

INTRUSIVE THOUGHTS AND AVOIDANCE BEHAVIORS ARE ASSOCIATED WITH SLEEP DISTURBANCES IN BEREAVEMENT-RELATED DEPRESSION

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Cognitive arousal has been associated with disrupted sleep in individuals with insomnia and may be one mechanism underlying sleep disturbances in depression. We evaluated the relationship of sleep to bereavement-related intrusive thoughts and avoidance behaviors in 40 men and women with major depression consequent to bereavement. Mean subject age was 65 years, 25% of the same was male, and median time since loss was 7.4 months. Levels of intrusive thoughts and avoidance behaviors were similar to samples seeking treatment for stress response syndromes, including post-traumatic stress disorder. After controlling for the effects of age, time since loss, and depression severity, greater frequency of bereavement-related intrusive thoughts and avoidance behaviors was associated with longer sleep latency and lower delta sleep ratio (P values < .01). Intrusive thoughts and avoidance behaviors were not strongly related to gender, time since loss, depression severity, or subjective sleep quality. These results suggest that intrusive thoughts and avoidance behaviors affect sleep in bereavement-related depression and may therefore be related to the clinical course of depression. Depression and Anxiety 6:106-112, 1997.

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INTRODUCTION

Individuals with major depression frequently complain of disrupted and nonrestorative sleep. Sleep disturbances in bereavement-related depression are similar to those seen in recurrent endogenous depression (Reynolds et al., 1992, 1993). Laboratory-based measures of sleep confirm the relationship between reports of disturbed sleep and depression, and include disruptions in measures of sleep continuity and alterations in the temporal profile of non-rapid eye movement (REM) and REM sleep. Specifically, individuals with depression have a harder time falling and staying asleep, exhibit less delta wave activity during the first sleep cycle, and have a shorter REM latency than age- and gender-matched controls (Benca et al., 1992; Lauer et al., 1991; Reynolds and Kupfer, 1987). In addition, sleep profiles among individuals with depression are associated with treatment response, relapse susceptibility, and indices of physical health such as immune function (Cover and Irwin, 1994; Dew et al., 1997; Lee et al., 1993; Irwin et al., 1992; Kupfer et al., 1990; Rush et al., 1989).

Identification of factors that contribute to sleep disturbances in bereavement-related depression may further our understanding of the pathogenesis, treat-

ment, and prevention of depression in the context of bereavement. Intrusive thoughts and avoidance behaviors represent a set of related constructs that may be particularly relevant to sleep in the context of bereavement-related depression. The reliable association between cognitive arousal and disrupted sleep in individuals with insomnia provides strong theoretical rationale for evaluating relationships among intrusive thoughts, avoidance behaviors, and sleep (Friedman et al., 1995; Nicassio et al., 1985; Libman et al., 1997;

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Lichstein and Rosenthal, 1980). Intrusive thoughts and avoidance behaviors are commonly experienced in association with stressful events, such as bereavement, and may interfere with sleep by eliciting psychophysiological arousal.

As measured by the Impact of Event Scale (IES; Horowitz et al., 1979), intrusive thoughts are defined as unbidden thoughts, images, or feelings about a specific stressful event or circumstance (e.g., "I thought about it when I didn't mean to"). Avoidance behaviors refer to active attempts to suppress thinking about a stressful event or circumstance ("I tried not to think about it"). Heightened frequency of intrusive thoughts and avoidance behaviors are common in the immediate wake of a stressful event, including bereavement, and tend to abate in tandem over time in the majority of affected individuals (Baum, 1990; Baum et al., 1993; Davidson and Baum, 1986; Horowitz, 1975). The strong and reliable positive correlation between intrusive thoughts and avoidance behaviors (r 's generally between .42 and .57) suggests that these constructs are related dimensions of an underlying phenomenon (Horowitz et al., 1979; Schwarzwald et al., 1987; Zilberg et al., 1982). Intrusive thoughts and avoidance behaviors have been associated with heightened psychophysiological arousal and biochemical indices of stress, sometimes for decades after the precipitating event (Baum, 1990; Baum et al., 1993; Davidson and Baum, 1993; Foa et al., 1991; McFall et al., 1990). Experimental manipulation of intrusive thoughts has also been shown to elicit distress and negative mood (Hall and Baum, 1995). Intrusive thoughts, avoidance behaviors, and their associated psychophysiological arousal may drive aspects of sleep disturbances commonly observed in bereavement-related depression.

