

# Terror in the night

Julia Santomauro and Christopher C. French examine the experience of sleep paralysis

**Sleep paralysis can be a terrifying experience that is surprisingly common. It can involve the inability to move, auditory and visual hallucinations, a strong sense of presence, difficulty breathing, sensations of movement, and intense emotion. The causes and interpretations of sleep paralysis are described in this article, as well as some practical suggestions for coping with it.**

My eyes are open and usually I get the sense that something in the room is happening, so it's more like apprehension. It's a sort of belief that something's going to go off and then a shape gathers, a sort of black, small black cloud gathers and it's the devil... a monster. And it comes onto me and I can feel its weight and basically the belief is that it's holding me and that it's going to drag me down into an abyss... I can feel sensations on my body, it's multi-sensory. I can sort of smell it too. I feel sensations in my body like in a lift, I feel like I'm going down... I can't move, certainly. Well, I try but it never works. Usually all I can do is make a kind of hum in my throat and try to make a feedback cycle, make that louder, as it gets louder the more awake I get, the more I can do until I can eventually perhaps shout. And that wakes me up, properly wakes me up.

Amazingly, experiences similar to the one above, which was related to us by a fellow academic, are very common. The experience is called sleep paralysis and it is classified as an REM-related parasomnia.

## What is sleep paralysis?

Sleep paralysis is a period of transient, consciously experienced paralysis either when going to sleep or waking up. During an episode the individual is fully conscious, able to open their eyes but aware that it is not possible to move

limbs, head or trunk. There may be also be the perception of respiratory difficulties and, understandably, acute anxiety (Dahlitz & Parkes, 1993).

In addition, the individual might experience hallucinations. In a sample of 254 college students who had experienced sleep paralysis at least once (Cheyne et al., 1999), 75 per cent had concurrently experienced body paralysis and hallucinations. Commonly experienced hallucinations include:

- | Proprioceptive hallucinations: sensations of floating, flying, out-of-body experiences; feelings of being lifted up, of spinning and turning; and sensations similar to those felt when going up or down in a lift.
- | Tactile hallucinations: sensations of pressure; touching or pulling on the chest, limbs or head; pressure on the bed; feeling the bedclothes moving; and feelings of tingling, vibrating, shaking, pain, smothering or choking.
- | Auditory hallucinations: hearing footsteps, knocking, shuffling, breathing, talking, indecipherable whispering, mechanical sounds (e.g. humming) and other noises.
- | Visual hallucinations: seeing wisps of cloud or smoke-like substances or areas of intense darkness; seeing a human, animal or monster and possibly interacting with them.
- | Olfactory or gustatory hallucinations.

Attacks often involve feelings of intense fear, terror, bliss, joy, anger, and feelings of dying or imminent death. False awakenings are also commonly reported. The individual believes that they have awoken and that the episode is over, only to discover that they are still in fact asleep.

Sleep paralysis usually occurs when the individual is lying on a bed – it is unlikely to occur if in an uncomfortable sleeping position such as sitting upright (Hishikawa, 1976). It is more likely to occur when the individual is lying supine facing upwards than in any other sleeping position (Cheyne, 2002). An episode can

### question

What are the similarities and differences between sleep paralysis and other unpleasant sleep-related experiences, such as nightmares and night terrors?

### resources

French, C.C. & Santomauro, J. (2007). Something wicked this way comes: Causes and interpretations of sleep paralysis. In S. Della Sala (Ed.) *Tall tales about the mind and brain: Separating fact from fiction* (pp.380–398). Oxford: Oxford University Press.  
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last between a few seconds and 10 minutes and can end either spontaneously or because of an intense effort to break the paralysis by the person experiencing it, or by the touch or voice of another person (Goode, 1962).

### Who gets sleep paralysis?

Although estimates vary, it appears that up to 50 per cent of the population will experience sleep paralysis in one form or another at least once in their lifetime, and some people experience it far more often than that. Although sleep paralysis can be a symptom of narcolepsy, it is also common amongst non-narcoleptics. Narcolepsy, which is a sleep disorder that affects approximately 0.02–0.05 per cent of the population (Lavie et al., 2002), consists of four major symptoms:

- l sleep attacks: overwhelming episodes of drowsiness or sleep;
- l cataplexy: sudden loss of muscle tone usually triggered by a strong emotion;
- l sleep paralysis: consciously experienced paralysis whilst falling asleep or waking up;
- l vivid hypnagogic hallucinations: hallucinations at sleep onset.

