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A New Look At The Complaint of Insomnia and Its Treatment in Older Adults / L'insomnie et son traitement chez les personnes agées: une nouvelle approche

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Existing hypotheses regarding psychological mediation of disorders in initiating and maintaining sleep only partially explain the phenomenon of insomnia, particularly in aging individuals. In this article we review existing nonpharmacological treatments of insomnia and propose a new way of conceptualizing and treating disorders of initiating and maintaining sleep. The model, based on cognitive and information processing factors, is then used to propose novel approaches to intervention. Because of the prevalence of sleep disruptions in older adults and the limitations of existing pharmacological and psychological treatments with this population, the assumptions of the model and the proposed intervention are explored with particular reference to aging individuals.

Most aging individuals manifest age-related psychophysiological sleep deficits, such as frequent nocturnal awakenings and reduction or absence of deep (stage 4) sleep (e.g., Kales, 1975; Kales, Wilson, Kales, Jacobson, Paulson, Kollar, & Walter, 1967; Miles & Dement, 1980; Prinz, Vitiello, Raskind, & Thorpy, 1990; Williams, Karacan, & Hursch, 1974). In fact, psychophysiological changes in sleep parameters associated with aging resemble the pattern seen in nonelderly insomniacs (e.g., Engle-Friedman & Bootzin, 1981). Yet, only 25%-50% of aging individuals complain of difficulties initiating and/or maintaining sleep (DIMS) (Dement, Miles, & Carskadon, 1982; Mellinger, Balter, & Uhlenhuth, 1985).

The question arises, "Why do not all aging individuals report insomnia?" Why does the magnitude of the sleep complaint not match the severity of the psychophysiological deficit in older individuals, as it usually does in middle aged adults (Bootzin & Engle-Friedman, 1987)?

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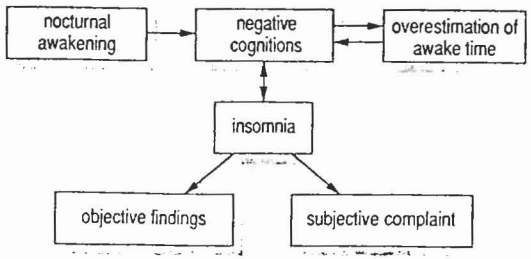
We propose that a partial answer to these questions and, indeed, to the phenomenological experience of insomnia at all ages, is provided by examining cognitive and information processing factors.

The goal of this article is to propose a new way of conceptualizing insomnia which is based on cognitive and information processing factors. Because of the prevalence of sleep disruptions in older adults and the limitations of existing pharmacological (Carscadon, Seidel, Greenblatt, & Dement, 1982; Kales & Kales, 1984; Kramer & Schoen, 1984; Kripke, Ancoli-Israel, Mason, & Messin, 1983; Scharf & Brown, 1986) and psychological treatments with this population (Bootzin, Engle-Friedman & Hazelwood, 1983; Lacks, 1987), we intend to evaluate the assumptions of the model and to propose intervention strategies, based on the model, which are suitable for adults of all ages, including older individuals.

Of concern are insomnias reflecting disorders in initiating and/or maintaining sleep (DIMS). Examples of such difficulties are (a) long latency in initially falling asleep (sleep onset insomnia), (b) frequent and/or extended periods of wakefulness throughout the night (sleep maintenance insomnia), and (c) premature morning awakening (terminal insomnia) - conditions which may be experienced alone or in some combination with the others (Lichstein & Fischer, 1985).

A NEW LOOK AT INSOMNIA

We propose that the complaint of insomnia is usually based not only on psychophysiological disruptions of sleep but also on the aversive nature of what seem to be lengthy periods of time spent awake in bed. This hypothesis has two components. One revolves around the aversiveness of the awake time experience during the night; this is typically occupied by extraneous cognitive activity such as concerns about the day's events and worry about miscellaneous matters, including the consequences of not getting enough sleep - this exacerbates the problem of actually falling asleep. The second concerns errors in information processing which result in overestimation of the time spent awake; this, we believe, both magnifies the sleep complaint as well as contributes to the negative cognitive experiences which interfere with falling asleep. The diagram below illustrates this formulation.



Several lines of evidence suggest that information processing and cognitive factors are heavily implicated in the experience of insomnia.

