

## CASE REPORT

# Psychological Treatment for Sleepwalking: two case reports

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## INTRODUCTION

Sleep architecture and polysomnographic findings show that the majority of sleepwalking episodes occur during slow-wave sleep (SWS).<sup>1-4</sup> Although genetics play an important role in the manifestation of sleepwalking,<sup>5,6</sup> recent studies have shown that parasomnias are also associated with other sleep or mental disorders<sup>3,7,10,11</sup> and psychological factors.<sup>3,7,10-14</sup>

Sleepwalking prevalence rates are higher in childhood<sup>15</sup> than in adulthood.<sup>10</sup> Due to the risk of injuries<sup>3,4,10,16,17</sup> beyond the presence of associated symptoms,<sup>4,8</sup> those who suffer from sleepwalking often seek medical treatment. Treatment is commonly based on pharmacologic intervention,<sup>18-20</sup> particularly the use of the benzodiazepinic drug clonazepam.<sup>4,19,20</sup> However, some patients do not respond to this medication<sup>19</sup> or present side effects.<sup>21</sup> The aim of this report was to demonstrate psychological integrity and functioning as a correlate of a sleepwalking predisposition and to describe a sleep disorder-focused psychotherapy as an option for treating sleepwalking in adults that shows effects on sleep-related behaviors, psychological symptoms, and objective sleep data.

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### Psychological Assessment

Psychological treatment was conducted by the same psychologist for 11 sessions in Case A and 18 sessions in Case B; each session was 60 minutes in length.

In the case of psychological evaluation, through personality<sup>22</sup> and symptoms scales,<sup>23,24</sup> psychological functioning was initially investigated in order to understand the conflicts, defensive mechanisms, emotional states, and character traits beyond the individual's personal complaints. Psychotherapy aimed to highlight emotional conflicts over the individuals' own behaviors and judgments, which often provoked important dysfunctional behavior reinforcement patterns<sup>25,26</sup> that were possibly related to sleepwalking episodes. The procedures also included the development of recognition and confrontation strategies to deal with conflicts, acting out and unconscious reactions as

well as the elucidation and education of sleepwalking phenomena.

Prior to and following psychotherapy, patients underwent overnight polysomnography (PSG) using standard recording and scoring methods.<sup>27-29</sup> Both study patients presented sleepwalking events during SWS on the first PSG.

### Case A:

A married, 33-year-old black man was admitted to the Sleep Institute in 2006, complaining of recurrent sleepwalking episodes.

Sleepwalking had recommenced two to three nights a week, two years before the patient sought medical assistance. Dream recovery involved a great amount of water draining from the wall, causing the patient to desperately move and protect objects from the imminent threat of flood. At times, he would try to "catch" something out of the window, usually exposing himself to the risk of falling. However, episodes would not occur on Sundays or during vacations out-of-town.

After 10 years of remission period, the patient was dismissed from a job for fraud charges, and the sleepwalking episodes recommenced. The patient confessed to practicing unethical behaviors in order to achieve job expectations. After some time, he found another job and was given a second chance by a new boss who knew about the former fraud charges.

Sleepwalking was confirmed by motor and verbal behaviors during the first episode of SWS, and clonazepam (0.5 mg) was prescribed to be taken daily.

Psychological evaluation detected no clinical levels of stress, depression, or anxiety, as measured by personality and symptom scales.<sup>24,23</sup> The Personality Factorial Index<sup>22</sup> detected narcissistic and aggressive behaviors and attitudes, weakened respect and obedience to others, ambition, and persuasion strategies obsessively applied in order to achieve goals.

After two weeks on clonazepam, the patient complained of side effects in sexual performance and decided to quit pharmacotherapy, despite noted improvement in sleepwalking frequency and intensity. At this time, the patient initiated psychological treatment. The first treatment period consisted of 7 weekly sessions, while the second treatment period consisted of four sessions, once every 15 days.

