

Incorporating Principles from Acceptance and Commitment Therapy into Cognitive-Behavioral Therapy for Insomnia: A Case Example

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Abstract Although traditional cognitive behavioral treatments for insomnia have demonstrated efficacy for many individuals with primary and comorbid insomnia, not all individuals benefit from treatment and some experience a subsequent relapse of insomnia. Furthermore, many individuals experience difficulty in implementing the sleep restriction and stimulus control strategies, especially over the long-term. The current article describes ways in which principles from a newer type of behavior therapy, Acceptance and Commitment Therapy (ACT), can be integrated with traditional behavioral treatment strategies for insomnia. A major goal of ACT is to increase willingness to experience unpleasant thoughts, feelings, and physical sensations, and to promote engagement in personally-valued behaviors while non-judgmentally observing these unpleasant experiences. ACT has the potential to enhance the behavioral treatment of insomnia by fostering

willingness to experience short-term discomfort (e.g., fatigue) that occurs while implementing sleep restriction and stimulus control strategies. A case example is presented to illustrate how these principles from ACT can be integrated with behavioral techniques in the treatment of insomnia.

Keywords Insomnia · Treatment · Behavior therapy · Acceptance · Mindfulness

Introduction

Primary insomnia is a diagnostic term that refers to difficulty initiating or maintaining sleep or non-restorative sleep for at least 1 month, leading to clinically significant distress or impairment in social, occupational, or other important areas of functioning (American Psychiatric Association 2000). It is estimated that between 9 and 15% of the general adult population and 25–50% of the elderly report chronic insomnia (Benza 2005; Foley et al. 1995). An additional 25–35% of the general population may experience transient insomnia (Benza 2005). Insomnia frequently is related to anxiety, depression, fatigue, poor concentration, and general psychosocial distress (Taylor et al. 2005).

In addition to its individual psychological impact, insomnia is a pervasive and costly health care issue. The total direct annual cost in the U.S. attributable to insomnia is approximately \$12 billion for health care services and \$2 billion for sleep-promoting pharmacotherapy (Walsh and Ustun 1999). Moreover, people with chronic insomnia may have a higher rate of absenteeism from work and often report more difficulty performing work-related duties (Leger et al. 2002).

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Primary insomnia is believed to be maintained by behavioral and cognitive factors such as conditioned bedtime arousal, irregular sleep schedules, excessive time spent in bed, and maladaptive beliefs and attitudes towards sleep (Edinger et al. 2001). Research has shown that cognitive-behavioral treatment for insomnia (CBT-I) can produce both subjective and objective improvements in sleep quality and quantity (e.g., Edinger et al. 2001). Although several variations of CBT-I exist, it generally is a brief treatment (5–8 sessions) that can be administered in group or individual formats. It generally consists of several components, including: (1) sleep education, (2) sleep hygiene rules (e.g., limiting caffeine intake), (3) sleep restriction (restricting time in bed to actual sleep time), (4) stimulus control (associating the bed with sleep and sexual activity only), (5) cognitive restructuring (restructuring of maladaptive thoughts), and (6) sometimes relaxation therapy. After the initial assessment, treatment begins by having patients complete a baseline sleep diary for 2 weeks. At the next session, patients are told to stay in bed for the number of hours they slept on average during the baseline weeks, and they are instructed to continue completing sleep diaries each week to calculate sleep efficiency [$SE = (\text{total sleep time} / \text{total time in bed}) \times 100$]. Sleep education, sleep hygiene rules, and stimulus control also are addressed in the beginning sessions. As sleep efficiency increases, patients are instructed to increase time spent in bed (e.g., by 15-min increments), by going to bed earlier (termed “sleep titration”). Cognitive restructuring occurs in later sessions to address patients’ catastrophic thinking about the consequences of poor sleep.

