

**Chronic Insomnia: Recent Advances and Innovations
In Treatment Developments and Dissemination**

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Abstract

Insomnia is a prevalent public health problem that carries an important psychosocial and economic burden for those affected, their families, employers, and for society at large. Despite its negative impacts, insomnia often remains untreated and, when treatment is initiated, it is predominantly with medication, an option that is not always acceptable to people with insomnia. There is extensive evidence that psychological approaches, primarily cognitive behavioural therapy, are effective, produce durable and generalizable outcomes, and should be the first line therapy for chronic insomnia. Nonetheless, these approaches remain under utilized in clinical (medical) practice. Several innovative and cost-effective treatment delivery models (e.g., telephone consultations, internet-based treatment) have yielded promising results but despite these advances, there remains a problem of supply. A significant challenge for the future will be to disseminate more efficiently validated therapies and practice guidelines and increase their use in clinical practice. Additional training opportunities are also needed for psychologists to develop expertise in a new emerging behavioural sleep medicine subspecialty.

Significance of Insomnia

Sleep is a vital function, essential to psychological and physical well-being. Not surprisingly, sleep disturbances, particularly insomnia, are very common among individuals with psychological or medical problems. Insomnia is among the most prevalent health complaints and the most common of all sleep disorders in the general population. Epidemiological estimates indicate that 30% of the adult population reports insomnia symptoms at least occasionally, while 10% presents an insomnia disorder (Morin, LeBlanc, Daley, Gregoire, & Merette, 2006; Ohayon, 2002). Insomnia is more prevalent among women, older adults, shift workers, among individuals with lower socioeconomic status and those with poor physical and mental health. Chronic insomnia produces a significant burden for the individual and for society, as evidenced by reduced quality of life, increased absenteeism and reduced productivity at work and higher health-care costs (Daley et al., 2009; Morin, LeBlanc, Daley, Gregoire, & Merette, 2006; Simon & VonKorff, 1997). Persistent insomnia is also associated with increased risks of depression and chronic use of hypnotics and, among older adults with cognitive impairments, it may hasten placement in a nursing home facilities (Breslau, Roth, Rosenthal, & Andreski, 1996; Ford & Kamerow, 1989).

Despite its high prevalence and negative impact, insomnia often goes silent and remains untreated. Less than one in four individuals with severe insomnia report having sought treatment specifically for this problem in the previous year (LeBlanc, Belanger, Merette, Savard, & Morin, 2009). There is little information about the determinants of treatment seeking, but most individuals who initiate treatment do so without professional consultation and often resort to alcohol and a host of alternative remedies (herbal/dietary supplements) of unknown risks and benefits (Morin, LeBlanc, Daley, Gregoire, & Merette, 2006). When insomnia is brought to professional attention, it is typically to a primary care physician, not a psychologist, and treatment is usually limited to medication. Although sleep

medications may be indicated and useful in selected situations, they are not without risks and do not represent an acceptable treatment option for many patients. Psychological approaches are increasingly considered as the first line therapy for chronic insomnia (National Institutes of Health, 2005). Indeed, significant advances have been made in the psychological and behavioural management of insomnia in the past two decades and these approaches are well accepted by patients, yet they are not widely available and remain under utilized by healthcare practitioners. This article summarizes the current status of psychological approaches to treating insomnia and discusses recent advances in treatment developments and innovations to facilitate their dissemination. Recommendations for achieving more widespread dissemination and utilization of evidenced-based clinical practices are outlined with a call for additional training opportunities in behavioural sleep medicine.

Nature of Insomnia

Insomnia is characterized by a spectrum of complaints reflecting dissatisfaction with the quality, duration, or continuity of sleep. It may involve problems with falling asleep initially at bedtime, waking up in the middle of the night and having difficulty going back to sleep, waking up too early in the morning with an inability to return to sleep, or non restorative or unrefreshing sleep (American Academy of Sleep Medicine, 2005; American Psychiatric Association, 2000). Insomnia is a 24-hour problem such that sleep difficulties occurring at night are typically associated with significant daytime fatigue, cognitive difficulties (e.g., attention, concentration, memory), and mood disturbances (e.g., irritability, dysphoria), all of which can interfere with social or occupational functioning (American Psychiatric Association, 2000). These daytime problems are often the primary concerns prompting patients to seek treatment.

