Negative appraisals and cognitive avoidance of intrusive memories in depression: a replication and extension

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Negative Appraisals and Cognitive Avoidance of Intrusive Memories in Depression:

A Replication and Extension

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Running Head: intrusive memories in depression

Abstract

Recent research has demonstrated that intrusive negative autobiographical memories represent a shared phenomenological feature of PTSD and depression. A preliminary investigation (Starr & Moulds, 2006) successfully applied a cognitive appraisal model of PTSD to the maintenance of intrusive memories in depression. The current investigation sought to replicate and extend these findings. Two hundred and fifty first-year undergraduate students were interviewed to assess for the presence of a negative autobiographical memory that had spontaneously intruded in the past week. Participants completed self-report inventories assessing trait and situational employment of cognitive avoidance mechanisms in response to these memories. Consistent with Starr and Moulds (2006), intrusion-related distress correlated with dysphoria, irrespective of intrusion frequency. Assigning negative appraisals to one's intrusive memory and attempts to control the memory were positively associated with intrusion-related distress, level of depression, and cognitive avoidance mechanisms. Additionally, negative appraisals and control influenced the employment rumination as an avoidant response to a greater degree than the corresponding trait tendency. Finally, negative appraisals and the use of cognitive mechanisms was predictive of depression concurrently. The results support the validity of borrowing from PTSD models to elucidate the cognitive mechanisms that maintain intrusive memories in depressed samples.

Keywords: Depression, cognitive appraisals, intrusive memories, avoidance

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1. Introduction:

1.1. Intrusive Memories in PTSD:

One form of intrusive cognition, intrusive *memories,* are particularly associated with posttraumatic stress disorder (PTSD) and represent a core diagnostic feature of the disorder (APA, 1994). Intrusive trauma memories often manifest as the involuntary reliving of a past traumatic event (Michael et al., 2005) and may be experienced in either typical autobiographical form or in 'flashback' form. Unlike ordinary autobiographical memories that are subject to conscious recall, 'flashbacks' are assumed to operate via uncontrollable processes and are characterized by intense re-experiencing of the event (Brewin et al., 1996). In the context of PTSD, intrusive memories are conceptualized as indices of unsuccessful emotional processing of the trauma (Ehlers & Clark, 2000; Foa et al., 1989). The experience of intrusive memories is highly relevant from a clinical perspective, as evidence suggests that the cognitive and behavioural avoidance of these memories helps maintain PTSD symptoms and predicts the course of the disorder (Brewin & Holmes, 2003).

1.2. Negative Interpretations of Intrusions in PTSD

A number of cognitive models have been advanced to account for the maintenance of intrusive symptoms in PTSD (e.g., Brewin et al., 1996; Ehlers & Clark, 2000; Ehlers & Steil, 1995). Of interest in the current study is Ehlers and Steil's (1995) cognitive appraisal model of PTSD that proposes that a dual-pathway system operates to maintain intrusive symptoms. The key cognitive variable implicated in PTSD maintenance is an individual's appraisals of their intrusive symptoms, rather than the frequency or presence of the intrusions per se. According to this model, individuals who

assign intrusive memories a negative meaning are more likely to experience greater distress when they experience the intrusions, and therefore to engage in avoidance strategies such as rumination, dissociation and suppression. Thus, the distress pathway is argued to be responsible for re-experiencing symptoms and the physiological symptoms of PTSD such as sleep disturbance and poor concentration. The experience of these symptoms may affirm the individual's negative appraisals and lead to an additional increase in levels of distress. For example, encountering difficulties as a consequence of poor concentration may validate the negative appraisal *"I am inadequate"*. Second, the avoidance pathway is implicated in the short-term maintenance of symptoms via the employment of cognitive avoidance strategies such as thought suppression and rumination that subsequently and paradoxically increase the occurrence of intrusions. According to the model, avoidance also leads to the long-term maintenance of symptoms by preventing the memory from being adequately processed and by preventing the incorporation of new information to alter the negative attributions assigned to the intrusions.

