

THE PATTERN OF ISOLATED SLEEP PARALYSIS AMONG NIGERIAN NURSING STUDENTS

J.U. Ohaeri, MD, M.F. Adelekan, MD, A.O. Odejide, MD, and B.A. Ikuesan, MSc
Ibadan, Nigeria

In a cross-sectional study of the pattern of isolated sleep paralysis among the entire population of nursing students at the Neuropsychiatric Hospital in Abeokuta, Nigeria (consisting of 58 males and 37 females), 44% admitted having experienced this phenomenon. The findings largely supported the results of a similar study of Nigerian medical students, except that there was a slight male preponderance among those who had the experience. Visual hallucination was the most common perceptual problem associated with the episodes, and all the affected subjects were most distressed by the experience. Whereas sleep paralysis in this country has not been found to be significantly associated with psychosocial distress or differences in personality profile, the popular view in Africa and the United States is that it is caused by witchcraft. (*J Natl Med Assoc.* 1992;84:67-70.)

Key words • sleep paralysis • hallucination

In a study of isolated sleep paralysis among medical students at the University of Ibadan, the authors were surprised to find that at least 26% had experienced this phenomenon.¹ This relatively high prevalence rate was comparable to the findings of Bell² who reported that isolated sleep paralysis seems higher among blacks in the United States than among whites. For instance, whereas Goode³ reported a 6.1% prevalence rate among medical students at Duke University in the early 1960s, Bell et al²

reported that 39% of a sample of normal black Americans in the United States had experienced isolated sleep paralysis.

However, Bell's hypothesis that this phenomenon is associated with severe social distress experienced by blacks and the view of psychoanalysis-oriented⁴ that affected individuals have personality problems were not supported by our findings. Unlike US studies, we found a slight male preponderance among those with sleep paralysis.

In order to test the validity of our findings, it was thought necessary to replicate the study in a student population away from Ibadan. This article reports the findings of a cross-sectional study of the entire population of nursing students at the School of Psychiatric Nursing, Neuropsychiatric Hospital, Aro Abeokuta, Nigeria (a World Health Organization (WHO) collaborating center for mental health care).

METHOD

The ancient city of Abeokuta (literally meaning "town under a rock"), with an estimated population of one million, is the capital of Ogun State, which is situated in Western Nigeria approximately 75 km from Ibadan. Abeokuta is a quiet town, with small-scale trading and subsistence farming being the mainstay of its inhabitants, although a few industries have recently sprung up and the presence of civil servants is also much evident. Nigeria's first modern and most popular psychiatric hospital, the Aro Neuropsychiatric Hospital, is located in Abeokuta. Prospective student psychiatric nurses from all parts of the country with a high school education are admitted for training in this institution.

Our cohort consisted of the entire nursing student population in early 1987. The hospital's authorities gave permission for the study. The students consented

From the Department of Psychiatry, University College Hospital, Ibadan, Oyo State, Nigeria. Requests for reprints should be addressed to Professor A.O. Odejide, Dept of Psychiatry, University College Hospital, Ibadan, Oyo State, Nigeria.

when approached, and they all gathered in their classes on the day of study.

The operational definition of isolated sleep paralysis used in this study is that it is a condition occurring either while waking from sleep or falling asleep, characterized by feeling unable to move for several seconds or minutes, often accompanied by hypnogenic hallucinations. In addition, 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.³

The following self-rated questionnaires were used:

1. The sleep paralysis questionnaire used by Bell et al in the United States. The questionnaire consists of a standard series of questions to determine how the state is 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 al.⁵ This screening instrument is used by the WHO to study psychiatric morbidity in developing countries. The SRQ consists of a 20-item section for neurotic symptoms and a 4-item section for psychotic symptoms. Only the neurotic symptom section was used in this study.
3. The Eysenck Personality Questionnaire (EPQ).⁶
4. A brief life-events scale that included details about important events that had happened to the subject or first-degree relative within the previous year. Events included: hospitalization, death, thefts, failure in examinations, road/traffic accidents, change in sexual relationships or finances, appearance in court, and accommodation arrangements. Participating students were requested to state how each of these events affected them.

