

## **Lucid Dreaming Treatment for Nightmares: A Series of Cases**

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*Goal of this series of cases was to investigate lucid dreaming treatment for nightmares. Hypotheses were that lucid dreaming treatment would decrease nightmare frequency and state/trait anxiety, and improve the quality of sleep. Eight participants received a one-hour individual session, which consisted of lucid dreaming exercises and discussing possible constructive solutions for the nightmare. Nightmare frequency and sleep quality were measured by a sleep questionnaire, anxiety was measured by the Spielberger State and Trait Anxiety Inventory. At the follow-up two months later the nightmare frequency had decreased, while the sleep quality had increased slightly. There were no changes on state and trait anxiety. Lucid dreaming treatment seems to be effective in reducing nightmare frequency, although the effective factor remains unclear.*

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**KEY WORDS:** nightmares; lucid dreaming; treatment.

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### **INTRODUCTION**

About 5 to 10% of the American adult population experiences nightmares frequently (American Sleep Disorders Association, 1990; Bixler et al, 1979; Nielsen & Zadra, 2000). Nightmares are one of the major complaints of the posttraumatic stress disorder, a mental disorder that may develop after confrontation with a traumatic event (American Psychiatric Association, 2000; Blaustein, 1991; Jordan et al, 1991; Kessler et al, 1995). Nightmares are associated with distress (Berquier & Ashton, 1992; Zadra & Donderi, 2000) and sleep disturbances (Kales, Soldatos, & Caldwell, 1980), like sleep related breathing disorder (sleep apnea) and insomnia (Engdahl et al, 2000; Mellman et al, 1995a; 1995b). In addition, nightmares elicit anxiety, sometimes producing a 'fear of going to sleep' (Hayes & Mooney, 1975).

Although nightmares seem to be a lifelong complaint (Hublin, Kaprio, Partinen, & Koskenvuo, 1999), research on treatment for nightmares has been rare. Some cognitive-behavioral techniques like monitoring, relaxation, and desensitization were able to reduce

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nightmare frequency (Celluci & Lawrence, 1978; Miller & DiPilato, 1983). These techniques, however, did not change the content of the nightmare and some subjects even thought of their nightmares as being more intense afterwards.

A technique that does change the content of a nightmare is imagery rehearsal. Nightmare sufferers are asked to write down one of their nightmares and to make up a different (more positive) ending for the nightmare. They have to imagine this new ending several times a day, and can work on about two nightmares a week. In several randomized controlled trials imagery rehearsal significantly reduced nightmare frequency (Krakow et al, 1995; 2000; 2001).

A serious flaw was the high drop-out rate for the treatment group. In one study the imagery rehearsal group lost almost significantly more participants than the waiting-list group at follow-up ( $p = .07$ ) (Krakow et al, 2001). A lack of imagery skills might explain this high drop-out rate. Moreover, the significant reduction in nightmare frequency might be partly due to the exceptionally high baseline. In this same study, the baseline exceeded six nightmares a week.

Several authors suggested that lucid dreaming (realizing in a dream that one is dreaming) could be effective in reducing nightmares (Halliday, 1987; LaBerge & Rheingold, 1990; Zadra, Donderi, & Pihl, 1992). As it is a learned cognitive skill (Purcell et al, 1986; Zadra, Donderi, & Pihl, 1992), nightmare sufferers should be able to learn this skill in order to become lucid during a nightmare. With lucidity the nightmare could be changed in a more pleasant dream.

Some case-studies have been conducted to investigate the effects of this technique; most of them reduced nightmare frequency and changed the content of the nightmare (Halliday, 1987; Zadra, 1996; Zadra & Pihl, 1995). In one study with five cases, four out of five participants did not experience any nightmares at all at the one-year-followup (Zadra & Pihl, 1995). It is unfortunate that these studies lacked systematic measurements.

The current study aims to replicate the former results—with systematic measurements. We plan to assess nightmare frequency, state/trait anxiety and sleep quality. We hypothesized that lucid dreaming treatment would reduce both nightmare frequency and state/trait anxiety, and improve sleep quality.

## METHODS

Participants were recruited by advertisements in several public buildings (e.g. library, university buildings). As opposed to previous research, no minimum level of nightmares a week was required (Krakow et al, 1995). This is in line with the DSM-IV-TR, which no longer uses this diagnostic criterion (American Psychiatric Association, 2000). All participants had suffered from nightmares for over one year. They signed a written consent, and received a small monetary incentive for completing the treatment. One participant refused to conduct the exercises of the treatment, and was excluded. None of the participants suffered from sleep terrors.