As an adult, the patient claimed to switch to verbal aggression. Psychotherapy attenuated emotional conflicts associated with aggression and sleepwalking episodes. Using a psychological approach focusing on emotional

triggers, the patient realized by the end of treatment that respect meant recognizing others' opinions. This process allowed him to recognize that people's needs or desires may differ from his own personal views. Furthermore, this insight sustained a new attitude on his relationships such that different points-of-view could be shared and discussed, and agreement was no longer considered submission. He also reported harmonization in both personal and business relationships, a feeling of confidence, not having the need to immediately react (as he had done previously), and a decrease in sleepwalking episodes.

After the second psychotherapy treatment period, the patient reported no sleepwalking events during the first 75 days after sessions were interrupted. However, after his father's death, six episodes occurred in a period of four months, after which no other event was reported. Despite this slight recurrence during the last two psychotherapy months, episodes were described as much less intense and shorter than those before treatment (Figure 1). Interestingly, the same description was given to recovered dreams as to dreams during sleepwalking, though the former involved a little amount of water with plenty of time to protect objects from the flood. In addition, the patient reported being more aware during the events, actually sensing that he was in a dream from which he could awaken, return to bed, and easily fall back asleep.

#### Case B:

A married, 39-year-old white woman was admitted to the Sleep Institute in 2005, reporting sleepwalking events two to three times every night that had recurred since childhood. Most events were characterized by the patient running out of bed and screaming "Help!" or "I am going to die!" The patient would at times fall off the bed, hitting her head or limbs. These episodes were described by the patient's husband.

The patient often felt exhausted during the day and denied any drug abuse. Diminished intensity and frequency of episodes during vacations were also reported.

After three months of pharmacotherapy (0.7 mg clonazepam/night), tiredness and slow-witted sensation were reported as side effects. However, the patient continued to

suffer from symptoms of sleepwalking episodes. Medication was reduced to 0.3 mg clonazepam/day, and psychological evaluation and psychotherapy were performed.

Clinical signs of stress at an "almost exhaustion" level and prevailing psychological symptoms were detected by the Lipp Stress Symptom Inventory for Adults.<sup>24</sup> Severe depressive and anxiety symptoms were also detected using the Beck Depression Scale (total score: 42) and Beck Anxiety Scale<sup>23</sup> (total score: 37). The Personality Factorial Index<sup>22</sup> detected insecurity and guilt that was sustained by perceived inferiority, exacerbated obedience, and pursuit of attention as well as frustration over the impossibility of controlling and assuming the responsibilities of others.

Psychological treatment was conducted over 18 sessions. The first 14 sessions met weekly and then were reduced to once every 21 days for the last 4 sessions.

Her jealousy toward her brother was the cause of her seeking others people attention, which was never fulfilled, causing her to have a submission behavior, an inability to recognize love and a feeling of being unworthy. Psychotherapy helped the patient identify this dynamic and other related basic emotional conflicts. Enhancing self-esteem and self-respect became the main goals of the psychotherapy sessions, along with providing guidance for understanding and enabling the patient to take responsibility for her feelings. In addition to the psychological assessment previously described, treatment for this patient was also supported by the Eye Movement Desensitization and Reprocessing (EMDR<sup>TM</sup>) technique<sup>30</sup> in order to adequately treat traumas identified related to negative beliefs with respect to parental love, particularly in relation to the patient's mother.

After four psychotherapy sessions, the patient reported to the sleep specialist that she felt better and understood the association between sleepwalking episodes and emotional conflicts. Halfway through the treatment process, the patient's behavior changed from one of submission to one of self-protection and irritability with others' demands. This behavior was linked to a fear of returning to a feeling of inferiority, which was the potential trigger of sleepwalking events. Nevertheless, the patient discontinued medication, claiming to be more self-confident. As her coping strategies

