

## The Treatment of Parasomnias with Hypnosis: a 5-Year Follow-Up Study

Peter J. Hauri, Ph.D.<sup>1</sup>; Michael H. Silber, M.B.Ch.B.<sup>1,2</sup>; Bradley F. Boeve, M.D.<sup>1,2</sup>

<sup>1</sup>Sleep Disorders Center and <sup>2</sup>Department of Neurology, Mayo Clinic College of Medicine, Rochester, MN

**Study Objectives:** This study involves a replication and extension of a previous one reported by Hurwitz et al (1991) on the treatment of certain parasomnias with hypnosis.

**Methods:** Thirty-six patients (17 females), mean age 32.7 years (range 6-71). Four were children aged 6 to 16. All had chronic, "functionally autonomous" (self-sustaining) parasomnias. All underwent 1 or 2 hypnotherapy sessions and were then followed by questionnaire for 5 years.

**Results:** Of the 36 patients, 45.4% were symptom-free or at least much improved at the 1-month follow-up, 42.2% at the 18-month fol-

low-up, and 40.5% at the 5-year follow-up.

**Conclusions:** One or 2 sessions of hypnotherapy might be an efficient first-line therapy for patients with certain types of parasomnias.

**Keywords:** Parasomnias, hypnosis, nightmares, cognitive therapies, long-term follow-up.

**Citation:** Hauri PJ; Silber MH; Boeve BF. The treatment of parasomnias with hypnosis: a 5-year follow-up study. *J Clin Sleep Med* 2007;3(4):369-373.

Parasomnias are undesirable events or experiences that occur either during sleep or within close proximity to sleep.<sup>1</sup> Many parasomnias clearly have organic etiologies. Among them are the neurodegenerative disorders associated with rapid eye movement (REM) sleep behavior disorder.<sup>2,3</sup> Also, other organic sleep disorders such as nocturnal epilepsies and obstructive sleep apneas may mimic parasomnias.<sup>4,5</sup> However, the pathogenesis of other parasomnias is more complex and includes contributing psychogenic factors.<sup>6</sup>

We speculated that it might be inappropriate to treat with hypnosis those parasomnias that were of primarily organic etiology, such as REM sleep behavior disorder. Similarly, we did not want to treat with hypnosis parasomnias that were caused directly by an acute trauma, such as a recent accident or rape, because, in those cases, psychotherapy would seem to be more appropriate. Rather, this study focuses on parasomnias that had become "functionally autonomous"; that is, parasomnias that behaved like "bad habits" without there being any currently active organic or psychological cause.

Of interest, there is almost no empirical evidence for using traditional psychotherapy in parasomnias; e.g., for attempts to resolve the presumptive psychological conflicts that might underlie some of them. Rather, cognitive-behavioral therapies are usually advocated.<sup>8</sup> Such cognitive-behavioral techniques include relaxation and desensitization,<sup>9,10</sup> rescripting and rehearsing alternate

contents for nightmares,<sup>11,12</sup> eye movement desensitization,<sup>13,14</sup> and training in lucid dreaming.<sup>15</sup> However, with the exception of the study by Marquis,<sup>13</sup> most studies documenting the cognitive-behavioral treatment of parasomnias involve either individual cases or small case series with very short follow-ups, and there are almost no replicated findings.

Hypnosis seems to be the technique that is best documented for the psychological treatment of certain parasomnias. Although case studies and small case series again provide the bulk of support for this treatment,<sup>16-18</sup> some larger case series exist (Reid,<sup>19</sup> 12 cases; Hurwitz et al,<sup>20</sup> 27 cases), and there has been one attempt at a single-blind crossover design,<sup>21</sup> all suggesting that hypnosis might have its place in the treatment of parasomnias.

The research reported here was carried out to replicate and extend the above-mentioned study by Hurwitz et al,<sup>20</sup> on the use of hypnosis in sleepwalking and sleep terrors. In that study, 27 adults received 1 to 6 sessions of hypnotherapy and were then recontacted by telephone 6 to 63 months later. As many as 74% of the patients who were contacted reported much or very much improvement in their parasomnias.

