

# A Cognitive Behavioral Exposure Treatment Package for Night Terrors: A Case Study

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**Abstract:** Night terror is a rare problem in adults characterized by nighttime episodes similar to panic attacks except that sufferers are not aware of the content. There is no current treatment, but exposure is a treatment of choice for panic. The purpose of this case study was therefore to develop and describe a novel treatment. The client had a 22-year history of night terror attacks with verbalization causing sleep difficulties and daytime fatigue. A cognitive-behavioral package featuring exposure (listening to audio recordings of the episodes) and re-conceptualization was provided over 13 sessions. Results indicated a large decrease in the ratings of the intensity of the night terror episodes. Moreover, sleep onset latency decreased while sleep quality and duration improved substantially. The client reported important increases in daytime activities and resumed working. Although caution is necessary because this is a case study, the results suggest that this technique warrants further study for people suffering from night terrors.

**Keywords:** Night terrors, adults, exposure therapy, cognitive behavioral treatment.

## INTRODUCTION

Night terrors are rare among adults, but when they do occur there is no established cause or treatment. Similar to daytime panic attacks, sufferers typically report intense fear or panic, with physiological reactions such as rapid pulse and sweating. However, it is difficult to wake a person having night terrors and he remembers little or nothing of the content of the episode even though shouting, yelling or other overt behaviors are common. The problem is distinct from nightmares in that nightmares wake the person and the content is vivid [1]. Terrors typically occur during deep slow wave sleep during the first sleep cycle [1, 2]. Children sometimes report night terrors, but these almost always dissipate with age [3]. Less than 4% of adults experience night terrors and only a small number seeks professional help [1].

While brain mechanisms are thought to contribute, it is not known whether night terrors in adults are related to a medical disorder or to psychological processes including stress and anxiety [4, 5]. Unfortunately, there is no treatment of choice. In children, one recommended approach is to wake the child about 15 minutes before the occurrence of the episode [6]. While limited case studies suggest positive outcomes, this treatment is cumbersome and requires extensive equipment to determine when the episodes typically occur. For adults, pharmacological and psychological therapies have been suggested, but little is known about their actual effectiveness [1, 6].

A psychological approach featuring exposure is enticing since cognitive-behavioral interventions are helpful for both

insomnia [7, 8] and panic disorders [9, 10]. Indeed, exposure is a treatment of choice for panic attacks and theoretical should be effective for night terrors as well [11, 12]. However, two obstacles have hindered the development of a cognitive-behavioral exposure treatment. First, because the episodes occur at night during sleep, observation is difficult and exposure precluded. Second, as the sufferer has no memory of the episode, it is a challenge to develop an exposure based on the content of the night terror episodes such as is done for nightmares or post-traumatic stress disorders. The frequency and cognitive and emotional content are in other words, very difficult to ascertain. It is not surprising then, that there is currently no method for treating night terrors since their peculiarity makes usual methods impossible. Consequently, although exposure is a central component in the treatment of panic attacks, a challenge is to develop a methodology for night terrors.

The purpose of this report is to describe the treatment of an adult with resistant night terrors using a cognitive behavioral package utilizing exposure and re-conceptualization.

## METHOD

### The Client

This 42-year-old client sought help at a sleep unit for her episodes because she found them quite terrifying and because they disturbed her partner and two children. The episodes prevented her from working at a regular job and she had not worked for 3 years because the night terrors had been so disabling. At presentation, she was enrolled in a school to enhance her skills, but reported missing many of the classes she was taking. She was diagnosed by a neurologist at a sleep disorder unit with night terrors that were described as a “classic and clear case” and other sleep disorders e.g. apnea and restless legs were ruled out. The

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client was provided with a prescription for Iktorivil (0,5 mg; a benzodiazepine), which the client had been taking for more than three years with limited help. The dose remained constant throughout the current treatment and she reported no other medications. She had no history of other medical or psychological problems, but reported that her brother was a sleepwalker. The client had previously received psychodynamic therapy for the terrors but without effect. At intake the diagnosis was confirmed by a clinical assessment using the Duke Structured Interview for Sleep Disorders [13]. The Helsinki Ethical Guidelines were followed. The client was provided with information about this study and she provided informed consent to publication.