The diagnosis of insomnia is based on the subjective complaint of inadequate sleep. A sleep laboratory evaluation, although useful, is not necessary to make an

insomnia diagnosis. Furthermore, there are often discrepancies between subjective complaints and objective measures of sleep disturbances with a natural tendency to underestimate total sleep time and to overestimate the time to fall asleep or the amount of time spent awake at night. These discrepancies are present in most individuals, with insomnia or good sleep, and their extent are distributed on a continuum with the most extreme cases reflecting a particular subtype of paradoxical insomnia (i.e., subjective complaint without objective findings). Most importantly, such discrepancies do not necessarily reflect a need for attention or for secondary gains as the patient's subjective complaint is usually a genuine one that reflect on his or her perception of disrupted sleep. Consistent with their state of hyperarousal and hypervigilance, studies using quantitative EEG technology and evoked response potentials have shown that individuals with insomnia, relative to good sleepers, are more activated cortically and remain more responsive to their environment even during sleep (Bastien, St-Jean, Morin, Turcotte, & Carrier, 2008; Lamarche & Ogilvie, 1997). Thus, the diagnosis of insomnia and the need to initiate treatment should be based on the patient's subjective complaint of poor sleep and associated daytime impairments.

Symptom or disorder? Insomnia has traditionally been conceptualized as a symptom of another psychiatric disorder. It is indeed a clinical feature or a diagnostic criterion of several DSM diagnoses, including affective and anxious disorders. In clinical practice, however, the differential diagnosis between insomnia and anxiety (generalized anxiety disorder; GAD) or depression (dysthymia or major depression) is not always easy to make given the overlap of several symptoms (e.g., sleep disturbance, fatigue, mood and cognitive problems) among those conditions. When it coexists with another condition, it is often difficult to determine whether insomnia is the cause, consequence, or simply a covariate of this other condition (Harvey, 2001; Morin, Bélanger, & Fortier-Brochu, 2006; National Institutes of Health, 2005). For this reason, comorbid insomnia is

now the preferred terminology whenever it coexists with another condition. This change in paradigm will be reflected in DSM-V, as the initial recommendations are to eliminate the distinction between primary insomnia and insomnia related to another psychiatric, medical, or substance use disorder. Patients meeting specified criteria will receive a diagnosis of insomnia disorder and, when present, clinical comorbidities will be listed but the clinician will not have to make causal attributions among co-existing conditions.

There is also extensive evidence from epidemiological studies that insomnia is often comorbid with other psychiatric or medical disorders, with some data showing that more than 40% of individuals with insomnia present a comorbid psychiatric disorder (most frequently major depression) relative to a base rate of about 13% among those without insomnia (Ford & Kamerow, 1989; Pearson, Johnson, & Nahin, 2006; Roth et al., 2006). Several longitudinal studies have also documented that chronic and untreated insomnia can increase the risk of new onset psychiatric disorders. For instance, in a population-based sample, the risk of developing major depression was nearly four times higher (3.95) among individuals with insomnia complaints compared to those without insomnia at baseline (Breslau, Roth, Rosenthal, & Andreski, 1996). Another study found that insomnia (with fatigue) was the most common residual symptom among patients treated for major depression (Nierenberg et al., 1999) and some have suggested that persistent sleep disturbances may be a risk factor for future relapse (Perlis, Giles, Buysse, Tu, & Kupfer, 1997).

Psychological and Behavioural Treatment Approaches

Several psychological and behavioural therapies have been validated in the treatment of insomnia and the following have received formal recognition as efficacious or probably efficacious: sleep restriction, stimulus control therapy, relaxation-based interventions, cognitive strategies, sleep hygiene education, and combined cognitive-behavioural therapy (Morin et al., 2006). These interventions, described in other sources

(Morin & Espie, 2003), target the factors that are presumed to perpetuate or exacerbate sleep disturbances, which include hyperarousal, sleep scheduling factors, poor sleep habits, and dysfunctional cognitions about sleep and the consequences of insomnia. Although several factors can precipitate acute or situational insomnia, when it becomes a persistent problem, psychological and behavioural factors are almost always involved in perpetuating it over time; hence, the need to target those factors directly in treatment (Spielman & Glovinsky, 1991).

There is a general preference among investigators and clinicians for combining multiple interventions, with cognitive-behavioural therapy (CBT) becoming the standard approach in the field (Morin et al., 2006). The most common combination involves a behavioural (stimulus control, sleep restriction and, sometimes, relaxation), a cognitive, and an educational (sleep hygiene) component.