Time Estimation and Cognitive Factors in the Experience of Insomnia

Research has shown that people who complain of insomnia, whether they have physiological (subjective complaint substantiated by polysomnogram) or subjective (no objective findings) DIMS, consistently overestimate awake time compared to polysomnographic data (cf. Borkovec, 1982; Frankel, Coursey, Buchbinder, & Snyder, 1976). Good sleepers do not do this (Hauri & Olmstead, 1983). There are two popular explanations for this phenomenon: (1) insomniacs subjectively experience being awake during EEG recorded Stage 2 sleep, while good sleepers do not (Borkovec, Lane, & Van Oot, 1981; Hauri & Olmstead, 1983) and (2) subjective time passes slowly during distressing and unpleasant bedtime experiences (Frankel et al., 1976). We propose a third possibility: that the ability to estimate "empty" time differs in good and poor sleepers. In support of this notion, it has been found that insomniacs overestimated not only time to sleep onset but even a 10 minute adaptation period (Borkovec & Hennings, 1978). Moreover, the possibility that the overestimation error truly reflects biases in the ability of insomniacs to estimate "unfilled" time is supported by findings on personality characteristics of insomniacs.

Relative to good sleepers, insomniacs are likely to be mildly depressed, anxious and to worry obsessively (Borkovec, 1982; Coursey, Buchsbaum, & Frankel, 1975). This worrying and anxious cognitive style is associated with heightened levels of cortical arousal and frequent negative pre-sleep cognitions. Data provided by Carter, Johnson and Borkovec (1986) support this view; their findings show that worry is associated with high overall cortical activation, as assessed by EEG alpha and beta measures. Given findings on the effects of cortical arousal and of information processing factors on time estimation and perception, an anxious and worrying individual would be expected to overestimate "unfilled" times, including sleep onset latencies. The overestimation of time causes more worry and concern, resulting in a vicious cycle.

There is some support for all three hypothesized explanations for overestimation of awake times during the night in insomniacs. Because of the importance of subjective evaluations of time spent awake during the night in the complaint of insomnia, a better understanding of the role of time estimation and of cognitive factors in insomnia is needed.

Time Estimation and Cognitive Factors: Basic Research

Two theoretical views on time perception and estimation have been heavily researched. The "biological clock" hypothesis proposes that there is a physiological basis to our perception of time and suggests that the "internal clock" speeds up and slows down along with other physiological processes. If the internal clock is speeded up, each unit of psychological time is shorter (e.g., each perceived second is really only .7 seconds long) and the duration of events is overestimated (e.g., 10 minutes feel like 13). The second view is based on cognitive processes and proposes that time estimation is based on variations in information processing rates and parameters; this view has been receiving increasing attention from researchers (cf. Coren & Ward, 1989; Fraisse, 1984).

Hypotheses based on the two views are not incompatible, although the postulated mechanisms are different; both suggest that physiological activation and arousal, cortical arousal in particular, would result in the perception that a time interval is longer than is actually the case (e.g., 10 minutes feel like 13). For example, early data on physiological processes indicate that higher body temperatures (Baddeley, 1966) and stimulants such as amphetamines and caffeine (Frankenhauser, 1959; Goldstone, Boardman, & Lhamon, 1958) result in the perception that time passes more slowly than the clock indicates (e.g., 10 minutes feel like 13). More recent evidence on information processing factors show that densely filled durations (time intervals containing numerous stimulus events) are overestimated compared to sparsely filled and unfilled ones (Fraisse, 1984), and that manipulations which heighten arousal, such as the expectation of a reward (Edmonds, Cahoon, & Bridges, 1981) or the induction of high stress (Falk & Bindra, 1954), also slow the passage of time. Moreover, data indicate that people generally overestimate time when they are waiting for an event to occur (Cahoon & Edmonds, 1980). Certain common activities of people troubled by poor sleep, such as a vigilant approach to monitoring how long it takes to fall asleep ("clock watching") may, therefore, also enhance the perception that one has been awake for a long time.

We propose that self-generated thoughts are stimulus events and that people with an anxious, obsessive style are likely to fill empty pre-sleep time with many of their own self-generated stimulus events; this should slow the passage of time and result in what are perceived as lengthy and distressing awake times.

Positive experiences are associated with faster subjectively experienced time (Gupta & Cummings, 1986; Thayer & Schiff, 1975). For example, listening to an interesting rather than a boring prose passage results in the perception that time is passing swiftly (Hawkins & Tedford, 1976).

