

THE PATTERN OF ISOLATED SLEEP PARALYSIS AMONG NIGERIAN MEDICAL STUDENTS

J.U. Ohaeri, MD, A.O. Odejide, MD, B.A. Ikuesan, MSc, and J.D. Adeyemi, MD
Ibadan, Nigeria

In a cross-sectional study of the patterns of isolated sleep paralysis among 164 Nigerian medical students, 26.1% admitted having experienced this phenomenon. About 31% of the females and 20% of the males had had this experience. Of those with sleep paralysis, 32.6% had hypnogenic hallucinations during the episode, mainly visual. Sleep paralysis was not significantly associated with psychosocial distress or differences in personality profile. Although the rate differs across cultures, the myths associated with sleep paralysis are similar.

Sleep paralysis, a component of the narcolepsy tetrad, frequently occurs as an isolated phenomenon.^{1,2} Isolated sleep paralysis among North Americans is suspected to be more common among blacks than whites. Goode² reported a prevalence rate of 6.1% among the medical students at Duke University in the early 1960s. Firestone³ estimates that the prevalence of isolated sleep paralysis among college students in Newfoundland, Canada, is 15% to 23%. In contrast to these rates, Bell et al⁴ report that 39% of a normal population of black Americans studied had experienced isolated sleep paralysis.

The cause of sleep paralysis is not known. The psychoanalytic theory is that affected individuals have a

passive-aggressive personality profile.⁵ According to this view, sleep paralysis is related to personality conflicts, particularly a conflict between aggressivity and passivity, and is the manifestation of an inhibition that serves to ward off forbidden impulses. The Pavlovian concept of conditioned inhibition is then used to explain the physiologic mechanism of the inhibition. But Bell et al⁴ theorize that the seeming high prevalence rate among blacks is attributable to the severe social distress they experience. They believe that this "survival fatigue" among blacks may result in "an overaroused adrenergic central neurobiologic system, leading to a variety of behaviors, attitudes, and psychophysiological distress."⁴

This phenomenon has not been studied in Africa. Considering the high prevalence rate reported among American blacks, it becomes necessary to study sleep paralysis among blacks living in Africa. This article reports a cross-sectional study of the patterns of isolated sleep paralysis among medical students of the University of Ibadan (UI) in Nigeria.

METHOD

The definition of sleep paralysis used in this study is that it is a condition occurring either while waking from sleep or falling asleep, characterized by feeling paralyzed for several seconds or minutes, and is often accompanied by hypnogenic hallucinations. The individual is aware of events during the episode. Once the episode of paralysis passes, the individual often sits up with a start and experiences symptoms of anxiety, only to realize that the perception of danger was false.⁶

The cohort consisted of medical students doing their psychiatry posting between November 1986 and January

From the Department of Psychiatry, University College Hospital, Ibadan, Nigeria. Requests for reprints should be addressed to Dr. A.O. Odejide, P.O. Box 39, North Battleford, Canada S9A2X8.

1987. The entire class of each batch of students was studied in an afternoon session. They gave consent for the study.

The following self-rated questionnaires were used.

1. The sleep paralysis questionnaire used by Bell et al in studying the black population in America is a standard series of questions to determine how this state could be induced, the frequency and duration of attacks, and its relationship to hypertension, panic attacks, and family pathologies. Subjects were also requested to write in detail about their experience of a typical episode.
2. The Self-Reporting Questionnaire (SRQ) by Harding et al⁷ is a screening instrument used by the World Health Organization to study psychiatric morbidity in developing countries. It consists of 20 items for neurotic symptoms and 4 items for psychotic symptoms.
3. The Eysenck Personality Questionnaire (EPQ).⁸
4. A brief life events scale that included details about important events that happened to the subject or a first degree relative in the past year. The events included hospitalization, death, thefts, failure in examinations, traffic accidents, change of sexual relationships, finance, court appearance, accommodation arrangements, and others. They were requested to state how each of these events affected them.

After completing these questionnaires, each subject had a brief clinical psychiatric interview guided by the Present State Examination by Wing et al.⁹ Subjects were requested to give oral descriptions of their experiences of sleep paralysis, and this determined the validity of the student's report of the experience.

The aim of the study and the nature of sleep paralysis were explained to the students. We remained with them while they completed the questionnaires to ensure they understood all the items.

RESULTS

All students present in the class on the days of study participated. There were 164 subjects (128 males and 36 females) aged 20 to 37 years, mean age 23.75 ± 2.30 years.