The insomnia literature offers the strongest empirical support for a link between intrusive thoughts and sleep. When queried, the majority of individuals with insomnia attribute their difficulty initiating and maintaining sleep to symptoms of what has been labeled, "cognitive arousal" (Coyle and Watts, 1991; Nicassio et al., 1985; Libman et al., 1997; Lichstein and Rosenthal, 1980). Cognitive arousal and intrusive thoughts are very similar constructs: each refers to unbidden thoughts that are experienced as aversive and difficult to control. The link between cognitive arousal and the inability to sleep is not limited to individuals with insomnia. Experimental manipulations have demonstrated that cognitive arousal is associated with laboratory-assessed sleep disruptions in good and poor sleepers alike (Gross and Borkovec, 1982; Hall et al., 1996a). Similarly, stress-related intrusive thoughts have been associated with poor sleep quality, as measured by self-report (Hall et al., 1996b, Ironson et al., 1997).

The impact of avoidance behaviors on sleep has received less empirical attention. One study has found that, at least in healthy undergraduates, avoidance behaviors (as measured by the Ways of Coping Inven-

tory; Folkman and Lazarus, 1988) were associated with lower delta wave counts during the first sleep cycle and across the night (Hall et al., 1996a). Overall scores on the Impact of Event Scale, which includes symptoms of intrusion and avoidance, have been associated with subjective reports of poor sleep. Ironson and colleagues recently reported that higher symptoms of stress-related intrusive thoughts and avoidance behaviors in the aftermath of a natural disaster were significantly associated with new onset sleep problems (Ironson et al., 1997). Interestingly, new onset sleep problems were also found to mediate the relationship between symptoms of intrusion/avoidance and immune function, as measured by natural killer cell activity.

Previous research suggests that intrusive thoughts and avoidance behaviors are significant and reliable correlates of subjective and laboratory-assessed sleep disruptions in good sleepers and patients with insomnia. In the present study, we evaluated the relationship between intrusive thoughts, avoidance behaviors, and sleep in a sample of men and women with syndromal depression consequent to bereavement. We hypothesized that greater frequency of bereavement-related intrusive thoughts and avoidance behaviors would be associated with greater sleep disturbance, as measured by self-report and polysomnography.

SUBJECTS AND METHODS

The study included 40 subjects (10 men, 30 women) with bereavement-related, syndromal depression. All subjects were in their first lifetime episode of major depression (determined by SADS-L [Lifetime Version] interview), beginning within 6 months of loss. Relationship to the deceased included spouses ($n=32$), parents ($n=2$), siblings ($n=1$), and children ($n=5$). Mean subject age was 65 years (S.D. 7.6; range 50–81), pursuant to study enrollment criteria (Electroencephalographic [EEG] Sleep, Aging & Mental Illness; C.F. Reynolds, P.I., MH37869). Ethnicity of the sample was 85% Caucasian and 15% African American. The majority of the sample were high school graduates (90%), employment status varied from unemployed/disabled ($n=5$), homemakers ($n=4$), retired ($n=19$), to employed ($n=11$); employment status was not available for one subject.

Subjects were physically healthy, with no unstable major medical illnesses. No prospective subject presented with a diagnosed sleep disorder, including sleep apnea or periodic limb movement disorder. Additionally, apnea-hypopnea and periodic limb movement indices measured on the first night of sleep studies did not reveal the presence of undiagnosed apnea or periodic limb movement disorder. Baseline data were collected prior to randomization to treatment in a double-blind, placebo-controlled study of treatment of bereavement-related depression. Subject recruitment and screening procedures, as well as treatment groups, have been reported elsewhere (Reynolds et al.,

1992). Psychotropic medications were discontinued for at least two weeks prior to study entry and baseline EEG sleep studies. Written, informed consent for the baseline assessment and for participation in the treatment protocol was obtained from all subjects after study procedures were fully explained.