In the experimental psychology literature, the study of time estimation has been ignored until relatively recently (cf. Fraisse, 1984). In the insomnia literature, errors due to overestimating time spent awake compared to polysomnographic criteria are lamented and treated as confounding variables (cf. Lichstein & Fischer, 1985). We believe that it is profitable to view insomniacs' "errors" in time estimation not as mere confounds but as important and legitimate targets for investigation and intervention.

TREATMENT OF INSOMNIA

Medical Treatment

Medical pharmacotherapy is the most frequently used method for treating insomnia. Half of patients seen by physicians for insomnia complaints are prescribed sleeping medication and a large number consume alcohol or over-the-counter sleeping aids (Kales & Kales, 1984). Elderly insomniacs rely heavily on sleep-promoting agents; over the age of 65 it is estimated that up to 50% of the population report frequent or regular sleep medication use (Kripke, 1983; Kripke et al., 1983). In nursing facilities it has been estimated that 94% of elderly residents are prescribed hypnotics and sedatives (U.S. Public Health Service, 1976).

Limitations of medical treatment. The effects achieved by hypnotics are generally temporary; most tend to lose their effectiveness after two to four weeks of continuous utilization. Rebound insomnia is to be expected upon hypnotic drug withdrawal (Kales, Soldator, & Vela-Bueno, 1985). People rapidly develop tolerance to hypnotics so that larger doses are required to achieve any effect. Increased dosage promotes drug-dependent insomnia. Moreover, rebound REM effect, in the form of nightmares, is frequently reported after discontinuing a hypnotic drug. Withdrawal effects often develop within a few days after sleep medication is discontinued, reinforcing the insomniac's belief that sleep is not possible without medication. Daytime sedation, cognitive and psychomotor impairment, and drug "hangover" are all adverse longer term side effects. Moreover, there is little empirical evidence to suggest that performance decrements due to hypnotic use are compensated for by improved sleep (Morin & Kwentus, 1988).

Older adults metabolize drugs more slowly than younger people. Because of their reduced hepatic and renal functions, clearance of most benzodiazepines marketed as hypnotics is decreased in older individuals. Elderly patients are particularly at risk for toxic effects of drugs and longer absorption periods. Long acting drugs create nocturnal confusion, impair an already diminished level of cognitive functioning (Scharf & Brown, 1986), and increase muscle weakness, thereby increasing the likelihood of falling (Kramer & Schoen, 1984). Daytime carryover effects such as sleepiness and reduced alertness are also more pronounced in the elderly (Carskadon et al., 1982).

Noncompliance with drug regimes and overmedication pose additional potential problems, particularly in elderly individuals (Morin & Kwentus, 1988). Elderly insomniacs rely heavily on sleeping pills and other hypnotic drugs; this may result in well known side-effects such as memory loss, irritability, falls and broken bones (Kramer & Schoen, 1984). A study by the drug quality and therapeutics committee of the Ontario Health Ministry in 1987 showed that of the geriatric patients admitted to hospital, as many as 20% were being treated for adverse drug reactions or for taking the wrong dosage (cited in Dolphin & Driver, 1988). Overprescribing is particularly prevalent among seniors. Lonely old people may visit their doctors as much for social contact as for medical problems and the quickest way to get these people out of the office is to give them a prescription (Louis Pagliaro, quoted in Dolphin & Driver, 1988).

It is noteworthy that the Corporation professionnelle des médecins du Québec has recently highlighted a situation with far-reaching consequences for society. With reference to narcotics and controlled drugs, including hypnotics, the Corporation noted that the number of complaints concerning abusive prescriptions has almost doubled in the last few years. The Corporation has also noted that the illicit market for hypnotics has been booming for several years and reminded physicians that their role in addressing this serious problem is to exercise extreme caution in prescribing and administering sleep medication. Among the techniques it advises for the limitation of such drugs is for physicians to take into account the "sleep hygiene" practices of their patients and to "first try to work on the patient's lifestyle, use relaxation techniques, or even prescribe psychotherapy" (Corporation professionnelle des médecins du Québec, 1988).

Insomnia is a major social problem which increases health risks and impairs the quality of life for a large percentage of the general population. These problems are accentuated in the ever growing elderly population because the complaint of insomnia, along with sleeping medication usage, increases with age; more than 25% of people aged 60 or older report difficulty initiating and/or maintaining sleep (Mellinger et al., 1985). Sleep maintenance disorder is particularly prevalent among the elderly (Dement et al., 1982; Webb & Campbell,

1980); it is more pervasive and debilitating a condition than sleep onset insomnia and has been found to be much more difficult to treat (Bootzin et al., 1983). In addition, pharmacotherapy for sleep disorders in aging individuals imposes an ever increasing burden on the health care system. Clearly, nondrug treatments are needed for sleep disorders occurring in older adults which effectively address their particular sleep complaints.