In support of this theoretical framework, Steil and Ehlers (2000) found that idiosyncratic, dysfunctional meanings (e.g., *'I am going crazy'*) assigned to intrusive symptoms significantly predicted PTSD severity, over and above intrusion frequency and the degree to which dysfunctional strategies (e.g., avoidance) were used to control the intrusions. This pattern has been replicated across multiple retrospective and prospective studies (Dunmore et al., 2001; Halligan et al., 2003; Mayou et al., 2002).

1.3. Intrusive Memories in Depression

A growing body of research has demonstrated that intrusive memories of negative past events are not unique to PTSD, but are also reported in depression (Brewin et al., 1996; Carlier et al., 2000; Kuyken & Brewin, 1994), and that there is significant qualitative overlap in the intrusive memories reported by individuals with the two disorders (Reynolds & Brewin, 1999). Depression severity is positively associated with the degree of intrusion and avoidance of memories (Kuyken & Brewin, 1994), and depressed individuals with more intrusive memories report lower self-esteem and a more negative attributional style (Kuyken & Brewin, 1999). Cross-sectional studies have found a relationship between the duration of the current depressive episode and the total number of memories reported (Brewin et al., 1996). Additionally, longitudinal research has shown that the presence and avoidance of intrusive memories is predictive of anxiety symptoms (Brewin et al., 1988) and depression (Brewin et al., 1999) at 6-month follow-up after controlling for baseline levels of anxiety and depression, respectively.

Thus, emergent findings confirm that intrusive memories are a key cognitive characteristic of depression and play an important role in the maintenance of depressive symptoms. More recent evidence has confirmed that not only do these memories represent a shared phenomenological feature of PTSD and depression, but that the cognitive appraisals of intrusive memories in the two conditions share striking parallels. In a non-clinical sample, dysfunctional meanings of intrusive memories and intrusion-related distress were correlated with depression (Starr & Moulds, 2006). These associations remained significant when intrusion frequency and severity of the event (i.e., of the event that formed the content of the intrusive memory) were partialled out, providing initial empirical evidence linking dysfunctional meanings of intrusive

memories to depression. Further, the use of avoidant cognitive strategies such as suppression and rumination significantly correlated with depression severity. In addition, assigning a negative appraisal to an intrusive memory was the best predictor of depression severity. As such, these findings parallel those obtained in PTSD samples (e.g., Steil & Ehlers, 2000) and lend support to the proposal that common cognitive processes are linked to intrusive memories across these conditions. Moreover, these commonalities support the validity of borrowing from PTSD models to elucidate the cognitive mechanisms that maintain intrusive memories in depressed samples.

While providing promising preliminary results, in order to facilitate direct replication of Ehlers and Steil (1995), a number of the variables of interest (e.g., suppression, rumination, negative interpretations) in the Starr and Moulds (2006) study were indexed with instruments that contained a minimal number of items that at times lacked strong psychometric properties. The inclusion of a broader range of psychometrically validated measures to tap avoidant cognitive processes, levels of anxiety, subjective appraisals and the need to exert control over cognitions would be useful inclusions in a replication study. Furthermore, the addition of such measures would clarify the relationship between *trait* tendencies to engage in these cognitive processes and the presence of intrusive memories, and also allow assessment of the unique relationship of these variables to depression while controlling for anxiety.