### METHODS

#### Subjects

The initial subject pool for this study was all 42 patients who had been referred for hypnotherapy between 1994 and 2000. These referrals had all been made by sleep specialists at the Mayo Sleep Disorders Center who had evaluated the patients prior to referral. Eighteen had been referred after 1 or 2 clinical interviews, 24 had undergone a polysomnogram (PSG) prior to their referral for hypnotherapy, often with an extended parasomnia montage. A preliminary report of this work was published in 2004.<sup>22</sup> The study was approved by the Mayo Clinic Institutional Review Board on June 10, 1997.

#### Disclosure Statement

This was not an industry supported study. Drs. Hauri, Silber, and Boeve have indicated no financial conflicts of interest.

Submitted for publication November, 2006

Accepted for publication December, 2006

Address correspondence to: Peter J. Hauri, PhD, Mayo Sleep Disorders Center, 200 First Street SW, Rochester, MN 55905; Tel: (507) 266-7603; Fax: (507) 266-7772; E-mail: hauri.peter@mayo.edu

To be included in the study, the patients' parasomnias had to be judged treatable through hypnotherapy by the referring sleep clinician and had to have lasted for at least 1 year, with a minimum of at least 2 episodes per month. All patients included here were offered hypnotherapy by the sleep specialist; none had directly asked for this treatment.

Patients were excluded from the study if they showed:

1. A high likelihood that the parasomnia was predominantly associated either with organic factors such as REM sleep behavior disorder or was due to other sleep disorders such as nocturnal epilepsy or obstructive sleep apnea. If such likelihood existed, the patient first underwent an extended PSG to rule out these considerations prior to referral for hypnotherapy. Of the 42 patients in the initial subject pool, 24 had undergone such a PSG. In 8 of them, in addition to the usual PSG, 16 additional electroencephalographic derivations were recorded all night and read by a neurologist to rule out a possible nocturnal seizure disorder. In 7 patients, an additional arm electromyographic derivation was added to the routine montage to rule out REM sleep behavior disorder. Nine patients had undergone a PSG specifically to rule out either obstructive sleep apnea or periodic limb movements of sleep. The PSGs in each of the 24 patients from this study were within normal limits in respect to electroencephalography, movements during REM sleep, respiration, or periodic limb movements of sleep. However, 1 patient was later excluded by this criterion when, about 2 years after admission to this study, he developed a partial complex seizure disorder, even though his nocturnal electroencephalogram had been normal at intake.
2. Patients were also excluded if they showed evidence of a still ongoing psychopathologic process related to their parasomnia. For example, a patient with nightmares would be excluded if the nightmares had started after a rape, the psychological sequelae of which had not yet been adequately addressed, whereas a patient would be accepted if the nightmares had started after a rape for which the patient has received adequate counseling. Two patients were excluded by this criterion.
3. To avoid complications stemming from the hypnotic treatment, patients were also excluded if they had psychological characteristics that would make them poor candidates for hypnosis, such as borderline personalities, dependent personalities, or psychotic disorders. Three patients were excluded by this criterion.

The final patient sample consisted of 36 patients (17 females) with a mean age of 32.7 years (range 6 to 71 years). Four of the patients were children aged 6, 8, 12, and 16. In 20 patients, the parasomnias had started before the age of 10. Mean duration of the parasomnia prior to hypnosis was 18.7 years, with a range from 1 year (the 6-year-old patient) to 68 years. The mean number of parasomnia episodes reported for the month prior to evaluation was 15.7; none had reported fewer than 4 episodes during that month.

The sample's parasomnia diagnoses (made by the referring sleep consultant previous to referral for hypnosis) were: 11 sleepwalking, 10 nightmares, 6 sleep terrors, 4 epic dreaming, 2 sleep-related eating disorder, and 1 each with sleep-related groaning, sleep-related hallucinations, and severe sleep talking. Epic dreaming was defined as a patient's perception of excessive dreaming all night long, often with continuous repetitive activation, usually associated with daytime fatigue.<sup>23</sup>

Following their treatment with hypnotherapy (see procedures),

patients then received 3 one-page questionnaires concerning their parasomnias. These questionnaires were sent to them after 1 month, 18 months, and 5 years following the hypnosis treatment. However, some patients had moved without a forwarding address, and 1 refused further follow-up after the first one. Therefore, the questionnaires were sent to 36 patients for the 1-month follow-up, to 33 for the 18-month follow-up, and to 29 for the 5-year follow-up.