Evidence for efficacy and effectiveness. Several meta-analyses (Morin, Culbert, & Schwartz, 1994; Murtagh & Greenwood, 1995; Smith et al., 2002) and systematic reviews (Irwin, Cole, & Nicassio, 2006; McCurry, Logsdon, Teri, & Vitiello, 2007; Morin et al., 2006; Morin et al., 1999) have summarized the findings from clinical trials evaluating the efficacy of CBT for persistent insomnia, both in younger and older adults. Evidence from these reviews indicate that treatment produces reliable changes in several sleep parameters, with effect sizes ranging from 0.41 to 1.05 for the time required to fall asleep, 0.61-1.03 for the duration of nocturnal awakenings, 0.15-0.49 for total sleep time, and 0.94-1.14 for sleep quality. By extrapolation, these data suggest that approximately 70% to 80% of insomnia patients achieve a therapeutic response with CBT and about 40% achieve clinical remission (Morin et al., 2006; Morin et al., 1999; Morin, Vallieres et al., 2009).

Using more clinically meaningful units, the data suggest that treatment reduces subjective sleep-onset latency and time awake after sleep onset from averages of 60-70

minutes at baseline to about 35 minutes at post treatment, and total sleep time is increased by 30 minutes, from 6 hours to 6.5 hours after treatment. Treatment effects are similar for problems initiating and maintaining sleep, although fewer studies have targeted the later type, and particularly early morning awakening problems. Overall, results from meta-analyses represent conservative estimates of therapeutic effects as they are derived from averages computed across all non-pharmacological interventions and insomnia diagnoses (i.e., primary and comorbid). On the other hand, while impairments of daytime functioning is part of the insomnia definition, and is often a determining factor leading to treatment seeking, there is surprisingly little evidence that insomnia therapy improves daytime variables such as fatigue, quality of life, and psychological symptoms (Espie et al., 2007; Morin et al., 2006). These parameters warrant further research attention.

Long-term outcomes. As insomnia is often a persistent or recurrent problem (Morin, Belanger et al., 2009), with some patients entering treatment reporting insomnia duration exceeding 10 years, it is important to evaluate outcome beyond the initial treatment period which usually lasts only a few weeks. A robust finding across CBT studies is that sleep improvements are well maintained over time, with nearly 50% of treated patients remaining in remission up to 24 months after treatment completion. Interventions that restrict the amount of time spent in bed may yield only modest increases (and even a reduction) of sleep time during initial treatment, but this parameter is usually improved at follow-ups, with total sleep time often exceeding 6.5 hours. Long-term outcome must be interpreted cautiously, however, as few studies report long-term follow-ups and, among those that do, attrition rates increase over time. In addition, a substantial proportion of patients with chronic insomnia who benefit from short-term therapy may remain vulnerable to recurrent episodes of insomnia in the long-term. There

is a need to develop and evaluate the effects of long-term maintenance therapies to prevent or minimize the occurrence of relapse.

Which insomnia therapies work best? Although there has been no complete dismantling of CBT to isolate the relative efficacy of each component, direct comparisons of some of those components indicate that sleep restriction, alone or combined with stimulus control therapy, is more effective than relaxation alone which, in turn, is more effective than sleep hygiene education alone. Sleep restriction tend to produce better outcomes than stimulus control for improving sleep efficiency and sleep continuity, but it also decreases total sleep time during the initial intervention. Sleep hygiene education is incorporated to most treatments, but it should be seen as a minimal intervention as this didactic approach alone produces little impact on sleep. A recent study has shown that cognitive therapy alone is effective in the management of insomnia (Harvey, Sharpley, Ree, Stinson, & Clark, 2007) and is particularly promising to improve daytime variables.

Although there are several distinct psychological and behavioural therapies for insomnia, these interventions tend to be used in combination. Yet, there is no strong evidence that a multi-component approach is more effective than any of its single component. The appeal for a multi-modal approach may come from the fact that it addresses different facets (cognitive and behavioural) presumed to perpetuate sleep disturbances. While little information is available about the active treatment mechanisms of CBT, some evidence suggest that stimulus control and sleep restriction are particularly effective for improving sleep continuity, whereas changes in sleep-related cognitions are associated with better maintenance of sleep changes over time (Morin, Blais, & Savard, 2002). With evidence that hyperarousal is implicated in insomnia, there is a need for greater attention to identify the biological, as well as the psychological, mechanisms responsible for sleep changes.

Should we combine CBT with medication? CBT and medication can play a complementary role in the management of insomnia. Combined approaches should theoretically optimize outcome by capitalizing on the more immediate and potent effects of hypnotics and the more sustained effects of behavioural interventions.