Most narcoleptics do not have the full tetrad of symptoms, but approximately 17–40 per cent experience sleep paralysis (American Sleep Disorders Association, 1997) and 20–40 per cent experience vivid hypnagogic hallucinations (Broughton, 1990). Many of these people with narcolepsy who experience sleep paralysis will do so several times a month, and some of them will experience it every time they fall asleep – and this may be several times a day (Hishikawa, 1976).

Surveys from around the world indicate that between 20 per cent and 60 per cent of the non-narcoleptic population experience sleep paralysis at least once in their lives (French & Santomauro, 2007). When people experience sleep paralysis without other symptoms of narcolepsy it is sometimes referred to as isolated sleep paralysis (ISP). Many people experience

ISP just once in their lives but between 3 per cent and 6 per cent of the population will experience ISP more often than that. These people can experience it severely (episodes occurring at least once a week) and chronically (for six months or longer: American Sleep Disorders Association, 1997). The term sleep paralysis is used in this article to include attacks in both people with narcolepsy and ISP.

It should be noted that although sleep paralysis is itself quite harmless, there are other sleep-related experiences that can be mistaken for sleep paralysis but may actually require medical treatment. Such experiences could be epileptic in nature in young people (e.g. partial seizures) or cardio-respiratory in origin in older people.

### What causes sleep paralysis?

In the words of one sufferer:

Definitely stress. Sometimes it happens when I'm not stressed but maybe tired, maybe I've stayed up a bit too late. Another kind of stress, a sort of physical stress on my body... It's a sort of feedback cycle, so it's happened and then you get a bit stressed and then it seems to happen more and then you're going to bed thinking 'I hope this doesn't happen' which is immediately fear, isn't it?... So you've already primed yourself for some kind of anxiety, fear response, and made it more likely to happen.

Sleep paralysis can be considered to be an intrusion of rapid eye movement (REM) sleep characteristics into wakefulness. That is, the muscles of the body are deeply relaxed (they cannot be moved) and the dreamlike element of any associated hallucinations may result from the brain activity – dreaming – that is typical of this sleep period (Dement & Kleitman, 1957). Putting it simply, wakefulness has occurred but the body and part of the brain is still in REM sleep.

## Sleep paralysis – an account

'I'm lying on my back with my eyes closed and I feel a crushing weight on my chest. I've felt this before, so I'm not scared. I open my eyes just a little bit and I see this two-dimensional grey humanoid on top of me with three-dimensional dirty grey hair hanging in my face. He is clutching my chest and dragging me down the bed into a wooden box that looks like a casket at the foot of my bed. I know that if he drags me into the box that I will die. I turn my head sideways and look into the mirror that faces my bed and watch myself being pulled down the bed towards the box. I am absolutely terrified by this point and I finally wake up, when I am transported back to the top of my bed with my head looking up at the ceiling.'

Usually, REM sleep is experienced after an hour or more of sleep, yet many people experience sleep paralysis at sleep onset. This is because people who experience sleep paralysis often have sleep-onset REM periods (SOREMPs), which have been found to be associated with sleep paralysis. People with narcolepsy who experience the symptoms of sleep paralysis, cataplexy or hypnagogic hallucinations often have SOREMPs and people who have narcolepsy without these symptoms do not experience SOREMPs (Hishikawa & Kaneko, 1965). When members of the former group were woken up from various

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## sleep paralysis

stages of sleep, it was discovered that sleep paralysis was regularly reported when the person was woken up from a SOREMP and not reported if the person was woken up from non-REM sleep, nor if they were woken up from REM sleep that occurred after a period of non-REM sleep (Hishikawa et al., 1963). Polysomnograph recordings confirm that in laboratory studies narcoleptics experienced sleep paralysis exclusively during SOREMPs (Hishikawa & Kaneko, 1965; Hishikawa et al., 1978).