2. The Current Investigation

2.1. Hypotheses

The aim of the current investigation was to further evaluate the applicability of Ehlers and Steil's (1995) model to intrusive memories in depression by replicating and

extending Starr and Moulds' (2006) investigation; specifically, by indexing cognitive

avoidance and appraisals using a broader array of self-report instruments. Based on

Ehlers and Steil's (1995) appraisal model and the findings of Starr and Moulds (2006), it

was first hypothesized that intrusion-related distress would correlate with dysphoria (as

indexed by BDI-II scores) and that dysphoria would in turn correlate with the

intrusiveness and level of avoidance of the memory (as indexed by IES subscales),

irrespective of intrusion frequency. Second, we predicted that assigning negative

appraisals to one's intrusive memory would be positively associated with levels of

distress, depression, and the employment of cognitive avoidance mechanisms. Third, we

hypothesized that negative appraisals and the use of cognitive mechanisms as a response

strategy to intrusive memories would be predictive of concurrent depression. Finally, we

hypothesized that an individual's appraisals and their subjective need to exert control

over the intrusion would be more predictive of cognitive avoidant responses than

possessing trait tendency towards these responses.

3. Method

3.1. Participants

Two hundred and fifty first-year undergraduate students were recruited through

the Psychology Participant Pool at The University of New South Wales in exchange for

course credit.

3.2. Procedure

Participation involved an initial 30-45 minute session in which participants were

individually interviewed to assess the occurrence of an intrusive memory in the preceding

week. The Intrusive Memory Interview was verbally administered to participants who reported an intrusive memory. Participants who reported more than one intrusive memory completed the IES for each memory and subsequent questions were anchored to the memory with the highest corresponding IES score. This procedure was only necessary for three participants.

All participants then completed a battery of self-report measures (i.e., regardless of intrusion occurrence). Additionally, individuals scoring 12 and above on the BDI-II were administered the Structured Clinical Interview for DSM-IV (SCID-I; First et al., 1997) to assess for the presence of a current Major Depressive Episode. This information was used to ascertain the validity of using BDI-II scores to select dysphoric individuals in later analyses. In addition, any participant who reported an intrusive memory of a traumatic event that satisfied PTSD criteria for a Criterion A stressor was also administered the Clinician-Administered PTSD Scale (CAPS; Blake et al., 1995) to assess current PTSD symptoms, in order to eliminate PTSD as a potential confound (in line with previous studies; e.g., Brewin et al., 1999; Starr & Moulds, 2006). Only one participant was excluded on this basis, debriefed, and provided with UNSW Counseling Service information. All participants who reported a negative memory were invited to attend a 2-3 month follow-up session. Of the initial 147 participants, 55 returned to complete the BDI-II and BAI at the second assessment.

3.3. Measures

3.3.1. *Intrusive Memory Interview.* The items on the Intrusive Memory Interview were drawn from a number of validated inventories used in previous research, and questioned

participants' subjective experience of a spontaneous memory that occurred in the past week. Information regarding intrusion frequency and content was collected. Ratings of distress and detachment were anchored on a 0 (not at all) to 100 (very much) scale following Hackmann et al. (2004). Items tapping negative appraisals, rumination, suppression, dissociation and were taken from the Response to Intrusion Questionnaire (RIQ; Clohessy & Ehlers, 1999) but anchored to the spontaneous memory. Six items assessed negative appraisals: "Something is wrong with me", "Someday I will go out of my mind", "I am inadequate", "I have a psychological problem", "I cannot cope", and "I will not achieve future goals that are important". Four items assessed normal appraisals in response to the memory: "Nothing - it is a normal reaction", "I care about other people", "I am a responsible person", and "I take my relationships/family/career seriously". Three items assessed rumination in response to the target intrusive memory: ''I dwell on them'', ''I worry that something like that could happen to me/again'', and ''I think about what I could have done differently''. Three items assessed suppression in response to the target intrusive memory: ''I think about something else'', ''I try to push them out of my mind'', and ''I watch TV, listen to music, or read''. Items indexing numbness and detachment were embedded within the interview and anchored to the 0-100 scale. The mean of these two items was calculated to form the Dissociation score.