Individuals treated with CBT-I report reductions in the number of awakenings after sleep onset and in total time spent awake during the night, greater sleep efficiency, higher self-efficacy about sleep, and fewer dysfunctional sleep-related beliefs (Edinger and Means 2005). These subjective sleep improvements have been corroborated by objective sleep studies (polysomnography), and may extend as far as 24 months post-treatment (Edinger and Means 2005). CBT-I has been shown to be as effective as hypnotic prescription medications in the short-term, and to have longer lasting benefits compared to medications (National Institutes of Health 2005). CBT-I has been tested mostly on primary insomnia; however, more recent research has demonstrated its efficacy with insomnias comorbid with other psychological and medical disorders (see Morin et al. 2006).

Although many patients experience these therapeutic benefits, there are some patients who do not respond to CBT-I. The effect sizes for CBT-I are moderate, but they are lower than effect sizes of CBT for other psychological disorders (Harvey and Tang 2003). Patient adherence to some of the behavioral components of CBT-I (particularly

sleep restriction), may be difficult (Chambers 1992; Spielman et al. 1987). Chambers (1992) concluded that: “the failure of patients to carry out treatment recommendations may be the single greatest impediment to the success of a behavioral insomnia treatment program.” Research on long-term adherence to treatment showed that only 40% of patients used the sleep restriction, stimulus control, and cognitive restructuring components of the treatment at one-year follow-up (Harvey et al. 2002). Poor adherence may be due to the counterintuitive instructions of restricting time in bed and postponing sleep, as well as the increased levels of sleeplessness and fatigue in the beginning of treatment (Riedel and Lichstein 2001).

Given that some individuals do not respond to traditional CBT-I approaches and that adherence continues to be difficult for many individuals, a modified treatment may be useful in enhancing the effects of existing treatments for insomnia and improving outcomes for a larger range of individuals. In this paper, we discuss ways in which incorporating principles from Acceptance and Commitment Therapy (ACT; Hayes et al. 1999) into the treatment of insomnia can enhance the adherence to and acceptability of more traditional CBT-I approaches. We then provide an example of a patient with insomnia treated by the first author to illustrate how these principles can be integrated with the behavioral techniques used in CBT-I.

Acceptance and Commitment Therapy as a Supplement to CBT-I

ACT is a newer type of contextual behavioral therapy that utilizes mindfulness and acceptance-based strategies. Preliminary evidence suggests that ACT may be helpful in treating anxiety disorders (Dalrymple and Herbert 2007; Twohig et al. 2006), depression (Zettle and Hayes 1986; Zettle and Rains 1989), psychosis (Bach and Hayes 2002; Gaudiano and Herbert 2006), and chronic pain (McCracken et al. 2005). Meta analyses also suggest the superiority of ACT over control conditions with medium to large effect sizes (Hayes et al. 2006; Ost 2008; Powers et al. 2009), and two out of the three meta-analyses have indicated superiority of ACT over structured/established treatments with a moderate effect (Hayes et al. 2006; Ost 2008). No known published study has examined the efficacy of ACT for insomnia.

The ACT model proposes that human suffering is exacerbated by an unwillingness to experience unpleasant thoughts, feelings, or physical sensations (also referred to as “private experiences”), which subsequently results in attempts to control or eliminate these experiences. Although this process (termed “experiential avoidance”; Hayes et al. 1999) may have a short-term effect of decreasing unwanted private experiences, in the long-term

it has a paradoxical effect of creating more, and not less, of these experiences. Research on thought suppression has supported this concept (e.g., Gold and Wegner 1995). Based on the ACT model, chronic experiential avoidance can result in psychological and behavioral inflexibility, and subsequently functional impairment (for example, continued avoidance of social situations in order to avoid feeling anxious, which can limit social networks over time).

Therefore, the goal of ACT is to increase psychological and behavioral flexibility (Hayes et al. 1999). To do so, ACT offers a variety of experiential exercises and metaphors aimed at fostering acceptance of personal experiences (e.g., emotions) through “defusion” techniques (non-identification with or disentangling from private experiences), willingness (embracing current experience and giving up the need for control or change of private experiences), and commitment to making behavioral changes in accordance with one’s values *while* experiencing unpleasant thoughts and emotions. For example, an ACT therapy session may start by helping individuals to examine their attempts to control unwanted private experiences, and how these attempts have paradoxically exacerbated these experiences.