Selected background and clinical data collected at baseline are summarized in Table 1. Depression severity was quantified with the 17-item Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960). Intrusive thoughts and avoidance behaviors were measured with the Impact of Event Scale (IES; Horowitz et al., 1979). The IES is a widely used questionnaire that quantifies the frequency of intrusive thoughts and avoidance behaviors related to a specific event or circumstance. In the present study, the IES prompt was "your loss"; thus, we evaluated the frequency of *bereavement-related* intrusion and avoidance items experienced by subjects over the previous seven days. The overall IES score (sum of all items; $\alpha = .88$) was used to evaluate the relationship between sleep and total frequency of intrusive thoughts and avoidance behaviors. We also used the two IES subscales (intrusion $\alpha = .83$, avoidance $\alpha = .83$) to evaluate possible differential effects of intrusive thoughts and avoidance behaviors on sleep. The correlation between IES subscales was statistically significant ($r = .57, P < .01$).

Sleep studies were conducted during the week following collection of baseline clinical data. Three nights of sleep studies were conducted at subjects' habitual sleep/wake times; the first night was considered an adaptation night. A routine polysomnography montage of EEG (C_3 or C_4 leads referenced to tied mastoid leads), EOG (referenced to tied mastoid leads), and EMG (bipolar submental leads) was used on nights 2 and 3. Additional leads were used on night 1 to monitor for periodic limb movements and sleep apnea. High- and low-filter frequency settings for the EEG and EOG were 30 and 0.3 Hz, with a sensitivity of 5.0 $\mu\text{V}/\text{mm}$. Mean data from nights 2 and 3 were used in statistical analyses of sleep data. Polysomnographic data were visually scored using 60-second epochs. Period-amplitude analysis was used to evaluate EEG delta activity (Doman et al., 1995). This program uses a zero-crossing method to count the number of EEG delta waveforms (0.5–2.0 Hz and $>75 \mu\text{V}$) during each 60-second epoch of non-REM (NREM) sleep.

Outcome variables were subjective and EEG-assessed measures of sleep that have been typically found to be associated with depression and stress, including sleep quality, sleep latency, REM latency, sleep maintenance, percent stage 3/4 (delta) sleep, delta sleep ratio, and total amount of sleep. Subjective sleep quality was quantified with the global sleep quality score derived from the Pittsburgh Sleep Quality Index (PSQI; Buysse et al., 1989). The global sleep quality score on the PSQI is based on seven components of sleep (e.g., sleep latency, degree of sleep disturbance) and is a reliable and sensitive measure of

subjective sleep quality (Buysse et al., 1989). Sleep latency was defined as time to the first of 10 minutes of stage 1 or deeper sleep interrupted by no more than 2 minutes of stage 1 or wakefulness. REM latency was defined as the interval between sleep onset and the first of ≥ 3 consecutive minutes of REM sleep. Sleep maintenance was calculated as the percentage of the total recording period spent asleep after sleep onset. Delta sleep ratio was defined as EEG delta counts per minute (cpm) in NREM period-1/EEG delta cpm in NREM period-2. Amount of sleep was defined as total minutes spent asleep after sleep onset.

Prior to testing the study hypotheses, we evaluated the relationship of overall IES scores to background and clinical data using Pearson Product Moment Correlations. Hierarchical regression analysis was used to evaluate the unique relationship between sleep and frequency of intrusive thoughts and avoidance behaviors, after controlling for age, time since loss, and severity of depression. Reasons for entering age, time since loss, and depression severity into regression equations prior to IES scores are as follows: (1) previous research has reported reliable and significant relationships between age, depression severity, and measures of sleep (Bliwise, 1993; Kupfer, 1995) and (2) timing of stressful life events has recently been associated with EEG-assessed sleep in young, healthy control subjects (Hall et al., 1997). Due to the strong correlation between the IES subscales, as well as a sample size of only 40, the overall IES score was used as the predictor variable in these analyses. A 14-item HRSD, which excluded the three sleep items, was used in analyses that evaluated the impact of depression severity on sleep. In more exploratory analyses, partial correlations were used to evaluate possible differential effects of intrusive thoughts versus avoidance behaviors on sleep. Age, time since loss, and depression severity were included as covariates in these analyses. REM latency and percent 3/4 sleep were square root-transformed, and sleep latency was log-transformed prior to statistical analyses, due to skewness.

