

Research Article

TESTING THE AUTOGENOUS–REACTIVE MODEL OF OBSESSIONS

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Two independent studies were conducted to examine the autogenous–reactive subtype model of obsessions [Lee and Kwon, 2003]. Study 1 demonstrated that 30 obsessive–compulsive (OCD) patients' responses to autogenous versus reactive obsessions differed significantly with respect to emotional reactions, cognitive appraisals, and control strategies. Study 2 compared OCD patients whose primary obsessions were of the autogenous subtype (n = 13) with OCD patients whose primary obsessions were of the reactive subtype (n = 14). Results revealed significant differences between these two groups on several OCD-related domains including OCD symptom profiles, perfectionistic personality features, and dysfunctional beliefs. Theoretical and clinical implications are discussed. Depression and Anxiety 21:118–129, 2005. © 2005 Wiley-Liss, Inc.

Key words: *obsessive–compulsive disorder; autogenous obsessions; reactive obsessions; obsession subtype; perfectionism*

The DSM-IV [American Psychiatric Association, 1994] defined obsessions as persistent thoughts, impulses, or images that occur repeatedly and are experienced as intrusive, inappropriate, and distressing. Common examples include fears of contamination, doubts about one's actions, a need to have things in particular order, aggressive or horrific impulses, and sexual imagery. Compulsions comprise repetitive behaviors or mental acts such as washing, checking, repeating, arranging, hoarding, and counting. Most commonly, obsessions are followed by compulsions. The experience of an obsession is almost always distressing and generally urges the affected person to attempt to reduce the discomfort or neutralize the anticipated negative consequences by engaging in various forms of compulsions or avoidance behaviors [Rachman and Shafran, 1998]. Heterogeneous content of obsessions as well as various forms of compulsions may give rise to remarkable diversity in clinical manifestations of obsessive–compulsive disorder (OCD). The heterogeneity of the condition also has led a number of researchers to probe into different subgroups or clusters underlying the phenomenology of OCD through factor analysis or cluster analysis [Abramowitz et al., 2003; Baer, 1994; Calamari et al., 1999; Leckman et al., 1997; Mataix-Cols et al., 1999].

Recently, an obsession model has been proposed which classifies obsessions into two subtypes (i.e., *autogenous obsessions* and *reactive obsessions*), and a series of studies have been conducted to validate this

taxonomy [Lee and Kwon, 2003; Lee et al., in press; Lee, Kim, and Kwon, 2005; Lee and Telch, in press]. Autogenous obsessions are highly aversive and unrealistic thoughts, images, or impulses that tend to be perceived as *threatening in their own right*. Autogenous obsessions include sexual, aggressive, blasphemous, or repulsive thoughts, images, or impulses. They tend to be perceived as very egodystonic and unacceptable, and evoke efforts to remove or control the thought(s) themselves. Moreover, they are likely to be elicited

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without clear triggers or by some triggers symbolically or remotely associated with the thoughts (e.g., the letter *S* triggering the thought of killing one's sister). In contrast, reactive obsessions are relatively realistic aversive thoughts, doubts, or concerns where the *perceived threat tends to be not the obsession itself, but rather its possible negative consequence(s)*. Reactive obsessions include thoughts, concerns, or doubts about contamination, mistakes, accidents, asymmetry, or disarray. They tend to be perceived as relatively realistic and likely to come true, and elicit overt actions aimed at putting the associated uncomfortable situation back to a safe or desired state. Moreover, they are likely to be triggered primarily by external cues, which correspond to specific core threats (e.g., exposure to dirt activating the threat of contamination, which is neutralized through washing rituals).

Lee and Kwon [2003] reported that the autogenous and reactive subtypes of nonclinical obsessions reported by college students elicited different emotional reactions, cognitive appraisals, and control strategies. Autogenous obsessions were rated as more disliked and guilt provoking whereas reactive obsessions evoked greater worries that the thought might come true. Autogenous obsessions were perceived as more threatening to merely have in mind, and controlling the thoughts themselves was considered more important. In contrast, reactive obsessions were perceived as more realistic and evoked a greater sense of personal responsibility to prevent harm. Moreover, autogenous obsessions elicited more avoidant thought-control strategies (e.g., thought stopping, distraction) whereas reactive obsessions elicited more confrontational, behavioral control strategies (e.g., overt acts such as checking or washing, analyzing the thought).

OVERVIEW OF STUDIES

We present two independent studies designed to test several hypotheses derived from the autogenous-reactive subtype model. In Study 1, we sought to replicate with a clinical sample of OCD patients the findings reported by Lee and Kwon [2003] supporting the autogenous-reactive distinction. We hypothesized that in response to autogenous obsessions, OCD patients' distress and threat perception would be more focused on having the thoughts themselves, and they would use more avoidant control strategies in an effort to divert attention away from the thoughts. In contrast, in response to reactive obsessions, OCD patients' threat perception would be more focused on harm or uncomfortable external conditions associated with the thoughts, and they would use more confrontational control strategies designed to change these external conditions.

In Study 2, OCD patients were classified as displaying either autogenous or reactive as their primary obsession (autogenous patients vs. reactive patients) and then compared with respect to several OCD-

related domains including OCD symptom profiles, perfectionistic personality features, and dysfunctional beliefs. Based on the findings from Lee and Kwon [2003], we hypothesized that autogenous patients would be more apt to display obsessional, ideational, or covert symptoms whereas reactive patients would be more apt to display overt, behavioral symptoms.

