



## Research report

# Ruminative response in clinical patients with major depressive disorder, bipolar disorder, and anxiety disorders

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## ABSTRACT

**Background:** There is a growing interest in the transdiagnostic trait of rumination. However, few studies have directly examined the ruminative response in the diagnosis of disorders other than major depression, such as anxiety disorders and bipolar disorders. Even fewer studies have done so in a large, clinical sample.

**Method:** Patients with major depressive disorder (MDD), bipolar disorder (BPD), panic disorder with/without agoraphobia (PD), and generalized anxiety disorder or obsessive-compulsive disorder (GAD/OCD) were compared using the Ruminative Response Scale (RRS), Hamilton Rating Scale for Depression (HAM-D), and Hamilton Rating Scale for Anxiety (HAM-A).

**Results:** The PD group displayed the lowest levels of rumination even when depression and anxiety symptoms were treated as a covariate. The BPD group displayed higher levels of rumination than the MDD group.

**Conclusions:** A heightened ruminative response was not only found among individuals with MDD, but also among those with BPD and GAD/OCD; this might indicate ineffective thought control.

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## 1. Introduction

Rumination is a cognitive process. It has been defined by Response Style Theory of Nolen-Hoeksema as “behaviors and thoughts that focus one's attention on one's depressive symptoms and on the implications of those symptoms” (Nolen-Hoeksema, 1991). Rumination is a stable, trait-like tendency to respond to negative life events and negative mood states with both repetitive thinking and negative automatic thoughts. Previous works have shown that high trait-levels of rumination are associated with a heightened vulnerability to develop major depression symptoms due to its passive and negatively biased process (Nolen-Hoeksema, 1991; Nolen-Hoeksema et al., 1993). The majority of previous studies in this area have focused on the association between

rumination and unipolar depression. These studies have shown that individuals with depression tend to display higher levels of rumination than healthy controls. However, it has also been demonstrated that individuals in a state of remission from depression tend to display higher levels of rumination than healthy controls. As such, it appears that rumination is a stable trait that is present in individuals both during active states of depression and remission (Lyubomirsky et al., 1998, 1999).

Additionally, previous work has shown that individuals with high levels of anxiety tend to display higher levels of rumination than healthy controls. Specifically, Legerstee et al. (2011) reported that adolescents with anxiety disorders tend to have higher scores across a number of cognitive coping strategies, including rumination. In particular, adolescents with generalized anxiety disorder (GAD) have been shown to score markedly higher in ruminative responding as assessed by the rumination scale. Yook et al. (2010) found that patients with GAD reported higher levels of rumination than controls, though patients with GAD reported lower levels of rumination

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than patients with major depressive disorder (MDD). Repetitive thoughts related to personal concerns occur in several anxiety disorders, including social anxiety, GAD, obsessive-compulsive disorder (OCD), and post-traumatic stress disorder (PTSD). The presence of rumination across these various disorders suggests that rumination is a transdiagnostic process (Abbott and Rapee, 2004; American Psychiatric Association, 1994; Ehlers et al., 1998; Van Oppen et al., 1995). As such, Watson has examined depressive rumination and comorbidity. The results of this study showed that rumination was positively associated with both depression and anxiety symptoms, as well as the traits associated with borderline personality, while brooding was related to comorbid OCD and GAD (Watkins, 2009). Additionally, several prospective longitudinal studies have shown that rumination predicts levels of both anxiety and depressive symptoms (Hong, 2007; Nolen-Hoeksema, 2000; Sarin et al., 2005).

Although few studies have examined ruminative responses in individuals with bipolar disorder, there is a growing interest in the role of ruminative responses in this disorder. In particular, one such study by Johnson et al. (2008) found that both undergraduates diagnosed with bipolar disorder and those diagnosed with MDD experienced heightened levels of rumination. Specifically, undergraduates with a history of both mania and depression reported higher levels of rumination than undergraduates with a history of depression only. This study also found that a diagnosis of depression was associated with significantly higher scores on the reflection and depression subscales of the RRS, but not with scores on the brooding subscale. Thomas et al. (2007) also reported that patients with bipolar disorder showed higher levels of rumination during remission than normal controls. This finding suggests that individuals with a history of bipolar disorder may have a preexisting, trait-like predisposition toward the inability to control negative thoughts. In addition to the work by Thomas et al., two studies have shown that rumination is associated with hypomanic traits and low levels of positive emotions (Knowles et al., 2005; Thomas and Bental, 2002).

