If I Only Knew Why: The Relationship Between Brooding, Beliefs About Rumination, and Perceptions of Treatments

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People who tend to engage in brooding, the maladaptive subtype of rumination, are at risk to develop depression. Brooders often endorse metacognitive beliefs that self-focused ruminative thinking is beneficial. In the current study, we examined whether brooding and positive beliefs about rumination are associated with perceptions of and preferences for treatments for depression. Participants (N = 118) read descriptions of two different clusters of treatments for depression, Insight-Oriented (IO) treatments and Activation-Oriented (AO) treatments. They then rated treatment efficacy and credibility and completed self-report measures of rumination (including brooding and reflection subscales), beliefs about rumination, and depression. Brooding and metacognitive positive beliefs about rumination were associated with positive perceptions of IO (but not AO) treatments. Positive beliefs about rumination contributed to the prediction of perceptions of IO treatments (but not AO treatments) beyond the effect of brooding. We discuss the implications of these findings for individuals’ decision-making processes regarding which type of treatment to seek.

Keywords: rumination; brooding; metacognitive beliefs; treatment preference; treatment credibility

APPROXIMATELY 1.16 MILLION INTERNET QUERIES with the keyword “depression” were recorded per month in the U.S. in 2006 (Fu, Wong, & Yip, 2010). Depression, the “world wide burden in the 21st century” (Üstün, 2001), is one of the most common psychiatric conditions (Riojo, Nguyen, Greden, & King, 2005), and it drives millions of people to search for help. Help seeking for mental health is not an easy task. A wealth of competing treatments is available, and people are required to evaluate and choose the best treatment for themselves. Different psychological treatments may share common therapeutic factors (Castonguay, 1993; Frank, 1971) but some theoretical approaches are exceptionally dissimilar. The goal of the present study is to investigate whether cognitions that characterize depression bias people’s preferences and perceptions of two different clusters of treatments for depression, Activation-Oriented (AO) treatments and Insight-Oriented (IO) treatments.

The rationale behind the AO cluster of treatments is that depression results from a significant reduction in positive behaviors that have previously led to positive emotions and a sense of accomplishment (Rokke, Carter, Rehm, & Veltum, 1990; Rokke & Scogin, 1995). Therefore, a primary intervention according to the AO approach is behavioral activation (Jacobson et al., 1996; Martell, Addis, & Dimidjian, 2004), whereby therapists encourage constructive behaviors and pleasurable activities in order to decrease feelings of depression. In contrast to the AO approach, the rationale behind the IO cluster of treatments is that depression occurs because of negative feelings and experiences that are generally outside of the person’s awareness. A key therapeutic element according to the IO approach is therefore introspection, whereby therapists help clients become aware of the underlying causes of their depression. Clients who manage to gain better understanding of the reasons for their depressed feelings can then improve their ability to...
cope with distressing life events (Rokke et al., 1990; Rokke & Scogin, 1995).

Both treatment clusters can be helpful for depression (e.g., Leichsenring, 2005), but the treatment of choice for individuals who tend to engage in depressive rumination, a main predictor of depression, includes AO strategies (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Rumination is a maladaptive form of self-focus (Mor & Winquist, 2002; Watkins, 2008) in which people repeatedly think about their symptoms, and the causes and consequences of these symptoms (Nolen-Hoeksema & Morrow, 1991). This maladaptive style of thinking enhances depressive feelings and thoughts and exacerbates depressive symptoms (Nolen-Hoeksema et al., 2008). One major negative effect of depressive rumination is the inhibition of instrumental behavior (Ward, Lyubomirsky, Sousa, & Nolen-Hoeksema, 2003). Instead of engaging in instrumental behavior, individuals who tend to ruminate often remain stuck in a vicious cycle of stress and negative thoughts. They find it difficult to produce effective solutions to their problems (Lyubomirsky & Nolen-Hoeksema, 1995), and even when they do identify possible solutions, ruminating about their negative mood reduces their “willingness to tackle” their problems (Lyubomirsky, Tucker, Caldwell, & Berg, 1999).