Internal consistency for this measure was alpha = .54. The original RIQ scale of 1 (never) to 7 (very often) was retained for the rumination and suppression items. Internal consistency in the current sample was alpha = .89 for the 6-item negative appraisal scale, alpha = .75 for the 4-item normal appraisal scale, alpha = .51 for the 3-item rumination scale and alpha = .69 for the 3-item suppression scale. It should also be noted that the

original RIQ Suppression item "I drink alcohol or smoke" was not included as it was previously found to have a low endorsement rate in a student sample and thus had adverse effects on the internal consistency of the scale (Starr & Moulds, 2006). Considering the nature of the student sample and also following Starr and Moulds (2006), two amendments were made to the appraisal items of the RIQ. "I will not be able to do my job well" was re-worded as "I will not achieve goals that are important to me" and "I take my job seriously" was re-worded as "I take my relationships/family/career seriously".

3.3.2. *Impact of Event Scale* (IES; Horowitz et al., 1979). The IES is a self-report questionnaire that has two subscales anchored to the subjective experience of a specific life event. The Intrusion subscale assesses the frequency and range of intrusions associated with an event and the Avoidance subscale assesses efforts to suppress the thoughts/memories of the event. Internal consistencies of the Intrusion and Avoidance subscales have been reported as .78 and .82, respectively (Corcoran & Fischer, 1987, as cited in Brewin, 1998). Internal consistency for the total scale was .85 in this study.

3.3.3. *Interpretation of Intrusions Inventory* (III; Obsessive Compulsive Cognitions Working Group; OCCWG, 2001). The III is a 31-item self-report inventory consisting of three theoretical subscales (see Steketee, 2005): Importance of Thoughts, Need to Control Thoughts, and Responsibility. The Need to Control subscale was used in the current study, and the instructions were modified so as to instruct participants to anchor their responses to 'spontaneous memories'. Cronbach's alpha was .81 in the current sample.

3.3.4. *Ruminative Response Scale* (RRS) of the Response Styles Questionnaire (RSQ; Nolen-Hoeksema & Morrow, 1991). The RRS consists of 22 items assessing ruminative

coping style. The items elicit reactions to mood that are self-focused (e.g., I think, "Why do I react this way?"), symptom-focused (e.g., "think about your feelings of fatigue"), and focused on the mood's possible consequences and causes (e.g., "I am embarrassing to my friend/family/partner"). This measure shows good test-retest reliability (Nolen-Hoeksema, Parker, & Larson, 1994) and internal consistency (Nolen-Hoeksema, 1991).

3.3.5. *White Bear Suppression Inventory* (WBSI; Wegner & Zanakos, 1994). The WBSI is a 15-item self-report questionnaire that measures chronic thought suppression tendencies, or the deliberate attempt to avoid unpleasant thoughts. The WBSI possesses good internal consistency and test-retest reliability (alpha .89 and .80, respectively). Following the suggestion of Höping and de Jong-Meyer (2003), Intrusion and Suppression subscale scores were also calculated. Internal consistency for this scale in the current study was also high for the Total, Suppression, and Intrusion scales

(0.87, 0.80 and 0.82, respectively).

3.3.6. *Beck Depression Inventory – Second Edition* (BDI-II; Beck et al., 1996). The BDI-II is a 21-item self-report inventory measuring symptoms of depression. Internal consistency is high within clinical outpatient populations (.92) and student populations (.93) (Beck et al., 1996).

3.3.7. *Beck Anxiety Inventory* (BAI; Beck et al., 1988). The BAI was designed to reduce the overlap between depression and anxiety by measuring anxiety symptoms shared minimally with those of depression. It consists of 21-items that tap physiological and cognitive components of anxiety. Respondents rate the degree to which they have been bothered by each symptom in the past week on a 4-point scale ranging from 0 to 3.

4. Results

4.1. General Sample Characteristics

The total sample included 168 females and 82 males with a mean age of 19.44

(SD = 3.59). Based on participant's self-descriptions of memory content, 60% of the

sample reported a negative intrusive memory, 9% reported a positive intrusive memory,

1% reported a neutral intrusive memory, and 30% reported no intrusive memory in the

past week. The mean frequency of intrusive memories was 3.49 (SD = 6.41). Of the

participants who reported a memory (n = 173), memory content was coded into five

categories based on Brewin et al. (1996): interpersonal (61%), death/illness involving

other (9%), illness/injury to self (10%), personal assault/abuse (3%), and other (17%).

