Rumination as a Transdiagnostic Construct: A Preliminary Meta-analysis on Depression and Anxiety

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Background

- Rumination is a repetitive thinking style whereby people focus on negative emotional or self-referential thought to deal with distress or negative mood (Nolen-Hoeksema et al., 2008).
- Researchers primarily focus on two components of rumination: **reflective pondering,** purposeful and beneficial for cognitive problem solving, and **brooding,** passive and maladaptive (Treynor et al., 2003).
- Transdiagnostic constructs are behavioral elements, processes or mechanisms that cut across multiple diagnoses, and thus have been studied to inform the relationship between comorbid disorders (McLaughlin & Nolen-Hoeksema, 2011).
- Because rumination co-occurs with depression and anxiety DSM-5 diagnoses, it is a transdiagnostic construct.
- Brooding rumination in particular overlaps with anxiety and depression. It is also associated with other clinical problems such as eating disorders, substance use disorders, schizophrenia and post traumatic stress disorder (PTSD).

Objectives

1. Identify emerging trends from recently published studies that have examined rumination in relation to two or more clinical/diagnostic constructs.
2. Develop a systematic approach to organize data from published studies to inform a systematic procedure to meta-analyze from the extant rumination literature.

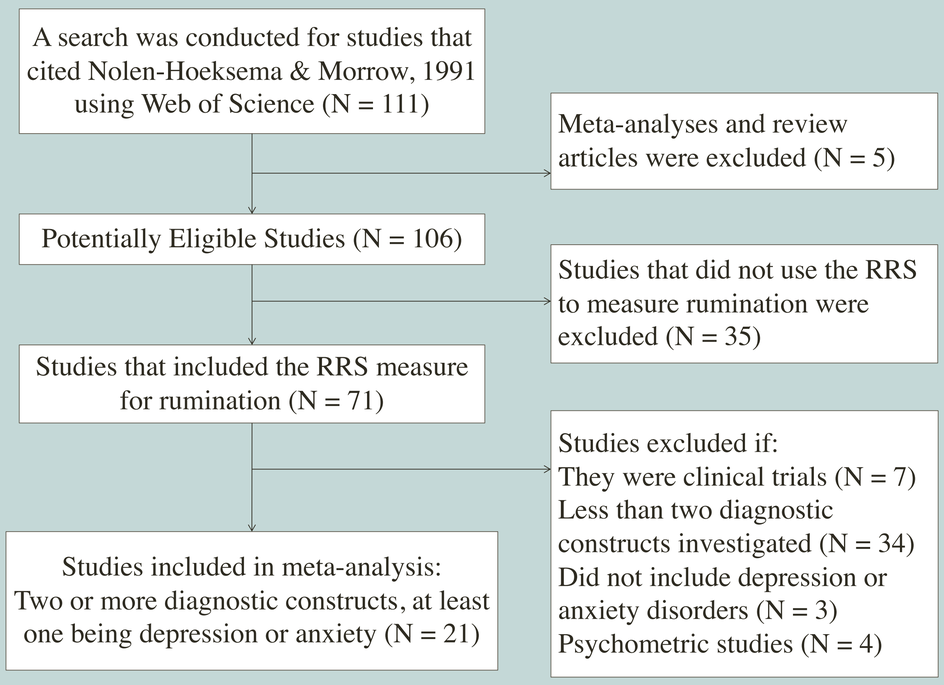
Hypothesis

We expected brooding rumination to be correlated to anxiety and depression and hypothesized an ordering effect in that the correlation with anxiety would be stronger.

Methods

Study Selection

Figure 1. Diagram of criteria for study inclusion



Measures

- Trait Rumination: Ruminative Response Scale (RRS; Nolen-Hoeksema & Morrow, 1991; Treynor et al., 2003). The 22-item scale contains 3 important sub scales: depression, reflective pondering (RP) and brooding (BR). Subscales of interest were RP and BR. BR is correlated with clinical problems and RP is related to psychological help.

