38)	$t = 16.23$, $p < .001$
Checking	4.89 (2.27)	1.37 (1.40)	$t = 17.20$, $p < .001$
Ordering	6.50 (2.57)	2.29 (2.06)	$t = 15.67$, $p < .001$
Obsessing	5.01 (3.12)	1.43 (1.81)	$t = 12.99$, $p < .001$
Neutralizing	3.81 (2.87)	.59 (.97)	$t = 15.66$, $p < .001$
Hoarding	5.84 (2.30)	2.58 (2.09)	$t = 12.42$, $p < .001$
CES-D	42.31 (7.41)	39.61 (5.65)	$t = 3.61$, $p < .001$
OBQ-RT	64.48 (15.32)	52.46 (13.84)	$t = 6.79$, $p < .001$
OBQ-ICT	36.31 (13.31)	28.36 (10.10)	$t = 5.81$, $p < .001$
OBQ-PC	67.05 (18.14)	55.40 (13.80)	$t = 6.20$, $p < .001$
AAQ	49.26 (5.62)	54.13 (6.09)	$t = 6.70$, $p < .001$

OCI-R = Obsessive–Compulsive Inventory-Revised; CES-D = Center for Epidemiologic Studies Depression Scale; OBQ = Obsessive Believe Questionnaire; RT = responsibility/threat overestimation subscale; ICT = importance/control of thoughts subscale; PC = perfectionism/certainty subscale; AAQ = Acceptance and Action Questionnaire.

and were directed to a secure project website where they completed the study measures. All data were collected using Qualtrics, an online web survey development tool. The design of the Internet version of the study questionnaires was based on empirically derived suggestions for how to develop computer questionnaires (e.g., Hewson, Yule, Laurent, & Vogel, 2003). Coles, Cook, and Blake (2006) found that the administration of OCD-related assessment measures using Internet-based and paper-and-pencil formats yield highly comparable results.

Upon accessing the secure project website, participants were presented with an "instructions page." A demographic questionnaire and the study questionnaires then appeared on subsequent pages. Participants were informed that all responses were confidential and that no personal identifying information would be included in the computer-generated dataset other than the date and time they completed the online study. At the end of the last questionnaire, a debriefing statement was presented.

1.3. Measures

The following measures were included in the present study:

1.3.1. Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2007)

The AAQ-II is a 10-item revision of the original nine-item AAQ (Bond et al., 2007). The scale assesses psychological flexibility, also known as experiential avoidance, which is the core construct of the ACT model of psychopathology (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). The AAQ-II has been shown to have good psychometric properties and good convergent, discriminant, and incremental validity. Factor analytic findings suggest the AAQ-II is a unidimensional measure. Higher scores on the AAQ-II indicate greater psychological flexibility (less pathology).

1.3.2. Center for Epidemiological Studies-Depression Scale (CES-D; Radloff, 1977)

The CES-D consists of 20 items developed as a global measure to assess psychological distress or well being in general community samples. Participants are asked to rate how often they have felt (or behaved) in certain ways (e.g., "I felt sad"; "My sleep was restless") over the past week from 0 (rarely) to 3 (most of the time). Items are summed (4 are reverse scored) to obtain a total score ranging from 0 to 60. Scores of 16 or greater indicate the possibility of clinical depression.

1.3.3. Obsessive Beliefs Questionnaire (OBQ; Obsessive Compulsive Cognitions Working Group [OCCWG], 2005)

The OBQ, a 44-item self-report instrument, measures dysfunctional beliefs (i.e., obsessive beliefs) thought to contribute to the escalation of normal intrusive thoughts into clinical obsessions. It contains three subscales: (a) threat overestimation and responsibility (OBQ-T/R), (b) importance and control of intrusive thoughts (OBQ-I/CT), and (c) perfectionism and need for certainty (OBQ-P/C). The instrument's good validity, internal consistency, and test–retest reliability are described in OCCWG (2005).