Several studies have contrasted the effects of behavioural and pharmacological therapies for insomnia. Three studies compared triazolam to relaxation (McClusky, Milby, Switzer, Williams, & Wooten, 1991; Milby et al., 1993) or sleep hygiene (Hauri, 1997) and five other investigations compared CBT to temazepam (Morin et al., 1999), zolpidem (Jacobs, Pace-Schott, Stickgold, & Otto, 2004; Morin, Vallieres et al., 2009), or zopiclone (Sivertsen et al., 2006; Vallieres, Morin, & Guay, 2005). Collectively, findings from these studies indicate that both therapies are effective in the short-term, with medication producing faster results in the acute phase (first week) of treatment, whereas both treatments are equally effective in the short-term interval (4-8 weeks). Long-term effects indicate that patients treated with CBT maintain their improvements over time, whereas those treated with medication lose their benefits after discontinuation of medication.

Combined interventions appear to have a slight advantage over single treatment modality during the initial course of treatment, but this initial advantage does not always persist over time. Long-term effects of combined interventions are more equivocal with some findings suggesting that a combined intervention produces more sustained benefits than medication alone (McClusky, Milby, Switzer, Williams, & Wooten, 1991; Milby et al., 1993), whereas others suggest more variability across patients on long-term outcomes (Hauri, 1997; Morin, Colecchi, Stone, Sood, & Brink, 1999).

In contrast to concurrent combination of CBT with medication, two studies have examined the impact of sequential therapies. In a small study evaluating different sequences of CBT and medication therapies (Vallieres, Morin, & Guay, 2005), the best results were obtained when CBT was introduced first in the sequence, regardless of

whether it was used alone or in combination with medication. In a larger study of 160 patients with persistent insomnia, a two-stage treatment approach was used to evaluate the added value of medication to CBT and the impact of different maintenance therapies on long-term outcomes (Morin, Vallieres et al., 2009). CBT used singly or combined with medication produced similar rates of treatment responders (60% vs. 61%) and remitters (39% vs. 44%) after the acute 6-week treatment phase. Following the 6-month extended treatment, a higher remission rate was observed for combined therapy relative to CBT alone (57% vs. 45%) and these higher remission rates were sustained throughout the 24-month follow-ups. Among those treated with combined therapy initially, patients who continued with maintenance CBT but discontinued their medication during extended therapy achieved better long-term outcomes, relative to those who continued using medication intermittently. Thus, although medication may provide an initial added benefit, it is preferable to discontinue it while patients are still receiving CBT.

Such results are best explained by the behavioural and attitudinal changes that are essential to sustain sleep improvements. Attribution of therapeutic benefits to the hypnotic alone, without integration of self-management skills, may place a patient at greater risk for recurrence of insomnia once medication is discontinued. Furthermore, when medication is combined with CBT, patients may not invest as much time in changing maladaptive sleep behaviours and cognitions relative to CBT alone. Thus, despite the intuitive appeal of combining behavioural and medication therapies, it appears preferable to discontinue medication after the initial trial so as to encourage patients to invest time and effort in changing their behaviours and cognitions. Additional research is needed to evaluate the effects of combined treatments and to examine optimal methods for integrating these therapies.

Treatment of Comorbid Insomnia

Historically, insomnia has been conceptualized as symptomatic of another psychiatric or medical disorder, with the natural assumption that treating the underlying problem would normalize sleep. There has been a shift of paradigm, however, with increasing recognition that insomnia often persists after treatment of the co-existing condition and that it may require treatment on its own. A more direct focus on insomnia is also predicated on the basis that psychological and behavioural factors are often involved in perpetuating or exacerbating the sleep problem particularly when insomnia has reached a chronic stage.

While early treatment studies focused predominantly on primary insomnia and excluded patients with co-existing disorders (as it was presumed to be secondary insomnia), more recent investigations have shown that patients with a range of psychiatric and medical conditions can also benefit from insomnia-specific therapy (Smith, Huang, & Manber, 2005). Several controlled studies have shown that CBT is effective for insomnia associated with chronic pain (Currie, Wilson, Pontefract, & deLaplante, 2000), fibromyalgia (Edinger, Wohlgemuth, Krystal, & Rice, 2005), cancer (Espie et al., 2008; Savard, Simard, Ivers, & Morin, 2005), and with various medical conditions in older adults (Lichstein, Wilson, & Johnson, 2000; Rybarczyk et al., 2005). Likewise, there is preliminary evidence that treating insomnia in the context of co-occurring major depression (Manber et al., 2008; Taylor, Lichstein, Weinstock, Sanford, & Temple, 2007), generalized anxiety disorder (Blais, Mimeault, & Morin, 2000), or substance abuse (Arnedt et al., 2007; Currie, Clark, Hodgins, & El-Guebaly, 2004) can be helpful. Some of the findings emerging from this growing literature are summarized below.