The AO cluster of treatments aims to break the negative habitual cycle of rumination, mainly through methods of behavioral activation and problem solving (Nolen-Hoeksema et al., 2008). However, the reduction in ruminators’ motivation to cope with their problems and their tendency to avoid instrumental behaviors may lead them to have negative views of activation-oriented treatments. Addis and Carpenter (1999) found that (a) people who ruminate are more likely to provide a large number of reasons for their depression, (b) reason-giving for depression is associated with negative reactions to the AO treatments’ rationale, and (c) rumination is linked to a negative view of AO treatments. These findings are important because an unfavorable view of AO treatments might lead to the avoidance of a beneficial and well-established therapy for depression (Butler, Chapman, Forman, & Beck, 2006; Tolin, 2010). The relationship between depressive rumination and treatment preferences could therefore be partially explained by the reduction in ruminators’ motivation to engage in instrumental behaviors. However, the question of whether and why ruminative people endorse positive perceptions about IO treatments has yet to be answered.

Two important factors that were not examined in Addis and Carpenter’s original study (1999) may be associated with positive perceptions about IO treatments. The first factor is the distinction between two subtypes of rumination, reflective pondering (reflection) and brooding (Armey et al., 2009; Treynor, Gonzalez, & Nolen-Hoeksema, 2003). Reflective pondering is a general and less judgmental self-reflective tendency. In this form of self-reflection, people turn inward to engage in cognitive problem solving in order to alleviate their depressive symptoms (e.g., “I go someplace alone to think about my feelings.”). In contrast, brooding is defined as a tendency to focus on obstacles (e.g., “Why can’t I handle problems better?”) and engage in a negative self-reflective process (e.g., “What am I doing to deserve this?”), as well as to passively compare current situations with unattainable standards. Brooding (and not reflection) is considered to be the main predictor of depressive symptoms (Schoofs, Hermans, & Raes, 2010) and to be associated with cognitive biases (Bernblum & Mor, 2010), emotional distress (Whitmer, 2010), and multiple behavioral difficulties (e.g., Rawal, Park, & Williams, 2010; Willem, Bijttebier, Claes, & Raes, 2011). Thus, brooding is distinguished as the maladaptive component of rumination that could influence perceptions of treatments. To our knowledge, the relationship between perceptions of treatments and brooding has not been examined separately from reflection.

A second factor that is particularly relevant to treatment preferences is the positive beliefs held by an individual about his or her tendency to ruminate. According to the Self-Regulatory Executive Function model (S-REF; Wells & Matthews, 1996), maladaptive thinking styles, such as rumination, are initiated and maintained by metacognitions that control thinking processes (Wells, 2008). Metacognitions are the implicit knowledge, assumptions, and beliefs people hold about their own cognitions. In this top-down model, metacognitions activate a cognitive-attentional syndrome (CAS) that consists of maladaptive repetitive thinking, such as worry and rumination; the CAS, in turn, maintains emotional disorders. In the case of rumination, many individuals endorse metacognitive beliefs that ruminative thinking could help them understand their difficulties and solve their problems (Papageorgiou & Wells, 2001a; Watkins & Baraća, 2001). Positive beliefs about rumination may increase the maladaptive tendency to ruminate (Moulds, Yap, Kerr, Williams, & Kandris, 2010), and are especially common among people who are prone to depression (Papageorgiou & Wells, 2001b; Watkins & Moulds, 2005). Moreover, recent findings suggest that positive beliefs about rumination reflect a maladaptive transdiagnostic construct (Harvey, Watkins, Mansell and Shafran, 2004) that is found in other psychological disorders, such as anorexia nervosa (Rawal et al., 2010) and social anxiety (Wong & Moulds, 2010).
To date, positive beliefs about rumination have not yet been studied in the context of treatment preferences for depression. Treatment preferences, as well as factors associated with preferences, are of clinical importance because preferences can influence actual treatment outcomes (Addis & Jacobson, 1996; Addis & Jacobson, 2000; Iardi & Craighead, 1994; Swift, Callahan, & Vollmer, 2011; Tracey, 1988). Patients' beliefs are known to play a significant role in treatment preferences (Atkinson, Worthington, Dana, & Good, 1991). The most commonly studied beliefs are the individual’s beliefs about the etiology of the depressive disorder (e.g., Churchill et al., 2000; Noel, 2010). For example, individuals who endorse biological causes for depression are inclined to prefer medications, whereas those who endorse personal or situational causes prefer psychological treatments (Iselin & Addis, 2003; Khalsa, McCarthy, Sharpless, Barrett, & Barber, 2011). This association is consistent with previous findings that suggested that patients find treatments more effective and more credible when they perceive their own beliefs about the causes of depression as similar to their therapists' beliefs (Worthington & Atkinson, 1996).

