# From neurology to psychiatry: Bullock probes mysterious seizures

January 9 2012, By Susan L. Young and Tanya Lewis

Your emotional state has powerful control over your body — and Kim Bullock, MD, knows just how strong that hold can be. The Stanford psychiatrist works with patients who experience seizures that aren't generated from the electrical brain storms of epilepsy, but instead are driven by their own psychological turmoil.

As a medical student in the early 1990s in Washington, D.C., Bullock volunteered to help the mentally ill homeless population. "It was the best education of my life," she said. "I saw how much suffering they experienced and yet how much support and community they also provided each other." But it wasn't until she was about to interview for a neurology residency at Stanford in 1995 that she realized her true passion was psychiatry.

"When I was in medical school I really thought I was going to be a neurologist, but in the middle of my interviews, I changed my mind," she said. She realized she wouldn't be able to interact with the sort of people she was fascinated with in D.C. or use the wisdom she had gained in those years if she went into neurology. So she quickly changed her application at the last minute and interviewed for a position in psychiatry. "It just felt like the right thing to do and things fell into place," she said. "That must be evidence of the unconscious, that at the last minute I changed my mind. Another part of me knew the right direction."

Bullock, now a clinical associate professor of psychiatry, also had

deeper, personal motivations for wanting to study psychiatric disease. She grew up in the Bay Area in a family troubled by addictions. “I didn’t understand why my own family would behave in certain ways and would make such foolish choices, and that made me curious about mental illness,” said Bullock. “I wanted to understand it and have some keys for possibly fixing this kind of behavior.”

Bullock now studies another type of involuntary behavior called psychogenic non-epileptic seizures. The condition resembles epilepsy, but is not accompanied by the electrical brain wave abnormalities measured in epileptic patients. Instead, the seizures are an involuntary response to physical, emotional or social distress. The mysterious nature of these seizures and their “orphan” position between neurology and psychiatry appealed to Bullock.

The problem can manifest itself in convulsions, loss of consciousness or paralysis of a limb. It’s a disabling affliction, and patients, the majority of whom are female, are often unable to work or even drive. Although these seizures affect as many as one in 100,000 people — a rate as high as multiple sclerosis — there’s a lack of awareness in the public and the medical community, little knowledge of the physical pathways that cause them, and no standardized treatment.

Bullock had her first significant exposure to the disorder as a psychiatry resident at Stanford Hospital, where she assisted with several studies led by John Barry, MD, a professor of psychiatry and behavioral sciences. Bullock and Barry looked at the frequency of past trauma among people with psychogenic non-epileptic seizures and whether group therapy could be an effective treatment.

But as her career was taking off, Bullock grappled with a tough question. Could she take time off from her psychiatry residency to have kids? The answer, it turned out, was yes. In fact, she took two breaks from her

residency to raise her two now-teenage children. “It was kind of scary because you assume most programs won’t let you back in,” said Bullock, but she added that if you ask for things, they often work out. Now, back in the clinic, Bullock continues to look for ways to treat psychogenic seizures.

Patients diagnosed with psychogenic non-epileptic seizures often receive incorrect diagnoses and treatment, said Bullock. It takes an average of seven years before patients are properly diagnosed. Typically, Bullock said, people suffering from the psychogenic seizures are first sent to neurologists who specialize in epileptic seizures. About one third of patients in epilepsy monitoring units at Stanford and hospitals across the country will eventually be diagnosed with non-epileptic seizures, but some patients take ineffective epilepsy medication for years.

Many of these patients have problems with their emotions, which can be either too extreme or too blunted. “Some patients are so shut down they don’t display emotions, are unaware of them, or have emotions all over the map that they can’t control,” said Bullock, “so we teach them skills for handling both problems.” Basic interpersonal skills such as how to appropriately ask for things or say no to requests can also be difficult for these patients, who face obstacles due to their disability, gender or other personal circumstances.

Often, psychogenic seizure patients feel they have no voice. “For example, a woman in an unhappy marriage may display these symptoms as a way to indicate that something is wrong,” said Bullock. “It can be as if their true feelings are expressed through their bodies instead of through their emotions,” she said. “In a sense the body is speaking for them.”

Other patients don’t know how to regulate their emotions, so “when they get really mad they have seizures and their bodies just go offline,” said

Bullock. Still others need to address deeply buried effects of childhood trauma to end the debilitating seizures.

“Our hypothesis is that there’s something in the limbic system that is dysregulated,” Bullock said. The limbic system comprises the functionally and anatomically connected brain structures that regulate responses like emotion and behavior. There may be a biological vulnerability and a stressful environment that come together in a perfect storm, creating mental turbulence.

Figuring out the exact physical cause of the disease will be difficult because of such heterogeneity.

Nonetheless, these patients can often be cured, a fact that has Bullock hooked. “It’s so rewarding once they get control over this debilitating disease,” she said. “They get their lives back on track and go into remission. Sometimes, all it takes are simple changes, like ensuring patients sleep eight hours a day or take restful breaks at work. For others, it may be a longer journey facing some of their traumatic memories from the past and gaining new meaning from their life story. To help patients improve, Bullock thinks cognitive behavioral therapy may be the key, specifically a form called dialectical behavior therapy.

Because this kind of therapy has been effective at treating borderline personality disorder, a known emotional dysregulation problem, Bullock suspects it could also help psychogenic seizure patients. She is leading a study on how these patients respond to dialectical behavior group therapy, a type of cognitive behavioral therapy that aims to teach patients skills to better tolerate stress, regulate their emotions and improve interpersonal relationships. She hopes to one day lead a randomized controlled trial to evaluate the effectiveness of this form of therapy for treating the seizures.

Bullock draws upon her experiences of balancing career and family life — from negotiating the terms of her medical training, to the experience gained from raising two kids — to her work with patients. “In my own life I’ve had to struggle with how to ask for things and be assertive. Given your gender, career, and role in society, it can be difficult to navigate all that,” she said. “I drift in and out of enlightenment daily, but by teaching these skills I’m reiterating them to myself and making sense of my own personal challenges.”

Research is not part of the usual duties of clinician-educators like Bullock, who typically see patients and help educate medical trainees. She had to be persistent to get permission to conduct her own studies.

“I think more clinician-educators should get involved in research because we are right at the front lines, with a huge amount of observational data,” she said. “It dovetails nicely into clinical work and may be more meaningful when done by those involved in clinical care."

Provided by Stanford University Medical Center