In contrast to CBT, the content of thoughts, feelings, and physical sensations are not challenged or modified in ACT; rather, the ways in which the individual responds to these experiences are addressed (e.g., avoidance of these experiences). In traditional cognitive restructuring dysfunctional beliefs are addressed by identifying the distortions, disputing them, and creating alternative statements. An ACT approach would emphasize decreasing the struggle with these beliefs rather than disputing them or changing their content. This is based on the theory that the *process* of struggling with thoughts or emotions is problematic, rather than the actual content of these experiences (Hayes et al. 1999). ACT also proposes a shift from a symptom-reduction focus to promoting behavioral changes consistent with personally-identified values. The ultimate goal of ACT is to promote greater psychological and behavioral flexibility, thus leading to decreased functional impairment and increased quality of life.

These core ACT principles may be helpful in the treatment of insomnia. Some people with insomnia often struggle to control their sleep by trying hard to fall asleep (the “attention-intention-effort syndrome”; Espie et al. 2006). Sleep is not a physiological event that can be directly controlled (i.e., there is no volitional sleep on/off switch). Therefore, people with insomnia typically end up with feelings of frustration, anxiety, and related psychological and physical states of arousal. These arousal states delay sleep onset, which in turn makes people with insomnia try harder to fall asleep, thus further fueling a vicious cycle (Lundh 2005). By fostering willingness to let

go of the struggle to control sleep, ACT may decrease secondary distress (e.g., frustration and anxiety) that occurs during the process, and may enhance the likelihood of falling asleep over time. Although similar to paradoxical intention in terms of decreasing effort towards falling asleep (in which one is instructed to get into bed and try to stay awake; Broomfield and Espie 2003), ACT differs from paradoxical intention because the primary goal is not to induce sleep in any given night (as is the explicit goal with paradoxical intention). Rather, the goal is to change one’s relationship with sleep (i.e., decrease the struggle to sleep) over time. Furthermore, an ACT-based approach also provides strategies for treating insomnia with respect to consequent daytime functioning.

Recent research has shown that people with insomnia tend to report using more thought control strategies (thought suppression, reappraisal, and worrying) than healthy sleepers (Harvey 2001). Additionally, those with insomnia who are instructed to suppress their thoughts report experiencing longer time to sleep onset and poorer overall sleep quality compared to controls (Harvey 2003). People with insomnia also can engage in excessive verbal thinking and experience fewer pre-sleep images compared to healthy sleepers (Nelson and Harvey 2003). Therefore, ACT has the potential to contribute significantly to behavioral insomnia treatment because of its emphasis on enhancing experiential acceptance of internal psychological states, rather than suppression of these states.

Furthermore, ACT may be helpful to those patients who report difficulty adhering to the sleep restriction component of CBT-I because of fears about losing sleep and maintaining a particular length or quality of sleep. An early study on sleep restriction found that patients reported particular difficulty staying up late and feeling worse at the beginning of treatment; these struggles were associated with treatment discontinuation within the first 2–3 weeks (Spielman et al. 1987). An acceptance-based approach to insomnia may help to increase adherence to the traditional behavioral techniques used in CBT-I (e.g., sleep restriction and stimulus control), by increasing willingness to experience the short-term discomfort that occurs in the beginning of treatment while implementing these techniques.

Case Example

The following is a case example to illustrate how concepts from ACT can be integrated with the behavioral treatment of insomnia, particularly for patients who do not respond to traditional cognitive strategies used in CBT-I. The patient in this example gave his consent to participate. Some of his information, including his name, was changed to protect his anonymity.

Joe was a 40-year old married Caucasian male, employed as a health professional, with a history of depression and general anxiety symptoms. He presented with a history of early morning awakenings for the past 8 years. The initial session with Joe consisted of an hour-long intake evaluation to assess past and current sleep problems and patterns, problems in daytime functioning, sleep incompatible behaviors, and sleep habits. He also was screened for current psychiatric disorders, and psychiatric treatment and medical history were obtained.