Nightmare frequency was measured by a self-constructed sleep questionnaire. Participants had to estimate the amount of nightmares a week for the last four weeks. Nightmares were defined as anxiety provoking dreams; in line with previous research waking up was not a necessary criterion (Krakow et al, 1995; Neihardt et al, 1992). Although in the DSM-IV-TR waking up is a necessary criterion (American Psychiatric Association, 2001),

no correlation has been found between waking up from nightmares and nightmare intensity or distress (Kellner, Neidhardt, Krakow, & Pathak, 1992; Neidhardt, Krakow, Kellner, & Pathak, 1992). Subjective sleep quality was measured by rating scale ranging from 1 (very bad) to 10 (very good). Although more objective, polysomnography is an intensive and expensive method of assessing the quality of sleep that does not take into account the subjective experience. State and trait anxiety were measured by the Dutch version of the Spielberger State and Trait Anxiety Inventory, a reliable and valid questionnaire (van der Ploeg, 2000).

The individual treatments were conducted by the first author. After filling out the questionnaires, participants described one of their nightmares. They were asked to think about common features in their nightmares, which could range from specific (recurrent nightmare) to broad (a common theme such as being chased). Then the concept of lucid dreaming was introduced; it was unfamiliar to all participants. In the Netherlands, many persons are not acquainted with lucid dreaming. Only one book on lucid dreaming has been published (Den Blanken, 1990). The participants were told that lucid dreaming is a learned cognitive skill, and that it might be applicable to nightmares.

The treatment consisted of two key elements: 1) conducting exercises in order to become lucid in a dream; 2) changing the nightmare in a constructive manner. The participants had to conduct the exercises at home. They had to intend before going to bed that the next time they would be in the frightening situation (recurrent situation or common theme), they would realize that it could all be dream. After close examination of the situation, they should realize that the frightening situation is not real, but a dream. A related exercise was imagening the frightening situation while thinking that it is only a dream.

The participants were told that anything could be changed in a lucid dream. Solutions of the nightmare situation were discussed. They had to answer questions like: what would you like to change? How are you going to change it? Imagine everything is possible, what else could you do? A constructive solution (e.g. talking to or fighting the attacker) was to be preferred over a less constructive reaction (e.g. fleeing away by using lucidity) (Zadra, 1996). It was discussed that changing the nightmare might be difficult even if full lucidity is achieved. This is because the nightmare story or script (e.g. starting with a shadow and ending with being chased) gets stronger every time a nightmare has been experienced. Such a strong expectation pattern may be hard to alter, and therefore participants were told they should then try to make a small change—preferably in a background object. If accomplished, they could pick a more important object, gradually extending this to the whole dream. At all stages participants could ask questions. Finally, homework assignments (the exercises) were handed out with a short summary of the treatment.

Participants could contact the first author by phone or e-mail. Only one did, she received more specific instructions by e-mail twice. Participants filled out the same questionnaires at follow-up two months later.

## RESULTS

The mean age was 27.8 (SD = 12.2); two were male, six were female. This female-male ratio lied within the range 2–4:1 as described in the DSM-IV-TR (American Psychiatric Association, 2000). The response at follow-up was 100%. All participants suffered from anxiety provoking dreams. Three participants “almost always” woke up after an anxiety

**Table 1.** Means and Standard Deviations of Nightmares a Week, Subjective Sleep Quality, and State and Trait Anxiety Before (1) and Two Months After the Treatment (2),  $N = 8$

	1	2
Nightmares a week		
Mean	2.31	0.88
SD	3.56	1.13
Subjective sleep quality		
Mean	6.00	6.50
SD	2.20	1.51
State anxiety		
Mean	45.88	45.38
SD	6.42	8.96
Trait anxiety		
Mean	46.63	45.25
SD	7.67	9.24

provoking dream, three subjects “often,” one “sometimes,” and one “almost never.” One suffered from recurrent nightmares, five had nightmares with a common theme, and two had both.

Due to the small sample size no significant results were found (See Table 1). The mean for nightmares a week decreased from 2.31 to 0.88, which is a reduction of more than 60%. The subjective sleep quality increased slightly, and there were no changes for state and trait anxiety. Seven participants reported that the treatment had helped them, while six actually had fewer nightmares. Only four participants were able to become lucid in one of their nightmares, and three were able to alter the nightmare lucidly. The nightmare of three other participants changed by itself, i.e. without lucidity. The nightmare content or frequency did not change for two participants, although one of these reported an increase in nightmare frequency in the weeks after the treatment, gradually decreasing to the starting level at follow-up.