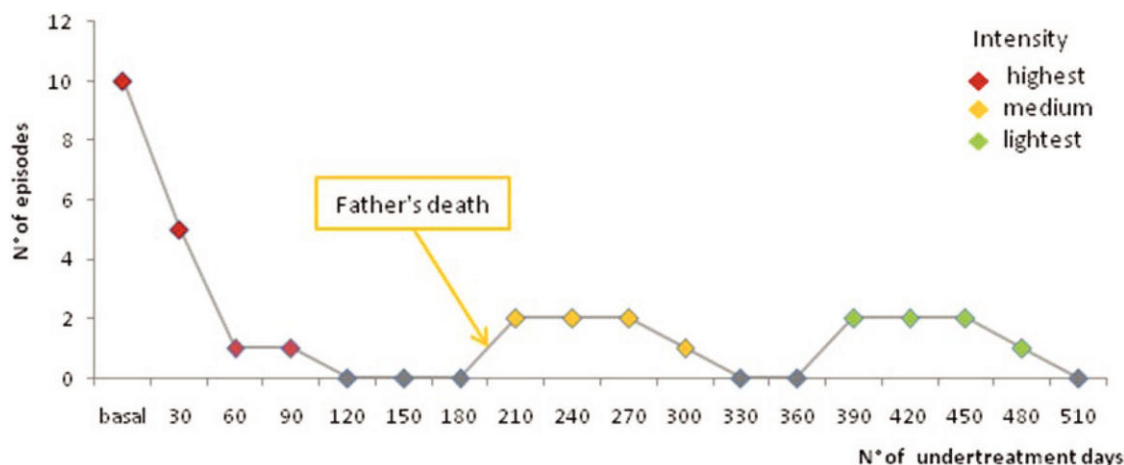
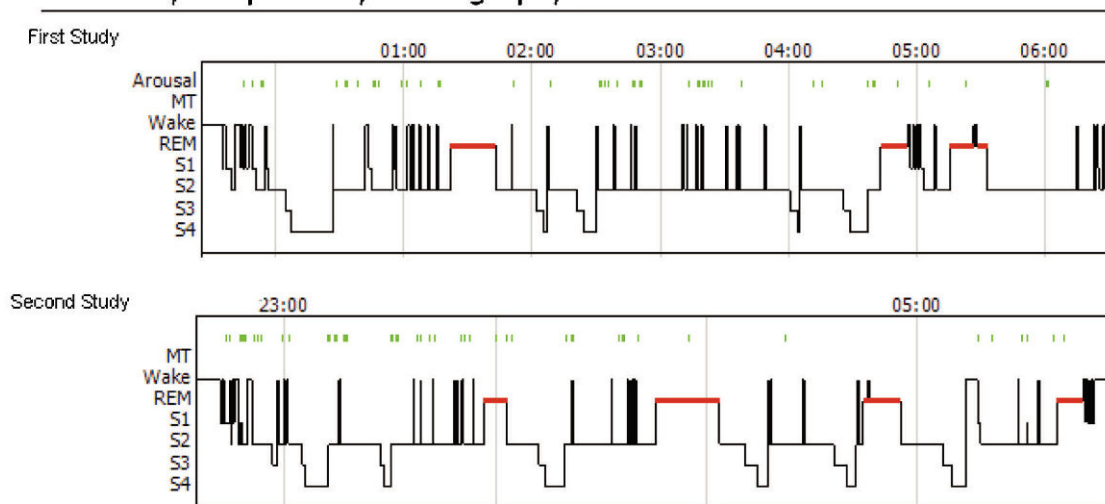


Figure 1 - Frequency of sleepwalking episodes during the treatment period (Case A).

## Summary Graph - Polysomnography



**Legend.** MT= movement time; REM= rapid-eye-movement sleep; S= sleep stage.

**Figure 2** - Differences in the hypnogram prior to and following psychological treatment (Case A).

and courage to confront aversive conflicts increased, the frequency and intensity of sleepwalking decreased. During the final sessions, the patient was mostly in balance; she imposed limits on others, respected her own needs, was more confident, and had higher self-esteem. These results enhanced the patient's well-being, understanding, and overall mood. The frequency of sleepwalking episodes diminished to once a week, during which time the patient would simply sit up, speak, and lie back down without any repercussion on her daytime performance. These events would often occur on nights following unresolved emotional conflicts during the day. In order to evaluate the stabilization of the phenomena, the last four psychotherapy sessions were each conducted at three-week intervals.