The effects that patients' beliefs have on perceptions of treatments could also be manifested in brooders' preferences for treatment. As described above, people who tend to engage in brooding, the maladaptive subtype of rumination, are at risk for developing depressive feelings and symptoms. Their maladaptive tendency to avoid instrumental behaviors can lead them to avoid treatments that focus on behavioral activation. When they do search for help, their treatment choice may be biased toward a therapy that is perceived as similar to their own beliefs. IO treatments obviously do not promote depressive rumination. However, many brooders endorse metacognitive beliefs that self-focused ruminative thinking about the causes of depression is an important tool to overcome depressive feelings (Wells, 2011); as a result, they may mistakenly perceive the IO rationale that emphasizes introspective search for the underlying causes of depression as complementing their own beliefs.

The aim of the current investigation was therefore to examine whether brooding and metacognitive positive beliefs about rumination are associated with perceptions of credibility and efficacy of the IO cluster of treatments. Specifically, we examined four successive hypotheses. First, we hypothesized that brooding (but not reflection) would be positively associated with perceptions of IO treatments. Second, we hypothesized that positive beliefs about rumination would also be positively associated with perceptions of IO treatments. Third, because metacognitive beliefs have not been studied in this context, whereas rumination has been linked to perceptions of treatments in the past, we hypothesized that positive beliefs about rumination would contribute to the prediction of perceptions of IO treatments beyond the effect of brooding (and that this relationship would be positive). Fourth, we examined the specific role of positive beliefs about rumination in the interrelationships between brooding, beliefs about rumination, and perceptions of treatments; we hypothesized a moderating relationship in which brooding would be related to perceptions of IO treatments differentially depending on levels of positive beliefs about rumination.

We also posited a complementary set of hypotheses regarding perceptions of AO treatments. First, in extension of prior findings (Addis & Carpenter, 1999), we predicted that brooding would be negatively associated with perceptions of AO treatments. Second, we predicted that positive beliefs about rumination would be negatively associated with perceptions of AO treatments. Third, we hypothesized that positive beliefs about rumination would contribute to the prediction of perceptions of AO treatments beyond the effect of brooding (and that this relationship would be negative). Fourth, we hypothesized that the relationship between brooding and perceptions of AO treatments would depend on the level of positive beliefs about rumination.

Method

Participants
A total of 118 (81 female) students from the Hebrew University of Jerusalem who were between 18 and 44 years of age (Mean = 24.0, SD = 3.2) participated in the study. Participants received payment in exchange for their participation. Twenty-eight participants (23.7%) reported that they had seen a psychotherapist in the past.1

Materials and Measures

Treatment Descriptions
Participants read descriptions (developed by Addis & Carpenter, 1999) of AO and IO treatments for depression. These descriptions were based on treatment manuals and published sources and were previously validated by expert judges (Rokke et al., 1990; Rokke & Scogin, 1995). The two

1 Participants were also asked to report the theoretical orientation of their therapy but only 4 participants mentioned a specific orientation. Three participants reported receiving psychodynamic therapy and 1 participant reported receiving cognitive-behavioral therapy.
descriptions were similar in length and format. Each included the major symptoms of depression, as well as its causes and treatment goals, according to the specific theoretical approach. The AO treatment description asserted that people experience particular emotions because of specific activities or behaviors in which they are engaged. Accordingly, the treatment for depression was described as focusing on solving specific problems and increasing enjoyable activities. It was emphasized that an AO treatment focuses on the “here and now” and uses homework assignments as a therapeutic tool. In contrast, the description of IO treatments presented a different model whereby people become depressed because of thoughts and feelings that are not easily accessible to their awareness, and that these feelings can result from early negative experiences such as abandonment or criticism. This treatment was described as helping individuals gain insight into their unconscious thoughts and feelings so that they can change their attitude toward themselves and cope more effectively with upsetting situations.