The episodes began when the client was 20 years old. At intake, she reported several episodes per night with screaming and verbalization that she was aware of because of hoarseness and throat pain the day after. No clear triggers were reported, but episodes were more frequent when she was deprived of sleep. Further evidence came from her partner who witnessed her shaking and yelling things such as “No! No!” However, she could not remember any details of the content of any of the episodes. The night terrors typically involved a physical, but diffuse threat, culminating in maximum panic (fear of death) that someone/something was trying to kill her. The client found this extremely upsetting and said she felt as though she “could die from the fright”. In fact, she had sought emergency medical care in connection with one episode since she suspected she was suffering a heart attack. She also reported that she attempted to avoid the episodes by trying to stay awake and this had produced insomnia. The daytime consequences were considerable since she had quit working because of the worry involved. At the time of treatment, she had started a one-year educational program but had large amounts of absenteeism which she attributed to her problem with night terrors.

### Case Conceptualization

The case was conceptualization in terms of psychological factors that contribute to the maintenance of the problem as described in both models of sleep disorders and daytime panic attacks [14, 15]. During the assessment phase the therapist and client conceptualized the problem as described below. Historically, the episodes were associated with high levels of fear, panic, and embarrassment, which set the stage for avoidance behaviors. Over time, the fear of having a terrifying attack increased worry, anxiety, and catastrophizing, which paradoxically acted to maintain the problem-similar to models of daytime panic. During the day, excessive negative emotions and distress became linked to selective attention that results in distorted perception of the episodes. Attempts to control the process via safety behaviors e.g. to avoid the problem by not sleeping actually maintain the problem in that they disrupt normal sleep (thereby making the attacks more probable) and heighten emotionality since this is a well known effect of sleep deprivation. Obtaining reassurance and support from others may also perpetuate the problem because they are forms of safety behaviors.

### Outcomes Assessment Measures

Progress was monitored and focused on three areas: 1) the emotional aspect associated with the panic, fear, and worry, 2) sleep, and 3) daytime function. Hence, the participant

completed a daily sleep diary [8, 16], homework assignments and provided verbal reports. Actual audio recordings of the episodes were also made (see below for description) where frequency and latency could be objectively measured. The sleep diary was completed each morning and included ratings of sleep latency, duration, awakening during the night, sleep quality, medication intake, and emotional status. The Insomnia Severity Index was administered before and after treatment to obtain an overall, standardized view of the problem [17, 18].

### Treatment

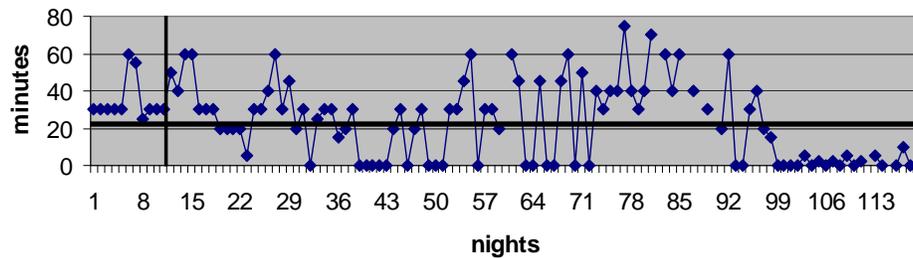
Since there is no evidenced-based treatment for night terrors [6], this treatment was based on the conceptualization above. In order to improve sleep and well-being, it focused on exposure to reduce avoidance, fear and negative affect and a re-conceptualization (normalization) of the problem, while increasing participation in daytime activities. Treatment consisted of thirteen sessions, scheduled over a 4-month period, and extensive homework.