SOREMPs are also found in people without narcolepsy. They usually occur after disruption of the sleep-wake cycle or after interruption of sleep (Takeuchi et al., 1992). It is possible to induce a SOREMP by waking the person up at a particular point in the sleep cycle (Miyasita et al., 1989). Researchers in Japan elicited SOREMPs in participants using a sleep interruption method, and 9.4 per cent of induced SOREMPs elicited an episode of

sleep paralysis (Takeuchi et al., 1992). This research strongly suggests that sleep paralysis is related to REM sleep, and in particular REM sleep that occurs at sleep onset. Shiftwork, jetlag, irregular sleep habits, overtiredness and sleep deprivation are all considered to be predisposing factors to sleep paralysis (American Sleep Disorders Association, 1997); this may be because such events disrupt the sleep-wake cycle, which can then cause SOREMPs. Of course, episodes of sleep paralysis occurring as people emerge from sleep cannot be explained in terms of SOREMPs, but it seems reasonable to argue that such episodes may well involve a similar state of consciousness, mixing aspects of both normal wakeful consciousness and REM consciousness. Needless to say, for practical reasons such episodes are inherently more difficult to study in psychophysiological terms as there is currently no known way to induce their occurrence.

remain feeling very frightened, sometimes to the extent that I cannot return to sleep for the rest of the night.

The experiential elements of sleep paralysis have been reported from many countries and cultures around the world but it is known by many different names and interpreted in many different ways. For example, in Newfoundland sleep paralysis is called the 'Old Hag'. This is described as suddenly being awake but paralysed, usually just after having fallen asleep, and often feeling a weight on the chest and sometimes seeing a grotesque human or animal astride the chest (Ness, 1978). Newfoundlanders think it might be caused by either working too hard, the blood stagnating when they lie on their back, or hostile feelings from another person.

In Hong Kong a condition that seems identical to sleep paralysis is termed 'ghost oppression' (Wing et al., 1994). Chinese people have often thought that 'the soul of a person is vulnerable to the influence of spirits during sleep' (Wing et al., 1994, p.609) and, in a dream classification book written around 403–221BC, there are six types of dreams described. Wing and colleagues suggest that *e-meng*, dreams of surprise, are actually sleep paralysis and are distinct from *ju-meng*, fearful dreams.

Amongst the Inuit of Canada sleep paralysis is interpreted as attacks from 'shaman or malevolent spirits' (Law & Kirmayer, 2005). In Japan sleep paralysis is called *kanashibari* and is related to the magic of one of the Buddhist gods, Fudoh-Myohoh. Historically, it was believed that monks could use this magic to paralyse people in their sleep; more recently it is often believed that evil spirits cause the phenomenon (Fukuda et al., 1987). In St Lucia, sleep paralysis is termed *kokma* and is alleged to be caused by the spirits of unbaptised babies who haunt the area (Ness, 1978). In Korea, it is termed *ha-wi-nulita* which can be translated as being squeezed by scissors (Dahlitz & Parkes, 1993). Many other cultures have their own

### How is sleep paralysis interpreted?

First of all I dream that I have awoken, although, usually, not always, I am not conscious of that fact until after the experience. I believe that I am awake and lying in bed. I cannot move because there is a huge weight lying on top of me which I fear is some kind of monster (I'm always lying on my front with the monster on my back). Sometimes I can hear a kind of unearthly growling coming from the monster. At this point I panic, but to no avail. I can't move! I panic more and apply all my strength to rising. I try to scream for help, usually this is impossible as my voice is paralyzed as well. Sometimes I can manage to scream, but with great difficulty (clearly it's inaudible as it never disturbs anyone). Eventually I awake, but



'Kanashibari' 1986, charcoal on paper, by Kazumi Honda

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interpretation of sleep paralysis and often the cause is attributed to some supernatural force.

Throughout Europe, from the 1500s until the 1700s, sleep paralysis experiences were often considered to be the work of witches who were accused of using their witchcraft to terrorise sleepers who had offended them in some way. Such episodes were sometimes termed as being ‘witch-ridden’. In 1747, a woman testified at a witch trial that she found her husband in bed ‘lying there stiff, barely drawing breath’, and when he woke up he said, ‘My Lord Jesus help me! Oh! Fiery witches took me to Máramaros and they put six hundredweight of salt on me’ (Davies, 2003, p.186). This sounds like an episode of sleep paralysis involving visual hallucinations (fiery witches), tactile hallucinations of pressure on the body (the six hundredweight of salt) and proprioceptive hallucinations of floating and flying (when the witches took him to Máramaros). Another common interpretation of sleep paralysis episodes in the Middle Ages was that they were attacks by sex-crazed demons, known as a succubus when in female form or an incubus when in male form. The word incubus is sometimes translated as ‘one who crushes’ and the lay term ‘incubus attack’ is still occasionally used to describe an episode of sleep paralysis.