## Procedures

The goal was to carry out the entire hypnotic treatment within 1 session lasting about 50 minutes. However, in 9 of the 36 study patients, a second hypnosis session was needed, either because the technical quality of the recorded tape was poor, or because the session was interrupted (e.g., by a fire alarm), or because the patient requested some different wording on the tape, or because patients felt that a second session would help with deepening their hypnotic state. Four patients requested and were granted a "refresher" session 6 to 12 months after the initial hypnosis session.

All hypnosis was performed by 1 of the authors (PJH) who is a clinical psychologist trained in hypnosis and a board-certified sleep specialist. At the beginning of the session, the patient's folder was reviewed, questions concerning exclusion criteria were addressed, and the patient's understanding of hypnosis was clarified. For purposes of this study, hypnosis was defined as a state of deep physical relaxation but with retention of an active and focused mind, so that possible new thoughts could be evaluated and incorporated into the hypnotized person's thinking. The person was assured that everything that would happen during the hypnotic session would be remembered and that a tape would be made of the proceedings, to be given to the patient. To deal with fears of possibly not being hypnotizable, patients were asked to simply "go along" and "fake it" if they felt nothing was happening. Safety issues were addressed: 14 female patients asked that another person (usually a friend or spouse; on rare occasions, a sleep lab nurse) be present in the room during hypnosis. Finally, for purposes of the hypnotic induction, patients were asked during the interview to describe an outdoor place where they could imagine themselves lying down and relaxing while watching clouds in the sky.

Following these preliminaries (done in PJH's office), we moved to a sleep center bedroom and the audio tape to record the proceedings was started. The patient was asked to lie comfortably on a bed, relax, and concentrate on a spot in the ceiling. Following eye closure by this classic induction procedure, patients were asked to imagine themselves walking slowly down a staircase, with continuing suggestions that each step would bring increased relaxation and comfort. Finally, patients were asked to imagine themselves in the previously described outdoor spot, watching the clouds go by. In a series of guided images, they then imagined a cloud coming down from the sky, enveloping them, and the patient then gradually dissolving into the cloud and floating through the sky as part of the cloud.

Treatment then consisted of patients imagining seeing themselves in a movie, depicting how they were experiencing a good, parasomnia-free night of sleep at home. That is, they would see themselves going to bed, close their eyes, enter first a light, then a deeper stage of sleep, then REM, etc., throughout the night. This was laced with suggestions that they were safe now and that the

**Table 1**—Analysis of the Questionnaire Responses

Response Rates	1 Month	18 Months	5 Years
Questionnaires sent, no.	36	33	29
Responses received, no.	27	24	18
Patients responding, %	75.0%	72.7%	62.1%
Satisfaction with Study			
Would you recommend this treatment to a friend with a similar problem? % yes	82.5	63.2	77.8
Improvement Rates			
Spell-free for the last month, no.	9	5	6
Not spell-free but much improved, no.	5	7	3
Spell free or improved (based on the number of questionnaires sent out), %	38.9	36.4	31.0
Spell free or improved (based on the number of questionnaires returned), %	51.9	50.0	50.0
“Best statistical estimate” of improvement rate (see text), %	45.4	43.2	40.5
Improvement if hypnotized patients only are included (see text), %	55.5	54.0	44.7

previously necessary parasomnias simply were no longer needed and could be abandoned. They were also told that if they ever found themselves starting their parasomnias during sleep, they could simply tell themselves “that it is no longer necessary.”

At the end of the session, patients were asked to fold their hands and were then told that these hands were now glued together so that they could not be separated. In an attempt to gauge the depth of their hypnosis, they were then challenged, first mildly, then more forcefully, to pull their hands apart. Eight of the 36 patients (22%) could easily separate their hands, i.e., clearly had not been hypnotized.