Credibility Ratings of Treatments
The perceived efficacy and credibility of the two treatments was measured using the Credibility Rating Scale (Rokke et al., 1990). This scale was derived from an earlier study that demonstrated the importance of measuring expectancies for change and credibility of treatments (Borkovec & Nau, 1972). The scale consists of 7 items that measure the subjects' beliefs about the logic, scientific accuracy, and efficacy of the presented treatments. The items are rated on a 7-point scale from 1 (not at all) to 7 (extremely). These items were found to be valid and useful in discriminating attitudes toward treatments for depression (Rokke et al., 1990). The items form a single factor and were shown to have high internal consistency (α = 0.89) across four alternative treatments (Rokke et al., 1990; Rokke & Scogin, 1995). In the current study, we modified the original scale from a 7-point scale to a Visual Analogue Scale (VAS) ranging from 0-10 cm, to increase the sensitivity and reproducibility of the scale (Grant et al., 1999). The VAS included verbal descriptions of levels of agreements (not at all, extremely) and did not include actual numbers (0, 10). The internal consistency for both AO (α = .89) and IO (α = .87) treatments was good. We added a comparative item asking participants which of the two treatments they would prefer if they had to choose. A 10 cm VAS was used to measure the comparative item as well. The left side of the scale (coded 0) indicated a favorable view of IO, the right side (coded 10) indicated a favorable view of AO, and the midrange indicated a neutral view.

Rumination
Rumination was measured using the widely used Ruminative Responses Scale (RRS; Nolen-Hoeksema & Morrow, 1991). The RRS consists of 22 items designed to assess the tendency to think about one’s depressed mood, its causes, and its consequences. The predictive and convergent validity of the RRS have been demonstrated in various studies (Luminet, 2004). The RRS has shown high internal consistency across multiple studies (e.g., Nolen-Hoeksema & Morrow, 1991; Nolen-Hoeksema, Parker, & Larson, 1994). Good internal consistency and convergent validity with measures of depression have been replicated in the Hebrew version of the scale (e.g., Daches, Mor, Winquist, & Gilboa-Schechtman, 2010; Haran, Mor, & Mayo; 2011). In the current study, internal consistency was high (α = .91) for the full scale, and good (0.75 and 0.76) for the two subscales (brooding and reflection, respectively).

Positive Beliefs about Rumination
Metacognitive beliefs about rumination were measured using the Positive Beliefs about Rumination Scale (PBRS; Papageorgiou & Wells, 2001a). This is a 9-item scale that was designed to examine the extent to which respondents believe that rumination helps in problem solving and coping with depressive mood. The items are rated on a 4-point scale from 1 (do not agree at all) to 4 (agree very much). The PBRS evidences positive correlations with depression (r = .45) and rumination (r = .53). The 9 items form a single factor and were shown to have good internal consistency (α = .84; Papageorgiou & Wells, 2001a). To reduce confounds within this measure between depressed mood and beliefs about depressive rumination (i.e., criterion contamination), we used a modified version of the PBRS that avoids the use of the terms “depression” and “rumination” (PBRS-A; Watkins & Moulds, 2005). The reported internal consistency and test-retest reliability of the modified version is good (Watkins & Moulds, 2005). A Hebrew version of the scale was constructed for the purposes of the current study using a back translation technique. To increase sensitivity and reproducibility, we used a VAS format ranging from 0–10 cm. The scale evidenced good internal consistency (α = .84) in the current sample.

Depression
Depression was measured using the Beck Depression Inventory-II (BDI-II; Beck, Steer, Ball, & Ranieri, 1996). This well-established questionnaire consists of 21 items scored from 0–3, and assesses the presence and severity of cognitive, motivational, emotional, and somatic symptoms of depression. The reliability and validity of the BDI-II have been
extensively documented in the literature (Beck et al., 1996). The Hebrew version of the BDI-II has been validated in clinical as well as nonclinical populations and has been used in multiple Hebrew-speaking samples (e.g., Mor, Hertel, Ngo, Shachar, & Redak, 2014; Rosenbaum & Palmon, 1984). In the current sample, the internal consistency was good (α = .87).

**Procedure**

Participants read descriptions of the two alternative treatments (IO and AO), which were presented in a random order, and rated the efficacy and credibility of each treatment. Subsequently, the participants completed the PBRS-A, the RRS, and the BDI-II. Finally, participants provided demographic information, including age, gender, and previous experience with therapy. Upon completion, participants received information about the aims of the study and were paid for their participation.