In sum, the study of rumination is expanding beyond its role in unipolar depression to other areas such as examinations of the association between rumination and various psychological traits and vulnerabilities and other mental disorders. Furthermore, refinement of the concept of rumination into the subdomains of brooding and reflective pondering has facilitated studies of the impact and association of cognitive processes with clinical impairments (Trenor et al., 2003). However, previous studies of rumination have experienced some limitations, such as the use of undergraduate student participants, a small number of clinical patients participating in the study, the limited number of mental disorders examined, and the lack of control for comorbid disorders.

This study investigated rumination levels among patients with MDD, bipolar disorder, and anxiety disorders. These associations were examined according to diagnosis, and the associations among subfactors of rumination, mood states, and diagnosis were examined. It was hypothesized that patients with mood disorders would have higher levels of rumination than patients with anxiety disorders. Additionally, it was predicted that patients with panic disorder, who

mainly experience high levels of physical arousal, would display lower levels of rumination than patients with GAD or OCD, as these disorders are characterized by worry and cognitive dyscontrol.

## 2. Methods

### 2.1. Participants and procedure

Participants were recruited from outpatients and inpatients of Samsung Medical Center, Seoul between November, 2007 and August, 2010. Four hundred and seventy-six patients diagnosed with MDD, BPD, panic disorder with/without agoraphobia (PD), and GAD/OCD by the Structured Clinical Interview for DSM-IV (SCID) agreed to participate in the study. Patients with mood disorders and comorbid anxiety disorders, as well as patients with anxiety disorders and comorbid mood disorders, were excluded in order to clarify the comparison between mood disorders and anxiety disorders. Participants completed self-report questionnaire packets, including the RRS. Participants were interviewed by clinical psychologists using the HAM-D and HAM-A. All study procedures were compliant with the regulations of the Samsung Medical Center Institutional Review Board. Written informed consent was obtained from all participants.

Participants ranged in age from 16 to 88 years. Of the recruited patients, 62.8% ( $N = 299$ ) were female. Two hundred twenty-seven patients with MDD, 157 patients with BPD, 65 patients with PD, 16 patients with GAD, and 11 patients with OCD were enrolled in the study. Among the 157 patients with BPD, 68 (43.3%) were diagnosed with bipolar I disorder, 52 (33.1%) were diagnosed with bipolar II disorder, and 37 (23.6%) were diagnosed with bipolar disorder NOS. Among the patients with bipolar I and bipolar II disorders, 54 (45.0%) were in a manic or hypomanic episode, 54 (45.0%) were in a depressive episode, 9 (17.5%) were in a mixed episode, 2 (1.7%) were in partial remission, and one (0.8%) was in an unspecified episode. As normality was not validated for the four groups, a Kruskal–Wallis test was conducted to estimate age differences, and a Chi square test was conducted to estimate gender differences. The BPD group was significantly younger than the other groups ( $p < 0.0001$ ), and females were approximately two times as prevalent as males in the mood disorder groups ( $p < 0.0001$ ), which is similar to the rates reported in previous studies (Cuellar et al., 2005; Leibenluft, 2000; Weissman et al., 1996).

### 2.2. Measures

#### 2.2.1. Structured Clinical Interview for the DSM-IV (SCID)

The Structured Clinical Interview for the DSM-IV (SCID) has been used as a semi-structured interview to assess whether individuals meet diagnostic criteria for Axis I disorders of the DSM-IV (Spitzer et al., 1992; Williams et al., 1992). The modules for the assessment of lifetime mood disorders, anxiety disorders, psychosis, somatoform disorders, and substance dependence/abuse were administered to participants. The SCID has been shown to display good test–retest reliability in previous studies (Williams et al., 1992).