This final category consisted of atypical memories such as one participant's account of

'seeing a ghost' and variations of personal failure. Notably, subjective ratings of distress

associated with experiencing the memory did not vary as a function of intrusion content,

F (4,146) = .98, p = .41.

4.2. Negative Intrusive Memories

Given that negative intrusive memories were the focus of this study, the

remaining analyses were conducted with data from only those participants who reported

negative intrusive memories. This resulted in a sample of 102 females and 45 males, with

a mean age of 19.70 (SD = 4.18). Mean frequency of intrusive memories was 4.60 (SD =

8.38). Means and standard deviations for all measures for participants who reported a

negative intrusive memory are presented in Table 1.

Preliminary screening of the data revealed multivariate outliers for one

participant's scores across BDI-II and RRS scores. Further inspection revealed a pattern

of elevated endorsement across multiple measures including intrusion frequency

therefore data from this respondent was excluded from all subsequent analyses.

Additional outliers appeared to be randomly dispersed across variables and since removal

of these items had little effect on the relevant analyses or significance levels they were

retained.

Insert Table 1 about here

4.3. Associations between Negative Appraisals, Distress and Dysphoria

Attributing a negative meaning to intrusive memories was associated with both

distress and dysphoria. The RIQ Negative Appraisal scale did not correlate with distress

($r = .15$, $p = .03$) after Bonferroni adjustments (significant tests set to .01 for multiple

comparisons), but was moderately associated with depression ($r = .19$, $p < .01$). As

predicted, the RIQ items tapping normal appraisals (included as control items) did not

correlate with either distress or dysphoria, all p's > .05. The III Total score was

moderately associated with distress ($r = .31$) and dysphoria ($r = .30$), p's < .001. These

associations remained significant after controlling for intrusion frequency. Pearson

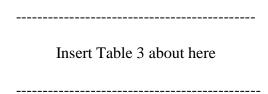correlations are reported in Table 2 for all appraisal items.

Insert Table 2 about here

4.4. Associations between Negative Appraisals, Cognitive Avoidance, and Dysphoria

Pearson correlations assessing the relationship between negative appraisals, cognitive avoidance, and dysphoria are reported in Table 3. Contrary to predictions, assigning a negative meaning (RIQ Appraisal Total score) to intrusive memories was not associated with the RIQ Rumination ($r = .16$, $p =.35$), Suppression ($r = .12$, $p = .08$), or Dissociation ($r = -.05$, $p = .26$) items in response to the reported memory. The RIQ Appraisal scale did not correlate with trait levels of rumination (RRS), ($r = .12$, $p = .07$) but did correlate with trait levels of suppression (WBSI), ($r = .26$, $p < .001$).

The findings regarding the relationship between negative appraisal/control (III Total score) and cognitive avoidance were more consistent with predictions. Negative appraisal/control was associated with the RIQ Rumination ($r = .35$), and Suppression ($r = .25$), p's $< .001$, scales but not with the RIQ Dissociation scale ($r = .10$, $p =.11$) in response to the reported memory. Additionally, negative appraisal/control was associated with trait levels of rumination ($r = .36$) and suppression ($r = .46$), p's $<.001$.

As expected, dysphoria was associated with the situational and trait indices of cognitive avoidance. These correlations are also reported in Table 3. Partial correlations controlling for intrusion frequency all remained significant with the exception of the Suppression total score ($r = .16$, $p = .02$).

Insert Table 3 about here

4.5. Predictive Value of Negative Appraisals

In order to further evaluate the relationship between negative appraisals of intrusive memories, intrusion-related distress and dysphoria, a series of multiple stepwise

regression analyses were performed. The first was conducted in an attempt to replicate the findings of Starr and Moulds (2006) with BDI-II scores as the criterion. All variables entered were derived from the theoretical model of Ehlers and Steil (1995).