**Results**

**Preliminary Analyses**

**Perceptions of the Two Treatments**

In order to examine which treatment was perceived as more effective and more credible, we compared the credibility ratings of the two treatments. A 2 (Treatment: IO, AO) × 2 (Order: IO first, AO first) mixed model analysis of variance, with Treatment as a within-subjects factor and Order as a between-subjects factor, was conducted. Results indicated a significant main effect of Treatment, $F(1, 116) = 7.28, p = .008$, Partial $\eta^2 = .059$; the credibility and perceived efficacy of the IO treatments was significantly higher than that of the AO treatments, with a small effect size ($d = .33$). The effect of the order of presentation was not significant, $F(1, 116) = 2.93, p = .09$, Partial $\eta^2 = .02$.

The comparative item ($M = 4.91, SD = 3.35$) was not normally distributed, Shapiro-Wilk < .001. Only 10 participants (8.5%) chose a neutral score between 4 and 6, whereas the majority (91.5%) endorsed a favorable view for a specific treatment. Specifically, 47.5% of the sample scored from 0 to 3.9, and 44.1% of the sample scored between 6.1 and 10, indicating that when given the choice, participants endorsed a distinct preference for one of the treatments. The comparative item was correlated with the credibility and perceived efficacy of AO treatments, $r(118) = .55, p < .001$, and IO treatments, $r(118) = -.92, p < .001$, indicating that initial perceptions of treatments may be linked to an actual choice of treatment.

**Possible Gender and Past Treatment Effects**

Two $t$-tests were conducted to test for possible effects of gender on credibility ratings of the two types of treatments. The tests did not reveal gender differences in the credibility ratings of either AO treatments, $t(116) = -.33, p = .74$, or IO treatments, $t(116) = .06, p = .95$. Two additional $t$-tests were conducted to test for possible effects of past treatment (whether the participant had previously undergone psychotherapy). The effects of past treatment were not significant for either AO treatments, $t(113) = -.36, p = .72$, or IO treatments, $t(113) = -.49, p = .62$.

**Depression and Rumination**

Descriptive statistics and zero-order correlations of the main variables of the study are presented in Table 1. Consistent with the literature on depression and rumination, positive correlations were found between the BDI-II, RRS, brooding and reflection. Consistent with the S-REF model (Wells & Matthews, 1996), positive correlations were observed between the PBRS, RRS, brooding and reflection. However, contrary to previous studies (Papageorgiou & Wells, 2001a, 2001b; Watkins & Moulds, 2005), the PBRS was not significantly correlated with the BDI-II. The mean BDI-II score

<table>
<thead>
<tr>
<th>AO</th>
<th>IO</th>
<th>BDI-II</th>
<th>RRS</th>
<th>Brooding</th>
<th>Reflection</th>
<th>PBRS-A</th>
</tr>
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<tr>
<td>Mean (SD)</td>
<td>5.8 (1.8)</td>
<td>6.3 (1.6)</td>
<td>8.5 (6.5)</td>
<td>40.4 (11.2)</td>
<td>9.4 (2.9)</td>
<td>9.1 (3.3)</td>
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Note. AO = Credibility and perceived efficacy of Activation-Oriented treatments; IO = Credibility and perceived efficacy of Insight-Oriented treatments; BDI-II = Beck Depression Inventory-II; RRS = Ruminative Responses Scale; PBRS-A = Positive Beliefs about Rumination Scale-Adapted. ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).
of 8.5 (SD = 6.52, range = 0–33) and the mean RRS score of 40.44 (SD = 11.23, range = 22–79) suggest that the sample as a whole was not clinically depressed. However, 29 participants (24.6%) were found to be at least mildly depressed, using the BDI-II cutoff score of 13 for mild depression (Lasa, Ayuso-Mateos, Vázquez-Barquero, Diez-Manrique, & Dowrick, 2000). Seven participants (6.2%) met the criterion for moderate depression (BDI-II range 20–28), and 1 participant (0.8%) may have suffered from severe depression (BDI-II range 29–63).