The polysomnographic findings are shown in Table 1.

**Table 1** - Objective sleep parameters prior to and following psychological treatment.

	Case A		Case B	
	PSG 1	PSG 2	PSG 1	PSG 2
Sleep Latency (minutes)	13.3	15.9	11.0	7.2
REM Latency (minutes)	105.0	149.0	93.0	123.0
Total Sleep Time (minutes)	386.5	465.5	343.0	400.5
Sleep Efficiency (%)	89.7	89.2	92.8	90.9
Sleep Stage 1 (%)	4.0	2.6	3.4	7.5
Sleep Stage 2 (%)	69.5	62.4	56.1	34.6
Slow-wave Sleep (%)	13.4	16.4	23.3	34.2
REM Sleep (%)	13.1	18.6	17.2	23.7
Apnea and hypopnea Index/ Hour	8.9	6.2	1.7	3.8

PSG = Polysomnography; REM = Rapid eye movement.

## DISCUSSION

These case reports show that psychological factors may trigger sleepwalking episodes and that psychotherapy helped each patient develop strategies to deal with their individual psychological conflicts, relieving them from sleepwalking-related symptoms as well as reducing frequency and intensity beyond improved sleep architecture.

Many studies have shown that stress constitutes a risk factor for many diseases<sup>31,32</sup> and for sleep disorders,<sup>33</sup> such as recurrent episodes of parasomnias, including the recurrent episodes of parasomniacs.<sup>2,33-34</sup> Kahn and Jordan<sup>13</sup> suspected that sleepwalking was a manifestation of anxiety and emotions experienced in connection to anger-inciting events and overt hostility during the day. Recent studies have demonstrated that sleepwalkers express an unstable behavioral pattern for managing aggression,<sup>3,12,34</sup> suggesting an inadequacy or failure of more mature and adaptive defenses in the face of overwhelming stress.<sup>12</sup> CAP (Cyclic Alternative Pattern) analyses<sup>9</sup> demonstrated that the instability of the NREM (Non-rapid eye movement sleep) of sleepwalkers is related to sleep disruption triggered by other sleep disorders<sup>8,10</sup> and external events often associated with psychological processes.<sup>8,19</sup> Our case reports show that sleepwalking episodes are triggered by emotional misalignment, which may be due to constant stress. In both cases, there was a clear association between diurnal emotions and sleepwalking manifestations at the end of psychological treatment. It is possible that unreleased internal tensions during the day,<sup>3,12,13,34</sup> psychological conflicts,<sup>3,12,13,34,36</sup> and trauma<sup>8,12</sup> play important roles in precipitating and perpetuating sleepwalking events. The reduction of sleepwalking prevalence rates in adulthood reinforces the theory that genetics constitute only one important predisposing factor to sleepwalking manifestation.<sup>5,6</sup>

Although some studies have shown no effects of psychological treatment on sleepwalking<sup>4,8</sup> (thereby suggesting the adoption of allopathic remedies),<sup>4,20</sup> others have clearly shown that psychological factors do play an important role in precipitating sleepwalking episodes.<sup>3,7,12,13,36</sup> These studies demonstrate the importance of psychotherapy in the treatment of sleepwalking,<sup>12-14,18,38</sup> at least to relieve its manifestations. In both case reports, we demonstrated that an appropriate psychological assessment that focuses on the emotional and psychological problems that trigger the events may be a reliable tool for relieving a sleepwalker's suffering.

In conclusion, the aim of this report was not only to demonstrate that appropriate psychological treatment may improve sleep, relieve symptoms, and diminish episode severity but also to show that psychological factors may precipitate, exacerbate, or even perpetuate sleepwalking. In addition to genetic vulnerability to developing a parasomnia, the exact factors that determine how psychological structure or functioning interacts with motor disruption during sleep are currently unknown. Future studies are needed to recognize the mechanisms through which psychological conflicts act on sleepwalking, which may help identify the best treatment protocol.

