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## Sleep Paralysis, Sexual Abuse, and Space Alien Abduction

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**Abstract** Sleep paralysis accompanied by hypnopompic ('upon awakening') hallucinations is an often-frightening manifestation of discordance between the cognitive/perceptual and motor aspects of rapid eye movement (REM) sleep. Awakening sleepers become aware of an inability to move, and sometimes experience intrusion of dream mentation into waking consciousness (e.g. seeing intruders in the bedroom). In this article, we summarize two studies. In the first study, we assessed 10 individuals who reported abduction by space aliens and whose claims were linked to apparent episodes of sleep paralysis during which hypnopompic hallucinations were interpreted as alien beings. In the second study, adults reporting repressed, recovered, or continuous memories of childhood sexual abuse more often reported sleep paralysis than did a control group. Among the 31 reporting sleep paralysis, only one person linked it to abuse memories. This person was among the six recovered memory participants who reported sleep paralysis (i.e. 17% rate of interpreting it as abuse-related). People rely on personally plausible cultural narratives to interpret these otherwise baffling sleep paralysis episodes.

**Key words** alien abduction • recovered memories • sexual abuse • sleep paralysis

Imagine opening your eyes shortly before dawn, attempting to roll over in your bed, and suddenly realizing that you are entirely paralyzed. While lying helplessly on your back and unable to cry out for help, you become aware of sinister figures lurking in your bedroom. As they move closer to your bed, your heart begins to pound violently and you feel as if you are suffocating. You hear buzzing sounds, and feel electrical sensations shooting throughout your body. Within moments, the visions vanish and you can move once again. Terrified, you wonder what has just happened.

The aforementioned experience is an episode of sleep paralysis accompanied by hypnopompic ('upon awakening') hallucinations (Hobson, 1995). Although individuals with narcolepsy often have these experiences, the phenomenon itself seldom signifies pathology. These episodes arise from a temporary discordance in the architecture of rapid eye movement (REM) sleep – the sleep phase during which most dreaming occurs. Reciprocal interactions between REM-off and REM-on cells in the brainstem regulate alternating cycles of REM and non-REM sleep throughout the night (Holden & French, 2002). These mechanisms block sensory input, furnish the forebrain with internal stimuli forming the content of dreams, and block motoric output, thereby immobilizing the dreamer. If sleepers begin to awaken before paralysis has waned, they may become aware of their inability to move, and if dream mentation lingers, they will hallucinate sights, sounds, and tactile sensations. Within seconds or minutes, the perceptual, cognitive, and motor aspects of the sleep cycle become synchronized, the hallucinations disappear, and mobility is restored as the person becomes fully awake.

Approximately 30% of the general population has had at least one episode of sleep paralysis, and about 5% of the population has had an episode accompanied by the full range of visual, tactile, and auditory hallucinations (Cheyne, Newby-Clark, & Rueffer, 1999). Among those experiencing sleep paralysis, about 75% will hallucinate in at least one sensory modality. Insomnia, shift work (Kotorii et al., 2001), and sleeping on one's back (Cheyne, 2002a) are associated with an increased likelihood of an episode.

People experiencing sleep paralysis, at least those unaware of its benign causes, tend to feel terror as it is occurring (Cheyne et al., 1999). Such anomalous experiences often prompt a search for explanations, and scholars have noted a diversity of accounts across cultures and throughout history (Hufford, 1982). For example, hallucinated intruders menacing the sleeper have been interpreted as male (incubus) or female (succubus) demons, as witches, and, most recently, as alien beings (Mack, 1994).

As part of our research program on traumatic memory (McNally, 2003a, 2003b), we have studied sleep paralysis in people reporting memories of childhood sexual abuse (CSA; McNally & Clancy, in press) and of

abduction by space aliens (Clancy, McNally, Schacter, Lenzenweger, & Pitman, 2002; McNally, Lasko et al., 2004). In this article, we briefly review our chief findings.