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

Severity of OCD symptoms was assessed nomothetically using the OCI-R, an 18-item self-report questionnaire based on the earlier 84-item OCI (Foa, Kozak, Salkovskis, Coles, & Amir, 1998). Participants rate the degree to which they are bothered or distressed by OCD symptoms in the past month on a 5-point scale from 0 (not at all) to 4 (extremely). The OCI-R assesses six dimensions of OCD symptoms: (a) washing, (b) checking/doubting, (c) obsessing, (d) neutralizing, (e) ordering, and (f) hoarding. Research suggests the OCI-R possesses good internal consistency (total score alphas = .81 to .93 across samples) and construct validity (Abramowitz & Deacon, 2006; Foa et al., 2002).

1.4. Data analytic strategy

After preliminary between-group comparisons analyzing differences between the High-OC and Low-OC groups' mean scores on the clinical variables, all analyses were performed using only the High-OC group's data. First, we computed correlation coefficients

Table 2
Zero-order correlations between cognitive variables and symptom variables for the OCI-High group ($N = 91$)

Cognitive variables	CES-D	OCI-R subscale					
		Washing	Checking	Ordering	Obsessing	Neutralizing	Hoarding
OBQ-RT	.36**	−.09	.37**	.19	.34**	−.05	.06
OBQ-ICT	.05	.07	.24*	.04	.45**	−.01	.20
OBQ-PC	.33**	.20	.44**	.26*	.22*	−.15	.23*
AAQ	−.04	.21*	.04	−.05	.08	.10	.06

OCI-R = Obsessive–Compulsive Inventory-Revised; CES-D = Center for Epidemiologic Studies Depression Scale; OBQ = Obsessive Believe Questionnaire; RT = responsibility/threat overestimation subscale; ICT = importance/control of thoughts subscale; PC = perfectionism/certainty subscale; AAQ = Acceptance and Action Questionnaire.
* $p < .05$.
** $p < .01$.

to examine zero-order relationships among depression (CES-D), obsessional beliefs (OBQ subscles), EA (AAQ-II), and obsessive–compulsive symptoms (OCI-R subscales). Second, we computed partial correlations to examine whether obsessional beliefs and EA predict OC symptoms after the controlling for each other. Third, two sets of multiple regression analyses were performed with the OCI-R subscales as dependent variables. In both sets of regressions, the CES-D was entered in the first step to control for the overlap between general distress, obsessive–compulsive symptoms, and the predictor variables. In Step 2 of the first set of regressions, the OBQ subscales were entered to control for obsessional beliefs as specified in the cognitive model. In Step 3 of the first set, the AAQ-II was entered. In the second set of regression analyses, Steps 2 and 3 were reversed so that the AAQ-II was entered in Step 2 to control for psychological flexibility, and the OBQ subscales were entered together in Step 3.

2. Results

2.1. Group comparisons

The bottom portion of Table 1 displays the group scores on each of the study measures. As expected, between-group *t*-tests revealed that the High-OC group evinced higher scores than the Low-OC group on the OBQ subscales and the AAQ-2. Results of these analyses are presented in the far right column of Table 1. As can be seen, the High-OC group also showed significantly higher CES-D scores relative to the Low-OC group. Although this was most likely an artifact of our large sample, we conducted another set of group comparisons using the CES-D as a covariate to control for group differences in levels of general distress. These analyses revealed that even when controlling for CES-D scores, the significant between-group differences remained (all p's $<.001$).

2.2. Zero-order correlations

All of the remaining analyses we report were conducted using only data from the High-OC group. The distributions for all variables were within acceptable limits of skewness and kurtosis (i.e., within 2 standard errors), except for the OBQ-ICT, which was mildly positive skewed and leptokurtic (peaked). Intercorrelations (r's) among the OBQ subscales ranged from .43 to .57, suggesting it was appropriate to consider these subscales as measuring different constructs. Similarly, correlation coefficients among OCI-R subscales ranged from .06 (checking with hoarding) to .34 (washing with neutralizing), also suggesting non-overlapping constructs. Thus, correlational and regression analyses reported below were conducted at the subscale level for the OCI-R and OBQ.

Correlations (r's) between the AAQ and OBQ subscales were as follows: OBQ-RT = −.01; OBQ-ICT = .10; and OBQ-PC = −.06. None of these relationships was statistically significant (p's $>.50$).

