

Biopsychological predictors in patients with psychogenic non-epileptic seizures from a comprehensive epilepsy center in Hawai'i

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Background

Psychogenic non-epileptic seizures (PNES) are commonly misdiagnosed with epileptic seizures. Approximately 20% of patients who were first suspected of having epilepsy were confirmed to have PNES instead (Benbadis and Heriaud, 2013). This is due to the similarities in physical manifestations that make PNES hardly distinguishable from epilepsy (Patidar, et. al, 2013). The primary difference between PNES and epilepsy is the lack of physiological central nervous system dysfunctions found in epilepsy and the psychological impairment found in PNES. Studies have suggested a number of biopsychological characteristics which may improve the diagnosis of PNES (Elliot & Charyton, 2014). The objective of our study is to detail the biopsychosocial characteristics of a group of patients with PNES from Hawai'i, which is known for its unique ethno-cultural and racial diversity.

Objectives

This study investigates sociodemographic and clinical characteristics of patients that exhibited a PNES diagnosis, concurrent or non-concurrent of epilepsy. Patients are diagnosed as having PNES or not PNES based on the physician's impression and the history of present illness from physician's notes. Each cluster is studied in detail to gain an overall better understanding of the underlying cause of psychogenic non-epileptic seizures.

The primary objective of this project is to describe the biopsychosocial characteristics of a sample of patients to specify better future diagnoses made for patients with complex seizures. A literature review was done to determine what biopsychosocial characteristics are predictors of non-epileptic seizures, and factors noted to be significant in previous studies were compiled and tested on a sample of patients that had gone under an overnight video EEG at Hawaii Pacific Neuroscience. These factors included personal history, family history, and clinical characteristics, including biological, psychological, and social characteristics (Asadi-Pooya, et al. 2016).

Methods

This study was a systematic retrospective review of patients referred to Hawaii Pacific Neuroscience up until July 2017. Data was extracted from patient charts using ICD-10 codes (ICD R56.9: Convulsion disorder, fit NOS, recurrent convulsions, seizure(s) (convulsive) NOS and ICD F44.5: Conversion disorder with attacks or seizures; dissociative convulsions) and video-electroencephalogram (VEEG) referral and monitoring.

Results

- Using vEEG monitoring and clinical characteristics, 51 patients were identified to have PNES. Of the non-PNES patients, 47 had epilepsy, and 41 had other non-PNES non-epilepsy diagnosis such as cardiovascular syncope or complex migraine.
- Between patients with PNES and patients with epilepsy, anxiety (p=0.0004) and traumatic history (sexual, physical, or psychological abuse) (p=0.0129) were found to be significant; while a trend was observed with patients with PNES experiencing more PTSD.
- In comparison to patients with other diagnosis, anxiety again was determined to be significant (p=0.0036) as well as PTSD (p=0.0396); while a trend was observed in traumatic history.