Comorbid insomnia and medical disorders. In a wait-list control trial of 57 women with insomnia caused or aggravated by breast cancer (Savard, Simard, Ivers, & Morin,

2005), CBT produced significant improvements on measures of sleep, psychological symptoms, and quality of life, and a reduction of medicated nights at post-treatment. Therapeutic effects were well maintained up to 12 months after the intervention. In a similar study targeting insomnia in 150 patients with various forms of cancer (Espie et al., 2008), treatment was implemented in small groups by oncology nurses; significant improvements of sleep and quality of life and reduction of daytime fatigue, were observed in patients treated with CBT relative to those who received treatment as usual.

In a study of 60 patients with insomnia associated with chronic pain (Currie, Wilson, Pontefract, & deLaplante, 2000), CBT was more effective than control to improve several sleep measures. Sleep onset latency was reduced from 55 min to 28 min and sleep efficiency increased from 72% to 85%. Of interest, nocturnal motor activity (as measured by actigraphy) was reduced in the treated group but not in the control group, yet there were no group differences on pain ratings, depressive symptoms, or medication use. In a study of 51 older adults with insomnia associated with medical illness (Rybarczyk, Lopez, Benson, Alsten, & Stepanski, 2002), CBT and relaxation conditions were more effective than control in reducing the amount of time awake at night and in improving sleep efficiency and quality. A higher proportion of treated patients relative to controls achieved clinically significant improvements. There were no differential group effects on secondary measures of medication use, anxiety, depression, and quality of life. In a study of 49 older adults with insomnia associated with medical and psychiatric conditions (Lichstein, Wilson, & Johnson, 2000), a multifaceted intervention reduced the amount of time awake at night and sleep efficiency at post treatment. Fifty-seven percent of treated patients achieved clinically significant improvements relative to 19% of control patients; there was no significant change on secondary measures of anxiety, depression, and impact of insomnia. Finally, outcomes were similar for insomnia comorbid with a medical or a psychiatric disorder.

Comorbid insomnia and psychiatric disorders. Sleep disturbance co-occurs in a broad range of psychiatric disorders and recent evidence indicates that it may also benefit from treatment directly targeting such symptoms. In a small pilot study of 10 patients with comorbid depression and insomnia, CBT for insomnia produced significant reductions of both insomnia and depressive symptoms (Taylor, Lichstein, Weinstock, Sanford, & Temple, 2007). A very innovative study examined the impact of augmenting an antidepressant medication (escitalopram) with a brief, symptom focused, CBT for insomnia in a small sample of 30 patients with MDD and comorbid insomnia. The augmented therapy regimen produced higher remission rates for both depression (62% relative to 33% for antidepressant medication plus placebo) and insomnia (50% relative to 8% for antidepressant plus placebo) (Manber et al., 2008).

Insomnia is also a common feature in Generalized Anxiety Disorder. There is some evidence that CBT for anxiety may produce sleep improvements even if sleep disturbances are not specifically addressed during treatment (Belanger, Morin, Langlois, & Ladouceur, 2004). However, one study also showed that it was necessary to address both anxiety and insomnia in order to alleviate both types of symptoms. Using a cross-over design, 10 women with insomnia and comorbid GAD received treatment for insomnia first followed with treatment for GAD (n = 5) or the same two treatments but in a counter-balanced order (n = 5). The results showed that CBT produced clinical improvements on both symptoms with a trend for treatment benefits to generalize more readily when CBT focused on anxiety first relative to insomnia first (Blais, Mimeault, & Morin, 2000). More studies are needed to examine whether it is preferable to use sequential or concurrent therapies when treating insomnia comorbid with a psychiatric disorder.

A controlled study conducted with recovered alcoholics (Currie et al., 2004) showed modest but significant improvements of sleep latency (- 18 min) and sleep

efficiency (+10%) among insomnia-treated patients. At the 6 month follow-up, 15% of treated participants had relapses with alcohol and this proportion was not different between treated and control patients.

The efficacy of a brief, 4-session CBT protocol was tested with 81 patients presenting either primary insomnia or insomnia comorbid with non psychotic psychiatric disorders (mostly combat-related PTSD and mood disorders). Treatment benefits were comparable for the two subgroups and were superior to a nonspecific minimal intervention (sleep hygiene education) across most measures. Thus, CBT appears to be a viable treatment modality both for patients with primary insomnia and those with insomnia comorbid with some psychiatric conditions (Edinger et al., 2009).

