

New research links anxiety to epilepsy-like seizures

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New research by clinical psychologists from Arizona State University and the United Kingdom has revealed seizures that could be mistaken for epilepsy are linked to feelings of anxiety.

The team of researchers devised a new set of tests to determine whether there was a link between how people interpret and respond to anxiety, and incidences of [psychogenic nonepileptic seizures](#) (PNES).

Nicole Roberts, an associate professor in ASU's New College of Interdisciplinary Arts and Sciences, collaborated with colleagues from the University of Lincoln, University of Nottingham and University of Sheffield in the United Kingdom. The team's findings were published in the journal *Epilepsy and Behavior*.

The researchers used a series of questionnaires and computer tests to determine if a patient regularly avoids situations which might bring on anxiety.

These tests correctly predicted whether a patient had epilepsy or PNES – seizures that can be brought on by threatening situations, sensations, emotions, thoughts or memories – in 83 percent of study participants. Such seizures appear on the surface to be similar to epileptic fits, which are caused by abnormal brain activity.

"This research underscores the fact that PNES is a 'real' and disabling disorder with a potentially identifiable pathophysiology," said Roberts,

who directs New College's Emotion, Culture, and Psychophysiology Laboratory, located on ASU's West campus. "We need to continue to search for answers, not just in epilepsy clinics, but also in the realm of affective science and complex brain-behavior relationships."

"PNES can be a very disabling condition, and it is important that we understand the triggers so that we provide the correct care and treatment," said Lian Dimaro, a clinical psychologist based at Nottinghamshire Healthcare NHS Trust, who served as lead researcher for the study.

"This study was one of the first to bring modern psychological tools of investigation to this problem," Dimaro said. "The findings support the idea that increasing a person's tolerance of unpleasant emotions and reducing avoidant behavior may help with treatment, suggesting that patients could benefit from a range of therapies, including acceptance and commitment therapy to help reduce the frequency of seizures, although more research is needed in this area."

Participants completed questionnaires to determine the level to which they suffered from anxiety, their awareness of their experiences and if they would avoid situations which would make them feel anxious.

They then completed a computer task which required rapid responses to true or false statements. This test was designed to gather data on immediate, or implicit, beliefs about anxiety. Participants also answered questions about common physical complaints that may have no medical explanation, also called somatic symptoms. These can include things like gastrointestinal problems, tiredness and back pain.

Results showed that those with PNES reported significantly more somatic symptoms than others in the study, as well as avoidance of situations which might make them anxious. The group with PNES also

scored significantly higher on a measure of how aware they were of their anxiety compared with the control group.

The test subjects were 30 adults with PNES, 25 with epilepsy and 31 with no reported history of seizures who served as a nonclinical control group.

The researchers suggest that including tests to determine levels of anxiety and avoidance behavior may enable health professionals to make earlier diagnosis, and develop more effective intervention plans.

"Epileptic seizures are caused by abnormal electrical activity in the brain, while most PNES are thought to be a consequence of complex psychological processes that manifest in physical attacks," said David Dawson, a research clinical psychologist from the University of Lincoln.

"It is believed that people suffering with PNES may have difficulty actively engaging with anxiety – a coping style known as experiential avoidance," Dawson said. "We wanted to examine whether it was possible to make a clear link between seizure frequency and how people experience and manage [anxiety](#). Our study is another step in understanding PNES, which could ultimately lead to better treatment and, therefore, patient outcomes in the future."

Roberts, who received her doctorate in clinical psychology from the University of California, Berkeley, focuses her research on the study of emotion and on the cultural and biological forces that shape emotional responses. Examples include investigating how ethnicity and culture influence emotional displays and experiences; how the daily hassles of life, such as job stress and sleep deprivation, impact emotion regulation among individuals and couples; and how the emotion system breaks down in patients with psychopathology (such as PNES and post-traumatic stress disorder) or neurological dysfunction (such as epilepsy).

Roberts' areas of teaching specialization include introductory psychology, abnormal psychology, multicultural issues in clinical psychology, and supervision of undergraduate and graduate research and clinical practicum experiences. She joined the faculty of ASU's New College in 2006. New College, the core college on ASU's West campus, offers bachelor's and master's degrees in psychology.

Provided by Arizona State University

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