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## REFERENCES

1. Espa F, Ondze B, Deglise P, Billiard M, Besset A. Sleep architecture, slow wave activity, and sleep spindles in adult patients with sleepwalking and sleep terrors. *Clinical Neurophysiology*. 2000;111: 929-39, doi: 10.1016/S1388-2457(00)00249-2.
2. Guilleminault C, Poyares D, Abat F, Palombini L. Sleep and wakefulness in somnambulism: a spectral analysis study. *J Psychosom Res*. 2001;51:411-16, doi: 10.1016/S0022-3999(01)00187-8.
3. Kales A, Soldatos CR, Caldwell AB, Kales JD, Humphrey FJ, Charney DS, et al. Somnambulism: clinical characteristics and personality patterns. *Arch Gen Psychiatry*. 1980;37:1406-10.
4. Schenck C, Mahowald MW. A polysomnographically documented case of adult somnambulism with long-distance automobile driving and frequent nocturnal violence: parasomnia with continuing danger as a noninsane automatism? *Sleep*. 1995;18:765-72.
5. Lecendreux M, Bassetti C, Dauvilliers Y, Mayer G, Neidhart E, Tafti M. HLA and genetic susceptibility to sleepwalking. *Mol Psychiatry*. 2003;8:114-7, doi: 10.1038/sj.mp.4001203.
6. Pressman MR. Factors that predispose prime and precipitate NREM parasomnias in adults: clinical and forensic implications. *Sleep Med Rev*. 2007;11:5-3, doi: 10.1016/j.smrv.2006.06.003.
7. Gau SF, Soong WT. Psychiatric Comorbidity of Adolescents with Sleep Terrors or Sleepwalking: a case-control study. *Aust N Z J Psychiatry*. 1999;33:734-9.
8. Guilleminault C, Kirisoglu C, Bao G, Arias V, Chan A, Li KK. Adult chronic sleepwalking and its treatment based on polysomnography. *Brain*. 2005;128:1062-9, doi: 10.1093/brain/awh481.
9. Guilleminault C, Kirisoglu C, da Rosa AC, Lopes C, Chan A. Sleepwalking, a disorder of NREM sleep instability. *Sleep Medicine*. 2006;7:163-70, doi: 10.1016/j.sleep.2005.12.006.
10. Ohayon MM, Guilleminault C, Priest RG. Night terrors, sleepwalking, and confusional arousals in the general population: their frequency and relationship to other sleep and mental disorders. *J Clin Psychiatry*. 1999;60:268-78, doi: 10.4088/JCP.v60n0413.
11. Crisp AH, Matthews BM, Oakey M, Crutchfield M. Sleepwalking, night terrors, and consciousness. *Br Med J*. 1990; 300:360-2, doi: 10.1136/bmj.300.6721.360.
12. Hartman D, Crisp AH, Sedgwick P, Borrow S. Is there a dissociative process in sleepwalking and night terrors? *Postgrad Med J*. 2001;77: 244-9, doi: 10.1136/pmj.77.906.244.
13. Kahn BJ, Jordan RL. Paternal domination as a cause of somnambulism. *Calif Med*. 1954;80:23-5.
14. Masand P., Popli AP, Weilburg J. B. Sleepwalking. *Am Fam Physician*. 1995;51:649-54.
15. Simonds JF, Parraga H. Prevalence of sleep disorders and sleep behaviors in children and adolescents. *J Am Acad Child Psychiatry* Jul. 1982;21:383-8, doi: 10.1016/S0002-7138(09)60942-0.
16. Howard C, d'Orban PT. Violence in sleep: medico-legal issues and two case reports. *Psychol Med*. 1987;17:915-25, doi: 10.1017/S0033291700000726.
17. Moldofsky H, Gilbert R, Lue FA, MacLean AW. Sleep related violence. *Sleep*. 1995;18:731-9.
18. Crisp AH. The sleepwalking/night terrors syndrome in adults. *Postgrad Med J*. 1996;72:599-604, doi: 10.1136/pgmj.72.852.599.