Background Information

Joe previously had sought treatment for insomnia at this same practice, one year prior to his current intake appointment. During his first treatment attempt he received traditional CBT-I. He stated that treatment was discontinued after 4 months because “on paper” his sleep had improved (i.e., his sleep efficiency had increased). However, he felt that the quality of sleep was “not that good” and that he had “relapsed almost immediately after discontinuing treatment.” He also stated that he had a “sleep neurosis,” in which he believed he was overly concerned with receiving the “right” amount of sleep. At the time of his intake appointment, he experienced early morning awakenings starting at approximately 3:30 a.m., four to five nights per week, with difficulty falling back asleep after most of these awakenings. His goal was to “get back to being a master sleeper” (which he defined as receiving 7 h of solid sleep per night).

Joe reported a typical bedtime of 10 p.m. and a desired wake time of 5 a.m. He denied having difficulty falling or staying asleep before his early morning awakenings. A “bad” night of sleep consisted of 5 h of sleep, while a “good” night of sleep consisted of 7 h. Joe also reported rigidity with respect to this, stating: “It’s like a brick wall; if I get 6 h and 45 min, it’s not good enough and I can feel the difference the next day.” He noted that although he sometimes would fall back asleep after an early morning awakening, it was a restless sleep that he labeled as “twilight sleep” in which he would experience vivid dreams or “mind-racing.” Joe’s insomnia had affected his quality of life, particularly with respect to his family life. For instance, he “expected” that he would experience insomnia on Friday and Saturday nights or when traveling (because he often had experienced insomnia on those nights), which was particularly distressing to him because these were the times when he was “supposed to get a good night’s sleep.” As a result, he was unable to enjoy spending time with his family on the weekends because he would either struggle with feeling fatigued during the day (and therefore was not fully engaged in family activities), or attempt to compensate by resting during the day. He also

reported often becoming irritable towards his children when they interrupted his sleep and prevented him from receiving a full 7 h of sleep.

Because of his prior treatment experience with CBT-I, Joe was aware of good sleep habits and for the most part continued to follow those guidelines with the exception of stimulus control. For example, he occasionally stayed in bed when unable to sleep and sometimes read in bed. He also continued to experience worries about the quality of his sleep and often would predict a recurrence of insomnia (“Here we go again”) after a poor night of sleep. When getting out of bed after an early morning awakening, he would read or do an activity that was “not too exciting, but interesting,” using dim lighting. He then would return to bed when feeling “drowsy.” Joe reported exercising regularly in the morning, having regular meal times, limiting caffeinated beverages to the morning and early afternoon, and eating “a few ounces” of chocolate around 8 p.m. He denied use of nicotine or other illicit substances, and only occasionally drank alcohol (up to one to two times per week, having one to two drinks per occasion). He noted that he slept poorly on Friday and Saturday nights when he had consumed alcohol; however, he continued to experience insomnia even when not consuming any alcohol.

Regarding psychiatric history, Joe had been prescribed bupropion and buspirone for the past three years for symptoms of depression and generalized anxiety. His depression and anxiety symptoms were in remission at the time of the intake interview. He described his mood at the time of the intake as: “for the most part good; I’m a very upbeat and optimistic person.” He denied symptoms of other psychiatric disorders, and he had no significant medical history.

Initial Treatment with Traditional Behavioral Strategies

The treatment consisted of nine sessions, with the first four sessions occurring once per week and the remaining sessions once every 2 weeks. The first three sessions employed behavioral strategies from traditional CBT-I approaches, and the remaining six sessions incorporated principles from ACT. At the end of the intake session Joe was asked to complete a baseline sleep diary for 2 weeks. At his first treatment session his sleep time was restricted by one hour, based on information obtained from his sleep diary. His desired wake time was set at 5 a.m. Sleep hygiene and stimulus control were reviewed, particularly the importance of getting out of bed after 15 min of sleeplessness and returning to bed only when extremely sleepy. Joe was asked to continue completing sleep diaries throughout the treatment in order to calculate sleep efficiency, and he recorded fatigue ratings for every day (on a 0–100 scale, with a higher rating = greater energy). At the

second session, his bed time was expanded by 15 min per the Perlis et al. (2005) protocol. By the third session, his sleep efficiency had increased to an average of 95.5% (see Table 1). He noted that the period of “twilight sleep” had disappeared, and that overall he had received more solid sleep. Therefore, he was prescribed another 15-min expansion in his bed time.