Even in modern Western societies, individuals who suffer attacks of sleep paralysis may often be tempted to explain their experience in terms of a nocturnal attack by spirits or demons, simply because that provides a preferable explanation of their disturbing experience compared with the most obvious alternative – that is, that they are ‘going crazy’. There is no doubt at all that a sizeable proportion of ghost stories have their origin in episodes of sleep paralysis (see, for example, Huston, 1992).

Another recent interpretation of such episodes in Europe and the US is the belief that the individual has been abducted by aliens. It is claimed by many so-called ufologists that the memory of the actual abduction may be erased by the aliens but a memory of the sensations of paralysis and the hallucinations before and after the event retained (French, 2001, 2003; Holden & French, 2002). Although this seems a highly fanciful interpretation of a sleep paralysis experience, if one does not know that it is a commonly experienced sleep disorder then one would be strongly motivated to look for some explanation for

it. If the belief system of the individual includes belief in alien abductions, then one can understand how such a conclusion might be drawn. McNally and Clancy (2005) compared individuals who believed they had been abducted by aliens with those who had not and found that the alien abduction participants had higher rates of sleep paralysis. Similarly, French et al. (2008) found higher self-reported incidence of sleep paralysis in people claiming alien contact than in a matched control group.

### Treating sleep paralysis

For people with a diagnosis of narcolepsy, sodium oxybate is the preferred treatment, although this treatment appears to have little direct effect on rates of sleep paralysis (Xyrem International Study Group, 2005). For people who regularly experience ISP it might be possible to reduce the occurrence of episodes by avoiding events that can cause SOREMPs. Having a regular sleep schedule that includes going to bed and getting up at the same time, and

minimising sleep interruptions during the night is recommended. In reality, such steps might be impossible due to shift-work, travelling commitments, socialising or taking care of a baby. Psychotherapy can often help with more severe cases, which are often aggravated by stress.

It is may also be helpful to offer a method of ‘breaking’ the episode of sleep paralysis once it has started. Anecdotally, many sufferers find that moving a small muscle, such as the eyes, fingers or toes, can allow them to snap out of the paralysis. Others report that getting the attention of their bed-partner, for example by making a noise in their throat, so that he or she can touch them can also break the paralysis. However, for some, making any sound is impossible.

Once an episode has stopped it is advisable to get up and move around in

order to become fully awake, otherwise there is the possibility of falling back to sleep and returning to a state of sleep paralysis. It is not unusual for sufferers to report several such episodes in a single night.

Other research participants have learned to not feel fearful of the experience and have even come to enjoy them. Often the mere fact of learning that such experiences, although terrifying, are actually quite harmless is enough to bring enormous relief to sufferers and to allow them to at least consider this option. For example, consider this account from a former sufferer from sleep apnea whose sleep paralysis episodes ceased when a continuous positive airway pressure (CPAP) machine was used to treat the disorder:

For me, sleep paralysis mostly makes me feel like I’m floating and leaving my body. Usually I levitate just above my body. But sometimes I’ll get across the room. I feel heavy and move in slow motion. I cannot talk or scream. I feel like someone is pushing down on top of me. I am not afraid though. In fact, I relish these moments and find them exhilarating. I no longer have sleep paralysis, however. I was diagnosed with sleep apnea. With a CPAP machine to help me breathe better, the sleep paralysis has stopped. Too bad for me!

### A need for awareness

Sleep paralysis is a fascinating phenomenon. Although we are gradually coming to understand the nature of such attacks, we still have a great deal to learn not only about the underlying neuropsychological causes but also about the complex ways in which the same core experience can be interpreted in different ways according to prevailing cultural beliefs. Most urgently, there is a need for greater awareness of the nature of the sleep paralysis amongst the general public and, particularly, amongst health professionals in order to minimise the anxiety and distress that often result from such attacks.

“Another common interpretation of sleep paralysis episodes...was that they were attacks by sex-crazed demons”



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