### SLEEP PARALYSIS AND REPORTS OF SPACE ALIEN ABDUCTION

Although other scholars have suggested that reported encounters with space aliens may have origins in sleep paralysis episodes (e.g. Spanos, Cross, Dickson, & DuBreuil, 1993), few have directly assessed any 'abductees.' As part of a laboratory study on psychophysiological reactivity to audiotaped scripts of 'memories' of alien encounters, we interviewed 10 abductees who mentioned apparent sleep paralysis episodes accompanied by hypnopompic hallucinations (six women, four men; McNally, Lasko et al., 2004). Abductees were recruited through newspaper advertisements seeking people who believed that they had been abducted by aliens, and by word-of-mouth via other local researchers who had worked with this population. The hallucinatory content included feeling electrical sensations (sometimes painful), seeing alien beings in the bedroom, seeing flashing lights or glowing objects, and feelings of levitating off the bed. Most abductees had experienced multiple episodes. Hallucinations occurred in either one modality (e.g. visual) or in multiple modalities (e.g. visual, tactile, auditory). Eight abductees had sought assistance from mental health professionals who used hypnotic methods to 'help' them recover additional memories that were presumably inaccessible for various reasons (e.g. the memories were repressed or dissociated; aliens did not want them to become fully aware of what had happened). During these sessions, seven individuals 'recalled' having participated in hybrid breeding programs (e.g. sex with aliens, medical extraction of semen, encounters with their hybrid offspring on spaceships).

Although the abductees reported shock and puzzlement after having experienced their first episodes of sleep paralysis, it was difficult to determine when they concluded that they had experienced an alien encounter. Indeed, with some exceptions (see later vignette), the features of the alien beings were sometimes difficult to discern in the darkness of the bedroom. Moreover, by the time we interviewed them several years after the most recent sleep paralysis episode, most had undergone some version of hypnotic regression in which they recovered vivid visual 'memories' of what the aliens looked like, and these usually fit contemporary cultural stereotypes (e.g. thin gray bodies, large heads, dark eyes).

The vividness of the images of the aliens varied. Sometimes their features were clear and vivid (see later example), whereas in other cases the physical appearance of the beings was difficult to discern in the darkness of the bedroom. For example, one person first thought that the beings in

her bedroom must be angels, until an acquaintance, to whom she described the experience, knowingly informed her that the beings were aliens.

A female abductee was lying on her back when she woke up from a sound sleep. Her body was completely paralyzed and she experienced the sensation of levitating above her bed. Her heart was pounding, her breathing was shallow, and she felt tense all over. She was terrified. She was able to open her eyes, and when she did so, she saw three beings standing at the foot of her bed in the glowing light.

Another female abductee was lying on her back when she woke up in the middle of the night. She was completely paralyzed, and felt electrical vibrations throughout her body. She was sweating, struggling to breathe, and felt her heart pounding in terror. When she opened her eyes, she saw an insect-like alien being on top of her bed.

A male abductee awoke in the middle of the night seized with panic. He was entirely paralyzed, and felt electricity shooting throughout his body. He felt his energy draining away from him. He could see several alien beings standing around his bed.

Formal psychiatric interviews uncovered very little psychopathology. Four abductees had never qualified for a DSM-IV diagnosis, whereas several met criteria for current diagnoses of specific phobia for insects ( $n = 1$ ), anxiety disorder related to alcohol dependence ( $n = 1$ ), bipolar disorder (NOS;  $n = 1$ ), and panic disorder ( $n = 1$ ). Three (including the person with panic disorder) nearly met criteria for past post-traumatic stress disorder (PTSD) related to their alien encounters (i.e. sleep paralysis episodes plus recovered memories of being medically probed and sexually molested by aliens), and one abductee still had some PTSD symptoms. None of the abductees, however, met criteria for schizophrenia. Among the 12 control participants in the psychophysiology study, one reported an episode of sleep paralysis without any hallucinations. She first feared that she might have a neurological disease, but soon forgot about the strange experience when it did not occur again.

Psychometric measures likewise uncovered very little evidence of current distress among the abductees. For example, their mean scores on questionnaires tapping symptoms of depression and anxiety were well within normal limits, and indistinguishable from those of the control group. By contrast, relative to the 12 control participants who denied a history of alien abduction, the abductees scored significantly ( $p < .05$ ) higher on the Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986;  $M = 8.4$  vs. 3.3), the Absorption Scale (Tellegen & Atkinson, 1974;  $M = 21.6$  vs. 9.6), and the Magical Ideation Scale (Eckblad & Chapman, 1983;  $M = 9.2$  vs. 2.9). The DES taps alterations in consciousness ranging from the ordinary (e.g.

'spacing out' on a long car trip) to the bizarre (e.g. not recognizing one's reflection in the mirror). The Absorption Scale taps the ability to become engaged in imaginative experiences (e.g. reading a novel) – a trait linked to fantasy proneness. The Magical Ideation Scale assesses belief in unconventional phenomena (e.g. telekinesis, reincarnation).