**Hypothesis Testing**

**Perceptions of IO Treatments**

As portrayed in Table 1, the credibility and perceived efficacy of the IO treatments were significantly positively correlated with rumination, brooding (but not reflection), and with positive beliefs about rumination. Although these correlations were not strong (r = .296 and r = .275 for brooding and PBRS, respectively), they provide initial confirmation for the first two research hypotheses that (a) brooding and (b) positive beliefs about rumination would be associated with perceptions of credibility and efficacy of IO treatments.

To further examine the first hypothesis according to which brooding (but not reflection) would be positively associated with perceptions of IO treatments, we conducted a multiple regression analysis with standardized brooding and reflection scores as simultaneous predictors of perceptions. Standardized depression scores were also entered in the analysis to control for possible effects of the levels of depression. The overall model was significant, $R^2 = .091$, $F(3, 114) = 3.82$, $p = .012$. Consistent with our first hypothesis, brooding was found to be a significant positive predictor of credibility ratings of IO treatments ($b = .29, t = 2.6, p = .01$), whereas reflection was not ($b = .062, t = .62, p = .53$). Depression scores did not contribute to the model ($b = -.038, t = -.36, p = .72$).

To test the third hypothesis that positive beliefs about rumination would contribute to the prediction of perceptions of IO treatments beyond the effects of brooding, a hierarchical multiple regression analysis was performed. Three variables were entered into the regression model. Standardized brooding scores were entered into the regression analysis in the first step and standardized positive beliefs scores were added in the second step. In the third step, the interaction between the standardized variables of brooding and positive beliefs was entered in order to test the fourth hypothesis that positive beliefs about rumination would moderate the effect of brooding. Tests for multicollinearity indicated low levels of multicollinearity (tolerance = .87 and .85 for brooding and positive beliefs about rumination, respectively). Results indicated that brooding significantly positively predicted perceptions of IO treatments, $R^2 = .09$, $F(1, 116) = 11.14, p = .001$, and positive beliefs about rumination contributed significantly to the prediction of perceptions of IO treatments, $R^2$ change = .037, $F(1, 115) = 4.83, p = .03$. This finding confirms our third hypothesis and indicates that positive beliefs about rumination are an important variable in the prediction of perceptions of IO treatments, above and beyond the effects of brooding alone. The third step that included the interaction between brooding and positive beliefs about rumination did not contribute to the regression model, $R^2$ change = .001, $F(1, 114) = .18, p = .73$, and did not support the fourth hypothesis that positive beliefs about rumination would moderate the relationship between brooding and perceptions of IO treatments.

**Perceptions of AO Treatments**

Contrary to the second set of hypotheses regarding the AO treatments, the credibility and perceived efficacy of AO treatments were unrelated to depression, rumination, brooding and reflection, and positive beliefs about rumination (Table 1). These correlations did not provide confirmation for the two research hypotheses that (a) brooding and (b) positive beliefs about rumination would be negatively associated with perceptions of credibility and efficacy of AO treatments.

To further examine the first hypothesis according to which brooding (but not reflection) is negatively associated with perceptions of AO treatments, we conducted a multiple regression analysis with standardized brooding and reflection scores as simultaneous predictors of perceptions. Standardized depression scores were also entered in the analysis to control for possible effects of the levels of depression. The overall model was not significant, $R^2 = .02$, $F(3, 114) = .66, p = .58$, and the variables brooding ($b = .06, t = .55, p = .58$), reflection ($b = .11, t = 1.04, p = .30$), and depression ($b = -.05, t = -.50, p = .62$) did not contribute to the regression model. These results did not provide confirmation for the hypothesis that brooding (but not reflection) would be negatively associated with perceptions of AO treatments.

To examine the third hypothesis, that positive beliefs about rumination would contribute to the prediction of perceptions of AO treatments beyond the effects of brooding, a hierarchical multiple regression analysis was performed. Standardized brooding scores were entered into the regression analysis in the first step and standardized positive beliefs scores were added in the second step. In a
the interaction between brooding and positive beliefs was entered in order to test the fourth hypothesis that positive beliefs about rumination would moderate the effect of brooding. Tests for multicollinearity indicated low levels of multicollinearity (tolerance = .90 for brooding and positive beliefs about rumination, respectively). Contrary to our hypothesis, brooding, $R^2 = 0.007$, $F(1, 116) = 0.76, p = 0.38$, and positive beliefs about rumination, $R^2$ change = 0.023, $F(1, 115) = 2.73, p = 0.10$, did not significantly predict perceptions of AO treatments. The third step that included the interaction between brooding and positive beliefs about rumination likewise did not contribute to the regression model, $R^2$ change = 0.02, $F(1, 114) = 2.45, p = 0.12$, and thus did not support the fourth hypothesis that positive beliefs about rumination would moderate the relationship between brooding and perceptions of AO treatments.