Correlations between measures of cognitive/theoretical variables (i.e., AAQ and OBQ subscales) and measures of depressive and OC symptoms (i.e., CES-D and OCI-R subscales) are displayed in Table 2. As can be seen, the CESD was significantly and positively correlated with the OBQ-RT and OBQ-PC subscales, but not with the OBQ-ICT subscale, nor the AAQ. Table 2 also shows that, in accord with the cognitive model of OCD, the OBQ subscales were significantly positively correlated with various OCI-R subscales; most strongly and consistently with obsessing and checking. The AAQ was significantly correlated with one OCI-R subscale (washing), although this relationship was somewhat weak.

2.3. Partial correlations

To examine independence of relationships between the theoretical variables and OC symptoms, we computed a series of partial correlations in which the OBQ subscales were used to predict OC symptoms while controlling for AAQ scores, and the AAQ was used to predict OC washing while controlling for OBQ subscale scores. Only those OC symptoms that demonstrated significant zero-order correlations with the theoretical variables (Table 2) were included in these analyses. Table 3 displays the results, which indicate that even after controlling for AAQ, the OBQ subscales still significantly predicted obsessional and checking symptoms. Moreover, controlling for the AAQ resulted in little, if any, reduction in the magnitude of the zero-order correlations among these variables. The relationships between the OBQ and hoarding and ordering symptoms, however, did not remain significant, and were considerably weaker after controlling for the AAQ.

Table 3
Partial correlations between theoretical variables and OC symptoms

Theoretical variable	OC symptom (OCI-R subscale)	Controlling for	Partial correlation
OBQ-RT	OCI-R checking	AAQ	.36***
OBQ-RT	OCI-R obsessing	AAQ	.34**
OBQ-ICT	OCI-R checking	AAQ	.24*
OBQ-ICT	OCI-R obsessing	AAQ	.44***
OBQ-PC	OCI-R checking	AAQ	.44***
OBQ-PC	OCI-R ordering	AAQ	.15
OBQ-PC	OCI-R obsessing	AAQ	.22*
OBQ-PC	OCI-R hoarding	AAQ	.14
AAQ	OCI-R Washing	OBQ-RT	.22*
AAQ	OCI-R Washing	OBQ-ICT	.21
AAQ	OCI-R Washing	OBQ-PC	.19

OCI-R = Obsessive–Compulsive Inventory-Revised; CES-D = Center for Epidemiologic Studies Depression Scale; OBQ = Obsessive Believe Questionnaire; RT = responsibility/threat overestimation subscale; ICT = importance/control of thoughts subscale; PC = perfectionism/certainty subscale; AAQ = Acceptance and Action Questionnaire.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

Table 4
Summary statistics for the final step of significant regression equations predicting OCI-R subscales

Variable	R^2	Beta	t	p
Predicting OCD-R checking				
Final model	.23			<.01
CES-D		.00	.00	n.s.
OBQ-RT		.23	1.63	n.s.
OBQ-ICT		−.05	−.40	n.s.
OBQ-PC		.33	2.65	<.01
AAQ		.09	.87	n.s.
Predicting OCD-R obsessing				
Final model	.23			<.01
CES-D		.16	1.47	n.s
OBQ-RT		.06	.45	n.s
OBQ-ICT		.40	3.12	<.01
OBQ-PC		−.03	−.25	n.s
AAQ		.06	.57	n.s.
Predicting OCD-R hoarding				
Final model	.11			<.05
CES-D		.37	3.15	<.01
OBQ-RT		−.24	−1.65	n.s
OBQ-ICT		.29	1.69	n.s
OBQ-PC		.12	.90	n.s
AAQ		.04	.41	n.s.

OCI-R = Obsessive–Compulsive Inventory-Revised; CES-D = Center for Epidemiologic Studies Depression Scale; OBQ = Obsessive Believe Questionnaire; RT = responsibility/threat overestimation subscale; ICT = importance/control of thoughts subscale; PC = perfectionism/certainty subscale; AAQ = Acceptance and Action Questionnaire.

Controlling for each of the three OBQ subscales resulted in very little reduction in the magnitude of correlations between the AAQ and the OCI-R washing subscale. Therefore, our finding that the correlation between the AAQ and OCI-R washing remained significant when controlling for the OBQ-RT subscale, but not when controlling for the ICT or PC subscales, is most likely due to the fact that the zero-order correlations were very close to the $p = .05$ significance level.