RESULTS

Background and clinical variables are summarized in Table 1. Clinical measures confirmed the presence of moderately severe depression at the time of EEG sleep studies. Mean intrusion and avoidance values were similar to those found in patient samples of adults seeking treatment for stress disorders, including post-traumatic stress disorder (Davidson et al., 1990; Gavish et al., 1996; Horowitz et al., 1984). Sociodemographic variables, time since loss, and depression severity were not related to total frequency of intrusive thoughts and avoidance behaviors (Table 1). Mean values for sleep measures are shown in Table 2 and are comparable to sleep parameter values seen in elders with recurrent depression (Reynolds et al., 1992).

Results of hierarchical regression analyses revealed

TABLE 1. Background and clinical variables: Mean, standard deviation, and correlation with overall Impact of Event Scale (IES) score

Background and clinical variables	Mean ± S.D.	Range	Correlation with overall IES
Gender ^a	25% male		r = -.20
Age (years)	65 ± 7.6	50–81	r = -.24
Time since loss (month)	11.24 ± 11.9	1.1–72.3	r = .05
Depression severity (HRSD-17)	21.0 ± 4.0	16–30	r = .20
Intrusive thoughts (IES-I)	21.8 ± 8.2	4–35	r = .86*
Avoidance behaviors (IES-A)	18.3 ± 10.1	0–40	r = .91*

^aGender: 0, male; 1, female.

*P < .001.

that older age was associated with a longer sleep latency ($P < .05$), accounting for 10% of the variance in this variable (Table 2). Time since loss was not significantly associated with any of the sleep measures. After controlling for age and time since loss, greater depression severity was significantly associated with shorter REM latency ($P < .01$), and impaired sleep maintenance ($P < .05$). Depression severity accounted for 15% of the variance in REM latency, and 9% of the variance in sleep maintenance. After controlling for age, time since loss, and severity of depression, total frequency of intrusive thoughts and avoidance behaviors was associated with a longer sleep latency ($P < .01$) and lower delta sleep ratio ($P < .01$). Symptoms of intrusion and avoidance accounted for 13% of the variance in sleep latency and 15% of the variance in delta sleep ratio.

Partial correlations revealed similar relationships among sleep measures and the individual intrusive thoughts and avoidance behaviors subscales (Table 3). Greater frequency of intrusive thoughts was significantly associated with lower delta sleep ratio values and less time spent asleep (P values < .05). Greater frequency of avoidance behaviors was significantly associ-

ated with longer sleep latency and lower delta sleep ratio values (P values < .05).

A median split was performed on the total IES score in order to characterize the clinical significance of relationships among intrusion/avoidance, sleep latency, and delta sleep ratio. The range if IES scores in the low IES group ranged from 6 to 42, and scores in the high IES group ranged from 43 to 71. Mean sleep latency for the low IES group was 18 minutes, as compared to 33 minutes in the high IES group. Mean delta sleep ratio for the low IES group was 1.5, as compared to 1.3 in the high IES group.

DISCUSSION

Mean values for subjective sleep quality and EEG-assessed sleep latency, REM latency, and sleep maintenance reflect significantly disrupted sleep, as compared to sleep parameters reported for nondepressed elders (Reynolds et al., 1992). Levels of intrusive thoughts and avoidance behaviors reported by bereaved subjects in the present study were extremely high and resemble values reported among individuals with post-traumatic stress

TABLE 2. Mean sleep values and hierarchical regression analyses: Impact of age, time since loss, depression severity, and overall intrusive thoughts and avoidance behaviors on sleep

	PSQI M=11.4 ± 4.1	Sleep latency M=25.5 ± 6.5	REM latency M=57.1 ± 9.5	Maintenance M=85.9 ± 8.2	Percent 3/4 sleep M=4.6 ± 5.9	Delta sleep ratio M=1.4 ± .33	Sleep time M=411.0 ± 8.10
Age							
R ²	.01	.10*	.00	.08	.00	.01	.15**
Standardized beta	-.08	.31	-.04	-.29	.03	.10	.39
Time since loss							
Change R ^{2a}	.02	.00	.05	.00	.02	.03	.07
Standardized beta	-.14	.00	-.22	.04	-.16	.19	-.27
HRSD-14							
Change R ^{2a}	.03	.02	.15**	.09*	.00	.00	.00
Standardized beta	.17	.16	-.40	-.31	-.09	.00	-.04
IES							
Change R ^{2a}	.00	.13**	.01	.03	.08	.15**	.06
Standardized beta	.00	.38	-.13	-.19	-.30	-.40	-.25
Overall R ²	.06	.25*	.21	.20	.10	.19	.28*

^aChange in R² represents the unique variance associated with a predictor variable, after entering previous predictors into the equation.