### 2.2.2. Korean-Ruminative Response Scale (K-RRS)

The Korean-ruminative response scale is the Korean version of the 22-item, self-report questionnaire that assesses ruminative responses. Respondents rate their depressive mood experiences on a 4 point Likert scale. The total score is the index score of ruminative response style, and a higher score represents more significant ruminative response style. [Treyner et al. \(2003\)](#) eliminated 12 items that were similar to those of the Beck Depression Inventory (BDI) and performed a factor analysis on the 10 remaining items. Two subscales were identified. Specifically, the subscales of 'brooding' and 'reflective pondering' were identified and determined to be non-confounded with depressive symptoms. The 'brooding' subscale is negatively valenced and is composed of 'moody pondering' of personal shortcomings and set-backs, while 'reflective pondering' is neutrally valenced and includes items related to efforts to analyze one's self, feelings, thoughts, and events. In a preceding study ([Kim et al., 2009](#)), the K-RRS was validated among undergraduate participants with the permission of Nolen-Hoeksema, the original author of the RRS. This study established the reliability and validity of the measure.

### 2.2.3. Hamilton rating scale for depression (HAM-D)

The Hamilton rating scale for depression (HAM-D) is one of the most widely used clinical rating scales for the assessment of depressive symptoms ([Hamilton, 1960](#)). The HAM-D includes 17 items to measure somatic symptoms, insomnia, anxiety, working capacity, mood, guilt, psychomotor agitation, and individual insight. Respondents endorse items using a five-point scale (0–4). The Korean version of the HAM-D has also displayed adequate validity and reliability ([Yi et al., 2005](#)).

### 2.2.4. Hamilton rating scale for anxiety (HAM-A)

The Hamilton rating scale for anxiety (HAM-A), developed by [Hamilton \(1959\)](#), is a semi-structured, 14-item interview designed to assess the severity of anxiety symptoms. This scale consists of two factors, general psychological anxiety symptoms and cognitive symptoms. Respondents rate items on a five-point scale (0–4). The Korean version of the HAM-A, as translated by [Kim \(2000\)](#), was used for this study.

### 2.3. Data analysis

Normality and homogeneity of variance for the sample distribution was questionable; thus, a Shapiro–Wilk test and Levene's statistic were derived. Parametric and continuous data were compared between groups using Student's t-tests and ANOVA. Categorical data was analyzed using the chi-square test. The Mann–Whitney *U* test and Kruskal–Wallis test were used for nonparametric data. As the normality of data was not adjusted after log transformation, nonparametric analyses were used with initial/raw data. All statistical analyses were 2-sided, conducted at the standard significance level of .05, and reported using p-values and 95% confidence intervals (CIs). All analyses were performed using SPSS 17.0 (SPSS Inc).

## 3. Results

### 3.1. Comparison between major depressive disorder, bipolar disorder, and anxiety disorders

Participants were divided into 4 groups according to their diagnosis: MDD, BPD, PD, and GAD/OCD. Between groups differences were estimated for scores on the RRS, including the subscales of 'brooding' and 'reflective pondering', and the HAM-D and HAM-A. As none of the data for the scales was normally distributed according to the Shapiro–Wilk test, a Kruskal–Wallis test was conducted. For post-hoc analysis of the nonparametric data, sum scores for each of the scales were transformed via rank order and compared using Tukey tests. The results of these analyses are presented in [Table 1](#). The PD group had the lowest score on each of the scales. The MDD group had the highest score on the measures of depression than the other groups. There were no significant differences in total RRS score and brooding subscale between the MDD, BPD and GAD/OCD groups, however, the BPD group did have a significantly higher score on the reflective pondering subscale.

