

# Psychogenic Nonepileptic Seizures in Men: Comparison of Clinical and Psychosocial Features between Afro-American and Caucasian Patients

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## Abstract

PNES represents an alternative diagnosis for refractory epilepsy in the EMU, however it is less frequent in males. The impact of ethnicity on PNES was evaluated retrospectively in 54 males with confirmed diagnosis of PNES. We evaluated and compared the demographic, clinical and psychosocial characteristics of both AAMs and WMs. In both AAMs and CMS, over half of all patients were <50 years of age, had a shorter history of spells, and took between 1 to 3 AEDS. However, the spells were more frequent in AAM (2.25) compared to CM, but the CMs had more frequent limp/unresponsive events. Also there was higher incidence of head injury report, alcohol and substance abuse, unemployment and disability benefits in AAMs compared to CMs. These differences may provide insight into the causative factors in PNES.

## Keywords

Psychogenic, Nonepileptic, Seizures, Caucasian, Afro-American, Males

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## 1. Introduction

Psychogenic nonepileptic seizures (PNESs) represent an important alternative explanation for intractable epilepsy. In several clinical series of patients with possible epilepsy, the relative frequency of PNES ranged from 10% to 40% [1]-[3]. In a recent population study from Iceland, the incidence of NES was 1.4 in 100,000 per-

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son-years of observation with maximum age-specific incidence between 15 and 24 years. There was a strong female preponderance [4]. Identifying PNES and distinguishing them from epileptic events are critical in avoiding potentially grave consequences [5]. Antiepileptic drugs (AEDs) prescribed to NES patients have potentially serious side effects and may even exacerbate PNES [6]. Failure to recognize pseudo status epilepticus has the potential hazard of intubation and its morbidity and mortality, and failure to recognize the psychological nature of PNES also delays the implementation of appropriate psychological treatment. Furthermore, the social stigma attached to a diagnosis of epilepsy is considerable. Patients who have endured such stigma for any length of time may, understandably, become hostile when informed of a diagnostic change stating that their seizures are psychogenic rather than epileptic in nature [7]-[9].

PNES is frequently reported with higher incidence in females [10]. This has been attributed to higher incidence of physical and sexual abuses in females [11] [12]. Others have attributed it to greater acceptance by the society for public expression of emotions in females [13]. However there is a scarcity of reports of PNES in males, hindering the application of the current knowledge of PNES and it is preponderance in females to males. Furthermore there are no reports comparing the features of PNES between Afro-American males (AAMs) and Caucasian males (CMs).

Therefore we carried out a retrospective chart review of patients admitted to the UMC epilepsy center (EMU) to determine the clinical and psychosocial characteristics among African-American and Caucasian males with the diagnosis of PNES.

## 2. Methods

We retrospectively reviewed the records of all patients admitted to the University of Mississippi Medical Center epilepsy monitoring unit between 2001 and 2011. PNES Patients were identified among consecutive admissions to the epilepsy-monitoring unit. All diagnoses of PNES were established using video-EEG monitoring and placebo challenge. The placebo challenge had to produce the same constellation of symptoms associated with the patient's typical event for the diagnosis of PNES. Video-EEG was used to confirm the absence of paroxysmal epileptiform activity and atypical motor behavior. PNES is defined as an observable abrupt change in behavior or consciousness that is not accompanied by ictal or postictal EEG changes. Patients with subjective symptoms only were excluded since ictal EEG activity may not be apparent during simple partial seizures.

A total of 3359 records were reviewed and male patients > 18 years with diagnosis of PNES were ascertained. The demographic, clinical features and psychosocial information including employment and disability benefits were evaluated.

Separate independent samples Mann Whitney U-tests were conducted comparing the distribution of several seizures variable between African-American and Caucasian males.

This study was approved by the Institutional Review Board and the ethical standards committee of the University of Mississippi Medical Center.