2.4. Regression analyses

Results of the two regressions for each OCI-R subscale are presented next. Summary statistics for each variable in the final step of each *significant* regression equation are presented in Table 4.

2.4.1. OCI-R washing

In Step 1 of both equations, the CES-D explained a small and nonsignificant portion of the variance in washing scores ($R^2 = .001$, $p > .05$). In Step 2 of the first equation, adding the OBQ subscales produced no additional explanatory power (R^2 change = .07, $p > .05$). In Step 3, adding the AAQ also accounted for no additional variance (R^2 change = .03, $p > .05$). In Step 2 of the second equation, the AAQ did not explain significant additional variance (R^2 change = .03, $p > .05$). In Step 3, the OBQ subscales also did not significantly contribute (R^2 change = .07, $p > .05$). The variance explained by the final model was not statistically significant ($R^2 = .11$, $p > .05$).

2.4.2. OCI-R checking

In Step 1 of both equations, the CES-D explained a small and nonsignificant portion of the variance in checking scores ($R^2 = .03$, $p > .05$). In Step 2 of the first equation, however, the OBQ subscales explained significant additional variance (R^2 change = .18, $p < .01$). In Step 3, the AAQ did not add significantly to the model (R^2 change = .01, $p > .05$). In Step 2 of the second equation, the AAQ did not provide significant explanatory power over and above the CES-D (R^2 change = .01, $p > .05$). In Step 3, however, the OBQ subscales provided a significant contribution (R^2 change = .18, $p < .01$). As is shown in Table 3, the final model accounted for 23% of the variance in OCI-R checking scores, and the OBQ-PC subscale emerged as the only significant, unique predictor.

2.4.3. OCI-R ordering

In Step 1 of both equations, the CES-D explained a small and nonsignificant portion of the variance in ordering scores ($R^2 = .003$, $p > .05$). In Step 2 of the first equation, the OBQ subscales did not add significantly to the variance explained by the CES-D (R^2 change = .09, $p > .05$). In Step 3, the AAQ did not make any further significant contribution (R^2 change = .002, $p > .05$). In Step 2 of the second equation, the AAQ did not add significantly to the variance explained (R^2 change = .004, $p > .05$). In Step 3, the OBQ subscales did not make any further significant contribution (R^2 change = .09, $p > .05$). The final model did not account for a significant portion of the variance in ordering scores ($R^2 = .09$, $p > .05$).

2.4.4. OCI-R obsessing

In Step 1 of both equations, the CES-D explained a nonsignificant portion of the variance in obsessing scores ($R^2 = .04$, $p > .05$). In Step 2 of the first equation, however, the OBQ subscales explained significant additional variance (R^2 change = .19, $p < .01$). In Step 3, the AAQ did not make any further significant contribution (R^2 change = .003, $p > .01$). In Step 2 of the second equation, the AAQ did not explain significant additional variance over and above that accounted for by the CES-D (R^2 change = .02, $p > .01$). In Step 3, however, the OBQ subscales did contribute significantly to the prediction of obsessing subscale scores (R^2 change = .18, $p < .01$). As can be seen in Table 3, the final model accounted for 23% of the variance and the OBQ-ICT subscale emerged as the only significant, unique predictor of obsessional symptoms.

2.4.5. OCI-R neutralizing

In Step 1 of both equations, the CES-D did not explain a significant portion of the variance in neutralizing scores ($R^2 = .03$, $p > .05$). In Step 2 of the first equation, the OBQ did not explained significant additional variance (R^2 change = .01, $p > .05$). In Step 3, the AAQ did not make a further significant contribution (R^2 change = .01, $p > .05$). In Step 2 of the second equation, the AAQ did not explain significant additional variance (R^2 change = .01, $p > .05$). In Step 3, the OBQ subscales did not make a further significant contribution (R^2 change = .01, $p > .05$). The final model did not explain a significant portion of the variance in neutralizing scores ($R^2 = .05$; $p > .05$).