At the fourth session, Joe noted that despite his increased sleep efficiency and overall better sleep, he continued to have difficulty adhering to the sleep restriction and stimulus control recommendations. For example, he occasionally slept past his alarm when he experienced sleeplessness or he would go back to bed too soon when engaging in stimulus control (as a response to thinking “if I don’t go back to bed now, then I’ll be too tired tomorrow and my day will be ruined”). Joe felt that his rigid beliefs about the “right” amount of sleep that he had since childhood were negatively impacting his sleep and made him more vulnerable to experiencing relapse. Therefore, Joe and his therapist agreed to address those beliefs in addition to continuing the behavioral strategies.

When asked about his beliefs regarding sleep, it became clear that the most distressing thoughts were those regarding his functioning the day after a poor night of sleep

(e.g., “my day will be ruined”). From a traditional cognitive approach, these beliefs would be addressed first by identifying what it would mean for his day to be “ruined” (e.g., he would do poorly at work and his business would fail). For each of these catastrophic events, he would report his probability estimates of how likely it is that these events would occur. Next, the probability estimates would be contrasted with the actual frequencies of these anticipated events. This discrepancy would be highlighted, and he would create “countering mantras” to the catastrophic thoughts (Edinger et al. 2001; Perlis et al. 2005). Another cognitive approach often used is to create individualized behavioral experiments to challenge the validity and utility of these beliefs (Harvey 2005).

Although one of these more traditional cognitive approaches could have been taken, the decision was made to address this from an acceptance-based approach for two reasons: (1) Joe was having difficulty adhering to the stimulus control and sleep restriction techniques and had already tried a cognitive approach on his previous trial of CBT-I; and (2) Joe made a comment that seemed particularly consistent with taking an acceptance-based approach: “I know sleep is about letting go, but I’m afraid to let go.”

Acceptance-Based Strategies, Phase I: Willingness as an Augmentation to Behavioral Strategies

Table 1 Average sleep diary measures

Week	Fatigue	WASO	Total sleep	Time in bed	Sleep Eff.
Baseline	44	13	383	459	83.4
Week 1	17	18	338	360	93.9
Week 2	44	16	360	375	96.0
Week 3	50	26	358	375	95.5
Before ACT	37	20	352	370	95.1
Week 4	46	36	356	390	91.3
Week 5	55	15	386	390	98.9
Week 6	70	38	377	405	93.1
Week 7	56	54	372	405	91.9
Week 8	50	43	378	405	93.3
Week 9	60	18	402	420	95.7
Week 10	65	17	406	420	96.7
Week 11	75	7	414	420	98.6
After ACT	60	29	386	407	94.8

Note: Fatigue = fatigue rating on a scale of 0–100, with higher numbers indicating higher levels of energy; WASO = average number of minutes of wakefulness after sleep onset; Total Sleep = average minutes of total sleep time for the week; Time in Bed = average minutes spent in bed; Sleep Eff. = average sleep efficiency for the week (percentage); Before ACT = averages on the parameters before ACT was implemented; After ACT = averages on the parameters since ACT was implemented. Average sleep latencies were not included because the patient reported an average of 5 min sleep latency every week throughout the course of treatment. There are a greater number of sleep diaries compared to sessions, as some sessions had two weeks’ worth of sleep diaries