The main purpose of the study was to test whether people who hear audiotaped scripts of traumatic 'memories' related to abduction would exhibit a profile of reactivity on measures of heart rate (HR), skin conductance (SC), and facial electromyographic (EMG) activity similar to that exhibited by patients in previous PTSD research (for a review, see Orr, Metzger, & Pitman, 2002). Each abductee wrote brief narratives describing his or her alien abduction encounters, another highly stressful experience (e.g. hearing of the violent death of a loved one), a very positive experience (e.g. birth of one's first child), and a neutral experience (e.g. mowing the lawn last weekend). We converted these written narratives into 30-second audiotapes, which participants heard in the psychophysiology laboratory. Consistent with this hypothesis, the abductees exhibited greater responses on all three physiologic measures while listening to their traumatic (and other stressful) scripts relative to scripts describing either positive or neutral memories. Control subjects, who heard scripts provided by the abductees, hardly responded at all. Typical abductee scripts concerned either sleep paralysis episodes, misinterpreted as assaults by space aliens, or recovered memories of being subjected to 'medical' procedures on board spaceships.

The physiologic responses of abductees to their traumatic abduction scripts were larger than the responses of PTSD patients to scripts of their traumatic experiences. For example, in the largest study ever done on Vietnam veterans with current PTSD ( $n = 654$ ), Keane et al. (1998) compared HR, SC, and EMG responses to personalized trauma scripts to a standardized neutral script. Using a laboratory procedure nearly identical to ours, Keane et al. published reactivity data (i.e. response to trauma scripts minus response to neutral scripts). The mean reactivity values for their current PTSD group were 3.2 b.p.m. for HR, 0.8  $\mu\text{S}$  for SC, and 1.2  $\mu\text{V}$  for EMG, respectively. Computing reactivity values (abduction minus neutral scripts) for our abductees, we obtained mean values of 7.2 b.p.m. for HR, 1.9  $\mu\text{S}$  for SC, and 1.5  $\mu\text{V}$  for LF-EMG, respectively. These findings underscore the power of emotional belief. People who misinterpret their sleep paralysis episodes as encounters with alien beings and who recover additional 'memories' of these encounters under hypnosis are likely to respond physiologically to audiotaped scripts describing these 'memories.' And their psychophysiological profile will resemble that of PTSD patients even if they themselves do not qualify for the diagnosis.

## SLEEP PARALYSIS AND REPORTS OF CHILDHOOD SEXUAL ABUSE

Adults who believe that they harbor repressed memories of CSA often interpret diverse phenomena as 'indicators' of inaccessible memories of early trauma (Clancy & McNally, 2004; McNally, Clancy, Schacter, & Pitman, 2000). Among these are nightmares, bodily pains, sexual difficulties, and panic attacks. Pendergrast (1996) hypothesized that some adults may misinterpret episodes of sleep paralysis as signifying the nocturnal return of dissociated fragments of incest memories. For example, a woman who experiences sleep paralysis, accompanied by hallucinated bodily sensations and visions of a bedroom intruder, might conclude that she had been sexually molested by her father.

To investigate this issue, we developed and mailed the Sleep Experiences Questionnaire (SEQ), based on Cheyne (2002b), to adults who had recently participated in one of our memory studies (McNally, Clancy, Barrett, & Parker, 2004). The groups and the numbers of participants returning scorable questionnaires were as follows. The *repressed memory group* included persons who believed they were sexually molested as children, but who had no autobiographical memories of abuse ( $n = 18$ ; 17 female). They inferred their abuse history from various 'indicators' (e.g. sexual dysfunction, 'flashback' images). The *recovered memory group* included persons who reported remembering an episode of CSA after years of not having thought about it ( $n = 14$ ; 8 female). The *continuous memory group* reported always having remembered they were abused ( $n = 36$ ; 28 female). The *control group* denied a history of CSA ( $n = 16$ ; 11 female).

The full details of this study are reported elsewhere (McNally & Clancy, in press), but the main findings were as follows. The proportions of individuals reporting at least one episode of sleep paralysis were: repressed memory group (44%; 8/18 participants), recovered memory group (43%; 6/14 participants), continuous memory group (47%; 17/36 participants), and control group (13%; 2/16 participants). The three CSA groups combined had a significantly higher rate of sleep paralysis than did the control group,  $\chi^2(1) = 4.64, p = .031$ , two-tailed with continuity correction.