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After completing these questionnaires in one hour-long sitting, each subject had a brief psychiatric interview guided by the Present State Examination by Wing et al.⁷ In this interview, the subject was requested to give an oral description of his or her experience of sleep paralysis. This independent oral interview was used to determine the validity of the student's report of the experience.

Prior to completing the questionnaires, the aim of the study and the nature of sleep paralysis were explained to the students in detail. We remained with the students

while they completed the questionnaires to answer any of their questions.

RESULTS

All students present in the school on the day of the study participated. There were 95 subjects, consisting of 58 males and 37 females, aged 17 to 32 years (mean age: 25.67 ± 3.91).

From the oral and written descriptions, 42 subjects (44.2%) were judged to have experienced isolated sleep paralysis at some time in their lives. In twelve of the subjects, the claim of having experienced sleep paralysis was rejected, either because the subjects were clearly in the dream state at the time of the experience or because they simply had muscle cramps from bad sleeping posture. Of those with sleep paralysis, 27 were males and 15 were females; hence, a slightly greater proportion of males (46.5%) than females (40.5%) reported the experience. This trend did not reach statistical significance. The mean age of those with sleep paralysis (25.95 ± 3.88) was similar to those without sleep paralysis (25.39 ± 3.98).

Psychosocial Factors

The Table exhibits the SRQ, EPQ, and Life Events scores, analyzed by sex. There was no significant difference in the mean scores between those with sleep paralysis and those without sleep paralysis. Although three subjects with sleep paralysis and one subject without sleep paralysis had received previous outpatient treatment for mental disorders, none was currently under treatment nor using maintenance psychotropic drugs. There was no case of panic anxiety state. The result of the mental status examination measured by the SRQ and the clinical interview therefore showed that this was generally a healthy population of students. The personality profile of those with sleep paralysis was similar to those without sleep paralysis, and 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 and Frequency of Attacks

Of the 42 with sleep paralysis, four (9.5%) claimed they could bring it on by themselves either by placing the arm across the chest or assuming an uncomfortable posture at sleep, while 13 (30.9%) felt that the state could be induced in them by others. Nineteen subjects (45.2%) thought sleep paralysis was associated with stresses of a nonspecific nature and six (14.2%)

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

Rating Scale	Mean Score for Those With Sleep Paralysis			Mean Score for Those Without Sleep Paralysis		
	Males (n=27)	Females (n=15)	Total (N=42)	Males (n=31)	Females (n=22)	Total (N=53)
A. EPQ						
1. Extroversion/introversion scale	13.33 ± 3.95	13.53 ± 3.13	13.41 ± 3.64	12.87 ± 3.08	14.4 ± 2.83	13.51 ± 3.05
2. Psychoticism scale	5.03 ± 2.42	4.46 ± 3.02	4.79 ± 2.65	4.22 ± 2.81	4.09 ± 1.37	4.12 ± 2.31
3. Neuroticism scale	8.42 ± 4.91	9.06 ± 3.73	8.67 ± 4.43	7.36 ± 4.05	7.81 ± 3.44	7.64 ± 3.79
B. SRQ (section on neurosis, ie, items 1-20)	3.33 ± 3.59	2.53 ± 1.59	3.05 ± 3.04	1.9 ± 2.49	2.5 ± 2.15	2.13 ± 2.35
C. Life Events Scale (events in past 1 year)						
1. No. of events happened to self	4.8 ± 2.11	4.73 ± 1.57	4.79 ± 1.92	4.93 ± 1.74	4.77 ± 1.26	4.87 ± 1.56
2. No. of events happened to first-degree relative	3.81 ± 2.84	3 ± 2.03	3.59 ± 2.59	3.48 ± 2.15	4.13 ± 2.53	3.76 ± 2.32
3. No. of events in which subject was badly affected	1.8 ± 1.87	1.2 ± 1.08	1.62 ± 1.65	1.53 ± 1.25	2 ± 1.76	1.69 ± 1.48

