

Sleep-Related Hallucinations and Ghost Tales

Though there are many ghost stories in various cultures around the world, the pathogenesis of a few types remains to be figured out. One is the hypnagogic hallucination, usually observed in narcolepsy, when experienced by normal people without other diagnostic criteria. The other is highway hypnosis, in which fear is a component. Highway hypnosis is illustrated by tales such as “The Vanishing Hitchhiker” in the United States and “The Ghost Getting into the Taxi” in Japan (Furuya et al., 2009; Kon-no, 1975). Recently, we

suggested the possibility that the vivid visual hallucinations seen in progressive posterior cortical atrophy (PCA) share a similar mechanism with some of the ghost tales experienced by normal people (Furuya, Ikezoe, Ohyagi, Miyoshi, & Fujii, 2006). Furthermore, reports of REM sleep behavior disorder or somnambulism (sleepwalking) (RBDS) are becoming more common (Stores, 2007).

Based on several review papers (Furuya et al., 2006; Stores, 2007), we developed diagnostic criteria consisting of a central and core features to classify the ghost tales as far as possible into the four types described in Table 8.

Classification of Four Types of Hallucination

Hypnagogic Hallucination-Like Ghost Tales (HyH)

This type of hallucination is in principle the hypnagogic hallucination that occurs in narcolepsy patients. The ghost image is not vivid but often rather vague, and it is sometimes accompanied by a cenesthopathy such as an incubus/succubus, a sense of being touched. The ghost sometimes speaks, makes a noise, or shakes the bed or room, and on rare occasions, converses with the sleeper.

Highway Hypnosis-Like Ghost Tales (HHy)

Highway hypnosis (white-line fever or the vanishing hitchhiker) has been defined as a tendency to become drowsy and suddenly fall asleep, sometimes into the REM stage, while driving an automobile (Furuya et al., 2009).

Table 8: Major Criteria for Classification of Ghost Tales of Normal People. (Three core features are sufficient for a definite diagnosis, two for a probable diagnosis, and one for a possible diagnosis.)

1. Hypnagogic hallucination-like ghost tales (HyH)

Central features (essential for a diagnosis of HyH): HyH appears while the experiencer is sleeping or when they are waking from sleep.

Core features:

- a. The image of the ghost is clear or vague but not very vivid.
- b. It sometimes accompanied by cenesthopathy such as an incubus/succubus, a feeling of being touched or a feeling of breathed on.
- c. The ghost sometimes speaks, makes a noise, or converses with the experiencer.

Differential diagnosis: narcolepsy, schizophrenia

2. Highway hypnosis-like ghost tales (HHy)

Central features (essential for a diagnosis of HHy): HHy is ‘a tendency to become drowsy and suddenly fall asleep, sometimes into the REM stage, when driving an automobile’. In HHy, the conscious and subconscious minds appear to concentrate on different things. Thus, this hallucination appears while the experiencer does not recognize the change of consciousness level.

Core features:

- a. The sleep- or trance-like state can occur with the driver (experiencer) sitting in an upright position and staring ahead.
- b. The image of ghost is usually clear but sometimes vague.
- c. The ghost sometimes speaks or has a conversation with the experiencer.

Differential diagnosis: complex partial seizure, temporal lobe epilepsy

3. REM sleep behavior disorder or somnambulism-like ghost tales (RBDS)

Central features (essential for a diagnosis of RBDS): In REM sleep behavior disorder, the loss of motor inhibition leads to a wide spectrum of behaviors during sleep. In the case of somnambulism, it is usually defined by or involves the person performing normal actions as if awake. Thus, RBDS is closely related to sleep.

Core features:

- a. The experiencer of RBD often has a dream at the same time, which convinces him/her that the events were real.
- b. The experiencer notices an abnormality in the bedroom or the experiencer himself or a bed partner after awakening, when the RBD is accompanied by somnambulism.
- c. The image of ghost is not as clear as it is in HHy because it is a part of dream.

Differential diagnosis: early stage of Dementia with Lewy bodies (DLB, Parkinsonism), drug abuse (including alcoholism), malingering disorder

4. Vivid hallucination-like ghost tales (VH)

Central features (essential for a diagnosis of VH): VH is similar to the hallucination occurred in a patient with DLB or Charles-Bonnet syndrome (CBD). The ghost appears without any relation to sleep.

(Continued)

Table 8: Major Criteria for Classification of Ghost Tales of Normal People. (Three core features are sufficient for a definite diagnosis, two for a probable diagnosis, and one for a possible diagnosis.) (*Continued*)

Core features:

- a. The image of the ghost is clear or vivid.
- b. Hallucinations are purely visual (that is, the ghost never talks or tries to touch the experiencer.)
- c. The ghost vanishes into air when the experiencer tries to touch it or throw something at the ghost.

Differential diagnosis: early stage DLB (Parkinsonism), CBD, drug abuser (including alcoholism), schizophrenia

Theoretically, highway hypnosis is a kind of mental state that also occurs when a person concentrates on a simple mechanical task, so it may happen relatively frequently and in common situations; for example, workers performing simple repetitive tasks while deprived of sleep and walkers concentrating on the road at night using the faint light of a lantern may experience highway hypnosis. Thus, this type of hallucination seems to be unrelated to sleep at first, and the hallucinator does not recognize the change in his or her consciousness level. The image of the ghost is usually clear but sometimes vague.

REM Sleep Behavior Disorder or Somnambulism-Like Ghost Tales (RBDS)

In REM sleep behavior disorder, the loss of motor inhibition leads to a wide spectrum of behaviors during sleep. Somnambulism is usually defined by or involves the person performing normal actions as if awake (walking, opening/closing a door or window, and other acts) (Stores, 2007). The sleeper thinks that someone or something like a

ghost or monstrous creature has entered in the bedroom and done something. Thus, RBDS is closely related to sleep.

Vivid Hallucination-Like Ghost Tales (VH)

Vivid hallucination is similar to the hallucinations that occur in patients with dementia with Lewy bodies (DLB), some types of PCA, and Charles-Bonnet syndrome (Furuya et al., 2006; Stores, 2007). The ghost appears without any relationship to sleep at first and is a purely visual hallucination.

Classification and Analysis of Ghost Tales

We analyzed 183 reliable ghost tales collected by Japanese folklorists from 1900 to 1970 (Kon-no, 1975; Yanagita, 2006) and found that 66.1 percent of the tales of ghosts could be classified into the four types listed (see Table 8) (Furuya et al., 2009); 32.2 percent were sleep-related (HyH and RBDS), and 35.0 percent were not sleep-related (HHy and VH) (Furuya et al., 2009).



Ghost of Oyuki (artist unknown, but presented as a work of Maruyama Ōkyo 1733–1795; Japanese artist) (Hanging scroll picture: ink and colors on paper) Note the vague image of the lower part of the body, corresponding to the hypnagogic hallucination-like ghost (HyH; Table), (Extended loan to the University of California, Berkeley Art Museum from private collection).

Conclusion

We propose the possibility that almost two thirds of ghost tales may be classified into one of four types of hallucinations experienced by normal people, which means that most of them are attributable to the same mechanisms as neurophysiological and neurodegenerative or psychological disorders.

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See also: entries related to Sleep Disorders

References

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