The SEQ asked respondents to circle any of the listed possible explanations for sleep paralysis that had occurred to them. Only one person – a woman in the recovered memory group – connected her sleep paralysis to sexual abuse. The most common explanations across all participants were: I must have been dreaming ( $n = 8$ ); I was haunted by a ghost ( $n = 5$ ); and there must be something physically wrong with me ( $n = 4$ ). None of the participants interpreted the experience as an encounter with a space alien.

Finally, we found that relative to participants denying sleep paralysis

( $n = 47$ ), those reporting it ( $n = 33$ ) had significantly higher dissociation scores (DES;  $M = 23.3$ ,  $SD = 17.0$  vs.  $M = 14.1$ ,  $SD = 11.9$ ,  $t(52.3) = 2.72$ ,  $p = .005$ , one-tailed), corrected for inequality of variances; significantly higher depression scores (BDI;  $M = 18.0$ ,  $SD = 10.5$  vs.  $M = 11.5$ ,  $SD = 9.3$ ,  $t(78) = 2.89$ ,  $p = .003$ , two-tailed), and marginally higher Absorption scores ( $M = 19.8$ ,  $SD = 7.5$  vs.  $M = 17.0$ ,  $SD = 7.6$ ,  $t(76) = 1.60$ ,  $p = .06$ , one-tailed).

## DISCUSSION

Our studies suggest that people who report having been either abducted by space aliens or sexually abused as children experience episodes of sleep paralysis at higher rates than do those denying histories of alien abduction or CSA. Although individuals in our first study attributed their sleep paralysis to alien abduction, only one participant – a woman in the recovered memory group – interpreted her sleep paralysis as linked to CSA. However, this participant was among the six recovered memory participants who reported sleep paralysis. That is, 17% of people who report both recovered memories of CSA and sleep paralysis interpret their sleep paralysis episodes as linked to memories of abuse, as hypothesized by Pendergrast (1996). However, because there were so few participants in the recovered memory group, a larger study is needed to test Pendergrast's hypothesis adequately. Few of our recovered memory participants, however, had undergone therapy with clinicians who interpret dreams as returning dissociated fragments of repressed memories of CSA. Had we drawn our participants from among the caseloads of 'recovered memory therapists,' more of our participants might have interpreted their sleep paralysis in terms of abuse-related memories.

All four groups of participants reporting CSA had elevated rates of sleep paralysis relative to the control group. Studying Cambodian refugees who had been exposed to severe trauma during the Pol Pot regime, Hinton (2003) found that 42% reported at least one episode of sleep paralysis during the previous year. On average, our CSA-reporting groups reported lifetime rates of sleep paralysis of approximately 45%. Although this may suggest a direct connection between trauma and sleep paralysis, none of our participants experienced anything like the horrors undergone by Hinton's participants.

The most striking finding connecting the studies concerns the correlates of sleep paralysis. Participants reporting either alien abduction or CSA plus sleep paralysis had heightened scores on measures of dissociation and absorption.

Others have reported links between unusual sleep-related experiences and reports of dissociative symptoms during waking hours (Watson,



2001). Likewise, Thalbourne and Houran (2000) published data in support of their construct of *transliminality* – ‘a tendency for psychological material to cross (*trans*) thresholds (*limines*) into or out of consciousness’ (p. 853). Indicators of this underlying trait include absorption, fantasy proneness, creativity, and paranormal experiences. While noting these similarities between people reporting CSA and reporting alien abduction, we emphasize that we are not ‘equating’ these two groups of individuals. For example, measures of psychological distress are usually much higher among CSA participants (McNally et al., 2000) than among abductees (McNally, Lasko et al., 2004).

Sleep paralysis is a common, albeit often-frightening event. How a person interprets it depends on the available cultural narratives (e.g. ghostly hauntings, alien visitations, neurological disease) and their credibility to the person seeking to explain this remarkable experience (Hufford, 1982). It is unclear why some people opt for an alien abduction interpretation, whereas others assume that they are haunted by a ghost or that they must have been dreaming after all (even though they know they were awake). That is, it is unclear why one cultural narrative is favored over another (e.g. ghosts vs. aliens). Our abductees did, however, entertain a wide range of ‘New Age’ beliefs (e.g. astral projection, foretelling the future) that might have made them especially prone to endorse an alien encounter interpretation of their sleep paralysis episodes.

Finally, not all individuals experiencing sleep paralysis seek explanations for it. Some simply shrug it off as a weird and inexplicable occurrence. Although certain individual difference variables, such as dissociation proneness, may predict the occurrence of sleep paralysis, other variables may predict whether someone engages in an ‘effort after meaning’ to explain this striking phenomenon.

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