A Partial Spearman test was administrated to exclude the possibility that significant differences in rumination between groups were associated with differences in depression or anxiety levels. When HAM-D scores were controlled for, the BPD group showed higher levels of rumination than the MDD

**Table 1**

Medians and interquartile ranges of MDD, BPD, PD, and GAD/OCD groups (N = 476).

	MDD (n = 227)	BPD (n = 157)	PD (n = 65)	GAD/OCD (n = 27)	$\chi^2$	p	Tukey HSD
	Median (25%ile, 75%ile)						
RRS	54.0 (44, 63)	54.0 (41.5, 67)	37.0 (30.5, 43)	49.0 (39, 58)	62.711	<.0001	1,2,4>3
Reflective pondering	10.0 (8, 12)	11.0 (9, 14)	7.0 (6, 9.5)	9.0 (8, 11)	61.711	<.0001	2>1,3,4, 1>3
Brooding	13.0 (11, 15)	13.0 (9, 16)	9.0 (8, 11)	13.0 (10, 16)	39.652	<.0001	1,2,4>3
HAM-D	17.0 (13, 21)	11.0 (7, 17)	8.0 (5.5, 11.5)	14.0 (8, 17)	98.129	<.0001	1>2,4>3
HAM-A	16.0 (11, 21)	12.0 (7, 16)	11.0 (7.5, 15.5)	17.0 (11, 20)	41.414	<.0001	1>2,3, 4>3

Note. RRS, Ruminative Response Scale; Reflective pondering, 'reflective pondering' subscale of RRS; Brooding, 'brooding' subscale of RRS; HAM-D, Hamilton Rating Scale for Depression; HAM-A, Hamilton Rating Scale for Anxiety.

Group 1: MDD, major depressive disorder; Group 2: BPD, bipolar disorder, Group 3: PD, panic disorder with/without agoraphobia; Group 4: GAD/OCD, generalized anxiety disorder and obsessive–compulsive disorder.

group ( $\rho = 0.235$ ,  $df = 273$ ,  $p < 0.0001$ ), while the MDD and GAD/OCD groups did not show significant differences in rumination levels ( $\rho = -0.037$ ,  $df = 273$ ,  $p < 0.0001$ ). The PD group had significantly lower rumination levels than the MDD group even when depression levels were controlled for ( $\rho = -0.240$ ,  $df = 273$ ,  $p < 0.000$ ). When HAM-A scores were controlled for, a similar pattern was observed. Specifically, the BPD group had higher levels of rumination than the MDD group ( $\rho = 0.219$ ,  $df = 273$ ,  $p < 0.0001$ ), the PD group had lower rumination levels than the MDD group ( $\rho = -0.311$ ,  $df = 273$ ,  $p < 0.0001$ ), and the GAD/OCD group did not differ from the MDD group in terms of rumination levels ( $\rho = -0.078$ ,  $df = 273$ ,  $p < 0.0001$ ).

### 3.2. Comparison between unipolar depression and bipolar depression

To estimate the differences in ruminative response levels between unipolar depression and bipolar depression, patients with MDD ( $N = 227$ ) and patients with BPD ( $N = 54$ ) who were currently experiencing a depressive episode were compared. For these comparisons, the RRS and HAM-A met the assumption of normality, and thus, these scales were analyzed using a Student's *t*-test. Other scales were compared using the Mann–Whitney *U* test. The results of these analyses are presented in Table 2.

There were no significant differences in the depression or anxiety levels of the two groups ( $p = 0.397$  and  $p = 0.799$ , respectively). However, the bipolar depression group had significantly higher scores on the RRS ( $p < 0.0001$ ) and its subscales of both reflective pondering ( $p < 0.0001$ ) and brooding ( $p = 0.001$ ).

## 4. Discussion

This study compared rumination levels among patients with MDD, BPD, and several anxiety disorders. It was determined that the MDD, BPD, and GAD/OCD groups did not differ in their ruminative responses, while the PD group had significantly lower scores than any of the other groups. As ruminative responses were elevated not only in individuals with depression, but also in those with anxiety, these results suggest that rumination is a transdiagnostic trait. However, the GAD/OCD group, characterized by persistent worries and

cognitive dyscontrol, had rumination scores comparable to the groups with mood disorders, while the PD group, characterized by anxiety attacks and physical arousal, had the lowest scores. These results suggest that there are heterogeneous cognitive processes that characterize anxiety disorders.