In summary, the presence of a comorbid medical or psychiatric disorder should not preclude directly targeting insomnia for treatment. In general, treatment response appears comparable for patients with medical or psychiatric comorbidity and those with primary insomnia. Baseline insomnia severity may be higher among patients with comorbid disorders, but the absolute changes on sleep outcomes are comparable to those obtained with primary insomnia. Furthermore, baseline anxiety, depression, and insomnia severity do not appear to differ among treatment responders and nonresponders (Verbeek, Schreuder, & Declerck, 1999). For some disorders, it may be necessary to adapt these interventions to disease specific conditions in order to optimize outcome; for example, the addition of a fatigue management module to standard CBT has proved helpful for insomnia comorbid with cancer (Savard, Simard, Ivers, & Morin, 2005) and traumatic brain injury (Ouellet & Morin, 2007).

Insomnia in Older Adults

Insomnia is age-related and in older adults it is more likely to be coexisting with another medical or sleep disorder than to be primary in nature. However, the presence of a comorbid disorder is not a contra indication to using CBT for insomnia. Evidence-

based review papers have concluded that psychological and behavioural treatments are effective for the management of insomnia in older adults. A meta-analysis showed robust treatment effects in sleep continuity (mean effect sizes of 0.52 for sleep latency and 0.64 for time awake after sleep onset) and sleep quality (0.76) for older adults, with similar effects for CBT, relaxation, and behavioural approaches (Irwin, Cole, & Nicassio, 2006). Another systematic review reported that multimodal CBT and sleep restriction/sleep compression met criteria for empirically-validated therapies, but there were no adequate evidence to support cognitive therapy, relaxation, and sleep hygiene education as stand-alone therapies for insomnia in older adults (McCurry, Logsdon, Teri, & Vitiello, 2007). Several studies have documented the benefits of insomnia-specific treatment in older adults with either comorbid medical or psychological conditions (Lichstein, Wilson, & Johnson, 2000; Pallesen et al., 2003; Rybarczyk, Lopez, Benson, Alsten, & Stepanski, 2002; Rybarczyk et al., 2005). One study found that older adults with chronic obstructive pulmonary disease, osteoarthritis or coronary artery disease benefited from group CBT and, in addition to improving sleep continuity, treatment of insomnia was associated with enhanced sleep satisfaction and quality of life (Rybarczyk et al., 2005).

When patients initiate CBT, they may have been using hypnotic medication for a long period, which in itself may represent a challenge for clinicians. This scenario is more frequent with older adults but it can also present with any age groups. Several clinical trials have shown that a supervised and time-limited withdrawal program, with or without behavioural treatment for insomnia, can facilitate discontinuation of hypnotic medications among prolonged users (Morgan, Dixon, Mathers, Thompson, & Tomeny, 2003; Morin et al., 2004; Soeffing et al., 2008). For example, in a study of 76 older adults who had used benzodiazepines for insomnia for nearly 20 years, treatment was effective to reduce both the quantity (90% reduction) and the frequency (80% reduction) of medication use, and 63% of the patients were drug-free within the 10-week intervention

(Morin et al., 2004). The addition of CBT to the supervised withdrawal program minimized rebound insomnia and reduced worries about drug discontinuation.

Barriers to insomnia treatment

Despite strong evidence documenting the efficacy of CBT, there remains the perplexing issue that insomnia is undertreated and CBT underutilized. Common barriers to insomnia treatment are present at the individual, health-care provider, and society/health-care system levels. At the individual level, there is often a stigma about insomnia which may discourage some people from seeking professional care. There is also a lack of information about some treatment options, particularly CBT, and some people believe that medication is the only therapeutic option available. Given the concern about drug dependency, this is not an acceptable treatment option to everyone (Vincent & Lionberg, 2001) and some individuals may simply decide to live with insomnia rather than using sleep medication. At the health-care provider level, there is a common misconception that insomnia can only be treated with medication or that CBT is too time consuming. Insomnia is not always taken seriously and, when it presents with another psychiatric or medical condition, it may not be ranked very high on the priority list. As discussed in a previous section, this may result from a misconception that it will resolve automatically by treating the co-occurring condition. Lack of training in assessing and treating sleep disorders is another hurdle that may contribute to a perception among some clinicians of not having adequate expertise for managing insomnia. With this uneasy feeling, some will prefer to focus on other symptoms/disorders (e.g., anxiety, depression) for which they have received adequate training. Finally, there are important impediments at the healthcare system level that limit access to effective psychological therapies for insomnia. It is much less costly, at least in the short term, to pay a dollar a pill (or even less) for generic drugs such as lorazepam, temazepam or zopiclone (some of the most prescribed drugs for insomnia in Canada) than to provide even short-term CBT for

insomnia. Whether someone has insurance for mental health services is likely to dictate the type of treatment a person will have access to. Lack of financial and human resources are among the most common reasons for limiting access to psychological treatments. These numerous treatment barriers have naturally increased pressure on investigators to develop and validate more cost-effective approaches to managing insomnia.