*P < .05.

**P < .01.

TABLE 3. Partial correlations among intrusive thoughts and avoidance behaviors subscales and measures of sleep

	PSQI	Sleep latency	REM latency	Maintenance	Percent 3/4 sleep	Delta sleep ratio	Sleep time
Intrusive thoughts	$r = .15$	$r = .31$	$r = -.15$	$r = -.01$	$r = -.21$	$r = -.37^*$	$r = -.34^*$
Avoidance behaviors	$r = -.03$	$r = .38^*$	$r = -.12$	$r = -.29$	$r = -.29$	$r = -.37^*$	$r = -.16$

* $P < .05$.

disorder (Davidson et al., 1990). Previous research has demonstrated that intrusive thoughts and avoidance behaviors of similar intensity and duration are associated with the adverse consequences of stressful events including psychosomatic distress, depression, social isolation, poor performance on experimental tasks, elevated glucocorticoid and catecholamine levels, and elevated blood pressure (Baum, 1990; Baum et al., 1993; Bodnar and Keicolt-Glaser, 1994; Davidson and Baum, 1986; Esterling et al., 1994; Horowitz, 1975). To our knowledge, this is the first demonstration that EEG-assessed sleep disruptions are a significant correlate of bereavement-related intrusive thoughts and avoidance behaviors.

Even after controlling for the effects of age, time since loss, and depression severity, bereavement-related intrusive thoughts and avoidance behaviors were significant correlates of sleep onset and the temporal organization of delta sleep. Greater total frequency of intrusive thoughts and avoidance behaviors was associated with a longer sleep latency and lower generation of delta sleep during the first, as compared to the second, sleep cycle. Symptoms of intrusion and avoidance contributed similarly to the distribution of delta sleep, whereas sleep latency was more strongly related to symptoms of avoidance and time spent asleep was more strongly related to symptoms of intrusion. Whether considered together or as separate subscales, neither intrusive thoughts nor avoidance behaviors were associated with a number of other sleep measures that are typically altered in depression including subjective sleep quality, sleep continuity, and REM latency.

The magnitude and statistical reliability of the relationship between overall IES scores and sleep latency are similar to that reported in association with insomnia and laboratory manipulations of cognitive arousal (Gross and Borkovec, 1982; Lichstein and Rosenthal, 1980). The current study corroborates subjective reports that intrusive thoughts can interfere with sleep (Hall et al., 1996a,b, Ironson et al., 1997). The relationship between avoidance behaviors and sleep latency may be related to heightened distress and/or the paradoxical effects of attempts at thought suppression. Overt attempts to suppress thoughts have been shown to elicit an increase in the frequency of the to-be-suppressed thought (Wegner, 1989). Thus, bereaved individuals who attempt to avoid thinking about their loss may experience more intrusive thoughts and associated psychophysiological arousal, thereby exhibiting a longer sleep onset. In the present study, greater frequency of intrusive thoughts and avoidance behaviors

was associated with a clinically significant delay of sleep onset: sleep latency was 15 minutes longer in subjects with high IES values, as compared to subjects with low IES values, as defined by median split.

The absence of a relationship between symptoms of intrusion/avoidance and subjective sleep quality was surprising and may have been related to the time frame of questionnaires used in this study. The PSQI assessed global sleep quality over a 1-month period, while polysomnographic measures of sleep were average over 2 nights, following adaptation to the sleep laboratory. In exploratory analyses, we examined partial correlations among IES scores and subjective reports of sleep quality collected in our laboratory on the same nights as sleep studies. Age, time since loss, and depression severity were controlled for, similarly to previous analyses of symptoms of intrusion/avoidance and sleep parameters. Symptoms of intrusion and avoidance were significantly correlated with subjective perceptions of time spent asleep ($r = -.45$, $P < .01$), but were unrelated to reports of subjective sleep latency and sleep continuity. Thus, it appears that elevated levels of bereavement-related intrusive thoughts and avoidance behaviors were associated with at least one subjective measure of disturbed sleep, lower estimates of time spent asleep during sleep studies. In this sample it is notable that sleep quality, as measured by the PSQI, was also unrelated to age, time since loss, and depression severity, suggesting that some other, unmeasured, factors contributed to the elevated levels of habitually disturbed sleep reported by these subjects.