We will describe one participant’s experiences to illustrate how a nightmare was changed lucidly. This participant had nightmares in which she was chased in the dark by an unknown attacker. As she ran away, she could hardly move her legs. The attacker came closer. At the moment he reached her, she would wake up terrified. After treatment, she was able to become lucid in her nightmare: “I was able to fight and beat the attacker. I don’t think that I can talk to him, but now that I know I am stronger, I feel less frightened.” She still had some nightmares after the treatment, but with a lower frequency. The nightmares were less anxiety provoking and distressing.

## DISCUSSION

Lucid dreaming treatment seems to reduce nightmare frequency. It altered the content of the nightmare for six participants, making the nightmare less frightening and weakening the nightmare script. In addition, there was a slight improvement in subjective sleep quality. Unexpected were the unchanged state and trait anxiety scores: lucid dreaming treatment is probably too symptom-specific for decreasing anxiety levels. It was surprising that this study had a 0% dropout rate at follow-up, as opposed to other nightmare studies with dropout rates of about 25% (Krakow, 1995; 2001). The obtained results have therefore not been influenced by an exclusion of participants for whom the treatment did not work.

Although it seems that lucid dreaming treatment is effective in reducing nightmare frequency, it is hard to explain how the treatment works. Six participants (75%) reported fewer nightmares, but only three of them were able to lucidly alter the nightmare. For the other three the nightmare changed by itself. Several studies report similar findings: participants that were not able to lucidly alter the whole nightmare reported both a change and reduction in their nightmares (Zadra & Pihl, 1995; Zadra, 1996; Halliday, 1987). This could be caused by a sense of mastery participants experienced when realizing that nightmares can be overcome (Bishay, 1985; Krakow et al 1995; 2000; 2001; Zadra, 1996; Zadra & Pihl, 1995). To know that one can control the nightmare is possibly equally as important as actually controlling it. Further research is needed in order to compare the treatment-group with a control-group in a larger sample. More questionnaires should be included to investigate the effective factors of the treatment. Since mastery seems to be important in treating nightmares, one of these questionnaires should address nightmare self-efficacy.

In short, lucid dreaming seems to be an effective treatment for reducing nightmares, and an efficient one as well: the treatment-sessions lasted one hour only. Lucid dreaming can be incorporated in almost any psychotherapy, whether cognitive-behavioral or psychodynamic. Therapists should therefore learn more about lucid dreaming to effectively treat persons that suffer from nightmares.

## REFERENCES

- American Psychiatric Association. (2000). The diagnostic and statistical manual of mental disorders (edition four - TR). Washington D.C.: American Psychiatric Association.
- Berquier, A., & Ashton, R. (1992). Characteristics of the frequent nightmare sufferer. *Journal of Abnormal Psychology, 101*, 246–250.
- Bixler, E.O., Kales, A., Soldatos, C.R., Kales, J.D., & Healy S. (1979). Prevalence of sleep disorders in the Los Angeles metropolitan area. *American Journal of Psychiatry, 136*, 1257–1262.
- Blanken, C.M. den. (1990). *De kunst van het lucide dromen; een handleiding*. Rijswijk: Elmar.
- Blaustein, M., editor: Natural disasters: Psychiatric response. *Psychiatry Annals, 21*, 1991.
- Celluci, A.J., & Lawrence, P.S. (1978). The efficacy of systematic desensitization in reducing nightmares. *Journal of Behavior Therapy and Experimental Psychiatry, 9*, 109–114.
- Diagnostic Classification Steering Committee, Thorpy, M.J., Chairman. (1990). *International classification of sleep disorders: Diagnostic and coding manual*. Rochester: American Sleep Disorders Association.
- Engdahl, B., Eberly, R., Hurwitz, T., Mahowald, M., & Blake, J. (2000). Sleep in a community sample of elderly war veterans with and without PTSD. *Biological Psychiatry, 47*, 520–525.
- Halliday, G. (1987) Direct psychological therapies for nightmares: a review. *Clinical Psychology Review, 7*, 501–523.
- Hayes S, Mooney D. (1975). Nightmares: etiological, theoretical and behavioral treatment considerations. *Psychological Record, 25*, 225–236.
- Hublin, C., Kaprio, J., Partinen, M., & Koskenvuo, M. (1999). Nightmares: Familial aggregation and association with psychiatric disorders in a nationwide twin cohort. *American Journal of Medical Genetics, 88*, 329–336.
- Jordan, B.K., Schlenger, W.E., Hough, R., Kulka, R.A., Weiss, D., Fairbank, J.A., & Marmar CR. (1991). Lifetime and current prevalence of specific psychiatric disorders among Vietnam veterans and controls. *Archives of General Psychiatry, 48*(3), 207–215.
- Kales, A., Soldatos, C.R., & Caldwell, A.B. (1980). Nightmares: clinical characteristics and personality patterns. *American Journal of Psychiatry, 137*, 1197–1202.
- Kellner, R., Neidhardt, E.J., Krakow, B.J., & Pathak, D. (1992). Changes in chronic nightmares after one session of desensitization or rehearsal of instructions. *American Journal of Psychiatry, 149*, 659–663.
- Kessler, R.C., Sonnega, A., Bromet, E., Hughes, M., & Nelson, C.B. (1995). Posttraumatic stress disorder in the national comorbidity survey. *Archives of General Psychiatry, 52*, 1048–1060.
- Krakow, B., Hollifield, M., Johnston, L., Koss, M., Schrader, R., Warner, T.D., Tandberg, D., Luariello, J., & McBride, L. (2001). Imagery rehearsal therapy for chronic nightmares in sexual assault survivors with posttraumatic stress disorder: a randomized controlled trial. *Journal of the American Medical Association, 286*, 537–545.