As the techniques of sleep restriction and stimulus control continued, the concept of willingness was described (using the “Two Scales Metaphor”; Hayes et al. 1999, p. 133). Briefly, this metaphor describes two scales, like knobs on a radio: discomfort and willingness. The discomfort scale was described to Joe as any discomfort associated with insomnia (e.g., frustration, fatigue, related thoughts, or physical sensations). The willingness scale was defined as being open to discomfort “without trying to manipulate it, avoid it, escape it, change it, and so on” (Hayes et al. 1999, p. 133). It was highlighted that the willingness scale is the more important of the two scales, because it is a choice that one makes rather than a reaction and therefore can be fostered and used in the service of one’s life values. This metaphor was used to explore with Joe what happens to insomnia and fatigue when he struggles with them (i.e., when willingness to have them is low). For example, when Joe first presented for treatment he was highly focused on getting the insomnia/fatigue discomfort scales to decrease. When his willingness to experience insomnia is low (and he tries to *make* himself fall asleep), quite the opposite happens—he actually is less likely to fall asleep. In contrast, if willingness to experience insomnia is high, then the level of the insomnia discomfort scale does not matter, because he is open to experiencing more sleep, or less sleep. Similarly with next-day fatigue, the more he tried to

decrease the fatigue discomfort scale (i.e., the less willing he was to experience daytime fatigue), the more intense the fatigue became. Conversely, if his willingness to experience the fatigue is high then the level of the fatigue discomfort scale does not matter because he is open to experiencing more fatigue, or less fatigue.

After describing the concept of willingness to experience insomnia and fatigue, the concepts of “clean” versus “dirty” discomfort were discussed in that same session to illustrate the cost of unwillingness to have these experiences (Hayes et al. 1999, p. 136). For example, “clean” discomfort is the expected amount of discomfort (e.g., fatigue) that Joe experiences from sleeplessness. “Dirty” discomfort is the additional discomfort that he experiences as a result of trying to control or eliminate the clean discomfort. Given Joe’s background in working with pain patients, this was used as an additional analogy to illustrate the concept. For instance, he was able to differentiate between “clean” pain that his patients experience as a result of physical injuries, and the “dirty” pain, or additional suffering, they experience because they are distressed about having the “clean” pain. As a result, his pain patients avoid necessary or enjoyable activities that they fear might create more physical pain, thus leading to decreased quality of life. Joe was asked to identify “clean” and “dirty” discomfort between sessions for homework.

When Joe reviewed his homework at the next session, it became apparent that because of an unwillingness to experience next-day “clean” fatigue (i.e., he was experiencing “dirty” discomfort, or distress about having the “clean” fatigue), Joe was avoiding certain behaviors that he feared would cause insomnia (he was engaging in experiential avoidance). For example, he enjoyed reading in the evening but he had stopped this activity because of a fear that he would not be able to sleep (he had previously observed that when reading in the evening, his sleep would be disturbed that night). In addition, he was avoiding further titration of his sleep because he feared a recurrence of his insomnia. Joe also discovered that increased attempts to struggle with or control his insomnia and fatigue resulted in greater suffering the next day.

Phase II: Defusion and Mindfulness

After identifying the difference between “clean” and “dirty” discomfort, defusion techniques were introduced in the following sessions to encourage Joe to mindfully and nonjudgmentally observe his experiences (thoughts, feelings, and physical sensations) and foster non-identification with these experiences. First, the “Physicalizing Exercise” (Hayes et al. 1999, p. 170) was used. Joe was asked to imagine that his fatigue were an object and describe its various properties such as shape, size, color, etc. The

purpose of this exercise was to practice giving up the struggle with (i.e., increasing willingness to have) insomnia and fatigue and promote a nonjudgmental, observer stance towards these experiences without changing their content. At the next session Joe practiced mindfulness meditation by nonjudgmentally observing thoughts (e.g., “what if I can’t sleep?” or “now my day will be ruined”) that would arise when he was unable to sleep or when he experienced daytime fatigue. This was practiced via the “Leaves in a Stream” exercise (a variant of “Soldiers in a Parade,” Hayes et al. 1999, pp. 158–162), in which Joe was instructed to picture these thoughts on leaves, watch them float by in the stream, and notice what happens when he finds himself “in the stream” (i.e., buying into the thoughts rather than non-judgmentally observing them as they occur).