## 3. Results

Out of 282 patients admitted with diagnosis of PNES, 54 were males representing 19%. Seven records were excluded due to incomplete information (4 White Males and 3 Afro-American Males). There were 16 AAM with mean age of 34 years (age range 19 - 55 years) and 31 WM with mean age of 35.8 years (age range 18 - 58 years). The majority in both groups (87.5% AAM and 87% WM) were <50 years of age. The duration of PNES between 1 - 5 years occurred in 50% in AAM and 45.2% in WM. Between 1 - 3 AEDs were taken by 93% of AAMs and 77% of WMs. Daily/weekly seizures occurred in 62.5% of AAMs and 77% of WMs. Hypermotor activity was the most frequent clinical manifestation in both groups (93% AAMs vs. 70% WMs), however limp/unresponsive occurred more frequently WM 38.7% compared to AAM of 6.25%. Clinical manifestations lasting >5 minutes occurred for more than half of the patients in both groups; this finding was not statistically significant. Spells occurred within the first 24 hours of admission in 62.5% of AAMs and 71% of WMs. History of head injury was reported in 56% of AAMs and 19% of WMs. Depression and anxiety was reported in 50% of AAMs and 64.5% in WMs; alcohol/substance abuse in 19% of AAMs and 6.5% in WMs. Disability benefit was received by 75% of AAMs compared to 55% of WMs. Only one AAM and 7 WMs were employed. Nineteen percent of AAMs and of WMs were without employment or benefits. Besides seizure frequency, which was significantly higher ( $p = 0.047$ ) in AAMs than WMs (mean 2.25 vs. 1.77), both ethnic groups behaved similarly for

all seizure characteristics (Table 1 and Table 2).

#### 4. Discussion

This study demonstrates that PNES is far less frequent in males than females (19% of the PNES patients in our sample). Overall the clinical manifestations were similar among Afro-American and Caucasians males with tendency for more frequent hypermotor activity in Caucasian and higher incidence of reported head injury, alcohol/substance abuse and disability benefit in AAMs.

Our finding of less frequent incidence of PNES in male population is similar to prior studies which reported an incidence of 26% - 27% [14] [15]. Oto *et al.* [14] compared various characteristics of PNES between females and males and concluded that there are significant similarities between the two gender groups. However in contrast to our study they did not make any ethnic comparison among the males subjects. The majority of the patients in our study were young (<50 years); half of the subjects had a short history of PNES in both AAM and Caucasian. These findings are in concordance with prior findings [14] [16] that PNES occurs in the young males with shorter history of PNES similar to the females; however the higher incidence of PNES in females may reflect greater social acceptability of overt emotional expressions in females.

To our knowledge this is the first study to report a direct comparison between African-American and Caucasian males with PNES. Of the clinical manifestations, hypermotor activity was more frequent in Caucasians. The dramatic motor manifestations of PNES may create a protected status that confers certain rights and relieves certain burdens, *i.e.*, the patient may obtain secondary gain from the PNES. It is possible that motor manifestations reflect an attempt to occupy a position that is both safe and camouflaged. Once that goal has been achieved, the need for dealing with the underlying issues can be avoided [17]. This is in contrast to the limp manifestation, which is less dramatic and appears to reflect vulnerability, especially in subjects with a history of abuse. In our

**Table 1.** Patient characteristics.

		AAM (n = 16)	CM (n = 31)
Age	Range	19 - 55 years	18 - 58 years
	Age < 50 years	(14) 87.5%	(27) 87%
PNES duration	1 - 5 years	(8) 50%	(14) 45.2%
AEDs	1 - 3	(14) 93%	(25) 77%
Pre-admission seizure occurrence	Daily/Weekly	(10) 62.5%	(24) 77%
History	Head injury	(9) 56%	(7) 19%
	Depression/Anxiety	(8) 50%	(20) 64.5%
	Alcohol/Substance abuse	(3) 19%	(2) 6.5%
	Disability benefits	(12) 75%	(17) 55%
	Employment	(1) 6%	(7) 18%
	No employment/Benefits	(3) 19%	(6) 19%