We also predicted that compared to autogenous patients, reactive patients would display greater perfectionistic personality features previously shown to be associated with OCD [Bouchard et al., 1998; Frost and Steketee, 1997; Frost et al., 1994; Hewitt and Flett, 1991; Hewitt et al., 1992; McFall and Wollersheim, 1979]. This hypothesis was based on the clinical observation that reactive patients often display exceedingly high and rigid standards and strive harder to organize and control their environments to ensure that they are not in unsafe or undesired situations. From this perspective, reactive patients' debilitating checking, washing, or arranging rituals are seen as ways of controlling or organizing external conditions to avoid potential mistakes.

Finally, we hypothesized that compared to autogenous patients, reactive patients would score higher on the belief domains of Inflated Responsibility, Threat Overestimation, Perfectionism, and Intolerance of Uncertainty [see Obsessive Compulsive Cognitions Working Group, 1997, 2001] since these beliefs may heighten sensitivity to possible harm and perceived responsibility associated with their obsessions. In contrast, autogenous patients would score higher on the belief domains of Control of Thoughts and Importance of Thoughts since their threat perceptions and control strategies seem to be geared more toward their obsessional thoughts.

STUDY 1

The aim of Study 1 was to replicate with a clinical sample of OCD patients the findings reported by Lee and Kwon [2003] suggesting marked differences in cognitive appraisal and control strategies displayed by nonclinical college students in response to autogenous obsessions versus reactive obsessions.

METHODS

PARTICIPANTS

Patients meeting DSM-IV criteria for OCD as their principal Axis I diagnosis were recruited from the OCD outpatient clinic at Seoul National University Hospital. OCD diagnoses were determined by a clinical psychologist and a psychiatrist based on patients' responses to the Structured Clinical Interview for DSM-IV (SCID-IV) [First et al., 1996]. Exclusion criteria included meeting for bipolar disorder, schizophrenia, or substance-abuse disorders. This resulted in 1 OCD patient who was excluded for meeting diagnostic criteria for schizophrenia. The final sample

($N = 30$) consisted of 21 men and 9 women ranging in age from 17 to 53 ($M = 27.83$, $SD = 8.18$) years.

MEASURES

Korean-Revised Obsessional Intrusion Inventory (K-ROII). A Korean version of the ROII [Purdon and Clark, 1993] was developed to assess intrusive thoughts, images, and impulses [Lee and Kwon, 2003]. In Section I of the ROII, respondents rate how frequently they experience each of 52 obsessions on a 7-point Likert scale (0 = *never*; 1 = *once or twice*; 2 = *a few times a year*; 3 = *once or twice a month*; 4 = *once or twice a week*; 5 = *daily*; 6 = *frequently during the day*). The original version of the ROII has demonstrated adequate reliability and validity [Purdon and Clark, 1993, 1994a, b]. The K-ROII also has demonstrated adequate psychometric properties and has a two-factor structure corresponding to the autogenous and reactive obsessional subtypes proposed by Lee and Kwon [2003].

Section II of the K-ROII consists of 30 items providing a more detailed assessment of the respondents' most distressing obsession (from Section I). That obsession is then rated on several dimensions: emotional reactions (e.g., feelings of guilt, worry that the obsession may come true), cognitive appraisal (e.g., perceived importance of controlling the thought, perceived likelihood that the thought will come true), and control strategies (e.g., saying stop to oneself, taking action to put things back to safe or desired state). Each item is rated on a 7-point Likert scale. K-ROII Section II presents two cognitive-appraisal subscales (perceived threat of having the thought and perceived responsibility of preventing harm associated with the thought) and two control strategy subscales (confrontational strategies and avoidant strategies) in addition to the individual appraisal items included in the original version of the ROII. These subscales demonstrated adequate levels of internal consistency in the present sample (Cronbach's α): perceived threat for having the thought (.87), perceived responsibility of preventing harm (.89), confrontational strategies (.76), and avoidant strategies (.78) (see Table 1 for a complete list of K-ROII Section II items, including these subscales and their respective items).

Beck Depression Inventory (BDI) [Beck et al., 1979]. A Korean version of the original 21-item BDI was administered [Lee and Song, 1991], which has demonstrated excellent psychometric properties similar to those reported for the original BDI [Beck et al., 1979].

Beck Anxiety Inventory (BAI) [Beck et al., 1988]. A Korean version of the BAI was administered [Kwon, 1992], which has demonstrated excellent psychometric properties similar to those reported for the original BAI [Beck et al., 1988].

Padua Inventory (PI) [Sanavio, 1988]. The PI is a 60-item self-report measure of obsessive-compulsive

symptoms. A Korean version of the PI was administered, which has demonstrated good psychometric properties [Min and Won, 1999].

PROCEDURE

Patients were individually administered a packet of questionnaires. First, they were asked to answer the K-ROII Section I and report their most upsetting obsession. The K-ROII Section I was administered to serve an educational role to assist participants in distinguishing between clinical obsessions and worry. Participants were then instructed to select their idiosyncratic obsession. For those obsessions not listed in Section I of the K-ROII, participants were instructed to write their obsession under the heading "other obsession." Participants then completed Section II of the K-ROII for their primary obsession selected in Section I. This involved rating their primary obsession on several additional dimensions including (a) emotional reactions, (b) cognitive appraisals, and (c) control strategies.

Three master's-level clinical psychologists independently classified all the reported obsessions as either autogenous or reactive based on their content. Consistent with the model of Lee and Kwon [2003], obsessions were classified as falling in the autogenous subtype if they dealt with sexual, violent, aggressive, blasphemous, or repulsive thoughts, images, or impulses. In contrast, concerns, doubts, or worries about mistakes, contamination, disorder, or disarrangement were classified as obsessions falling into the reactive subtype. The raters used the autogenous and reactive subscales of the K-ROII Section I as a reference for the classification in case of reported obsessions being included in the K-ROII Section I. Then, according to the most upsetting obsessions, participants were divided into two subgroups (i.e., those who reported autogenous obsession vs. reactive obsession as the most upsetting). Patients' emotional reactions, cognitive appraisals, and control strategies in response to each type of obsession were compared.