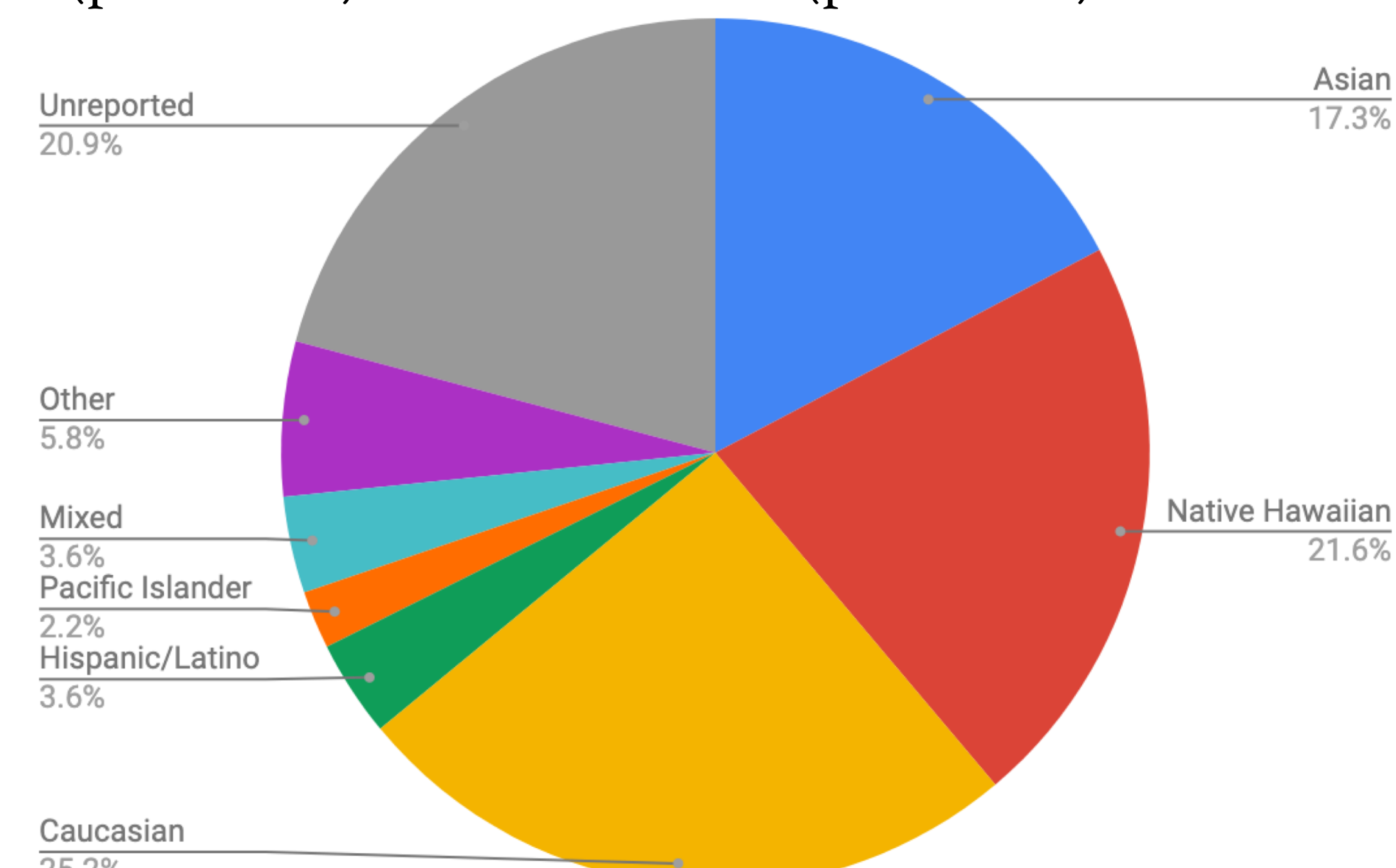


Figure 1: Ethnicities of VEEG patients

	PNES Patients (n = 51)	Epileptic Patients (n = 47)	Non-PNES Non-Epileptic Patients (n = 41)
Male	18 (35.29%)	28 (59.57%)	19 (46.34%)
Female	33 (64.71%)	19 (40.43%)	22 (53.66%)
Average Age	44	49	56
Age Range (Low, High)	72 (18, 90)	61 (19, 80)	69 (22, 91)