**Table 2.** Clinical manifestations during admission.

		AAM	CM
Seizure characteristics	Hypermotor	(15) 93%	(21) 70%
	Limp/Unresponsive	(1) 6.25%	(12) 38.7%
Seizure duration	>5 min	(7) 44%	(18) 57%
Seizure occurrence	<24 h of admission	(10) 62.5%	(22) 71%
Seizure frequency		2.25	1.77

series there is no significant report of sexual abuse that may explain the frequent hypermotor activity in both groups. The higher incidence of limp/unresponsive activity in Caucasian males is concordant with low reported history of abuse. Of course this is in contrast to the female population where sexual abuse is frequently reported in studies of PNES [18]. The absence of reported sexual abuse in our study could well be due to under reporting. According to Betts *et al.* [19] sexual abuse is often under reported as patients, especially male patients, have difficulty disclosing the history of abuse. Depression and anxiety have been reported frequently in patients with PNES [14] [16] [20]. In our series we found that depression and anxiety occurred in over a half of the patients of both ethnic groups, and matches the frequency reported in the general population.

We found that history of head injury is significantly higher in AAMs compared to WMs. In several series [11] [21] trauma was reported to precede PNES in both males and females. However there are no prior reports of ethnic difference as observed in our study. Salinsky *et al.* [16] reported in a series of 37 male veterans with PNES that PTSD preceded PNES in more than half of the patients (58%) compared to epileptic seizures which occurred in 13.5% of patients. They attribute the higher incidence of TBI to military combat operations to the higher occurrence of PNE. Again ethnic differences were not studied. However in our series these are civilian population and again this will not explain the higher incidence of head injury report in AAMs in our study. Hingray *et al.* [22] evaluated the presence or absences of trauma history in PNES patients and correlated this to underlying psychiatric symptoms. They found that history of trauma was associated with higher rate of psychiatric comorbidity and strong dissociative mechanism compared to patients without history of trauma who had no psychiatric comorbidity and weaker dissociative mechanism. Their findings are similar to the our study that more than half of the patients have psychiatric comorbidities, however compared to our study, there was no report of any ethnic or race evaluation in their study.

In our series we found that alcohol and substance abuse is slightly more frequent in AAMs compared to WMs. Furthermore, AAMs are less likely to be employed than WMs even though the majority of the patients in both groups were unemployed and/or received disability benefits. The rate of 20% employment in our study is similar to the low employment rate reported in other studies ranging between 20% - 40% [23]. Similarly, the present finding that 55% to 75% of our patients were on disability benefits, is in agreement with prior reports [24] [25]. However, we also found a trend of lower employment rate and higher percentage of benefits received in AAMs. The fact that such high percentage of our patients received disability benefits stresses the need for early comprehensive evaluation and proper treatment of their underlying psychological issues to ascertain that disability benefits are indeed warranted. Finally, the higher number of AAMs receiving disability benefits may reflect the high unemployment rate in this community compared to the national average.

Bautista *et al.* [26] studied coping style in patients with epilepsy. They evaluated 200 patients of various ethnic and psychosocial backgrounds to determine their coping style. They found that Afro-American likely resort to religion and divine intervention in the coping mechanism compared to Caucasian and this may lend itself to the understanding of the underlying psychosocial factors associated the epilepsy. Their finding may give insight to the effect of racial difference in the current study. However, in contrast to their study the current observation included only male's patients with PNES.

The short coming of this study is that it is a retrospective observational study; a prospective and blinded study would be warranted to evaluate possible ethnic differences in the occurrence and manifestations of PNES.

## 5. Conclusion

This study demonstrates that PNES is less frequent in male population. It also showed that there are some ethnic differences such as more frequent clinical manifestations of limp/unresponsiveness in CMs and higher incidence of head injury report, alcohol and substance abuse and disability benefit in AAMs which may provide insight into causative factors of PNES.

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