### Exposure Training

We conducted exposure in a novel way. Because the exact occurrence and content of the episodes were diffuse, imaginal, and in-vivo exposure were ruled out. Instead, we based the exposure on listening to actual recordings of the episodes on a daily basis. This provides exposure to the episodes and the verbal and audio representations of them. Accordingly, the client recorded episodes using a Voice Activated Recorder (VAR). This device is activated by sound and continues to record until there is silence. At bedtime, the client turned it on and placed it on her bedside stand. The client listened to the recording daily and noted the number and duration of episodes. She also rated the intensity of the negative affect she heard in the recorded episodes (0-5 scale where 0 is no fear, worry, panic or anxiety and 5 is terrifying fear and panic). The VAR recordings and the exposure via listening was conducted over the course of eight sessions.

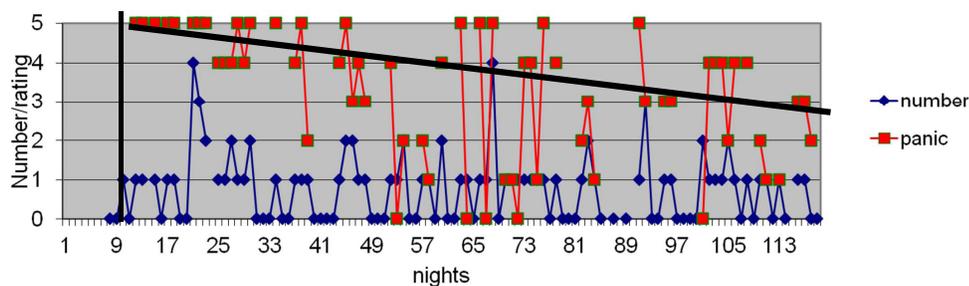
To reduce anxiety about the episodes, another focus was to re-conceptualize them as normal forms of dreaming and talking in one's sleep. At the start of treatment, the client viewed the occurrence of the episodes (resulting in the waking of others) as quite abnormal and embarrassing. Accordingly, re-conceptualization aimed to aid the client in accepting the incidents as part of sleep and dreaming. To enhance re-conceptualization of episodes as a form of normal dreaming, this part of therapy focused on how dreams might naturally be unpleasant sometimes, but while unpleasant still not actually harmful or abnormal. During treatment sessions, we examined the episodes, the content of the verbal statements, and the ratings to direct attention to the neutral or even positive nature (e.g. a laugh) of many of them. The client also wrote descriptions of the episodes and compared them to other people's dreams and she even rewrote the ending of unpleasant episodes so that they resembled normal dreams. This was done during 3 sessions. She also wrote descriptions of the episodes and attempted to end the episode as in a dream that might be typical for most people. This was done from session 8 to 10.

### Sleep Onset Latency



**Fig. (1).** Sleep onset latency with a line indicating the client's goal for sleep onset. This was crucial since the client attempted to avoid falling asleep.

### Night Terror



**Fig. (2).** The number of night terror episodes and ratings of panic based on listening to the tape. The number of episodes did not decrease significantly. However, the regression line inserted on the ratings of panic indicates a substantial decrease over time.

## RESULTS

Overall, there were several indications of improvements in sleep, emotional reaction, and daytime functioning. For comparisons, diary data during the baseline, i.e. the first two weeks of assessment when no treatments had been started, is compared to the last two weeks of treatment. The VAR was started during week 3 and the first 10 episodes of night terrors are compared to the last 10 to underscore possible differences.

### SLEEP

Sleep improved over the course of the treatment although by small increments according to diary ratings. During the two week baseline the client's average sleep quality rating was 2.3 (1= very poor sleep, 5 indicates very good sleep quality) while during the last two weeks of treatment it was 3.1. Similarly, sleep duration improved from 6.6 hours to a normal 7.7 hours at conclusion. The sleep diary also indicated some improvements in sleep routines, for example going to bed and getting up at regular times. The Insomnia Severity Index improved from a pre-treatment score of 23 to a post-treatment score of 12.