Patients were then aroused from their relaxation, debriefed, and asked to listen to the tape that had been recorded during their session. They were to do this at home, once per day for at least 2 weeks, at a time when they were unlikely to be disturbed. They were told to expect a gradual diminution, then a cessation, of their parasomnia. They were asked to call if they had questions, but only 2 patients ever did. A follow-up 30-minute session was scheduled 2 weeks after hypnotherapy to deal with possible questions, but patients were told they could cancel this follow-up if they did not feel the need for it. Of the 36 patients in this study, fully 21 patients canceled. Patients were also told that 1 month, 18 months, and 5 years after the hypnotherapy session they would be sent a 1-page questionnaire dealing with their progress and that their answers to this questionnaire were important for us to decide if we should continue offering this treatment.

### Statistical Issues

No comparative statistics were used in this study because it did not employ a control group. The study simply aimed to describe what happened to the parasomnias over time after 1 or 2 hypnotic sessions.

There is some discussion among statisticians about what basis to use when evaluating questionnaire data. When using as a base only the number of questionnaires that were returned, the rate of improvement is likely to be overestimated because successful patients might be more willing to respond, but when basing the success rate on the number of all questionnaires sent out, the rate of improvement is likely to be underestimated because even some successful patients might not have returned the questionnaire. Therefore, Table 1 computes both of these improvement rates and then averages them for a best estimate of the “true” improvement rate.

### RESULTS

Table 1 indicates that the questionnaire response rate in this study was 75% for the 1-month follow-up, 72.7% for the follow-up at 18 months, and still 62.2% for the follow-up 5 years later. These relatively high response rates may be due to the fact that, during their treatment hour, patients had been informed to expect these follow-ups and were told how important their responses would be for our decision whether or not to continue offering this treatment.

One way to measure patients’ satisfaction with their treatment is to ask if they would recommend this treatment to a friend who had a similar problem (Table 1). Although satisfaction dropped somewhat after 18 months (but recovered at the 5-year follow-up), it was always higher than the improvement rate that is reported later in Table 1. Some patients attached spontaneous responses to the questionnaire about this issue, stating that, although this treatment had not worked for them, they still felt it might be useful for others.

As Table 1 indicates, the initial treatment response to hypnosis (at the 1-month follow-up) showed that 9 patients were totally spell-free during that first month and that the overall beneficial response rate (at least “much improved”) was 45.4%. This beneficial response rate declined very little over the next 5 years. However, whereas the 1-month response rate is likely to be caused by hypnotherapy alone because there was little time for anything else to affect their parasomnias in these very chronic patients, the later response rates (18 months and 5 years) cannot necessarily be attributed to hypnotherapy alone. Over the course of those times, some might have recovered spontaneously, whereas others might have sought

**Table 2**—Tracking Individual Changes Over Time

Patients, no. (%)	Changes over Time
5 (28)	“No spells” or “much improved” throughout the study
4 (22)	Initially “no spells” or “much improved” but little or no improvement on later follow-ups
3 (17)	No improvement initially but improved on later follow-ups
6 (33)	Little or no improvement on any of the 3 follow-ups

Note: Only data from the 18 patients who completed all 3 follow-ups were analyzed here.

**Table 3**—Success Rates Within Parasomnia Subcategories

Category	No. <sup>a</sup>	Spell Free or Much Improved <sup>b</sup>		Little or No Improvement <sup>c</sup>	
		After 18 months	After 5 years	After 18 months	After 5 years
Sleepwalking	11	3/6 (50%)	2/3 (67%)	3/6 (50%)	1/3 (33%)
Nightmares	10	5/7 (71%)	4/6 (67%)	2/7 (29%)	2/6 (33%)
Sleep Terrors	6	1/5 (20%)	1/4 (25%)	4/5 (80%)	3/4 (75%)
Epic Dreaming	4	2/3 (67%)	1/3 (33%)	1/3 (33%)	2/3 (67%)
Others	5	1/3 (33%)	1/2 (50%)	2/3 (67%)	1/2 (50%)

<sup>a</sup>Total number in original sample.

<sup>b</sup>Reported are responses of “spell free” or “much improved”/total number of responses.