RESULTS

Of 30 participants, 14 reported the autogenous subtype (e.g., images of male genitals, thoughts of engaging in homosexual behaviors, thoughts of swearing at God), and 16 reported the reactive subtype (e.g., thoughts of being contaminated by germs, thoughts of leaving doors unlocked) as their most upsetting obsession. The mean interrater reliability across the 30 obsessions using Kappa index [Siegel and Castellan, 1988] was .96. Disagreement was resolved through discussion. Those reporting autogenous obsessions and those reporting reactive obsessions did not differ with regard to depression, anxiety, and OCD symptoms nor did they differ with respect to demographic features including gender, education, illness duration, or

TABLE 1. K-ROII Section II items assessing obsession-related emotional reactions, cognitive appraisals, and control strategies

Reactions, appraisals, strategies

Emotional reactions

- How unpleasant is the thought?
- How guilty do you feel for having let this thought come into your head?
- How much do you worry that the thought will come true?
- How strongly do you dislike this thought?

Cognitive appraisals

- How important is it that you rid your mind of this thought?
- How likely is it that the thought will come true?
- Perceived threat of having the thought
 - (a) I should not be thinking this kind of thing.
 - (b) Having this intrusive thought means I'm out of control.
 - (c) Because I can't control this thought, I am a weak person.
 - (d) If I don't control this unwanted thought, something bad is bound to happen.
 - (e) Thinking this thought could make it happen.
 - (f) Because I've had this thought, I must want it to happen.
 - (g) Thinking this thought is as bad as causing it to happen or doing it actually.
 - (h) Having this thought means I am a weird, abnormal, or a terrible person.
- Perceived responsibility of preventing harm associated with the thought
 - (a) Because I've thought of bad things that might happen, I must act to prevent them.
 - (b) If I don't do something about this intrusive thought, it will be my fault if something terrible happens.
 - (c) It is wrong not to do anything about this unwanted thought.
 - (d) If I ignore this thought, I could be responsible for serious harm.

Control strategies (Neutralization)

- Confrontational strategies
 - (a) Taking action to put things back to safe or desired state
 - (b) Analyzing the thought rationally
 - (c) Seeking information or talking about this thought
 - (d) Seeking reassurance from others
- Avoidant strategies
 - (a) Worrying or thinking about other negative things
 - (b) Self-blaming or self-punishment
 - (c) Saying 'stop' to oneself
 - (d) Praying or other religious ways
 - (e) Diverting attention by engaging oneself in something else
 - (f) Avoidance from anxious objects or situations
 - (g) Thinking about other pleasant things
 - (h) Counterimaging

marital status. The one exception was that those reporting autogenous obsessions were significantly younger (M age = 24.19, SD = 4.54) than those reporting reactive obsessions (M age = 30.75, SD = 9.48), $t(28) = 2.38$, $P < .05$ (see Table 2).

DIFFERENCES BETWEEN AUTOGENOUS VERSUS REACTIVE OBSESSIONS¹

Responses on the K-ROII Section II were compared between 14 patients reporting autogenous obsessions

¹We also repeated the aforementioned analyses controlling for age. These analyses revealed that the observed differences in participants' responses to autogenous versus reactive obsessions were not changed after including age as a covariate in the model.

and 16 patients reporting reactive obsessions with respect to the three dimensions (i.e., emotional reactions, cognitive appraisal, and control strategies). Kolmogorov-Smirnov tests of the distribution of scores indicated that all of them were normally distributed.

Emotional reactions. A MANOVA with the four items measuring emotional reactions as dependent variables revealed a significant main effect for group, Wilks's Λ $F = 7.15$, $P < .005$, $\eta_p^2 = .53$. Follow-up univariate tests revealed that compared to reactive obsessions, autogenous obsessions were rated significantly higher on *Guilt feelings*, $F(1, 28) = 24.02$, $P < .001$. In contrast, reactive obsessions were rated significantly higher on *Worry that the thought will come true*, $F(1, 28) = 14.44$, $P < .005$. However, those reporting autogenous obsessions versus reactive obsessions did

TABLE 2. Demographics, general mood and OC symptoms of Study 1 participants

	Autogenous	Reactive	<i>t</i> (or χ^2)
Gender (% male)	76.9%	78.6%	.01
Age (yr)	24.50 (4.83)	30.75 (9.48)	-2.22 ^a
Education (yr)	13.57 (1.60)	14.88 (2.19)	-1.84
Duration of illness (yr)	9.17 (4.93)	11.92 (8.45)	-.99
Medication duration	3.00 (3.14)	2.25 (2.41)	.73
BAI	17.71 (8.51)	16.38 (7.16)	.47
BDI	14.29 (10.28)	15.94 (9.90)	-.45
PI	126.50 (42.14)	127.37 (29.54)	-.07

Values are expressed as mean (*SD*), unless otherwise indicated.

^a $P < .05$.

BAI = Beck Anxiety Inventory; BDI = Beck Depression Inventory; PI = Padua Inventory.