Approach to Analysis

- To examine our hypothesis we compared mean correlations among depression, anxiety with RRS total, RP and BR.
- We focused our efforts on a limited number of recent studies to develop our approach for a large-scale study and thus present means of correlations for comparison.
- We did not carry out statistical analyses for this preliminary study

Information, such as the number of DSM diagnoses investigated, clinical constructs of interest, measures used for depression and anxiety, study type and design, age, sample type and RRS scale used, were collected in an excel formatted database. This database was then converted to SPSS format for analyses. This enabled us to organize and quantify information to investigate trends across the studies.

We thank Professor Marcus Leppanen and Professor Kyungmi Kim for their help

Results

Table 1. Number of studies that examined anxiety or depression

	Included (N)	Not included (N)	Percentage of included from total cases (%)
Depression	20	1	95.2
Anxiety	8	13	38.1

Note: N = number of studies with results for total RRS, RP subscale and BR subscale

Other DSM constructs examined:
- **1** Obsessive Compulsive Disorder
- **1** Psychosis
- **1** Autism
- **1** Attention deficit hyperactivity disorder

Other important constructs examined:
- **2** Worry
- **3** Suicidal behavior

Analyses examined the diagnostic constructs in the studies. The overall category of anxiety disorders included general anxiety disorder (N=5), social anxiety disorder (N=2), PTSD (N=1) and panic disorder (N=1).

Mean scores were examined across sample type to look for trends. Total RRS and BR means were greater in clinical samples than general samples. Mean score for reflective pondering was less for clinical samples than general samples.

Table 2. Mean RRS scores across studies by sample type

Sample	Total RRS	Reflective Pondering	Brooding
Clinical	47.92	9.45	11.82
General	46.65	10.91	11.61
Total	47.41	10.04	11.77

Table 3. Mean Correlation Scores between Anxiety or Depression Measures and RRS Scores

Psychiatric Construct Measure	Mean Correlation with Total RRS	Mean Correlation with Reflective Pondering	Mean Correlation with Brooding
Depression	.577	.249	.494
Anxiety	.545	.407	.639

To test for an ordering effect, we calculated the mean value for correlations reported by our sample. The means for all correlations, apart from that between depression measures and RP subscale, were moderately positive. While depression measures were more strongly correlated with the total RRS than anxiety measures, they were less strongly associated with the RP and BR subscales than anxiety measures.

Table 4. Mean Correlation Scores between Anxiety or Depression Measures and RRS Scores by Sample Type

Psychiatric Construct Measure	**Sample Type**	Mean Correlation with Total RRS	Mean Correlation with Reflective Pondering	Mean Correlation with Brooding
Depression	Clinical	.800	.430	.512
	General	.532	.158	.476
Anxiety	Clinical	.468	.510	.580
	General	.584	.355	.669

We also compared correlation means across sample types (general and clinical). Clinical samples for depression studies were strongly correlated with total RRS scores and moderately correlated with BR, more so than studies with a general sample. RF scores were also more strongly associated with clinical samples across anxiety and depression, but for all other reported mean correlations, the general sample showed a stronger association.

Discussion and Future Directions

Results were consistent with our hypothesis. The mean correlation between brooding rumination and anxiety was greater than the mean correlation for depression. Nevertheless, depression was found to be more strongly associated with total RRS than anxiety. We posit that this result is due to the depression subscale of the RRS (items not included in the RP and BR subscales). Unfortunately, researchers do not consistently report all subscales, and this result underscores the importance that researchers report all three RRS subscales as well as total RRS.

Expected patterns were present in the data as studies with clinical samples exhibited greater means for BR and total rumination than those with general samples, and the RP mean is greater for studies with a general sample. However, results also included unexpected patterns with correlation means being greater for studies with general than clinical samples. This could result from the limited number of studies used in general or because some studies required subjects to be high ruminators for participation.

Our planned large-scale meta-analysis will allow us to investigate these possibilities more definitively. It will also allow us to examine the relation of rumination to other transdiagnostic constructs and DSM disorders and to better control for demographic characteristics (e.g., gender and age).

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