Intrusion frequency was entered into the equation first followed by the RIQ scores for Dissociation, Rumination, Suppression, and Negative appraisals on the second step. Intrusion frequency accounted for a small, but significant proportion of variance in BDI-II scores in the first step (Adjusted R^2 = .02; F (1, 145) = 6.51, $p < .05$). The addition of the RIQ items accounted for an additional 12% of the variance in BDI-II scores (Adjusted R^2 = .14; F (5, 140) = 6.99, $p < .001$) with rumination (β =.25), dissociation (β = .19), and negative appraisals (β = .16) entering the equation. Intrusion frequency was no longer significant, $p < .05$. To extend this analysis by including the appraisal/control items of the III, the regression procedure was repeated with intrusion frequency forced into the first step followed by the RIQ avoidance mechanisms, Negative Appraisals, and the addition of the III total score. The addition of these items to the above model resulted in a small, but significant increase in the variance of depression scores accounted for (Adjusted R^2 = .16; F (5,140) = 6.51, $p < .001$) with the III Total (β =.18), Rumination (β = .19), and Dissociation (β = .17) entering the equation.

To further extend this analysis by assessing the contribution of these variables to the prediction of intrusion distress, a regression was conducted with distress scores as the criterion with intrusion frequency entered in the first step, followed by the RIQ Rumination and Suppression scores and the III and RIQ negative appraisal scores in the second step. Intrusion frequency did not account for any significant variance in distress scores ($p > .05$). The final equation accounted for 13% of the variance in distress scores

with the III score (β = .22) and the RIQ Rumination score (β = .18) entering the equation;

F (3, 142) = 8.23, p < .001.

4.6. Prediction of Cognitive Avoidance Mechanisms

Finally, we wanted to assess the contribution of the appraisal items over and

above the corresponding trait measures of suppression and rumination in the prediction of

avoidance mechanisms. The RIQ Suppression score was entered as the criterion in a step-

wise regression with frequency in the first step along with the WBSI Total score,

followed by distress, RIQ Negative Appraisals, and the III Total score in the third step.

This model accounted for a small but significant proportion (9%) of variance in the

criterion with WBSI Total (β = .26) and levels of distress (β = .15) entering the equation;

F (2,146) = 8.45, p < .001. This analysis was repeated with the RIQ Rumination score as

the criterion and the RRS score replacing the WBSI Total score resulting in a significant

effect; F (2,146) = 10.33, p < .001 with the III Total (β = .24) and the RRS (β = .16)

entering the final equation and accounting for 16% of the variance in Rumination. These

findings were also supported by the partial correlation between the RIQ Rumination score

and the III (r = .27, p < .001) while controlling for RRS scores.

5. Discussion

The current investigation sought to replicate and extend the preliminary findings

suggesting the applicability of Ehlers and Steil's (1995) appraisal model to intrusive

memories in depression. Consistent with Starr and Moulds (2006), intrusion-related

distress correlated with dysphoria, and dysphoria in turn correlated with the degree of

intrusiveness and avoidance of the memory, irrespective of intrusion frequency. Second,

assigning negative appraisals/control to one's intrusive memory was positively associated

with levels of distress, dysphoria, and the employment of cognitive avoidance mechanisms. Although in the current investigation the RIQ Negative Appraisal items were not associated with the RIQ items after Bonferroni adjustments, we nevertheless found support for the theoretical framework put forth by Ehlers and Steil (1995). The III, which was modified to reflect participants' negative appraisals and need to control the target intrusive memory, was significantly correlated with the RIQ items, as predicted. Starr and Moulds (2006) found that dysfunctional meanings of intrusive memories and intrusion-related distress predicted depression levels, accounting for 36% of the variance in BDI-II scores. In the current sample, this regression model accounted for 14% of the variance in depression scores. We also administered the III as a broader index of negative appraisals. The addition of this measure to the regression equation resulted in an increased accuracy of prediction.