2.4.6. OCI-R hoarding

In Step 1 of both equations, the CES-D explained a significant portion of the variance in hoarding scores ($R^2 = .10$, $p < .01$). In Step 2 of the first equation, the OBQ subscales did not explain significant additional variance (R^2 change = .05, $p > .05$). In Step 3, the AAQ did not make a further significant contribution (R^2 change = .02, $p > .05$). In Step 2 of the second equation, the AAQ did not explain significant additional variance (R^2 change = .02, $p > .05$). In Step 3, the OBQ subscales also did not make any further significant contribution (R^2 change = .05, $p > .05$). The final model accounted for a significant proportion of the variance in hoarding scores ($R^2 = .11$; $p < .05$). As can be seen in Table 3, the final model accounted for 17% of the variance and the CES-D emerged as the only significant, unique predictor of obsessional symptoms.

3. Discussion

The aims of this study were to investigate relationships between obsessive beliefs, EA, and OC symptoms; and to examine the independent and relative contributions of obsessive beliefs and EA in predicting OC symptoms. Obsessive beliefs are associated with empirically supported cognitive–behavioral models of OCD and are targeted in CBT. To date, EA has not been studied as a factor in theoretical models of OCD, yet it is associated with ACT which has been subjected to very preliminary evaluation in the treatment of this disorder. The present study therefore represents the first to empirically examine the relationship between EA and OC symptoms.

As expected, the High-OC group evidenced greater levels of obsessive beliefs and EA relative to the Low-OC group. Analyses of covariance confirmed that these between-group differences could not be accounted for by general levels of psychological distress. Thus, elevated levels of obsessive beliefs and EA appear at least broadly related to OC symptoms. Findings from previous research suggest certain obsessive beliefs – in particular those pertaining to the importance and need to control intrusive thoughts – have *specific* associations with OC symptoms whereas others – such as overestimates of threat, responsibility, and perfectionism – do not. Research further evaluating whether EA is specific to OC symptoms, as opposed to being a characteristic of anxiety in general (or psychopathology in general), is still needed.

Contrary to our hypothesis, among the High-OC participants, EA did not show relationships with any of the obsessive belief domains. We were especially surprised that EA was not associated with beliefs about the importance of and need to control intrusive thoughts given the seeming overlap in these constructs. EA, as defined, involves the reluctance to experience upsetting thoughts, emotions, and other private experiences, leading to efforts to resist these experiences (Hayes et al., 1996). The OBQ-ICT appears to measure a similar construct: the need to control and resist intrusive thoughts, a particular sort of internal experience. One explanation for the lack of association is differences in the specificity of EA as compared to obsessive beliefs. EA, as measured by the AAQ-II, entails avoidance of different sorts of internal experiences (e.g., memories, feelings). In contrast, obsessive beliefs specifically pertain to interpretations of thoughts (e.g., "If I don't control my thoughts, I'll be punished").

Consistent with our hypothesis and with previous research (e.g., OCCWG, 2005; Tolin, Woods, & Abramowitz, 2003; Tolin, Brady, & Hannan, in press), and in accord with the cognitive–behavioral model of OCD (e.g., Rachman, 1997; Salkovskis, 1996), obsessive beliefs were correlated with OC symptoms. Specifically, obsessing and checking were most strongly associated with each obsessive belief domain, and hoarding and ordering were associated with perfectionism and the need for certainty. Previous authors have reported associations between washing symptoms and exaggerated perceptions of threat (e.g., OCCWG, 2005; Tolin et al., in press), although we did not observe this relationship in the present study. Moreover, neutralizing symptoms were not associated with any OBQ subscales. The neutralizing subscale of the OCI-R, however, has been criticized as having poor construct validity (e.g., Abramowitz & Deacon, 2006), which might explain this null finding.

Contrary to our prediction that EA would be associated with various OC symptoms, it was correlated only with washing. Moreover, the strength of this correlation was relatively weak, and we found some evidence that it was accounted for by two domains of obsessive beliefs: beliefs about the importance of (and need to control) intrusive thoughts, and beliefs about the need for perfectionism and certainty. In our exploratory regression analyses EA did not contribute significantly to the prediction of any OC symptom dimensions over and above the contribution of general distress and obsessive beliefs.