19. Guilleminault C, Lee JH, Chan A, Lopes MC, Huang YS, da Rosa A. NREM-sleep instability in recurrent sleepwalking in pre-pubertal children. *Sleep Med*. 2005;6:515-21, doi: 10.1016/j.sleep.2005.03.003.
20. Schenck CH, Mahowald MW. Long-term, nightly benzodiazepine treatment of injurious parasomnias and other disorders of disrupted nocturnal sleep in 170 adults. *Am J Med*. 1996;100:333-7, doi: 10.1016/S0002-9343(97)89493-4.
21. Ansseau M. Benzodiazepines. *Acta Psychiatr Belg*. 1985;85:522-32.
22. Pasquali L, Azevedo MM, Ghesti I. Inventário Fatorial de Personalidade - manual técnico de aplicação. São Paulo: Casa do Psicólogo; 1997.
23. Cunha JA. Manual da versão em português das Escalas Beck. São Paulo: Casa do Psicólogo; 2001.
24. Lipp MN. Manual do Inventário de Sintomas de Stress para Adultos de Lipp (ISSL). São Paulo: Casa do Psicólogo; 2000.
25. Skinner FB. Contingencies of Reinforcement: a theoretical analysis. New York: Appleton-Century-Crofts; 1969.
26. Skinner FB. Recent Issues in the Analysis of Behavior. Columbus, OH: Merrill Publishing Company; 1989.
27. American Academy of Sleep Medicine Task Force. Sleep-related breathing disorders in adults: recommendations for syndrome definitions techniques in clinical research. *Sleep*. 1999;22:667-89.
28. American Sleep Disorders Association Atlas Task Force. EEG Arousals: Scoring Rules and Examples. *Sleep*. 1992;15:174-84.
29. Rechtschaffen A, Kales A. A Manual of Standardized Terminology, Techniques, and Scoring Systems for Sleep Stages of Human Subjects. Los Angeles: Brain Information/Brain Research Institute UCLA; 1968.
30. Shapiro F. EMDR™ - Dessensibilização e Reprocessamento Através de Movimentos Oculares. Rio de Janeiro: Ed. Nova Temática; 2001.
31. Crofford LJ. Violence, stress, and somatic syndromes. *Trauma Violence Abuse*. 2007; 8:299-313, doi: 10.1177/1524838007303196.
32. Mawdsley JE, Rampton DS. The role of psychological stress in inflammatory bowel disease. *Neuroimmunomodulation*. 2006;13:327-36, doi: 10.1159/000104861.
33. Kales JD, Kales A, Soldatos CR, Caldwell AB, Charney DS, Martin ED. Night terrors: clinical characteristics and personality patterns. *Arch Gen Psychiatry*. 1980;37:1413-7.
34. Cartwright R. Sleepwalking Violence: A sleep disorder, a legal dilemma, and a psychological challenge. *Am J Psychiatry*. 2004;161: 1149-58, doi: 10.1176/appi.ajp.161.7.1149.
35. Szelenger W, Niemcewicz S, Dabrowska AJ. Sleepwalking and night terrors: psychopathological and psychophysiological correlates. *International Review of Psychiatry*. 2005;17:263-70, doi: 10.1080/09540260500104573.
36. Broughton R. Sleep disorders: disorders of arousal? *Science*. 1968; 159:1070-8, doi: 10.1126/science.159.3819.1070.
37. Fantini ML, Gagnon JF, Petit D, Rompré S, Décary A, Carrier J, et al. Slowing of electroencephalogram in rapid eye movement sleep behavior disorder. *Ann Neurol*. 2003;53:774-80, doi: 10.1002/ana.10547.
38. Calogeras RC. Sleepwalking and the traumatic experience. *Int J Psychoanal*. 1982;63:483-9.
39. Kales JC, Cadieux RJ, Soldatos CR, Kales A. Psychotherapy with night-terror patients. *Am J Psychother*. 1982;36:399-407.
40. Freud S. A interpretação dos Sonhos. In: Obras Completas. (Vol. IV e V). Rio de Janeiro: Ed. Imago; 1996.