As sleep titration continued, Joe applied these techniques for homework to mindfully observe thoughts about fatigue and fears of losing sleep (e.g., “what if I expand out too much and then the insomnia returns?”). He was encouraged to practice these techniques during daily experiences to build these skills, as well as during periods of sleeplessness combined with stimulus control (e.g., practice them while lying awake in bed, but if he estimated lying in bed for over 15 min then get out of bed and continue practicing these skills while out of bed). Over time, he was able to non-judgmentally observe the physical sensations of fatigue and the accompanying thoughts, and allow the clean discomfort to be present without engaging in efforts to decrease it (e.g., compensating the following night by sleeping longer or resting the next day). As described above, one of Joe’s avoidance strategies was to avoid reading in the evening (a previously enjoyable activity) because he was afraid of not being able to sleep at night. This was addressed by combining a behavioral strategy with an acceptance approach, by having Joe read every evening and mindfully observe thoughts and anxiety that arose about sleeplessness.

Phase III: Values and Committed Action

As noted previously, Joe’s insomnia had affected his family life because he was irritable towards his wife and children (primarily when they interrupted his sleep) and he experienced less enjoyment when engaging in activities with them on the weekend. Therefore, values clarification was initiated with respect to this domain, to encourage a shift of focus from symptom-reduction to movement towards his personally-identified family values. The “What Do You Want Your Life to Stand For?” exercise (Hayes et al. 1999, pp. 215–218) was conducted in order to begin clarifying his values in this domain. In this exercise, he was asked to imagine that he were able to watch his own

funeral. Next, he was asked to imagine that his wife and children stood up to describe who he was as a husband and father. He was instructed to describe what he would like his family to say about him (and not what he thought they would say). Based on this exercise, Joe described his values as a father and husband as being “patient, nurturing, guiding, and understanding.” Joe then discussed goals that would move him in the direction of these values as a husband and father, such as planning an activity with his family on the weekend regardless of the level of fatigue he was experiencing.

As part of values work and committed action, Joe was asked to identify any barriers that he expected to occur as he pursued his values (e.g., feeling tired after a poor night of sleep, to which he may respond with avoidance). It was then discussed how he could use his mindfulness skills to non-judgmentally observe these perceived barriers while engaging in an activity with his family. The connection between willingness and values/committed action was explored, such that increased willingness to experience discomfort makes committed action towards values possible (i.e., he could choose to spend time with his family *and* feel tired at the same time).

Phase IV: Relapse Prevention

Although not an explicit target of treatment, Joe’s sleep efficiency and average energy ratings increased after nine sessions (see Table 1). More importantly for an ACT-based approach, his relationship with sleeplessness and fatigue changed such that he was able to recognize when he was experiencing “dirty” discomfort and begin to engage in a process of nonjudgmental observation of these experiences rather than engaging in experiential avoidance. His rigidity towards sleep also changed, especially with respect to sleep and wake times. Furthermore, he reported that on one particular night while vacationing with his family, he got out of bed when he could not sleep and “actually welcomed it as an opportunity to practice mindfulness.” Joe found that his relationships with his wife and children improved, as he was able to be more present and engaged in activities with them rather than focusing on decreasing his fatigue.

Although Joe experienced a decrease in his distress related to insomnia, he presented to one session stating that he “still had sleep neurosis.” In addition, he reported that he felt as though he was not using the mindfulness techniques “correctly.” When this issue was examined further, it was discovered that Joe was defining success as having no sleep problems at all. When discussing his thoughts about “correct” use of techniques, he discovered that he at times was using these techniques to try to decrease “clean” insomnia/fatigue. Therefore, metaphors

such as “Path Up the Mountain” (Hayes et al. 1999, p. 222) were used to discuss the relationship between outcome and process. This metaphor describes what happens when progress is measured while on a winding, switchback trail on a mountain. At any one particular point, it may seem as though he is traveling *away* from the top of the mountain, rather than towards it. However, if he were to watch another person on the same trail from a distance he would see that although the trail may slope downwards and away from the peak at points, the person is still traveling in the direction towards the top. This metaphor was used to emphasize that progress is about traveling in an overall direction, and not being in one isolated point in time. It also was emphasized that the ultimate goal of treatment is to engage in a process to promote a healthier relationship with sleep, and not necessarily to reach “the top.”