Cost-Effective Treatment Delivery Methods

Standard CBT for insomnia is time-limited, structured, and sleep-focused. For the typical patient with chronic insomnia, CBT is delivered in the context of 4 to 6 individual weekly therapy sessions. The amount of direct clinical contact and the number of follow-up visits may vary according to several factors including insomnia severity, comorbidity, use of hypnotic medications, and patient's motivation and education. This treatment period is considerably shorter than for other forms of psychotherapy, and shorter than behavioural approaches applied to other health and psychological problems (e.g., chronic pain, anxiety, depression). Nonetheless, it is considered too time-consuming by some clinicians (mostly physicians) and, with limited healthcare resources, there is increasing pressure to develop brief psychotherapies and to validate delivery models that would facilitate dissemination and increase access to treatment. While this is probably the same for many psychological and health problems, it is particularly true for insomnia, a problem that is typically brought to the attention of primary care physicians and which appears amenable to treatment delivered with minimal professional guidance.

There are several models of low intensity therapies for insomnia, including brief consultations involving one or two face-to-face therapy sessions, telephone consultations, self-help manuals with or without audio/video materials, internet-based therapies, and CBT implemented in group or by allied-healthcare professionals (e.g., nurses).

Behavioural sleep medicine specialists are increasingly asked to consult/advise with other healthcare providers and patients about insomnia management. A brief consultation model has been tested in both primary care and specialty sleep clinics. For example, Edinger and his colleagues (Edinger & Sampson, 2003) evaluated, with 20 patients seen in primary care, the effectiveness of an abbreviated, two-session CBT intervention, against a similarly brief intervention that included only generic sleep hygiene recommendations. The results showed that 52% of those receiving abbreviated CBT obtained at least a 50% reduction in their wake time after sleep onset and 56% achieved normal scores on a measure of insomnia symptoms. Hauri used a single consultation visit during which targeted recommendations were made based on the evaluation combined with three scheduled follow-up calls over the following year. This model was pilot-tested at the Mayo Sleep Clinic and preliminary data showed that it was useful and acceptable to the majority of patients who went through this consultation program (Hauri, 1993).

Group therapy can also be a cost-effective method to deliver CBT for insomnia in various clinical settings. It may involve standard CBT implemented in small groups of 4-6 participants or it may take the form of a psycho educational group with a larger number (10-12) of participants. The former model has the advantage of allowing for more individualized interventions and interactions with participants, whereas the latter will usually take more of a didactic approach. Group therapy has been found as effective as individual therapy (Bastien, Morin, Ouellet, Blais, & Bouchard, 2004) for primary insomnia. Recent studies conducted in Scotland have also shown that nurse practitioners, with adequate training and supervision, can effectively implement group therapy for insomnia in a primary care settings (Espie et al., 2008; Espie et al., 2007).

Printed materials have been used successfully singly or as a complement to treatment delivery methods. For example, studies have shown that a self-help program,

consisting of six printed booklets mailed weekly to participants was effective to treat insomnia and to reduce hypnotic usage and the addition of professional guidance in the form of brief telephone consultation added to the initial outcomes (Belleville, Guay, Guay, & Morin, 2007; Mimeault & Morin, 1999). Another study comparing CBT implemented individually, in group or through self-help written materials combined with brief telephone consultations found that all three treatment modalities produced equivalent improvements (Bastien, Morin, Ouellet, Blais, & Bouchard, 2004). The addition of telephone consultation to self-help written material enhanced outcomes at post treatment, but those gains tended to disappear at follow up (Mimeault & Morin, 1999). Another study of insomnia in recovered alcoholics also found equivalent outcome between individual CBT and self-help CBT plus telephone consultation (Currie, Clark, Hodgins, & El-Guebaly, 2004).

Three studies have documented the potential benefits of treating insomnia via internet-based programs (Ritterband et al., 2009; Ström, Pettersson, & Andersson, 2004; Vincent & Lewycky, 2009). The content of these programs was fairly similar and included standard CBT components (sleep restriction, stimulus control, sleep hygiene, cognitive restructuring). All three studies used online treatment that participants could access from their home but the degree of interactiveness between participants and websites varied across studies. In all three studies (total sample size > 250 patients), the majority of patients reported significant sleep improvements as well as benefits on secondary end points (fatigue, anxiety, depression, sleep-related beliefs). While the Internet appears to have considerable potential in delivering a structured behavioural program for insomnia, an important limitation is the high attrition rate (24% and 33%) for two of these studies, an outcome that was more likely for referred than from community-recruited patients (Vincent & Lewycky, 2009). These latter finding suggests that patients with more severe

insomnia and perhaps more comorbidity may not be as good candidate for this type of self-help approach.