The results of this study remained significant even after controlling for current symptoms of depression and anxiety. Additionally, the findings of this study are consistent with those of previous studies showing that adolescents with GAD displayed significantly higher levels of rumination (Legerstee et al., 2011) and brooding than healthy adolescents, and studies showing that rumination was associated with GAD/OCD and comorbid MDD (Watkins, 2009). A major innovation of the current study is that individuals with pure mood and anxiety disorders with no comorbidity were enrolled in the study. Thus, it appears that rumination has general effects in the maintenance of negative mood through repetitive cognitive processes because the GAD/OCD group, without a comorbid depressive disorder, displayed the same levels of rumination as both the MDD and BPD groups.

In addition to the role of rumination in anxiety disorders, this study also compared unipolar and bipolar depression with respect to symptom severity and the level of ruminative responding in each disorder. The results of this comparison showed that the bipolar depression group had significantly higher levels of rumination than the unipolar depression group, however, these two groups did not differ with respect to depression or anxiety levels. The bipolar depression group also had higher levels of both reflective pondering and brooding than the unipolar depression group. These results suggest that bipolar depression may increase levels of negative thoughts and decrease levels of cognitive control over and above the effects of unipolar depression. In previous studies, individuals with unipolar depression and bipolar depression have been shown to have similar scores on the Attributional Style Questionnaire (Seligman et al., 1988), Automatic Thought Questionnaire (Hill et al., 1989; Hollon et al., 1986), Dysfunctional Attitudes Scale (Hollon, 1992; Scott and Pope, 2003), and on measures of low self-esteem (Scott and Pope, 2003). However, this study demonstrated that levels of rumination tend to be significantly higher among individuals with bipolar depression, and this finding is consistent with the results of Johnson et al. (2008).

**Table 2**  
Comparison between unipolar and bipolar depression.

	MDD depression (n = 227)	BPD depression (n = 54)	t	p
	Mean (SD)	Mean (SD)		
RRS	54.21 (13.13)	61.94 (13.58)	−3.87	.000
HAM-A	16.15 (6.59)	16.41 (6.53)	−.254	.799
	MDD depression (n = 227)	BPD depression (n = 54)	$\chi^2$	p
	Median (25%ile, 75%ile)	Median (25%ile, 75%ile)		
Reflective pondering	10.0 (8, 12)	13.0 (10, 16)	3797.00	.000
Brooding	13.0 (11, 15)	15.5 (12.75, 18.25)	4284.00	.001
HAM-D	17.0 (13, 21)	17.0 (11, 21)	5675.50	.397

Note. RRS, Ruminative Response Scale; Reflective Pondering, 'reflective pondering' subscale of RRS; Brooding, 'brooding' subscale of RRS; HAM-D, Hamilton Rating Scale for Depression; HAM-A, Hamilton Rating Scale for Anxiety, MDD depression: major depressive disorder during a depressive episode, BPD depression: bipolar disorder during a depressive episode.



In sum, this study found that not only patients with mood disorders but also patients with anxiety disorders show high rumination level, and when depression and anxiety levels were controlled, patients with bipolar disorder tend to show higher levels of rumination than individuals with unipolar mood disorder, generalized anxiety disorder, or obsessive-compulsive disorder regardless of currently experiencing mood episode. These types of patients tend to have difficulty with thought control, and tend to show high levels of rumination. There were several limitations in this study. First, there were significant intergroup differences in age, gender, and education level. However, it was important to observe rumination levels in a clinical sample that was representative of the particular disorder being examined. Thus, additional statistical control was not employed. Second, there were marked differences in the numbers of each diagnosis. Specifically, the number of patients in the GAD/OCD group was significantly smaller than that of the other groups. Third, longitudinal observation was not completed in this study. Thus, further longitudinal study is needed to refine the understanding of the role of the ruminative response on prognosis and symptom changes over time.