In addition, we also hypothesized that negative appraisals/control would demonstrate a unique relationship to the employment of cognitive avoidance mechanisms irrespective of trait tendencies to engage in these responses. Our results suggest that possessing a trait tendency to engage in suppression is more predictive of employing suppression as a specific response strategy than is assigning negative appraisals to one's memory. However, our findings suggest that an individual's appraisals and their subjective need to exert control over the intrusion are more strongly predictive of ruminative responses to intrusive memories than possessing a trait tendency to ruminate. Finally, negative appraisals and the use of cognitive mechanisms as a response strategy to intrusive memories were predictive of both depression and anxiety concurrently.

Although conducted with a non-clinical sample, the outcomes of this study offer a number of clinical implications. First, the results reinforce the presence and role of dysfunctional beliefs about intrusive memories in the context of depression, and suggest the value of identifying and challenging such beliefs in cognitive therapy. The possibility that the reduction of these beliefs may decrease the employment of maladaptive cognitive avoidance strategies, which in turn may alleviate depressed mood, awaits empirical test. However, our findings suggest that future investigations of this possibility would be fruitful. Second, in line with the suggestion of Brewin and colleagues (e.g., Brewin, 1998; Brewin et al., 1999; Kuyken & Brewin, 1995), future research should explore the possibility that therapeutic procedures that result in successful emotional processing of intrusive trauma memories in PTSD (e.g., prolonged imaginal exposure) may similarly have utility in the treatment of depression.

The use of a non-clinical sample to test assumptions about clinical phenomena may limit the strength of the conclusions that can be drawn in the current investigation. However, the validity of conducting analogue research has been demonstrated across various clinical classifications (Borkovec & Rachman, 1979; Burns et al., 1995). Given that research on intrusive memories in depression is still in its infancy, investigations conducted with analogue samples offer an important contribution.. However, although drawn from a non-clinical population, we note that 28% of our sample met diagnostic criteria for a current major depressive episode based on administration of the SCID-I (First et al., 1997). Nonetheless, we acknowledge that replication with a clinical sample will be informative, and are currently collecting such data. Finally, the majority of the findings reported here are correlational and some of the selected indices of cognitive

avoidance demonstrated weak internal consistency. Conclusions regarding the directionality of these relationships will require longitudinal and experimental investigations with validated measures.

As the cardinal diagnostic feature of PTSD, intrusive memories have been predominantly investigated in the context of posttraumatic stress. Although convergent evidence demonstrates that intrusive memories represent an overlapping cognitive feature of depression and PTSD, there is still a general paucity of research investigating the prevalence and maintenance of intrusive memories in depression. Nonetheless, there is emerging preliminary support for to the proposal that shared cognitive processes underpin their persistence in both disorders (e.g., Starr & Moulds, 2006; Williams & Moulds, 2007). This overlap challenges traditional notions of the categorical division between mood and anxiety disorders, in accordance with a transdiagnostic approach that underscores the utility of investigating shared clinical features across disorders (Harvey et al., 2004). Extending understanding of the role of intrusive memories will have significant implications for theoretical models of depression, and pave the way for the development of interventions that specifically aim to reduce these memories in depressive disorders (Brewin, 1998).

Acknowledgment

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Table 1

Means and Standard Deviations for Self-Report Measures (n = 147).