Nonpharmacological Treatments

Although extensive empirical research has documented the clinical efficacy of cognitive-behavioral procedures in the treatment of sleep onset insomnia in middle-aged individuals (Morin & Kwentus, 1988), much less has been published on the efficacy of these techniques for treating sleep maintenance problems, particularly in older adults. Although the rationales for these interventions vary dramatically, as do their assumptions about the etiology and maintenance of insomnia, a common mediating mechanism - interference with intrusive cognitive activity - has been proposed by increasing numbers of investigators (cf. Borkovec, 1982; Lacks, 1987; Lichstein & Fanning, 1990; Lichstein & Fischer, 1985; White & Nicassio, 1990).

Muscle relaxation. The rationale for this type of treatment, which includes a variety of training procedures (e.g., progressive relaxation, passive relaxation) is based on the premise that if people can learn to relax their bodies at bedtime, they will fall asleep faster. Studies on the use of relaxation techniques in older adults have typically addressed sleep onset insomnia in spite of evidence showing that problems of sleep maintenance are the most prevalent in the older population (Bootzin, Engle-Friedman, & Hazelwood, 1983; Morin & Gramling, 1989). Many studies systematically exclude subjects over the age of 55 because of the known changes in sleep patterns. Also, the tension phase of the tension and release of muscle groups prescribed in progressive relaxation may be problematic for elderly individuals with arthritis or other painful joint conditions. Moreover, relaxation interventions may not be as effective in older individuals as in middle-aged insomniacs. For example, Nicassio and Bootzin (1974) found a negative correlation between increased age and sleep improvement after relaxation treatment and Alperson and Biglan (1979) found that sleep in older insomniacs improved significantly less than in younger insomniacs when a self-help manual on relaxation and stimulus control were used.

Biofeedback. The rationale advanced for the mechanism of biofeedback treatment for insomnia involves (a) the induction of a global relaxation effect which prepares the individual for sleep, and (b)

alteration of the brain sensorimotor rhythm to more closely mimic brain processes during sleep. Again, there is a scarcity of data available regarding biofeedback assisted methods with older adults. The empirical evidence indicating that sleep improvement with biofeedback is similar to that achieved with relaxation training (cf. Borkovec, 1982; Lichstein & Fischer, 1985) suggests that the much less costly relaxation intervention might be the more reasonable alternative.

Sleep hygiene. Sleep habits and behaviors conducive to good sleep have been collectively referred to as sleep hygiene practices (Hauri, 1977). These include such things as engaging in relaxing activities prior to bedtime, avoiding ingestion of caffeine or alcohol within two hours before bedtime, avoiding vigorous exercise just before going to bed, not going to bed feeling hungry or thirsty, and maintaining a regular sleep and wake time schedule. Although there are no specific studies which evaluate the effects of teaching sleep hygiene practices to older adults, it would appear intuitively reasonable for such practices to be included in any sleep improvement program. The role of sleep hygiene in the etiology and maintenance of insomnia in aging individuals, however, is called into question by the results of a recent study which compared older adults with and without insomnia (Morin & Gramling, 1989). Here it was found that sleep hygiene, exercise, and napping were surprisingly similar in good and poor sleepers aged 60 and over.

Sleep restriction therapy. This therapy consists of curtailing the time spent in bed relative to the actual amount of time slept. The technique consolidates sleep and there is preliminary evidence that it effectively addresses sleep maintenance insomnia in younger individuals (Spielman, Saskin, & Thorpy, 1987) and in a very small sample ($n = 4$) of older adults (Hoelscher & Edinger, 1988). The technique, however, has a major aversive side-effect of severe daytime sleepiness due to initial sleep deprivation; this may cause accidents in elderly individuals as well as noncompliance with the treatment.