Using this metaphor, having occasional poor nights of sleep were normalized. Furthermore, this metaphor was used to illustrate to Joe that the goal is not to completely eliminate future instances of insomnia or sleeplessness; rather, the goal is to notice when he is falling back into old habits (e.g., experiencing “dirty” discomfort and engaging in experiential avoidance) and then use his newly acquired skills to get back on track (i.e., notice the “dirty” discomfort, and use mindfulness meditation and other defusion techniques to decrease his struggle with insomnia). Although Joe originally came into the session feeling as though he was unable to use mindfulness techniques “correctly,” he was able to leave the session understanding that continuing to engage in this process is the key to progress, rather than whether or not he experienced sleeplessness. As a result, he was able to recognize that the presence of insomnia/fatigue and related thoughts was not the problem, but that trying to avoid these experiences was the problem because it often resulted in engaging in behaviors that paradoxically worsened the insomnia and fatigue and led to reduced quality of life. At the conclusion of his insomnia treatment, Joe stated that although he may experience sleeplessness from time to time (like most individuals), he no longer “suffers” from it.

Conclusion

Integrating principles of ACT with behavioral techniques in CBT-I may be useful for the treatment of insomnia, particularly by letting go of trying to control sleep and increasing willingness to experience the short-term discomfort associated with sleep restriction techniques. Therefore, this type of approach may improve adherence to behavioral strategies in the treatment of insomnia. It was

illustrated with this case example how the combination of ACT and the behavioral techniques of CBT-I were compatible and helpful in treating a patient who had previously gone through a trial of CBT-I and did not fully respond. Although his sleep efficiency had previously improved, he continued to experience poor sleep quality and frustration about sleep time. We described how an ACT approach helped the patient shift from a symptom-reduction focus to acceptance of the short-term unpleasant experiences related to sleeplessness and therefore a willingness to make the behavioral changes necessary to promote a healthier relationship with sleep. Interestingly, sleep diary information from the case example suggested that although there was little change in sleep efficiency from before to after ACT principles were implemented, energy level increased. One could hypothesize that this may be a reflection of decreased distress about sleeplessness, and should be examined in future research.

Studies have demonstrated ACT's preliminary efficacy in areas such as anxiety, depression, and chronic pain (Hayes et al. 2006), but this case example represents one of the few attempts in the literature to integrate ACT with behavioral strategies in the treatment of insomnia. Given the potential compatibility between ACT and behavioral techniques in CBT-I, well-designed research studies need to be conducted to develop an acceptance-based behavioral treatment protocol for insomnia and test its efficacy. This type of approach may be particularly helpful for those individuals who do not benefit from a more traditional CBT-I approach, and it also may be helpful for individuals with comorbid insomnia based on preliminary research suggesting the broad applicability of ACT (Hayes et al. 2006). However, this should be examined in future research.

Future research should investigate which type of patients might benefit more from an acceptance-based versus traditional CBT-I approach; for example, perhaps patients whose insomnia is characterized by higher rates of hyper-arousal and anxious rumination might be better candidates for an acceptance-based approach compared to a more traditional CBT-I approach. Given ACT's ultimate goal of improving quality of life rather than decreasing symptoms, outcome measures related to quality of life should be utilized in addition to more traditional symptom measures. Attrition rates also should be examined, as one way to assess how ACT may improve adherence to the behavioral strategies in the treatment of insomnia. Process measures should be included as well, such as ones that assess experiential avoidance. Based on theories of the development and maintenance of insomnia, the theoretical underpinnings of ACT, and this case example, it is believed that future research on ACT combined with behavior therapy for insomnia is warranted.

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