	Mean (SD)		Mean (SD)
BDI-II	11.44 (8.91)	WBSI	47.12 (12.17)
BAI	11.96 (9.18)	WBSI Intrusion	29.18 (7.73)
IES Total	32.34 (12.85)	WBSI Suppression	17.94 (5.56)
IES Intrusion	16.44 (7.85)	RIQ Dissociation	38.12 (22.80)
IES Avoidance	15.89 (8.06)	RIQ Suppression	11.01 (4.61)
RRS	49.45 (12.81)	RIQ Rumination	12.26 (3.92)
III Control	24.54 (18.29)	RIQ Appraisal	16.53 (10.68)

Note. IES Intrusion = Impact of Events Scale, Intrusion subscale; IES Avoidance =
Impact of Events Scale, Avoidance subscale; RRS = Ruminative Response Scale; III =
Interpretations of Intrusions Inventory, Need to Control subscale; WBSI = White Bear
Suppression Inventory; WBSI Intrusion = White Bear Suppression Inventory, Intrusion
subscale; WBSI = White Bear Suppression Inventory, Suppression subscale; RIQ
Dissociation = Response to Intrusions Questionnaire, Dissociation subscale; RIQ
Suppression = Response to Intrusions Questionnaire, Suppression subscale; RIQ
Rumination = Response to Intrusions Questionnaire, Rumination subscale; RIQ
Appraisal = Response to Intrusions Questionnaire, Appraisal subscale.

Table 2

Correlations between Negative Appraisals, Cognitive Avoidance, and Dysphoria

(n = 147).

	RIQ	III - Total	BDI-II
RIQ Dissociation	-.05	.10	.21**
RIQ Rumination	.16	.35**	.30**
RIQ Suppression	.16	.25**	.16**
RRS	.12	.37**	.56**
WBSI Total	.26**	.46**	.40**
WBSI Intrusion	.27**	.42**	.38**
WBSI Suppression	.19*	.42**	.34**
IES Total	.19*	.43**	.34**
IES Intrusion	.19*	.34**	.31**
IES Avoidance	.11	.36*	.24**

Note. BDI-II = Beck Depression Inventory- Second Edition; RIQ Dissociation = Response to Intrusions Questionnaire, Dissociation subscale; RIQ Rumination = Response to Intrusions Questionnaire, Rumination subscale; RRS = Ruminative Response Scale; RIQ Suppression = Response to Intrusions Questionnaire, Suppression subscale; WBSI = White Bear Suppression Inventory; WBSI Intrusion = White Bear Suppression Inventory, Intrusion subscale; WBSI = White Bear Suppression Inventory, Suppression subscale; IES Intrusion = Impact of Events Scale, Intrusion subscale; IES Avoidance = Impact of Events Scale, Avoidance subscale.
*p < .01, ** p < .001.

Table 3

Correlations between Distress and Dysphoria with Negative Appraisals Controlling for

Intrusive Memory Frequency (n = 147).

	Distress	Partial r	BDI –II	Partial r
III Control Total	.31**	.28**	.30**	.28**
"Regain control"	.25*	.24*	.09	.07
"Rid Mind"	.16 *	.17*	-.05	-.04
"Lead to ruin"	.18**	.17	.25**	.23*
"Weak person"	.25*	.22*	.31**	.28**
"Lose control of mind"	.28**	.24**	.31**	.27**
"Better person if control"	.22*	.20*	.28**	.25**
"I am out of control"	.26**	.24**	.32**	.30**
"Something bad will happen"	.18*	.15	.20**	.17
"I must control"	.19*	.18*	.24**	.24*
"I shouldn't recall this"	.16	.15	.25**	.25**
"I will be punished"	.10	.07	.18*	.15
RIQ Neg. Appraisal Total	.15	.13	.19*	.18*
"Something is wrong with me"	.09	.07	.19*	.17*
"Someday I will go out of my mind"	.06	.05	.16	.16

"I am inadequate"	.13	.11	.24*	.22**
"I have a psychological problem"	.23*	.21*	.17*	.15
"I cannot cope"	.15	.16	.19	.20*
"I will not achieve future goals that are important"	.04	.05	-.02	-.01

Note. III Control Total = Interpretations of Intrusions Inventory, Need to Control subscale - Total score; RIQ Neg. Appraisal Total = Response to Intrusions Questionnaire, Negative Appraisal subscale – Total score.
*p < .01, ** p < .001.