Sleep onset latency times are shown in Fig. (1). As illustrated, there is a dramatic decrease in latency from a mean of 38 minutes during baseline to only 2 minutes during the last two weeks. This was attributed to a reduction in bedtime avoidance behaviors.

### Fear and Night Terrors

Intervention was aimed at reducing fear and re-conceptualizing episodes as "normal" dreaming. Fig. (2)

graphically depicts the number of episodes as well as ratings of the intensity of the episodes. Table I shows substantial improvement in ratings of the intensity of fear and panic over the course of the treatment. Before making the VAR recordings, the client estimated that that she had 2-5 episodes per night lasting 10-15 minutes each. However, the actual number was quite different with an average of .6 episodes per night with a mean duration of 12 seconds (range 5-35 seconds) for each episode. Over the course of treatment, the intensity of the episodes was reduced sharply. During the first 10 recorded episodes using the VAR the mean fear/panic intensity rating was 4.8 on a 0 to 5 scale, while during the last 10 episodes the mean rating was 2.6. There was little change in the number of episodes over treatment, but the duration was reduced to an average of 7 seconds (range 2-15 sec).

### Daytime Consequences

While the client had previously had difficulty working and attending classes, her diary recordings indicated more frequent class attendance from an average of 30% of classes to 80% of scheduled classes. In addition, she reported participating in more daytime activities. During the last phases of treatment she applied for, obtained and began working at a new job.

## DISCUSSION

This case demonstrates a possible method for treating people suffering from night terrors. Although the episodes did not disappear, a substantial reduction in the fear and panic occurred. The client also was able to accept better the episodes as "naturally" occurring dreams and talking in

**Table I. Mean Number of Recorded Night Terror Episodes Per Night as well as Mean Ratings of Panic for each Episode at the Baseline and at the End of Treatment**

	Base	End
Panic (0-5)	4.8(1-10 episodes)	2.6(last 10 episodes)
Number of episodes per night	0.6	0.5

one's sleep. This was facilitated by the exposure to the VAR recordings. These recordings changed with time and began to include laughter, a neutral tone of voice, and everyday types of conversation rather than a panic-stricken cry for help. The decrease in fear and panic was associated with improved sleep and daytime activities.

Designing an exposure treatment for covert events of which the client has no real recollection is enormously challenging. This, in addition to the rarity of the problem, is probably one reason why there is no standard treatment for night terrors currently available. The use of the voice activated recorder was a key to the exposure in this case. Indeed, the client found listening to the tapes to be very anxiety provoking at the beginning of treatment. However, the client also found it quite interesting as she had been unaware of the details of the episodes. Exposure appears to be an important element that might form the basis of a standardized treatment for night terrors.

It is difficult, however, to evaluate exactly which elements of the current treatment that produced the benefits. Since this is a case study, we need to exercise caution when interpreting and generalizing the results. The reduction in panic and fear was most likely a result of the exposure since it occurred in relation to the start of it and the client reported it as the reason for improvement. This explanation is also in line with the literature on exposure [11, 12]. The exposure appeared to reduce safety behaviors and avoidance and promote other strategies that promoted sleep. However, because of the design we cannot rule out other explanations such as the effects of corrective information or relaxation. Nevertheless, exposure to recordings of night terror episodes combined with re-conceptualization training may be one viable method for treating this sleep disorder. It is not possible to determine the contribution of each of these techniques. Given the paucity of information about treatment available and the suffering associated with night terrors, the current method warrants further investigation. Therefore, this study should be replicated with a larger number of participants and with other designs.

### CONFLICT OF INTEREST

The authors confirm that this article content has no conflicts of interest.

### ACKNOWLEDGEMENT

Declared none.

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