- Krakov, B., Hollifield, M., Schrader, R., Koss, M., Tandberg, D., Lauriello, J., McBride, L., Warner, T.D., Cheng, D., Edmond, T., & Kellner, R. (2000). A controlled study of imagery rehearsal for chronic nightmares in sexual assault survivors with PTSD: a preliminary report. *Journal of Traumatic Stress, 13*(4), 589–609.
- Krakov, B., Kellner, R., Pathak, D., & Lambert L. (1995). Imagery rehearsal treatment for chronic nightmares. *Behavioural Research and Therapy, 33*, 837–843.
- LaBerge, S., Rheingold, H. (1990). *Exploring the world of lucid dreaming*. New York: Ballantine.
- Mellman, T.A., David, D., Kulick-Bell, R., Hebding, J., & Nolan, B. (1995a). Sleep events among veterans with combat-related posttraumatic stress disorder. *American Journal of Psychiatry, 152*, 110–115.
- Mellman, T.A., Kumar, A., Kulick-Bell, R., Kumar, M., & Nolan, B. (1995b). Nocturnal/daytime urine noradrenergic measures and sleep in combat-related PTSD. *Biological Psychiatry, 38*, 174–179.
- Miller, W.R., & DiPilato, M. (1983). Treatment of nightmares via relaxation and desensitization: A controlled evaluation. *Journal of Consulting and Clinical Psychology, 51*, 870–877.
- Neidhardt, E.J., Krakow, B.J., Kellner, R., & Pathak, D. (1992). The beneficial effects of one treatment session and recording of nightmares on chronic nightmare sufferers. *Sleep, 15*, 470–473.
- Nielsen, T.A. & Zadra, A. (2000). Dreaming disorders (Parasomnias section). In: Kryger, M., Roth, N., & Dement, W.C. (Eds.), *Principles and practices of sleep medicine, 3rd Edition* (pp. 753–772). Philadelphia: W.B. Saunders Co.
- Ploeg, H.M. van der (2000). *Handleiding bij de Zelf Beoordelings Vragenlijst, ZBV* (2nd ed.). Lisse: Swets & Zeitlinger.
- Purcell, S., Mullington, J., Moffit, A., Hoffman, R., & Pigeau, R. (1986). Dream self-reflectiveness as a learned cognitive skill. *Sleep, 9*, 423–437.
- Zadra, A. (1996). Recurrent dreams: Their relation to life events. In: Barrett, D. (Ed.), *Trauma and dreams* (pp. 231–247). Cambridge: Harvard University Press.
- Zadra, A., & Donderi, D.C. (2000). Nightmares and bad dreams: their prevalence and relationship to well-being. *Journal of Abnormal Psychology, 109*, 273–281.
- Zadra, A.L., Donderi, D.C., & Pihl, R.O. (1992). Efficacy of lucid dream induction for lucid and non-lucid dreamers. *Dreaming, 2*, 85–97.
- Zadra, A.L., & Pihl, R.O. (1997). Lucid dreaming as a treatment for recurrent nightmares. *Psychotherapy and Psychosomatics, 66*: 50.