Discussion

The aim of the present study was to examine whether brooding, the maladaptive subtype of rumination, and metacognitive positive beliefs about depressive rumination are related to perceptions of treatments for depression. We examined perceptions and preferences of two different clusters of psychological treatments, IO treatments and AO treatments. Our results provided confirmation for the first two research hypotheses that (a) brooding and (b) positive beliefs about rumination would be associated with perceptions of efficacy and credibility of IO treatments. Specifically, our results showed that brooding is more strongly associated with perceptions of treatments than is reflection, the less maladaptive subtype of rumination. This finding extends Addis and Carpenter’s (1999) prior work and suggests that positive perceptions of IO treatments may not merely be a by-product of reflective pondering, the tendency to turn inward in order to engage in cognitive problem solving. If positive perceptions of treatments are indeed associated with brooding, the maladaptive type of rumination, perhaps they should be considered potential biases that might interfere in the process of deciding which treatment to seek.

A major focus of the current study was on the role of metacognitive positive beliefs about rumination in determining preferences and perceptions of treatments. We found that positive beliefs about rumination contribute to the prediction of perceptions of IO treatments beyond the effects of brooding. This relationship may be attributable to the IO treatments’ rationale, which appears, at least superficially, similar to brooders’ own beliefs regarding the usefulness of rumination. The results of the current study support this argument and suggest that metacognitive positive beliefs about rumination play an important role in the prediction of treatment preferences for depression.

Although beliefs are subjective by their very nature, they are not necessarily inaccurate. Previous research on beliefs and treatment preferences has focused on beliefs regarding the etiology of depression (e.g., Goldstein & Rosselli, 2003; Khalsa et al., 2011). An individual can endorse a belief that the origin of depression is biological, psychological, or social, and he or she may find empirical support for any of these beliefs. In these cases, a “good match” between clients’ and therapists’ beliefs can facilitate patients’ willingness to cooperate with a given treatment (Addis & Jacobson, 2000), reduce drop-outs, and lead to improved therapy outcomes (Addis & Jacobson, 1996; Ilardi & Craighead, 1994; Swift et al., 2011). Positive beliefs about rumination, however, contradict the vast majority of studies evaluating the negative aspects of rumination (e.g., Schoofs et al., 2010; Whitmer, 2010; Willem et al., 2011). Furthermore, these beliefs are documented to be associated with rumination and depression (Moulds et al., 2010). If positive perceptions of treatments are in fact associated with these maladaptive and erroneous beliefs, as suggested in this study, it is possible that they will not facilitate therapy outcomes and might even serve as an obstacle in the therapeutic process.

Contrary to the fourth hypothesis, that the effect of brooding would depend on the level of positive beliefs about rumination, our results did not indicate a moderation effect. Perhaps a different conceptual mechanism should be considered to examine the specific role of positive beliefs about rumination in the interrelationships between brooding, metacognitive beliefs, and perceptions of treatments. A mediation model (Preacher & Hayes, 2008) may offer a conceptual mechanism through which the cognitive process (i.e., brooding) is related to perceptions and attitudes (i.e., perceptions of treatments). In this proposed theoretical model, the relationship between brooding and perceptions of IO treatments could be explained by an indirect pathway whereby brooders believe that ruminative thinking is beneficial and these metacognitive beliefs are associated with positive perceptions of IO treatments. Future correlational and experimental studies that temporally measure and/or manipulate metacognitive beliefs about rumination are recommended to examine such a model.

Although IO treatments can be effective and helpful for depression (Leichsenring, 2005), the recommended intervention for depression (Tolin, 2010) and depressive rumination (Nolen-Hoeksema...
et al., 2008) includes activation-oriented strategies such as behavioral activation. Behavioral activation counters brooders’ natural tendency to inhibit instrumental behaviors, serves as an adaptive distraction from their negative mood, and helps them break the ruminative cycle (Nolen-Hoeksema et al., 2008). It is possible that brooders’ positive perceptions of IO treatments would lead to actual preferences for IO treatments, as indicated by the observed correlations between perceptions and preferences (in the comparative item), and practically speaking, treatment choices are usually mutually exclusive. Psychological treatments for depression require time and commitment, and the choice to participate in an IO treatment might result in the rejection of AO treatments for depression.