TABLE 3. Comparisons between autogenous obsessions and reactive obsessions on emotional reactions, cognitive appraisals, and control strategies

	Autogenous	Reactive	<i>F</i>	ES*
Unpleasantness of the thought	4.50 (1.61)	3.75 (1.73)	1.50	.05
Guilt feelings about the thought	3.36 (2.06)	.63 (.81)	24.02 ^c	.46
Worry that the thought will come true	1.36 (1.22)	3.69 (1.99)	14.44 ^c	.34
Dislike for the thought	4.57 (1.40)	3.50 (1.71)	3.46	.11
Importance of controlling the thought	4.57 (1.56)	3.06 (1.69)	6.40 ^a	.19
Likelihood that the thought will come true	2.29 (1.27)	3.88 (1.82)	7.48 ^a	.21
Perceived threat of having the thought	3.11 (1.25)	1.52 (1.05)	14.40 ^c	.34
Perceived responsibility of preventing harm	2.21 (1.99)	3.95 (1.44)	7.69 ^b	.22
Avoidant control strategies	2.79 (1.03)	1.41 (.91)	15.21 ^c	.35
Confrontational control strategies	.95 (.74)	3.41 (1.10)	50.09 ^c	.64

Values are expressed as mean (*SD*), unless otherwise indicated.

*ES = Partial eta square (η_p^2).

^a $P < .05$; ^b $P < .01$; ^c $P < .001$.

not differ with respect to the ratings of *Unpleasant*, $F(1, 28) = 1.50$, $P = .23$, or *Dislikable*, $F(1, 28) = 3.46$, $P = .07$ (see Table 3).

Cognitive appraisals. A MANOVA with the four domains of cognitive appraisal as dependent variables revealed a significant main effect for group, Wilks's Λ $F = 17.87$, $P < .001$, $\eta_p^2 = .74$. Compared to reactive obsessions, autogenous obsessions were rated significantly higher on *perceived importance of controlling the thought*, $F(1, 28) = 6.40$, $P < .05$, and *perceived threat of having the thought*, $F(1, 28) = 14.40$, $P < .005$. In contrast, reactive obsessions were rated significantly higher on the *perceived likelihood the thought will come true*, $F(1, 28) = 7.48$, $P < .05$, and *perceived responsibility of preventing harm associated with the thought*, $F(1, 28) = 7.69$, $P < .01$ (see Table 3).

Control strategies. A MANOVA with the two different types of control strategies as dependent variables revealed a significant main effect for group, Wilks's Λ $F = 32.76$, $P < .001$, $\eta_p^2 = .71$. Follow-up univariate tests demonstrated that those reporting autogenous obsessions used more *avoidant control strategies*, $F(1, 28) = 15.21$, $P < .005$, whereas those

reporting reactive obsessions used more *confrontational control strategies*, $F(1, 28) = 50.09$, $P < .001$ (see Table 3).

DISCUSSION

Our findings revealed OCD patients' responses to autogenous obsessions versus reactive obsessions differed significantly with respect to emotional reactions, cognitive appraisals, and control strategies. Autogenous obsessions triggered more guilty feelings, and the thoughts themselves were perceived as more threatening to merely have in mind. Moreover, in response to autogenous obsessions, patients placed greater importance on eliminating or suppressing the thoughts as well as being more likely to employ avoidant control strategies whose primary focus centered on diverting attention away from the thoughts (e.g., thought stopping, distraction). In contrast, reactive obsessions elicited more worries and a greater estimate that the thought might come true as well as greater perceptions of harm. Moreover, in response to reactive obsessions, patients displayed a greater sense of responsibility to prevent harm and were more likely to engage in

confrontational control strategies whose primary focus centered on correcting situations associated with the thoughts or checking the rationality of the thoughts (e.g., overt rituals such as checking or washing, thought analyzing). These findings are consistent with those reported by Lee and colleagues [Lee and Kwon, 2003; Lee et al., in press] suggesting marked differences in cognitive appraisal and control strategies between those reporting autogenous versus those reporting reactive obsessions.

STUDY 2

The aim of Study 2 was to compare OCD symptom profiles, perfectionistic personality features, and dysfunctional beliefs between OCD patients displaying autogenous obsessions and OCD patients displaying reactive obsessions as their primary obsessional subtype (autogenous patients vs. reactive patients). The following specific hypotheses were tested: (a) Reactive patients would display more overt, behavioral symptoms whereas autogenous patients would display more obsessional and ideational symptoms; (b) Reactive patients would score higher than autogenous patients on scales tapping perfectionistic tendencies such as concern over mistakes, high personal standards, doubts about actions, and organization; and (c) Compared to autogenous patients, reactive patients would score higher on the Obsessional Belief Questionnaire (OBQ) [Obsessive-compulsive Cognitions Working Group, 2001] scales (i.e., Responsibility, Perfectionism, and Intolerance for Uncertainty) tapping dysfunctional beliefs related to need for rigid environment control. In contrast, autogenous patients would score higher on OBQ subscales tapping need for thought control (i.e., Control over Thought, Importance of Thought).

METHODS

PARTICIPANTS

Patients meeting DSM-IV criteria for OCD as their principal Axis I diagnosis were recruited from the OCD outpatient clinic at Seoul National University Hospital. OCD diagnoses were determined by a clinical psychologist and a psychiatrist based on patients' responses to the SCID-IV [First et al., 1996]. Patients meeting diagnostic criteria for bipolar disorder, schizophrenia, and substance abuse were excluded. Four patients meeting the exclusion criteria were excluded (1 male with bipolar disorder, 1 male and 1 female with schizophrenia, and 1 male with substance-abuse disorder). The final sample ($N=27$) consisted of 21 men and 6 women ranging in age from 17 to 56 ($M=28.96$, $SD=9.18$) years; this sample was independent of the Study 1 sample.

MEASURES

K-ROII [Purdon and Clark, 1993; Lee and Kwon, 2003]. The K-ROII Section I was administered to yield total frequency scores by summing up the frequencies of all 52 obsessional thoughts, images, and impulses. The total frequency scores were employed as a measure of overall severity of obsessional ideation.