Figure 2: Demographics of VEEG patients

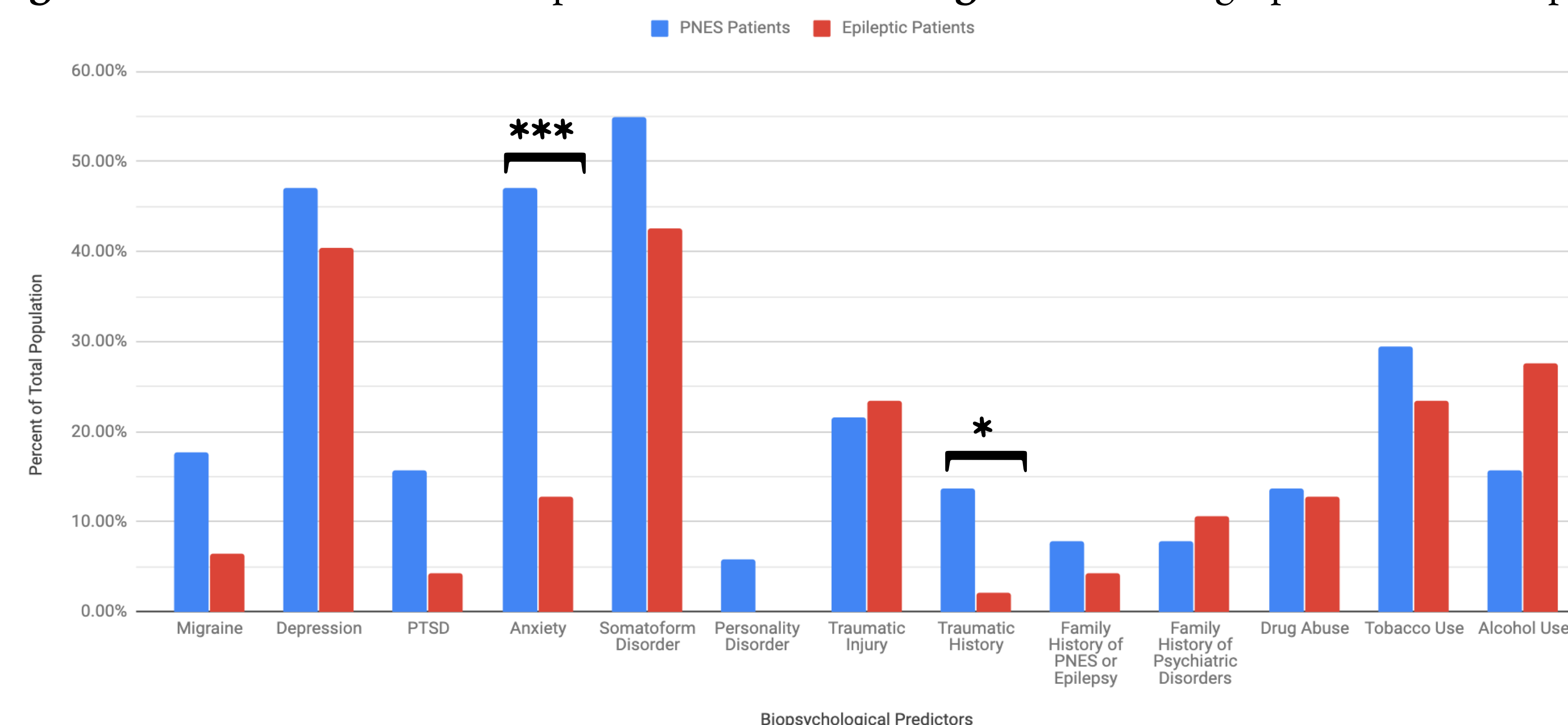


Figure 3: Biopsychological predictors in PNES patients compared to epileptic patients