Overall IES scores were not associated with the ability to stay asleep. These data stand in contrast to the insomnia literature and experimental manipulations of cognitive arousal prior to sleep. The absence of a relationship between intrusive thoughts and sleep maintenance in the present study is notable given the extremely high values for intrusive thoughts found in this sample. These data suggest that bereavement-related intrusive thoughts and avoidance behaviors are not associated with sleep maintenance in syndromal depression. Alternatively, intrusive thoughts and avoidance behaviors unrelated to subjects' losses may have interfered with sleep maintenance. Because the IES is a trauma-specific questionnaire, subjects were only queried about thoughts and behaviors related to bereavement. Moreover, the timing of questionnaire administration may have diluted the relationship between these variables. Subjects completed the IES during the week prior to sleep studies. In a separate study, intrusive thoughts experienced as subjects were

falling asleep were significantly associated with early morning awakenings (Hall et al., 1996a). Evaluation of nonspecific intrusive thoughts and avoidance behaviors prior to sleep onset and during awakenings from sleep is needed before conclusions can be drawn about relationships among intrusive thoughts, avoidance behaviors, and sleep maintenance.

Overall IES scores were negatively associated with delta sleep ratio, after controlling for age and depression severity. This relationship was also observed when intrusive thoughts and avoidance behaviors were examined independently. The clinical significance of delta sleep ratio lies in its prognostic relationship with the clinical course of major depressive disorder. In the present sample, IES scores accounted for 15% of the variance in delta sleep ratio, while depression severity as defined by the Hamilton Rating Scale for Depression, was unrelated to delta sleep ratio. The absence of a relationship between IES scores and percent 3/4 sleep in the present sample suggests that intrusive thoughts and avoidance behaviors interfere with the temporal organization of delta sleep reflected in delta sleep ratio, versus a reduction in the overall ability to generate slow-wave sleep. Alternatively, the absence of an IES and percent 3/4 sleep relationship in the present sample may reflect the sample's age distribution which results in little visually scored stage 3/4 sleep. Avoidance behaviors have been directly linked to lower slow-wave sleep generation in a sample of young, healthy subjects (Hall et al., 1996a). Chronic stress has also been associated with lower slow-wave sleep generation in younger samples (Cartwright and Wood, 1991; Ross et al., 1989).

The results from the present study suggest that factors in addition to depression severity are associated with selected sleep disturbances in bereavement-related depression. Importantly, the two sleep variables related to intrusive thoughts and avoidance behaviors in the present sample have both been related to the clinical course of depression. Longer sleep latencies, in conjunction with older age, life stressors, and low levels of perceived social support were associated with a highly fluctuating treatment response to a combination of nortriptyline and interpersonal psychotherapy in elders with recurrent depression (Dew et al., 1997). Delta sleep ratio has been associated with recurrence during maintenance treatment in recurrent depression (Kupfer et al., 1990). Elevated levels of intrusive thoughts and avoidance behaviors, in association with longer sleep latencies and lower delta sleep ratios, may reflect heightened distress and portend a more brittle treatment course in individuals with bereavement-related depression, as compared to depressed individuals with less frequent symptoms of intrusion and avoidance. This cluster of symptoms may also be used to guide treatment approaches to better address the constellation of clinical phenomena inherent in bereavement-related depression. For example, emerging data from our laboratory indicate that traumatic grief, which includes

symptoms of intrusive thoughts and avoidance behaviors, is responsive to paroxetine (Zygmunt et al., 1997) and nonresponsive to nortriptyline (Jacobs et al., 1987; Pasternak et al., 1993; Prigerson et al., 1995).

These data provide preliminary support for the hypothesis that intrusive thoughts and avoidance behaviors are a significant correlate of the sleep disturbances seen in bereavement-related depression. Although consistent with the insomnia and stress literatures, firm conclusions about relationships among intrusive thoughts, avoidance behaviors, and sleep in the contents of depression await replication in other depressed samples. In addition, concurrent measures of intrusive thoughts, attempts to avoid these thoughts, attempts to avoid these thoughts, and physiological arousal will shed light on the pathways whereby intrusive thoughts and avoidance behaviors are associated with sleep. Evaluation of the extent to which relationships among these factors are associated with the clinical course of bereavement-related depression and treatment outcome are planned.

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