BDI [Beck et al., 1979]. A Korean version of the BDI was administered [Lee and Song, 1991].

BAI [Beck et al., 1988]. A Korean version of the BAI was administered [Kwon, 1992].

Maudsley Obsessional-Compulsive Inventory (MOCI) [Hodgson and Rachman, 1977]. The MOCI is a widely used, 30-item questionnaire assessing obsessive-compulsive symptoms. The MOCI provides five subscales: Checking, Washing, Slowness, Doubting, and Rumination [Hodgson and Rachman, 1977]. We used a Korean version of the MOCI, which has demonstrated good psychometric properties [Cho, 1985].

PI [Sanavio, 1988]. The PI is a 60-item self-report measure of obsessive-compulsive symptoms consisting of four subfactors: (a) Impaired Control over Mental Activities (i.e., lower ability to remove undesirable thoughts, difficulties in simple decisions and doubts, ruminative thinking about low-probability danger, etc.); (b) Becoming Contaminated (i.e., excessive hand washing, stereotyped cleaning, overconcern with dirt, worries about unrealistic contaminations, etc.); (c) Checking Behavior (i.e., repeatedly checking doors, gas, water taps, letters, money, numbers, etc.); and (d) Urges and Worries of Losing Control of Motor Behavior (i.e., urges of violence against animals or things, impulses to kill oneself or others without reason, fear of losing control over sexual impulse, etc.). We used a Korean version of the PI, which has demonstrated excellent psychometric properties, with internal consistency coefficients of total and subscale scores ranging from .88 to .96 and test-retest reliability of $r=.86$ over a 2-week period [Min and Won, 1999].

OBQ [Obsessive-compulsive Cognitions Working Group, 1997, 2001]. The OBQ is an 87-item self-report measure developed to assess enduring, predisposing, and dysfunctional beliefs relevant to OCD. This questionnaire comprises six subscales: (a) Inflated Responsibility (i.e., beliefs that one has a pivotal power to bring about or prevent subjectively crucial negative outcomes), (b) Overimportance of Thoughts (i.e., beliefs that the mere presence of a thought indicates that it is important; thought-action fusion and magical thinking), (c) Control of Thoughts (i.e., overvaluation of the importance of exerting complete control over intrusive thoughts and the belief that this is both possible and desirable), (d) Overestimation of Threat (i.e., exaggerations of the probability or severity of harm), (e) Intolerance of Uncertainty (i.e., beliefs about the necessity for being certain and about one's incapability to cope with unpredictable change or

ambiguous situations), and (f) Perfectionism (i.e., a tendency to believe that there is a perfect solution to every problem and doing something perfectly is both possible and necessary, and that even minor mistakes will lead to serious consequences). Each item is rated on a Likert scale of 1 (*disagree very much*) to 7 (*agree very much*), and total score is computed by summing all items in the scale. Test of internal consistency and test-retest reliability indicated that the OBQ assessed stable aspects of OCD-related thinking as well as core cognitive features of obsessiveness [Obsessive-compulsive Cognitions Working Group, 2003]. We used a Korean version of the OBQ [Min, 2000], with internal consistency coefficients ranging from .85 to .94 for each of the six subscales in the current sample.

Multidimensional Perfectionism Scale (MPS) [Frost et al., 1990]. The MPS is a 35-item self-report measure of perfectionistic personality features. This measure provides total and six subscale scores: Concern Over Mistakes (i.e., negative reactions to mistake, a tendency to interpret mistakes as equivalent to failure), Personal Standards (i.e., a tendency to set excessively high standards and place the extreme importance on these high standards for self-evaluation), Parental Expectations (i.e., a tendency to believe one's parents set very high goals), Parental Criticism (i.e., the perception one's parents were or are overly critical), Doubts about Actions (i.e., a general dissatisfaction with or uncertainty about the quality of one's effort or one has chosen the right course of action), and Organization (i.e., a tendency to emphasize orderliness and precision in daily tasks). The MPS has demonstrated good psychometric properties, including alpha coefficients ranging from .77 to .93 for each of the subscales and the total scores [Frost et al., 1990]. We used a Korean version of the MPS, which also has demonstrated adequate psychometric properties, with internal consistency coefficients ranging from .72 to .89 for each of the six subscales [Park, 1999]. Parental Expectations and Parent Criticism were not included in this study because no specific hypotheses were established about the two subscales.

PROCEDURE

Patients were asked to report their most distressing obsessions up to a maximum of three. In total, 57 obsessions were reported, which were classified into the autogenous or reactive subtypes following an identical procedure to that used in Study 1. The interrater reliability coefficient for this classification was .95. Of 27 participants, 10 (37%) reported only autogenous obsessions, 13 (48%) reported only reactive obsessions, and 4 (15%) reported both autogenous and reactive obsessions. The primary obsession for each patient was determined based on a twofold criterion that required the obsession to be reported as both the most frequent and the most upsetting. Based on this procedure, each participant was classified as

having a primary obsession of the autogenous type ($n=13$; autogenous patients) or the reactive type ($n=14$; reactive patients). Participants were then individually administered a battery of questionnaires assessing OCD symptom profiles, perfectionistic personality features, and dysfunctional beliefs.

STATISTICAL ANALYSES

Differences between autogenous and reactive patients were examined using MANOVAs for each of the three dimensions (i.e., OCD symptom profiles, perfectionistic personality, and dysfunctional beliefs). Follow-up univariate tests also were conducted to test specific study hypotheses.