Nonetheless, this study allowed for the examination of a group of individuals at high risk for rumination and the nature of rumination in a large clinical sample. The fact that this study examined differences between mood and anxiety disorders through the exclusion of comorbid disordered populations is particularly important. As rumination is known to contribute to the maintenance and exacerbation of depressive symptoms and is known to be a risk-factor for symptom recurrence, cognitive impairment, and suicide, active intervention for groups at high risk for rumination may be indicated.

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Internal funds were only used to make packets of psychological tests.

#### Conflict of interest

All the authors declare that they have no conflicts of interest.

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#### References

- Abbott, M.J., Rapee, R.M., 2004. Post-event rumination and negative self-appraisal in social phobia before and after treatment. *J. Abnorm. Psychol.* 113, 136–144.
- American Psychiatric Association, 1994. *Diagnostic and Statistical Manual of Mental Disorders*, 4th edn. American Psychiatric Association, Washington DC.
- Cuellar, A.K., Johnson, S.L., Winters, R., 2005. Distinctions between bipolar and unipolar depression. *Clin. Psychol. Rev.* 25, 307–339.
- Ehlers, A., Mayou, R.A., Bryant, B., 1998. Psychological predictors of chronic posttraumatic stress disorder after motor vehicle accidents. *J. Abnorm. Psychol.* 107, 508–519.
- Hamilton, M., 1959. The assessment of anxiety states by rating. *The British Journal of Psychiatry* 32, 50–55.
- Hamilton, M., 1960. A rating scale for depression. *J. Neurol. Neurosurg. Psychiatry* 23, 56–62.
- Hill, C.V., Oei, T.P., Hill, M.A., 1989. An empirical investigation of the specificity and sensitivity of the automatic thoughts questionnaire and dysfunctional attitudes scale. *J. Psychopathol. Behav. Assess.* 11, 291–311.
- Hollon, S.D., 1992. Cognitive models of depression from a psychobiological perspective. *Psychol. Inq.* 3, 250–253.
- Hollon, S.D., Kendall, P.C., Lumry, A., 1986. Specificity of depressotypic cognitions in clinical depression. *J. Abnorm. Psychol.* 95, 52–59.
- Hong, R.Y., 2007. Worry and rumination: differential associations with anxious and depressive symptoms and coping behavior. *Behav. Res. Ther.* 45, 277–290.
- Johnson, S.L., McKenzie, G., McMurrich, S., 2008. Ruminative responses to negative and positive affect among students diagnosed with bipolar disorder and major depressive disorder. *Cognitive Therapy and Research* 32, 701–713.
- Kim, C.Y., 2000. *Psychiatric assessment instruments*. Hana Medical Books, Seoul.
- Kim, S.J., Kim, J.H., Youn, S.C., 2009. Validation of the Korean-Ruminative Response Scale (K-RRS). *Korean J. Clin. Psychol.* 29, 1–19.
- Knowles, R., Tai, S., Christensen, I., Bentall, R., 2005. Coping with depression and vulnerability to mania: a factor analytic study of the Nolen-Hoeksema (1991) Response Styles Questionnaire. *Br. J. Clin. Psychol.* 44, 99–112.
- Legerstee, J.S., Garnefski, N., Verhulst, F.C., Utens, E.M., 2011. Cognitive coping in anxiety disordered adolescents. *Journal of Adolescence* 34 (2), 319–326.
- Leibenluft, E., 2000. Women and bipolar disorder: an update. *Bull. Menninger Clin.* 64, 5–17.