<sup>c</sup>Reported are responses of “little” or “not improved”/total number of responses.

alternative treatments (e.g., drugs or other behavioral therapy), or their stress-inducing environments might have changed.

To shed some light on this latter issue, the time course of the 18 patients who had completed all 3 follow-ups were analyzed in Table 2. It appears that, of the 9 patients who initially responded successfully to hypnosis, 5 continued this response over the next 5 years, whereas 4 others showed an initially successful response but later relapsed. Of the 9 patients who showed no or minimal change in their parasomnia after 1 month following hypnotherapy, 3 patients later improved, but 6 never showed any improvements. Thus, the improvement at 5 years may be associated with the hypnotherapy in 5 of 18 (28%) of the patients.

In this study, all appropriate referrals were accepted for hypnotherapy regardless of whether they were hypnotizable. Eight patients (22% of the sample) turned out not to be hypnotized when tested at the end of the treatment. Success rates improved somewhat when eliminating these 8 patients from the analysis of the improvement rates and after going through the same statistical process as described earlier for the analysis of all patients (Table 1).

The numbers in this study are too small to answer decisively whether hypnotherapy is more appropriate for one or another form of a “functionally autonomous” parasomnia. Nevertheless, because no data at all exist on that point, a preliminary analysis of this issue is reported in Table 3. Because the numbers were so small, the 2 patients with sleep-related eating and the 3 patients with unique diagnoses were combined into the category of “Other” for Table 3. It would appear that, in the long run, nightmares responded best to hypnotherapy, whereas sleep terrors were treated less successfully in this way.

## DISCUSSION

The results indicate that 1 month after hypnotherapy, close to half of the study patients showed either no parasomnia events or at least rated themselves as much improved. It seems likely that this short-term effect is a direct consequence of the hypnotherapy, given the patients’ chronicity (mean duration of their parasomnia was 18.7 years), and given that 9 of the patients (one third of those who returned the questionnaire) were totally spell free. It seems unlikely that spontaneous recovery or changed life situations played a significant role during this short 1-month time period.

Improvement rates remained high after 18 months (42.2%) and after 5 years (40.5%). However, these improvement rates cannot be that easily ascribed to hypnotherapy alone because spontaneous recoveries and other treatments sought elsewhere now might have had some time to work. Only a randomized controlled study could assess how much of the later follow-up results can still be ascribed to the 1 or 2 sessions of hypnotherapy. Nevertheless, it

does seem impressive that 5 (28%) of the 18 previously chronic patients in Table 2 still rated themselves as spell free or at least much improved at the 5-year follow-up.

Eight of the 36 patients in this study turned out not to be hypnotized when tested at the end of the hypnotherapy session. Improvement rates were higher when these patients were not included in the analysis (Table 2). However, it would not seem feasible for a referring sleep clinician to first have to test the hypnotizability of potential patients before referring them, especially because assessing hypnotizability would take at least 30 minutes, whereas the entire treatment took only about 1 hour. Rather, the clinician’s question when referring a patient concerns the likelihood that a patient who is selected by the criteria mentioned in the methods section improves with hypnotherapy.

Data are very preliminary, but our follow-up data would seem to indicate that nightmares were most successfully treated by hypnotherapy, whereas sleep terrors were somewhat less successfully managed. Because parasomnias of primarily organic etiology were excluded a priori, this study has nothing to say about whether hypnosis might also be a useful technique to treat the more organic parasomnias.

It is left for further research to evaluate whether manipulating some of the parameters in this study might have improved the efficacy of hypnotherapy. Specifically, one might consider adding more initial hypnotherapy sessions or adding some follow-up sessions later on, among other possibilities.

No case-series data with a 5-year follow-up are available for any of the other cognitive-behavioral treatments that might have been used instead of hypnotherapy in these cases. Therefore, no claims can be made that, in the long run, hypnotherapy is either more or less effective than the other approaches. However, it is a very short, time-efficient treatment, whereas many of the other cognitive-behavioral therapies require considerably more than 1 or 2 sessions.