RESULTS²

Table 4 presents data on demographics, general mood indices, and OC symptom severity for each of the two OCD groups. The two groups were equivalent on all measures, with the exception that autogenous patients were significantly younger than reactive patients, $t(25) = -2.99, P < .01$ (see Table 4). Kolmogorov-Smirnov tests revealed that all scores were normally distributed with the exception of the Urges and Worries of Losing Control subscale of the PI. Because of the skewed distribution of this subscale, the log-transformed score was used in the data analyses.

OBSESSIVE-COMPULSIVE SYMPTOM PROFILES

A MANOVA with total scores from the MOCI, the PI, and the K-ROII as dependent variables revealed a significant main effect for group, Wilks's $\Lambda F = 7.81, P < .01, \eta_p^2 = .51$. Follow-up univariate tests demonstrated that compared to reactive patients, autogenous patients displayed significantly higher total scores of the K-ROII that reflect the overall severity of obsessional ideation, $F(1, 25) = 4.33, P < .05$. In contrast, reactive patients demonstrated significantly higher total scores of the MOCI that mainly measures the severity of overt compulsions, $F(1, 25) = 8.38, P < .01$.

Another MANOVA was conducted with the subscales from the MOCI and the PI as dependent variables, resulting in a significant main effect for group, Wilks's $\Lambda F = 3.57, P < .05, \eta_p^2 = .65$. Follow-up univariate tests revealed that reactive patients displayed more overt, behavioral symptoms than autogenous patients, as seen by their higher scores on the Checking, $F(1, 25) = 9.47, P < .01$, and Washing, $F(1, 25) = 5.96, P < .05$, subscales of the MOCI as well as the Checking Behaviors subscale of the PI,

²We also repeated the analyses in this section controlling for age. These analyses revealed that the observed differences between the two groups with respect to OCD symptom profiles, dysfunctional beliefs, and perfectionistic personality features were not changed after including age as a covariate in the model.

TABLE 4. Demographics, general mood and OC symptoms of Study 2 participants

	Autogenous	Reactive	<i>t</i> (or χ^2)
Gender (% of Male)	76.9%	78.6%	.01
Age	24.15 (4.56)	33.43 (10.24)	-2.99 ^a
Education years	14.08 (1.72)	15.14 (2.03)	-1.30
Duration of illness (yr)	9.31 (4.93)	13.00 (8.59)	-1.36
Medication duration	2.92 (3.34)	2.29 (2.40)	.56
BAI	18.92 (14.65)	18.43 (12.06)	.29
BDI	13.25 (11.50)	16.21 (9.67)	-.59
PI	127.85 (43.23)	131.78 (29.34)	-.28

Values are expressed as mean (*SD*), unless otherwise indicated.

^a $P < .01$.

BAI = Beck Anxiety Inventory; BDI = Beck Depression Inventory; PI = Padua Inventory.

$F(1, 25) = 4.29, P < .05$. In contrast, autogenous patients scored significantly higher on the Urges and Worries of Losing Control subscale of the PI, $F(1, 25) = 7.14, P < .05$.

PERFECTIONISTIC PERSONALITY FEATURES

First, relative to autogenous patients, reactive patients demonstrated significantly higher on perfectionistic personality features as indexed by the total score on the MPS, $t(25) = -3.12, P < .005, \eta_p^2 = .28$. A MANOVA with the four subscales of the MPS (i.e., Concern over Mistakes, Personal Standards, Doubts about Actions, and Organization) as dependent variables revealed a marginally significant main effect for group, Wilks's $\Lambda F = 2.39, P = .08, \eta_p^2 = .30$. Thus, follow-up univariate tests were conducted with Bonferroni correction setting alpha level at .02 to control for Type I error inflation. Results revealed that compared to autogenous patients, reactive patients reported significantly higher scores on Concern over Mistakes, $F(1, 25) = 7.56, P < .02$, and Personal Standards, $F(1, 25) = 9.83, P < .005$. Autogenous patients also scored higher on Organization, which was marginally significant, $F(1, 25) = 4.36, P < .05$.

DYSFUNCTIONAL BELIEFS

A MANOVA with the six subscales of the OBQ as dependent variables revealed a significant main effect for group, Wilks's $\Lambda F = 2.63, P < .05, \eta_p^2 = .44$. Follow-up univariate tests showed that compared to autogenous patients, reactive patients reported significantly higher scores on Intolerance of Uncertainty, $F(1, 25) = 6.06, P < .05$, Responsibility, $F(1, 25) = 5.67, P < .05$, and Perfectionism, $F(1, 25) = 8.74, P < .01$, subscales of the OBQ; however, there were no significant differences between autogenous and reactive patients on Control of Thoughts, $F(1, 25) = .12, P = .73$, and Importance of Thoughts, $F(1, 25) = .04, P = .85$ (see Table 4).

DISCUSSION

Consistent with prediction, OCD patients primarily displaying autogenous versus reactive obsessions differed significantly in many OCD-related domains, including obsessive-compulsive symptom profiles, perfectionistic personality features, and dysfunctional beliefs. Those primarily displaying reactive obsessions exhibited more overt, behavioral rituals such as checking or washing whereas those primarily displaying autogenous obsessions exhibited more ideational, obsessional symptoms, including greater impulsive urges and worries about losing control. Contrary to prediction, those primarily displaying reactive obsessions scored significantly higher on the Doubting subscale of the MOCI; however, this subscale does tap checking-related concerns (e.g., conscientiousness, meticulousness, and doubting about actions) despite not directly addressing behavioral symptoms.