Collectively, the evidence indicates that CBT delivered in the context of therapist-guided abbreviated consultation programs, telephone consultations, group therapy, or through self-help materials or Internet-based interventions can be very beneficial for some patients. There is no doubt that it enhances treatment access and may provide a cost-effective mean of reaching individuals who would not otherwise have access to to treatment. Despite these major advantages over more traditional face-to-face therapy, some caution is warranted about self-help approaches. Self-help treatment, whether for insomnia or other problems, requires a good dose of self motivation. As such, not all patients with chronic insomnia are good candidates for this type of intervention. There is also no information as to who is a good candidate for each of these minimal interventions. From a purely clinical perspective, it is likely that patients with more severe insomnia, with comorbid medical or psychiatric disorders, or those using hypnotic medications chronically may require more direct therapist-guided interventions.

Future Trends and Conclusions

Significant advances have been made in the validation of psychological and behavioural therapies for insomnia in the past decade. There is solid evidence that CBT is effective for persistent insomnia and that treatment outcome is both generalizable and well sustained over time. There is also increased recognition by some healthcare authorities (e.g., NIH) that CBT should be in the mainstream if not the first line therapy for insomnia. Despite these advances, there is a major gap between available evidence and current clinical practices with the reality being that insomnia is largely untreated and, when treatment is initiated, it is predominantly with medication, not CBT. This paradox is partly due to the fact that individuals with insomnia (as those with other psychological conditions) may not have easy access to psychological care; it is also attributable to the

lack of supply of health-care providers with expertise in managing sleep disorders such as insomnia. There is an urgent need to disseminate available knowledge about CBT for insomnia more efficiently and to develop additional training opportunities in psychological and behavioural sleep medicine. There are two emerging trends that may contribute to fill this need in the future – a stepped care model to deliver insomnia treatment and the emergence of a new specialty area called behavioural sleep medicine.

A “Stepped-Care Model” might be a potential solution to promote broader dissemination of CBT as a first-line therapy for insomnia. This model postulates that treatment needs vary across individuals, with some requiring only minimal interventions whereas others may require progressively more intensive and time-consuming therapies (Espie, 2009). With a high prevalence problem such as insomnia, individually-tailored psychological therapy implemented by a behavioural sleep medicine specialist is unlikely to be accessible or even necessary for everyone. With a stepped-care approach, the first intervention that could deliver to the largest number of individuals at minimal cost would be a community-based, healthy sleep promotion program. The next step might involve a minimal self-help or abbreviated CBT program delivered with printed materials, CD/DVD, or the Internet. Then, for those who do not respond, the next step would entail group CBT delivered by trained therapists (not necessarily clinical psychologists). With increasing complexities, treatment might involve individual CBT delivered by clinical psychologists; the highest level of care would come next and be provided by a specialty trained behavioural sleep medicine specialist. Thus, with such a model, one would want to assign patients to the most readily available and least expensive treatment as a first step and move up the pyramid as needed. Such a model of care is appealing and each of its individual components have received empirical support; however, its actual implementation (i.e., initial assignment of care and stepping up in level of care for those

not responding to a lower level) is likely to be a challenge and will certainly require evaluation of its feasibility (Edinger, 2009).

An important barrier to transfer of knowledge to clinical care is the shortage of service providers with adequate competency to treat sleep disorders with CBT. While there is an urgent need for developing additional training opportunities as part of predoctoral internships or postdoctoral fellowships, some professional development opportunities are already available for those interested in gaining some training in behavioural sleep medicine. Such training can be obtained through educational seminars, workshops, courses, or mini fellowship programs offered through sleep organizations (see <http://www.sleepresearchsociety.org> and <http://www.aasmnet.org>) or university-sponsored programs (Perlis & Smith, 2008). There is also a formal master's program in behavioural sleep medicine currently in development under the leadership of Colin Espie at the University of Glasgow which should become available online. A new society of Behavioural Sleep Medicine has recently been created under the umbrella of the American Academy of Sleep Medicine with the main goal of promoting education and training opportunities for psychologists and other health-care providers interested in the psychological and behavioural aspects of sleep disorders.

For those who already have expertise in behavioural sleep medicine, they would do well to establish professional partnerships and offer consulting services to sleep disorders centers and primary care clinics. Such services are very much needed as shown by a recent survey which reported that the large majority of sleep disorders centers in Canada (and probably elsewhere) tend to be diagnostic centers for more medically-based disorders (e.g., sleep apnea) and by and large do not provide any clinical service for insomnia despite the demand and need for such services (Ruyak, Bilsbury, & Rajda, 2004).

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