From the oral and written descriptions, 43 subjects (26.2%) were judged to have experienced isolated sleep paralysis. In a further 12.8% (21) of subjects, the claim of having experienced sleep paralysis was rejected because the subjects were clearly in the dream state at the time of the experience. A greater proportion of females than males had sleep paralysis: males = 32 (19.5%),

females = 11 (30.6%). This trend did not reach statistical significance ($P > 0.05$). The mean age of those with sleep paralysis (23.41 ± 2.04) was similar to those without sleep paralysis (23.90 ± 2.38).

Psychosocial Factors

There was no significant difference in the mean SRQ, EPQ, and life events scores between those with and those without sleep paralysis (Table). The result of the mental status examination by the SRQ and clinical interview showed that this was generally a healthy population with no significant difference in the number reporting previous or current psychiatric morbidity. There were no cases of panic anxiety state. The personality profile of those with sleep paralysis was similar to those without sleep paralysis. There was no significant difference in the number of life events for which subjects in the two groups had felt badly affected.

Induction, Control, and Duration of Episodes

Of the 43 with sleep paralysis, two males (4.65%) claimed it was self-induced and five other males (11.6%) claimed that it was induced by others. Thirteen (30.23%) subjects claimed that it was caused by stress, 10 (23.25%) claimed it was caused by irregular sleep, three (6.97%) blamed eating a heavy meal at bedtime, and one female thought it was associated with alcohol use. Thirty-three (76.74%) subjects believed they could voluntarily terminate the attacks, 12 (27.90%) felt that others could bring them out of it, and none enjoyed the experience. Nine (20.99%) subjects thought they had outgrown the experience.

No one experienced it regularly. In 24 (55.81%) subjects it was an occasional or rare experience and 16 (37.20%) subjects never experienced it again after the first episode.

In 18 (41.86%) subjects, the experience lasted about one minute, 17 (39.53%) subjects claimed that it lasted two to five minutes, and eight (18.60%) subjects could not estimate the average length.

Hypertension and Family Pathologies

Only one male among those with sleep paralysis had been treated for hypertension, and in this case the frequency of attacks was not related to treatment of hypertension. None of those without sleep paralysis had been treated for hypertension.

Eight (18.60%) of those with sleep paralysis and 23 (19.0%) of those without sleep paralysis reported a family history of hypertension. Eight (18.60%) of those with

TABLE. SCORES ON THE EPQ, SRQ, AND LIFE EVENTS SCALE ANALYZED BY SEX

Rating Scale	Mean Score with Sleep Paralysis			Mean Score without Sleep Paralysis		
	Males (N = 32)	Females (N = 11)	Total (N = 43)	Males (N = 96)	Females (N = 25)	Total (N = 121)
Eysenck Personality Questionnaire						
Extroversion/introversion scale	12.6±4.4	13.8±5.3	12.7±4.4	13.9±3.5	12.0±1.5	13.5±3.3
Psychoticism scale	4.5±2.4	3.6±1.7	4.5±2.2	4.5±2.3	3.6±2.3	4.1±2.3
Neuroticism scale	7.3±4.0	9.5±3.4	8.4±4.2	7.6±4.2	7.2±3.4	7.6±4.1
Self-Reporting Questionnaire (section on neurosis, items 1-20)	1.5±1.5	2.4±1.9	1.8±1.9	1.4±2.1	1.1±1.5	1.26±1.83
Life Events Scale						
Number of events having happened to subject	5.1±1.8	5.8±2.2	5.3±1.9	5.1±1.7	4.4±1.9	4.9±1.7
Number of events having happened to a first degree relative	3.8±2.8	4.0±3.5	4.0±3.0	3.9±2.5	3.9±2.2	3.7±2.6
Number of events in which subject was badly affected	1.7±1.6	2.3±3.1	2.0±2.1	1.9±1.8	1.0±1.1	1.8±1.7

P>0.05.

sleep paralysis and four (3.30%) of those without sleep paralysis reported a family history of sleep paralysis. However, only one (2.32%) with sleep paralysis gave a family history of both hypertension and sleep paralysis.

Cultural Myths

Twenty-eight (65.11%) of those with sleep paralysis and 22 (18.18%) of those without sleep paralysis believed it was caused by witchcraft. Eight (4.87%) subjects had heard about a folk remedy.

Hallucinations and Panics

Out of the 43 with sleep paralysis, 14 (32.55%) subjects had hypnogenic hallucinations during the episode. Ten of these subjects had a visual hallucination, two reported only auditory hallucinations, and two subjects experienced both auditory and visual hallucinations in the same attack. Only one subject did not feel apprehensive during the episode, and in this subject there was no hypnogenic hallucination.