With respect to perfectionistic personality features, those primarily displaying reactive obsessions were more likely to interpret mistakes as equivalent to failure, believe one will lose others' respect contingent on failure, and set very high standards for self-evaluation. They also displayed a tendency to more adhere to orderliness and precision in daily tasks relative to patients primarily displaying autogenous obsessions. These data are consistent with the hypothesis that the greater checking and washing compulsions observed by those primarily displaying reactive obsessions may be a function of a generalized perfectionistic tendency to avoid mistakes at all costs.

Clear differences in dysfunctional beliefs also were observed between the two patient groups. As predicted, those primarily displaying reactive obsessions were more likely to endorse beliefs indicating (a) the perception of being unable to cope with unpredictable or ambiguous situations (i.e., intolerance for uncertainty), (b) that one can bring about or prevent subjectively crucial negative outcomes and thus should do something to prevent or undo harm (i.e., inflated sense of responsibility), and (c) that finding a perfect

TABLE 5. Differences in OCD symptoms, perfectionistic personality features, and dysfunctional beliefs between OCD Patients primarily displaying autogenous vs. reactive obsessions

	Autogenous patients	Reactive patients	<i>F</i>	ES*
K-ROII Total	96.62 (68.06)	54.86 (30.78)	4.33 ^a	.15
MOCI Total	10.31 (6.16)	16.85 (5.59)	8.38 ^b	.25
PI Total	127.85 (43.23)	131.78 (29.34)	.08	.00
MOCI-Checking	3.08 (2.06)	5.21 (1.53)	9.47 ^b	.28
MOCI-Washing	2.46 (2.44)	4.93 (2.79)	5.96 ^a	.19
MOCI-Slowness	2.15 (1.57)	3.00 (2.00)	1.48	.06
MOCI-Doubting	3.08 (1.89)	4.78 (2.15)	4.76 ^a	.16
MOCI-Rumination	1.15 (.90)	.71 (.91)	1.58	.06
PI-Impaired control	43.85 (17.01)	43.86 (13.07)	.00	.00
PI-Checking behaviors	24.69 (10.16)	31.29 (6.01)	4.29 ^a	.15
PI-Urges of loss of control	20.46 (9.80)	13.57 (2.59)	7.14 ^a	.22
PI-Becoming contaminated	21.85 (8.72)	24.93 (9.70)	.75	.03
OBQ-Intolerance of uncertainty	43.31 (10.37)	54.36 (12.73)	6.06 ^a	.20
OBQ-Threat estimation	49.31 (18.28)	52.57 (16.31)	.24	.01
OBQ-Need to control thoughts	62.08 (17.48)	60.14 (10.88)	.12	.01
OBQ-Overimportance of thoughts	45.62 (19.83)	44.36 (14.69)	.04	.00
OBQ-Responsibility	48.23 (20.44)	63.50 (12.15)	5.67 ^a	.19
OBQ-Perfectionism	46.69 (14.91)	66.00 (18.65)	8.74 ^b	.26
MPS-Total	91.85 (15.99)	116.07 (23.38)	9.72 ^b	.28
MPS-Concern over mistake	22.38 (5.30)	29.36 (7.58)	7.56 ^a	.23
MPS-Personal standard	18.54 (3.57)	24.43 (5.83)	9.83 ^b	.28
MPS-Doubt about action	12.00 (4.24)	14.29 (2.84)	2.74	.10
MPS-Organization	13.62 (4.27)	17.07 (4.32)	4.36 ^a	.15

Values are expressed as mean (*SD*), unless otherwise indicated.

*ES = Partial eta square (η_p^2)

^a $P < .05$; ^b $P < .01$.

K-ROII = Korean-Revised Obsessional Intrusion Inventory; MOCI = Maudsley Obsessional-Compulsive Inventory; PI = Padua Inventory; OBQ = Obsessional Belief Questionnaire; MPS = Multidimensional Perfection Scale.

solution to every problem or doing something perfectly is possible and necessary, and even minor mistakes will cause serious consequences (i.e., perfectionism). However, contrary to prediction, those primarily displaying autogenous obsessions did not display higher scores on Control of Thoughts and Overimportance of Thoughts. It may be that those primarily displaying reactive obsessions also consider their obsessions troublesome and significant, even though their threat focus is centered more on problematic external situations than on the thoughts themselves. OCD patients may generally consider it desirable to exert complete control over their obsessional intrusions regardless of their primary obsessions.

Taken together, Study 2 presents preliminary findings suggesting that the autogenous-reactive model of obsessions outlined by Lee and Kwon [2003] may be able to identify different subgroups of OCD patients.

GENERAL DISCUSSION

This article presented two independent studies that support the autogenous-reactive distinction of obsessions. Study 1 revealed that OCD patients' emotional reactions, cognitive appraisal, and neutralization dif-

fered significantly between the two obsession subtypes. Study 2 demonstrated that the obsessive-compulsive symptom profiles, perfectionistic personality features, and dysfunction beliefs among OCD patients differed significantly according to the autogenous-reactive subtyping of their primary obsession.

Autogenous obsessions appear to bring the focus of threat to the presence of the thoughts themselves, which are perceived as guilt provoking or repulsive. This in turn leads to various avoidant strategies designed to eliminate the thoughts or avert attention away from the thoughts. Threat perception and neutralization are focused on the thoughts, images, or impulses themselves. In contrast, reactive obsessions appear to bring the focus of threat to uncomfortable external conditions associated with the thoughts, which are perceived as likely to come true, thereby causing threat perception of harm associated with the thoughts and eliciting confrontational strategies designed to correct or change the situation. To date, several investigations of OCD subtypes have yielded three to five factor/cluster solutions based on factor analysis/cluster analysis [Abramowitz et al., 2003; Baer, 1994; Calamari et al., 1999; Leckman et al., 1997; Mataix-Cols et al., 1999]. In contrast, the autogenous-reactive

taxonomy of obsessions proposes that the heterogeneous clinical manifestations of OCD may be reducible to two broad action tendencies. One involves a *struggle with the thoughts themselves*, in which cognitive appraisals are centered on the perceived threats or discomfort of the thoughts and control strategies are focused on neutralizing/removing the thought themselves. The other action tendency involves a *struggle with the thought triggers*, in which cognitive appraisals are centered on the anticipated negative consequences/effects and control strategies are focused on correcting/neutralizing the triggering situations.