We did, however, find that obsessive beliefs predicted checking and obsessing symptoms independently of EA and general distress. Specifically, after controlling for EA and general levels of distress, beliefs about the need for perfection and certainty uniquely predicted checking. This is consistent with the cognitive–behavioral view that checking rituals serve to restore a sense of certainty regarding feared consequences featured in obsessional doubts (e.g., Rachman, 2002). Similarly, after controlling for EA, beliefs that intrusive thoughts are highly important and need to be controlled were unique predictors of obsessional symptoms. This is consistent with cognitive–behavioral models of obsessions which posit that such symptoms arise from catastrophic misinterpretations of normally occurring intrusive thoughts (e.g., Rachman, 1997, 1998). Taken together, these findings support existing cognitive–behavioral models of obsessions and checking rituals, and suggest that dysfunctional beliefs, but not the unwillingness to endure negative private experiences (i.e., EA), provide a basis for understanding the psychopathology of specific OC symptoms. As alluded to above, it appears the concept of EA is too general to explain OC symptoms, especially in comparison with cognitive–behavioral models which specify avoidance of and resistance to intrusive obsessional thoughts, as opposed to internal experiences in general (e.g., memories, emotions).

Neither regression model significantly predicted washing or ordering symptoms. Although previous longitudinal research has found that obsessive beliefs are associated with the development of washing symptoms (Abramowitz et al., 2006), the present findings suggest factors in addition to obsessive beliefs and EA should be considered in conceptualizations of contamination fears and washing rituals. For example, Jones and Menzies (1997) found that specific expectancies of the likelihood and costs of illnesses mediated these symptoms. Although overestimates of threat are an obsessive belief domain, contamination fears might be specifically associated with overestimates concerning illness, as opposed to more general beliefs about danger and safety as assessed by the OBQ-RT. Disgust sensitivity, which is not an obsessive belief domain, has also received increasing attention as a mediator of washing symptoms (e.g., Deacon & Olatunji, 2007). With respect to ordering, recent formulations have posited that cognitions related to feelings of "incompleteness" underlie these symptoms (Summerfeldt, 2004). Incompleteness is also not currently conceptualized as obsessive beliefs.

Hoarding symptoms were uniquely predicted by general distress, but not obsessional beliefs or EA. This finding is in line with emerging research suggesting the relationship between hoarding and OCD remains unclear and requires further examination (e.g., Abramowitz, Wheaton, & Storch, in press; Grisham, Brown, Liverant, & Campbell-Sills, 2005). Empirical and clinical observations also suggest a set of cognitive–behavioral variables, largely distinct from those underlying OCD symptoms, appear to be involved in the psychopathology of hoarding (e.g., Frost & Steketee, 2008).

To the extent our non-clinical sample can be used to draw inferences about treatment-seeking individuals, our findings have implications for the treatment of OC symptoms. Cognitive–behavioral therapy (CBT) aims to modify obsessive beliefs assumed to underlie OC symptoms, whereas ACT aims to help individuals accept inner experiences, such as thoughts, worries, memories, feelings, etc. The specificity with which OBQ domains predict certain OC symptoms suggests that obsessive beliefs tap into the pathological process underlying those OC symptoms more than the AAQ-II and would therefore seem to be a more effective target for

therapeutic change. Thus, the present results suggest that with respect to the treatment of obsessions and checking symptoms, it may be more effective to modify obsessive beliefs (CBT) rather than to simply accept obsessions and anxiety (ACT). Naturally, this speculation requires empirical evaluation via direct comparisons between the two treatment approaches.

A number of limitations of the present study should be heeded. First, our data were obtained from a non-clinical and nontreatment-seeking sample; albeit these individuals fell within the clinical range of OC symptoms and previous research suggests results obtained from such samples are generalizable to clinical individuals. Second, the correlational nature of this study precludes conclusions about cause and effect relationships. Although our findings are *consistent* with the notion that obsessive beliefs give rise to OC symptoms, an alternative explanation is that OC symptoms lead to the acquisition of obsessive beliefs. Moreover, it is possible that one or more third variables account for OC symptoms and cognitions. Third, the broad scope of the EA concept represents a limitation. The AAQ-II is a general measure of experiential avoidance that cuts across emotional valence domains and does not discriminate between specific avoidance strategies. Chawla and Ostafin (2007) have argued that the distinction between experiential avoidance and related constructs such as thought suppression and avoidance coping are not entirely clear.

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