In summary, given the brevity of the hypnotic treatment and its documented success in this and other studies, hypnotherapy would seem to be a treatment of first choice for patients with “functionally autonomous” (apparently self-perpetuating) parasomnias.

## REFERENCES

1. ICSD-2 International Classification of Sleep Disorders. 2<sup>nd</sup> ed. Diagnostic and coding manual. Westchester, Ill: American Academy of Sleep Medicine; 2005.
2. Boeve B, Silber M, Parisi J, et al. Synucleinopathy pathology and REM sleep behavior disorder plus dementia or parkinsonism. *Neurology* 2003;61:40-5.
3. Schenck C, Mahowald M. REM sleep behavior disorder: clinical, developmental, and neuroscience perspectives 16 years after its formal identification in SLEEP. *Sleep* 2002;25:120-38.

4. Zucconi M, Ferrini-Stambi L. NREM parasomnias: arousal disorders and differentiation from nocturnal frontal lobe epilepsy. *Clin Neurophysiol* 2000;111:S129-35.
5. Mahowald MW, Schenck CH. Parasomnia purgatory: the epileptic/non-epileptic interface. In: Rowan AJ, Gates JR, eds. *Non-epileptic Seizures*. Boston: Butterworth-Heinemann; 1993:123-39.
6. Lavie P. Sleep disturbances in the wake of traumatic events. *N Engl J Med* 2001;345:1825-32.
7. Halliday G. Direct psychological therapies for nightmares: a review. *Clin Psych Review* 1987;7:501-23.
8. Coalson B. Nightmare help: treatment of trauma survivors with PTSD. *Psychotherapy* 1995;32:381-8.
9. Miller WR, DiPilato M. Treatment of nightmares via relaxation and desensitization: a controlled evaluation. *J Consult Clin Psychol* 1983;51:870-7.
10. Cavior N, Deutsch AM. Systematic desensitization to reduce dream-induced anxiety. *J Nerv Ment Dis* 1975;161:433-5.
11. Germain A, Nielson TA. Impact of imagery rehearsal treatment on distressing dreams, psychological distress, and sleep parameters in nightmare patients. *Behav Sleep Med* 2003;1:140-54.
12. Krakow B, Sandoval D, Schrader R, et al. Treatment of chronic nightmares in adjudicated adolescent girls in a residential facility. *J Adolesc Health* 2001;29:94-100.
13. Marquis J. A report of seventy-eight cases treated by eye movement desensitization. *J Behav Ther Exp Psychiatry* 1991;22:187-192.
14. Pellicier X. Eye movement desensitization treatment of a child's nightmares: a case report. *J Behav Ther Exp Psychiatry* 1993;24:737-5.
15. Zadra AL, Pihl RO. Lucid dreaming as a treatment for recurrent nightmares. *Psychother Psychosom* 1997;66:505-5.
16. Kingsbury SJ. Brief hypnotic treatment of repetitive nightmares. *Am J Clin Hypn* 1993;35:161-9.
17. Schenck CH, Mahowald MW. Two cases of pre-menstrual sleep terrors and injurious sleep-walking. *J Psychosom Obstet Gynaecol* 1995;16:79-84.
18. Howsam DG. Hypnosis in the treatment of insomnia, nightmares, and night terrors. *Austr Soc Hypnosis* 1999;27:32-9.
19. Reid WH. Treatment of somnambulism in military trainees. *Am J Psychother* 1975;29:101-6.
20. Hurwitz TD, Mahowald MW, Schenck CH, Schluter JL, Bundlie SR. A retrospective outcome study and review of hypnosis as treatment of adults with sleepwalking and sleep terror. *J Nerv Ment Dis* 1991;179:228-33.
21. Reid WH, Ahmed I, Levie CA. Treatment of Sleepwalking: a controlled study. *Am J Psychother* 1981;35:27-37.
22. Hauri PJ, Silber MH, Boeve BF. Treating parasomnias with hypnosis. *Sleep* 2004;27:A286.
23. Schenck CH, Mahowald MW. A disorder of epic dreaming with daytime fatigue, usually without polysomnographic abnormalities, that predominantly affects women. *Sleep Res* 1995;24:137.