Although our findings suggest that OCD patients primarily displaying autogenous obsessions are likely to engage in avoidant thought-control strategies, they may also depend on some overt rituals to control their obsessional intrusions; however, their overt rituals may be more magical or superstitious as opposed to the functional nature of rituals typically displayed by OCD patients primarily displaying reactive obsessions. For instance, those primarily displaying autogenous obsessions may repeat meaningless phrases or numbers to undo their aggressive obsessions; compulsively touch things beginning with the letter *M* to neutralize the obsession of having sex with one's mother; or engage in senseless washing while believing that it will prevent some dreaded outcome. In contrast, those primarily displaying reactive obsessions may engage in washing rituals to eliminate suspected germs or engage in checking rituals to obviate or correct suspected mistakes or faults. Reactive obsessions tend to be directly linked to their target of neutralization (e.g., germs, mistake-prone tasks, a disarranged office). In contrast, autogenous obsessions appear to have fewer external triggers directly connected with them, which renders the target of neutralization unclear, thereby increasing the likelihood of magical behaviors. Thus, OCD patients primarily displaying autogenous obsessions may form some magical or superstitious associations that will later serve as symbolic or associational obsession triggers. Further examination is required to test our hypothesis suggesting the magical nature of overt rituals associated with autogenous obsessions.

It appears that the associated personality features differ between the two obsession subtypes. The present findings suggest that the manifestation of reactive obsessions may be indicative of excessive urges and need for control over one's environment, and is more likely to be associated with a perfectionistic personality style. In contrast, we have reported elsewhere that compared to reactive obsessions, autogenous obsessions are more strongly associated with schizotypal personality features such as illogical/magical thinking and unusual perceptual experience [Lee and Telch, in press]. Furthermore, OCD patients displaying autogenous obsessions as opposed to reactive obsessions as their primary subtype were found to exhibit more severe perceptual distortions and illogical thinking [Lee, Kim, and Kwon, in press]. Indeed, OCD patients

displaying autogenous obsessions were indistinguishable from patients with schizophrenia on several perceptual/ideational indices of the Comprehensive System [Exner, 1993] of the Rorschach Inkblot Test whereas OCD patients primarily displaying reactive obsessions did not differ from other nonpsychotic patients with other anxiety disorders [Lee, Kim, and Kwon, in press]. From these findings, one would speculate the possibility that different personality features may contribute to developing OCD involving different types of obsessions as primary. A prospective study is necessary for testing this hypothesis.

The autogenous-reactive distinction also appears to reasonably explain why exposure and response prevention (ERP) techniques have been unsuccessful for obsessional ruminators, who exhibit obsessions in the absence of overt compulsions [Freeston and Ladouceur, 1999; Marks, 1981; Rachman, 1997; Salkovskis and Westbrook, 1989]. These techniques have been demonstrated successful exclusively in certain types of OCD patients with explicit and overt compulsions such as washing and checking [Ball et al., 1996]. We presume that most of the ERP beneficiaries have been OCD patients primarily displaying reactive obsessions whereas OCD patients primarily displaying autogenous obsessions profit far less from these techniques due to the difficulty of clarifying external target stimuli for exposure and identifying target behaviors to block for response prevention. We hypothesize that OCD patients primarily displaying reactive obsessions would respond well to a traditional, behavioral treatment in which habituation to external threats and anxiety reductions are essential components. Conversely, we expect that OCD patients primarily displaying autogenous obsessions would not respond well to a habituation-based behavioral treatment, but may profit more from a cognitive approach targeting anomalous perception processes (e.g., magical thinking). Randomized controlled trials are required to test this treatment-matching hypothesis.

Several limitations of the present studies should be noted. First, Study 2 classified patients displaying both autogenous and reactive obsessions into either the autogenous or reactive type based on their primary obsessions rather than considering them as a separate group. It remains to be examined whether OCD patients displaying both autogenous and reactive obsessions would differ from OCD patients displaying only autogenous or reactive obsessions. However, when asked to report their most distressing obsessions, 85% of Study 2 patients reported only autogenous or reactive obsessions whereas 15% reported both autogenous and reactive obsessions.

Second, note that our findings are based solely on self-report. Replication based on data derived from additional modes of assessment, including clinician ratings, and behavioral assessments are needed.

Third, although the gender ratio was equivalent between those displaying the autogenous versus the

reactive subtype, only 30 and 22% of the participants in Study 1 and Study 2, respectively, were females. This may limit the generalizability of our findings. Because all study patients were from the same OCD clinic, it is not clear whether the preponderance of men in our samples reflects gender differences in treatment seeking among OCD patients in Korea or whether it reflects a gender-disproportionate population of the specific clinic from which our patients were recruited. Replication with OCD patient samples at other sites would clarify the observed gender imbalance. Also note that patients displaying the autogenous subtype as their primary obsessions exhibited an earlier age of onset (adolescence vs. early adulthood) relative to patients displaying the reactive subtype. Further investigation is needed to examine whether different developmental trajectories of OCD could be identified using this taxonomic model—for instance, whether patients who develop OCD at an earlier age are more likely to present with autogenous obsessions.

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