DISCUSSION

In this first report of isolated sleep paralysis from Nigeria, we found a prevalence rate of 26.2%. There is no report of a similar study from any other African country with which our findings could be compared. Although our prevalence rate is far higher than the 6.1% reported from Duke University Medical School, it is considerably less than the 39% reported among a normal

black American population. However, our finding is somewhat closer to the 23% reported among college students in Newfoundland, Canada.

The concept of psychosocial stress as a possible cause of isolated sleep paralysis was not supported by this study. The results of the life events schedule failed to show a difference between subjects with and those without sleep paralysis. Also, there was no difference in the personality profile between the two groups of subjects. No conclusive statement can be made from our study because of the relatively few subjects involved. However, it will be necessary to conduct a more extensive cross-cultural study to examine the role of psychosocial stress in isolated sleep paralysis.

A similarity between the North American and Nigerian findings is the belief that witchcraft is the root of the phenomenon. This touches on the cultural beliefs of our people that witches have unrestrained access to the inner mind and can invoke illnesses at will. Since the symptoms of sleep paralysis are bizarre and occur frequently in normal individuals, witchcraft is a ready explanation. As more scientific information is available on the phenomenon this mystical belief will be downplayed.

It is interesting to note that among our cohort a greater proportion of females than males had sleep paralysis. Although this trend did not reach statistical significance, it conflicts with the studies from North America (Goode² reported 80% males and 20% females). Prince¹⁰ crit-

icized Firestone's³ explanation of this phenomenon in terms of a "social neurosis" or adult males on the grounds that this implied the rarity of sleep paralysis and "social neurosis" among females. Our finding of a slight female preponderance in the proportion with sleep paralysis is reminiscent of the impression that neurotic symptoms (especially the depressive type) may be more common among females than males in black Africa.^{11,12} However, we found no significant sex difference in the life events and neurotic symptomatology scores. Moreover, the mean EPQ neuroticism scale score of our cohort is slightly less than that of the British standardization sample.¹³

Most of the students interviewed did not know any remedy for this condition. Similar to the observation of Schneck,¹⁴ isolated sleep paralysis was rarely reported by affected individuals to their physicians. It was puzzling to the students and they were confused as to whether it was a medical illness that required treatment. In view of this observation, it is necessary to educate the public to remove the mystical belief associated with sleep paralysis. Those who experience it repeatedly may be advised to consult physicians.

Acknowledgments

We thank the medical students who participated in this study. Drs. M.O. Jibodu, A.O. Ashaye, and Mary Walker; and Nursing Sisters A.O. Adeyemi and G.O. Awosika gave much assistance in data collection. Mr. C. Ewhrudjakpor (BSc) played an invaluable

role in data analysis. Mrs. F.B. Ijlade and Mr. A. Ugwu gave secretarial assistance.

Literature Cited

1. Schneck JM: Sleep paralysis without narcolepsy or catalepsy. *JAMA* 1960; 173:1129-1130.
2. Goode GB; Sleep paralysis. *Arch Neurol* 1962; 6:228-234.
3. Firestone MC: The old hag sleep paralysis in Newfoundland. *Psychoanal Anthropol* 1985; 8:47-66.
4. Bell CC, Shakoob B, Thompson B, et al: Prevalence of isolated sleep paralysis in black subjects. *J Natl Med Assoc* 1984; 76:501-508.
5. Payn SB: Psychoanalytic approach to sleep paralysis. *J Nerv Ment Dis* 1965; 140:427-437.
6. Merritt HH: *A Textbook of Neurology*. Philadelphia, Lea and Febiger, 1975.
7. Harding TW, De Arango MV, Baltazer J, et al: Mental disorders in primary health care. *Psychol Med* 1980; 10:231-241.
8. Eysenck HJ, Eysenck SBG: *Manual of the Eysenck Personality Questionnaire*. London, Hodder and Stoughton, 1975.
9. Wing JK, Cooper JE, Sartorius N: *The Measurement and Classification of Psychiatric Symptoms*. Cambridge University Press, University Printing House, Cambridge, 1974.
10. Prince I: A review of Firestone MC: The old hag sleep paralysis in Newfoundland. *Transcultural Psychi Res Rev* 1986; 23:234-237.
11. Jegede RO, Bamgboye EA, Ohaeri JU: A preliminary report on the Ibadan depression project. *W Afric J Med* 1984; 3:25-30.
12. Orley J, Blitt DM, Wing JK: Psychiatric disorders in two African villages. *Arch Gen Psychiatry* 1979; 36:513-520.
13. Jegede RO: Social and personality characteristics of Nigerian medical students. *J Psychol* 1981; 108:155-163.
14. Schneck JM: Sleep paralysis. *Am J Psychiatry* 1952; 108:921-923.