- Lyubomirsky, S., Caldwell, N.D., Nolen-Hoeksema, S., 1998. Effects of ruminative and distracting responses to depressed mood on retrieval of autobiographical memories. *J. Pers. Soc. Psychol.* 75, 166–177.
- Lyubomirsky, S., Tucker, K.L., Caldwell, N.D., Berg, K., 1999. Why ruminators are poor problem solvers: clues from the phenomenology of dysphoric rumination. *J. Pers. Soc. Psychol.* 77, 1041–1060.
- Nolen-Hoeksema, S., 1991. Responses to depression and their effects on the duration of depressive episodes. *J. Abnorm. Psychol.* 100, 569–582.
- Nolen-Hoeksema, S., 2000. The role of rumination in depressive disorders and mixed anxiety/depressive symptoms. *J. Abnorm. Psychol.* 109, 504–511.
- Nolen-Hoeksema, S., Morrow, J., Fredrickson, B.L., 1993. Response styles and the duration of episodes of depressed mood. *J. Abnorm. Psychol.* 102, 20–28.
- Sarin, S., Abela, J.R.A., Auerbach, R.P., 2005. The response styles theory of depression: a test of specificity and causal mediation. *Cogn. Emot.* 19, 751–761.
- Scott, J., Pope, M., 2003. Cognitive styles in individuals with bipolar disorders. *Psychol. Med.* 25, 333–348.
- Seligman, M.E., Castellon, C., Cacciola, J., Schulman, P., Luborsky, L., Ollove, M., Downing, R., 1988. Explanatory style change during cognitive therapy for unipolar depression. *J. Abnorm. Psychol.* 97, 13–18.
- Spitzer, R.L., Williams, J.B., Gibbon, M., First, M.B., 1992. The Structured Clinical Interview for DSM-III-R (SCID). I: History, rationale, and description. *Arch. Gen. Psychiatry* 49, 624–629.
- Thomas, J., Bentall, R.P., 2002. Hypomanic traits and response styles to depression. *Br. J. Clin. Psychol.* 41, 309–313.
- Thomas, J., Knowles, R., Tai, S., Bentall, R.P., 2007. Response styles to depressed mood in bipolar affective disorder. *J. Affect. Disord.* 100, 249–252.
- Treynor, W., Gonzalez, R., Nolen-Hoeksema, S., 2003. Rumination reconsidered: a psychometric analysis. *Cogn. Ther. Res.* 27, 247–259.
- Van Oppen, P., Hoekstra, R.J., Emmelkamp, P.M., 1995. The structure of obsessive-compulsive symptoms. *Behav. Res. Ther.* 33, 15–23.
- Watkins, E.R., 2009. Depressive rumination and co-morbidity: evidence for brooding as a transdiagnostic process. *J. Ration. Emot. Cogn. Behav. Ther.* 27, 160–175.
- Weissman, M.M., Bland, R.C., Canino, G.J., Faravelli, C., Greenwald, S., Hwu, H.G., Joyce, P.R., Karam, E.G., Lee, C.K., Lellouch, J., Lepine, J.P., Newman, S.C., Rubio-Stipec, M., Wells, J.E., Wickramaratne, P.J., Wittchen, H., Yeh, E.K., 1996. Cross-national epidemiology of major depression and bipolar disorder. *JAMA* 276, 293–299.
- Williams, J.B., Gibbon, M., First, M.B., Spitzer, R.L., Davies, M., Borus, J., Howes, M.J., Kane, J., Pope Jr., H.G., Rounsaville, B., et al., 1992. The Structured Clinical Interview for DSM-III-R (SCID). II. Multisite test-retest reliability. *Arch. Gen. Psychiatry* 49, 630–636.
- Yi, J.S., Bae, S.O., Ahn, Y.M., Park, D.B., Noh, K.S., Shin, H.K., Woo, H.W., Lee, H.S., Han, S.I., Kim, Y.S., 2005. Validity and reliability of the Korean version of the Hamilton Depression Rating Scale (K-HDRS). *J. Korean Neuropsychiatr.* 44, 456–465.
- Yook, K.Y., Kim, K.H., Suh, S.Y., Lee, K.S., 2010. Intolerance of uncertainty, worry, and rumination in major depressive disorder and generalized anxiety disorder. *Journal of Anxiety Disorders* 24, 623–628.