Cognitive strategies. The premise for these methods, which include autogenic training (e.g., Schultz & Luthe, 1959), meditation (Woolfolk, Carr-Kaffashan, McNulty, & Lehrer, 1976), and imagery training (Morin & Azrin, 1987) is that cognitive rather than muscular hyperactivity causes insomnia. Indeed, the evidence suggests that intrusive cognitions are far more prevalent than somatic factors in the experience of insomnia (Lichstein & Rosenthal, 1980; Nicassio, Mendlowitz, Fussell, & Petras, 1985). Cognitive techniques involve dealing with uncontrollable and intrusive cognitive activity by learning to focus on relatively pleasant, somewhat monotonous but attention-getting thoughts, images and internal stimuli which are incompatible with worrisome thoughts and images which prevent the onset of sleep.

The efficacy of cognitive strategies for alleviating sleep onset insomnia have been demonstrated (cf. Lacks, 1987). Several studies have also investigated the efficacy of cognitive interventions in the treatment of sleep maintenance insomnia (Coates & Thoresen, 1979; Morin & Azrin, 1987; Schoicket, Bertelson, & Lacks, 1985; Thoresen, Coates, Kirmil-Gray, & Rosekind, 1981). For example, Coates and his colleagues (Coates & Thoresen, 1979; Coates, Killen, George, Manchini, Silverman, & Thoresen, 1982; Thoresen, Coates, Kirmil-Gray, & Rosekind, 1981) showed that multicomponent cognitive interventions resulted in substantial improvement in latency of sleep initiation, with smaller benefits on maintenance parameters. Patients with mixed onset and maintenance problems were less responsive than those presenting either difficulty alone. Moreover, at least one study has indicated that while a cognitive technique (imagery training) improved sleep in older insomniacs, a behavioral intervention (stimulus control) was even more effective.

Stimulus control. This technique is based on the premise that sleep-incompatible behaviors, both overt and covert, have been conditioned to bed-related stimuli. It has been shown to be effective in a large variety of studies (cf. Morin & Kwentus, 1988). Treatment involves eliminating the association between sleep-incompatible behaviors (e.g., eating, worrying, watching TV) and the bedroom. The technique involves curtailing sleep-incompatible behaviors and strengthening associations between bed/bedroom and sleep behavior (e.g., when unable to fall asleep or return to sleep within 10-20 minutes, individuals are instructed to get out of bed and go to another room, returning to bed only when sleepy again). It also involves regulating the wake-sleep schedule (arising at the same time every morning regardless of the amount of sleep obtained the night before, avoiding daytime napping).

These procedures seem particularly relevant for elderly individuals where retirement is accompanied by changes in daily routines and sleep schedules. Studies using stimulus control treatment for geriatric insomnia indicate that it is effective for both sleep onset (Puder, Lacks, Bertelson, & Storandt, 1983) as well as for sleep maintenance problems in aging individuals (Hoelscher & Edinger, 1988; Morin & Azrin, 1988).

Nevertheless, the instructions are fairly complex and the behavioral prescriptions are aversive, particularly for elderly people who complain about the stimulus control requirement of getting out of bed after every 10-20 minute period of sleeplessness during the night (Davies, Lacks, Storandt, & Bertelson, 1986). Such factors can lead to noncompliance with the behavioral protocol and undermine the potential clinical benefits. Moreover, the effectiveness of the various components of the technique is not known, and it is possible that some of the more onerous requirements of the program may be unnecessary. For example, not only does there appear to be a biological basis for

afternoon naps (cf. Dement, 1989), but Morin and Gramling (1989) have shown that in an aging population, good and poor sleepers cannot be distinguished on the basis of napping.

Examination of the stimulus control procedure has prompted several researchers (e.g., Borkovec, 1982) to suggest that the effective ingredient in this technique may be the disruption of sleep incompatible behaviors such as intrusive thoughts or restless tossing. If this is the case, rather than the postulated reestablishing of the bed as a discriminative stimulus for sleep, then the onerous requirement of having to leave the bed and bedroom would be unnecessary. Removing the out-of-bed requirement might improve treatment effectiveness for the more difficult sleep maintenance problem as well as be more feasible for the less ambulatory older adult.

Countercontrol. The little known countercontrol intervention was designed to disrupt sleep-incompatible activities without requiring leaving the bed (Zwart & Lisman, 1979). Individuals are instructed to engage in a nonarousing activity (e.g., dull reading) in bed whenever they are unable to sleep.