This study was based on the metacognitive model of emotional disorders (Wells & Matthews, 1996). In this top-down model, metacognitive beliefs activate a CAS that consists of maladaptive repetitive thinking, such as rumination; the CAS, in turn, maintains the emotional disorder. The unique contribution of metacognitive positive beliefs about rumination to the prediction of perceptions of IO treatments that was demonstrated in the current study suggests one path by which this model may operate. Not only can metacognitive beliefs determine the frequency and stability of rumination (Moulds et al., 2010), thereby facilitating depression (Watkins & Moulds, 2005), but such beliefs, according to the current study, are also related to attempts to reduce rumination and overcome depression. When brooders who believe that rumination is beneficial do wish to overcome depressive feelings, they can unknowingly appreciate insight-oriented therapeutic strategies rather than activation-oriented strategies that aim to break the cycle of the negative thoughts. Future experimental studies are recommended to examine the causal role of metacognitive beliefs in brooding and perceptions of treatments.

Contrary to our second set of hypotheses, brooding and positive beliefs about rumination were not related to perceptions of AO treatments. Thus, it seems that the relationship between treatment perceptions and both brooding and positive beliefs about rumination is specific to IO treatments. Perhaps AO treatments’ focus on overt behaviors somehow bypasses individuals’ thoughts regarding their experiences with and perceptions of their negative cognitions, whereas IO treatments’ focus on internal/covert experiences is more susceptible to the effects of individuals’ negative cognitions. A second possible explanation may derive from cultural differences. Whereas other studies on preferences and perceptions of treatments usually report higher credibility ratings for AO treatments (e.g., Bragesjo, Clinton, & Sandell, 2004; Hardy et al., 1995), our results indicated higher credibility ratings for IO treatments. It is possible that the fact that AO treatments are not as popular and established in Israel as they are in other western countries has made the relationship between brooding, positive beliefs about rumination, and perceptions of AO treatments less easily detectable.

The current study has several limitations. First, the use of a nonclinical population raises questions about the applicability of our findings to individuals who suffer from major depression. Although 29 participants (24.6%) were found to be at least mildly depressed, and 28 participants (23.7%) reported that they had seen a psychotherapist in the past, the characteristics of the majority of the sample limits its external validity. Second, the abbreviated treatment presentations do not provide a comprehensive or exhaustive description of either IO treatments or AO treatments, and the credibility ratings may not necessarily be indicative of real-life choices regarding the type of treatment participants would seek. Last, many practicing therapists from both theoretical orientations are not unidimensional in their practices, with many therapists incorporating a variety of therapeutic strategies representing more than one tradition. Nevertheless, some characteristics of the study may mitigate the gap between the laboratory and the field. First, as introduced in the beginning of this paper, millions of people search the Internet seeking help for depression, and they are accustomed to navigating between short descriptions of treatments during their search (Kraus, Zack, & Stricker, 2004). Second, a majority of the participants in our study showed a distinct preference for one treatment over the other in the comparative item, in accordance with their previous ratings of treatments on the Credibility Rating Scale. This finding indicates that perceptions of a given treatment may well be related to an actual treatment choice in practice. However, further studies are needed, both with clinical populations and with actual choices of treatments, to increase the external validity of our findings.

In summary, despite the analogue nature of the study, the observed relationships between brooding, positive beliefs about rumination, and perceptions of efficacy and credibility of IO treatments demonstrate the contribution of metacognitive positive beliefs about rumination to the prediction of perceptions of treatments. Not only do these maladaptive beliefs affect the way a person thinks and reinforce the ruminative cycle (Moulds et al., 2010; Wells & Matthews, 1996), we contend that they may also bias perceptions about treatments and impose an obstacle for brooders who wish to receive treatment and overcome depression.
Conflict of Interest Statement

The authors declare that there are no conflicts of interest.

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Received: April 26, 2013
Accepted: March 6, 2014
Available online 13 March 2014