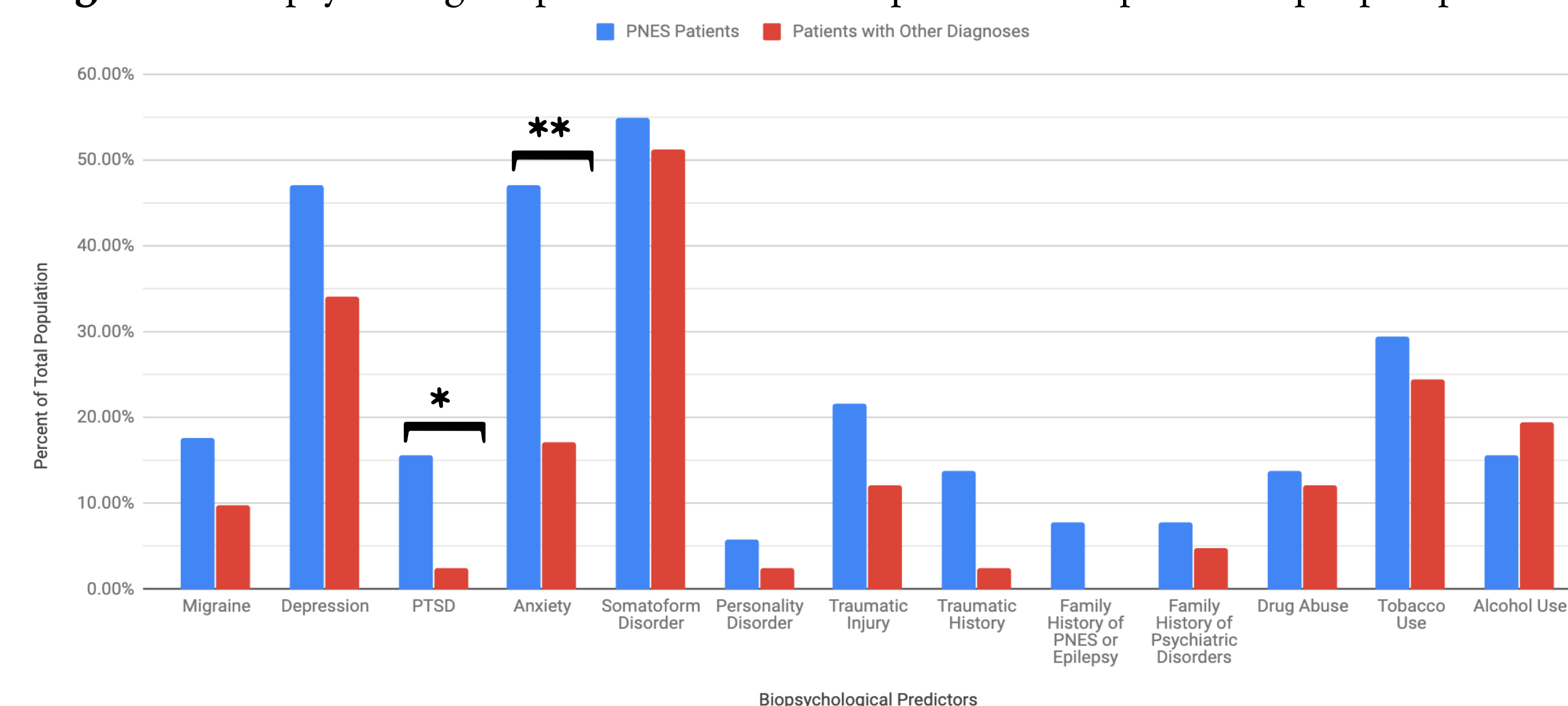


Figure 4: Biopsychological predictors in PNES patients compared to non-PNES non-epileptic patients

(* = <0.05, ** = <0.01, *** = <0.001)

Conclusions

Predictor patterns for Hawai'i's PNES population are aligned with previously studied PNES populations, despite differences in Hawai'i's unique ethno-cultural and racial mix.

In concordance with previous literature, anxiety and PTSD were found to be significant in our patients with PNES. Additionally, our patients with PNES were also found to have significantly more traumatic history, which may play a role in the somatization of PNES.

If, at any time, the case raises suspicion or deviates from normal epilepsy, an epilepsy diagnosis should not be made, and no medications should be prescribed. In cases where no epileptologist are present or overnight-VEEG monitoring is not possible, these factors along with doctor's impression may be utilized to make the best possible educated prediction in the diagnosis of PNES

Future Directions

- Study the semiology and stereotypy of PNES of the patient population through analysis of patient files, specifically "VEEG Reports" and "History of Present Illnesses".
- Study the effects of PNES on Hawaii Pacific Neuroscience's ethnically diverse patient population

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Disclosure/Correspondence

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