The countercontrol procedure is similar to stimulus control with the following exceptions: it is not necessary to leave the bedroom when awake and it is not necessary to regulate the sleep-wake schedule (e.g., there are no napping restrictions and no requirement of a consistent time of getting up in the morning). Zwart and Lisman (1979) found that countercontrol and stimulus control were equally effective in sleep onset insomniacs. In a more recent study it was found that this technique reduced awake time in sleep-maintenance insomnia by about 30% and that older participants profited as much from the treatment as younger subjects (Davies et al., 1986). The authors reported that although this technique eliminated the necessity of leaving the bed, an arduous requirement for most older adults, they encountered resistance on the part of participants to turning on the lights in the middle of the night and engaging in some activity. They suggested that an insomnia treatment which addresses the disruption of cognitive arousal more directly might have greater therapeutic success and fewer compliance problems.

A NEW APPROACH TO TREATING INSOMNIA

To design more effective nonpharmacological interventions, especially for individuals with middle of the night insomnia and for older persons, we propose that time estimation parameters and the elimination of self-generated aversive thoughts and images be targeted directly. The technique should do the following. (a) Eliminate or "displace" obsessive and intruding thoughts which prevent sleep by

refocusing attention; this would be expected to result in more sleep during the night. (b) Alter perceptions of the amount of time spent awake; this would involve activities which diminish the number of self-generated aversive stimulus events for a given interval and, thereby, reduce the perceived duration of the time spent awake. (c) Fill the awake interval with interesting rather than noxious cognitive events; this, too, should result in the perception that time is passing swiftly and also interrupt the vicious cycle of "worry about not getting enough sleep causing poor sleep."

The goal of a successful therapy technique should be the replacement of aversive cognitions by substituting interesting, attention getting thoughts and images. It is important that little effort be required on the part of the individual and that the technique be usable in bed, in the dark, with eyes closed, in one's preferred sleep posture.

Examples of popular sleep inducing strategies include counting sheep and counting backwards by threes. However, such techniques are not particularly pleasant and also require considerable effort - making it difficult to sustain these activities for lengthy periods. Moreover, these strategies probably have little effect on time estimation. Also, lapses in attention while counting are likely to be filled with worrisome thoughts about how long it is taking to fall asleep. Reading, another popular technique, may distract but it requires that the individual enjoy reading in general and also that eyes be open and that the lights be turned on; these requirements limit the usefulness of reading in the treatment of insomnia. Some people have tried listening to music which, though soothing, is unlikely to be sufficiently attention getting to shut out intrusive thoughts. Also, people often fall asleep in front of their televisions; however, watching television as a sleep inducing tactic requires that eyes be open. In addition it involves the presence of light in the middle of the night, which may not only disturb a bed partner but also the individual with the sleep problem.

As an alternative to existing treatments, we suggest the creative use of recent technological innovations which allow individuals to listen to attention getting materials while lying in bed, in the dark, without having to rouse themselves by turning off the equipment and without disturbing a bed partner. The technology would involve the use of a pillow speaker or ear phones and a "sleep" feature or a timer which shuts off the television, radio or tape recorder. Possible stimulus materials might include radio talk shows, the audio portion of videotaped television shows or "all news" programs. Alternately, listening to audiotaped novels, radio plays or radio newscasts or talk shows with the aid of an auto-stop tape recorder (turns off automatically at the end of the tape) could be effective.

The use of these techniques involves little active effort on the individual's part, reducing the probability of noncompliance. The auditory materials may be customized to individual differences in interests and age - the only requirements are that they be interesting enough to hold the listener's attention but not so arousing as to interfere with sleep.

The phenomenology of the insomnia experience seems best illustrated in the aging population, in whom similar psychophysiological deficits may be accompanied by widely discrepants reports of sleep quality. Such differences, in light of the similarity in objective sleep parameters, highlight the importance of examining the role of nonphysiological factors which contribute to the sleep complaint. These include individual psychological variables and the nature and content of cognitive activity during awake times at night.

We have proposed a model of insomnia which focuses on the complaint of disturbed sleep, rather than on documented sleep disruptions. The model incorporates phenomena which, while frequently reported in the literature, have not been addressed by existing conceptualizations of disorders in initiating and maintaining sleep, namely the uncontrolled intrusion of aversive thoughts and the overestimation of time spent awake during the night. We have also proposed an intervention strategy which addresses the underlying common element in these two factors - attentional focus. Implicit in our model is the notion that the legitimate target for insomnia intervention is the complaint rather than the objectively documented sleep disruption. People who complain of insomnia, including aging individuals, will continue to spend time awake during the night. If such intervals are not experienced as lengthy and distressing, both the perceived and actual quality of sleep are likely to improve.

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