suspected heavy drinking was associated with it, while nine (21.4%) and eight (19%) subjects implicated irregular sleep and heavy meals at night, respectively, as possible causes. Whereas 29 (19%) subjects claimed they could voluntarily terminate each attack, either by praying silently or making an effort to move, another 29 (69%) claimed that others could help bring them out of it by lying on the same bed or physically shaking them. Ten subjects (23.8%) claimed they had control over the attacks, but in all the subjects it was an uncomfortable and distressing experience, and none wanted to experience it again. Only five (11.90%) subjects reported that it had caused them some problem later in the day. As an interesting sideline, one of those without sleep paralysis commented on the questionnaire that he would like to experience it, just to see how it felt.

In none of the subjects was it a regular or frequent occurrence, and in 33 (78.5%) subjects it was an occasional or rare experience, while in nine (21.4%) subjects it had not reoccurred after the first episode. Sixteen subjects (38.0%) felt they would outgrow the attacks. The average duration of each attack of sleep paralysis ranged from 30 seconds to about 5 minutes.

Hallucinations and Panics

Of the 42 with sleep paralysis, 13 (30.9%) subjects had hypnogenic hallucinations during the episode. Eleven of these subjects reported a visual hallucination and two reported auditory hallucinations, while in one subject, visual and tactile hallucinations occurred during the same attack. All subjects experienced great apprehension during the episode.

Sleep Paralysis and Hypertension in the Family of Subjects

None of the subjects in this cohort admitted having been treated for hypertension. Seventeen (40.4%) of those with sleep paralysis and 14 (26.4%) of those without it reported a family history of sleep paralysis. As for hypertension, 11 (26.9%) of those with sleep paralysis and 10 (18.8%) of those without sleep paralysis admitted a family history of this pathology. In six subjects with sleep paralysis, a family history of both hypertension and sleep paralysis coexisted in some affected individual relatives, while two of those without sleep paralysis admitted a family history of both.

Cultural Myths About Sleep Paralysis

Twenty-nine (69%) of those with sleep paralysis and 29 (54.7%) of those without sleep paralysis had either heard or believed that witchcraft was the cause of this phenomenon. Whereas only eight (19%) of those with sleep paralysis stated that they had heard of a folk medicine cure for it, 18 (33.96%) of those without sleep paralysis claimed they had heard of a folk medicine cure for this problem.

DISCUSSION

Our finding of a 44% prevalence rate among healthy nursing students supports the impression that isolated sleep paralysis is perhaps a common phenomenon in the general population in this culture. It is also much closer to the high prevalence rate (39%) reported by Bell among blacks in the United States, while being higher than the

6% reported by Goode in a population of white medical students.

Of particular interest is the fact that most of the findings of a similar study of the University of Ibadan medical students¹ have been corroborated by this study. While the prevalence rate for this study is much higher than the 26% reported among the Ibadan students, there was no significant difference in the two studies between those with or without sleep paralysis in the measures for mental disorder, life events, and personality profile.

The finding of a much higher prevalence rate of isolated sleep paralysis among the nursing students compared with the medical students was surprising, considering the similarities in psychosocial profile noted above. Apart from the fact that the medical students' population was a larger sample (164) than the nursing students' (95), we have no other explanation for this. This could be the subject of further inquiries. While isolated sleep paralysis may be commonly experienced in the general population in this culture, studies of the phenomenon in this country thus far have confirmed neither the theory that it is related to an imbalance in personality makeup, nor the idea that it is associated with severe social distress. However, our present finding of a male preponderance among those with sleep paralysis is in keeping with the findings from North American cultures.^{3,8} We have confirmed the impression that whether in Africa or in the United States, the popular opinion is that isolated sleep paralysis is caused by witchcraft. It is therefore not surprising that although the subjects feel distressed by the experience, isolated sleep paralysis is rarely a presenting complaint in hospitals.⁹

In view of the commonness of this phenomenon, the

enigma surrounding its etiology, and the discomfort it causes those who experience it, there is a need for a biological study of isolated sleep paralysis.

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