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Less 'me,' more 'we'

Until recently, scientists thought trying to study spirituality was a hopeless case

Story by Dale Smith | Illustrations by Joel Sager

Scientists have to take their clues where they find them. And in the nascent science of spirituality, precious few clues exist at all. However, new studies at Mizzou and elsewhere suggest that the geography of the brain may contain twin seats of spiritual experience. One spot helps people feel selfless — less “me” and more “we.” Another part calls up the cultural and religious symbols we know best to help interpret spiritual experience.

Brick Johnstone, a neuropsychologist in MU’s School of Health Professions, has made important findings by studying the spiritual experiences of people with traumatic brain injuries. The study, published in the science and religion journal *Zygon*, attracted media attention in the U.S. and abroad, and it contributed to Johnstone’s appearance on the *CBS Morning Show*.

Locating the self

In 2005, Johnstone read fascinating studies of the neurophysiologic experience of Buddhist monks and Franciscan nuns during mediation and prayer. Brain images showed reduced activity in their right parietal lobes. Johnstone chose to study people with right parietal lobe brain injuries to determine whether the impairment increased spiritual experiences. He defines this aspect of spirituality as transcendence, or the experience of feeling emotionally connected to things beyond the self, whether it is the divine, the universe or others.

In his clinical work as a neuropsychologist, he was aware that patients with right parietal lobe injuries have disorders of the self. “This includes disorders of localizing the self in space,”

Johnstone says. “For instance, if you have a stroke to the right parietal area, you might dress the right side of your body but not the left. In severe cases, people may even deny that their left arm is their own. But they’ll be totally unaware of what they’re doing.”



In addition to identifying the physical self, the right parietal lobe also helps people understand their strengths and weaknesses. One of Johnstone’s patients who had been an accountant before he experienced a right parietal lobe brain injury could no longer

live by himself or perform work except at a supervised workshop. Still, he insisted that he could live independently and go back to his intellectually demanding profession.

“Recent brain-imaging studies also show that the right parietal lobe fires when you show people pictures of themselves. So, it’s clear that part of the brain helps us decipher images of the self.

“Taken together,” he says, “all this suggests that part of the brain helps you focus on the self. So if you have an injury there, you will have disorders like the accountant. Or, if you learn to minimize that area through prayer or meditation, you’ll be able to focus more on things other than the self. That’s transcendence, or selflessness.” The bottom line, he says, is that reduced focus on the self, either through prayer, meditation, or injury to certain parts of the brain, appears to be related to spiritual experiences.

Similarly, people who are not focusing on themselves are more likely to be more empathetic and altruistic, Johnstone says. For instance, the nuns and monks in a high state of spiritual intensity said they felt a diminished awareness of the self. They went so far as to say they didn’t feel a “self-other dichotomy,” Johnstone says. “In this state, you can see yourself as part of the bigger picture. Look at every religious text out there — Old Testament, New Testament, The Quran, the Upanishads, Buddhist texts. Selflessness — thinking about others and not so

much yourself — is basically the golden rule of all of them.”

Symbols sit on the flip side

Beyond selflessness, another key component of spirituality is the experience of culturally based religious symbols, such as crosses, mandalas and savior figures. These symbols, or archetypes, serve as instincts — the cognitive equivalent to birds automatically flying south in winter. Archetypes help people figure out what is good or bad, moral or immoral. Johnstone’s study of individuals with brain injuries supported previous research locating such symbols in the left temporal lobe.

“If you look at people with left temporal lobe epilepsy, when they have seizures — too much electrical activity — in that part of the brain, many become hyper-religious,” Johnstone says. “Everywhere they look they see religious symbols and derive religious meanings. Some feel they can connect with God or that God is talking to them. Others think there are demons or devils. These are culturally based religious archetypes.”

Each particular culture exerts a strong influence on how archetypes manifest themselves in each particular person. In a study of four people from different parts of China with left temporal lobe epilepsy, all were hyper-religious. And all four experienced their seizure-related delusions according to the symbols of their indigenous religions.

But what happens when an atheist has the same form of epilepsy? Johnstone tells the story of an atheist from London who was in his 40s when he developed temporal lobe seizures. Even though he hadn’t believed in God before the injury, he became hyper-religious afterward. His symbols were those of the predominantly Christian culture around him. “This



At the bedside

A quarter century ago, when Harold G. Koenig was a family and community medicine resident at MU, he noticed something that would shape the rest of his career. “I wanted to know how my patients coped with chronic illness. So, I asked them, ‘What keeps you going through this difficult time?’ Many would talk about their religious faith, prayer, belief in God, being part of a faith community and knowing that people were praying for them. I found that very interesting because nothing in my training related to that. But it seemed so significant to my patients.”

At the time, only a handful of medical schools included the spirituality-health connection in their curricula. So, during the third year of his residency, he conducted a study looking at life satisfaction in older adults

shows us how culture affects the interpretation of these neurologically based spiritual incidents,” Johnstone says.

The back story

Johnstone conducted the brain injury study with a grant from MU’s Pew Center for Religion and the Professions. The center works to improve religious literacy among professionals so they can better serve a public that is more and more religiously diverse. His colleagues include MU faculty members from psychology, sociology, medicine, anthropology, occupational therapy and social work.

Until the 1990s, scientists were hesitant to study relationships between religion and health, Johnstone says. “In health care, there was science and disease. You identify the disease and provide the treatment, and that’s how you make individuals better. Health care providers and researchers thought, ‘That prayer stuff doesn’t involve us.’ ”

Then, in the 1990s, Harold G. Koenig, a former MU family medicine resident, got things rolling (See “At the bedside” sidebar). He saw that religion is important to patients and believed that ignoring it was wrong, Johnstone says. Koenig conducted some of the first and most important studies showing how religious practice relates to health, and he paved the way for others (See “Congregational coping” sidebar). “Science and religion are finally coming together,” Johnstone says.

Religion as coping

People cope with illness and other problems in various ways. Some go to a psychologist for counseling, some go to the gym for a workout, some turn to alcohol or drugs. “Religion is one of the most important ways people cope,” Johnstone says. “If you are Catholic, you may pray or say a rosary. If you are Buddhist, you are probably going to meditate. If you are Muslim, you may engage in ritualistic prayer five times a day. Right now, people are focused on differences between religions, but we’re saying, ‘No, there are many similarities, so let’s focus on those

as it related to their level of religiousness. That was in 1984. Now, more than 25 studies later, he is a leading expert in spirituality and health, a primary author on the definitive reference work in the field and a professor of psychiatry at Duke University in Durham, N.C. Due in part to his work, 100 of the 141 medical schools in the U.S. and Canada now teach students about spiritual issues and health.

A key step in patient care is learning to take a spiritual history — asking about whether patients have a faith and a spiritual community that might help them. Koenig touts a study comparing physicians who talked briefly with patients about these issues to physicians who did not. “Within three weeks of that five-minute spiritual history, there were significant improvements in patients’ emotional state, psychological functioning and the physician-patient relationship. Many patients want their physician to be their doctor and priest. When the physician deals with their spirituality, they can say, ‘Here’s a doctor who respects what is important and has meaning to me.’ ”

In addition to all his scholarly work, Koenig has sat at the bedside of more than a thousand seriously ill patients, many of whom talk about how spirituality influences their lives and well being. He sees how they improve when their spiritual needs are met. As a

things.’ ”

physician, he says, “Who wouldn’t want to treat patients this way.”

The scientific aspects of spirituality fit neatly into models of psychoneuroimmunology. Positive thoughts — belief that God will help you through problems — decrease stress, which leads to better immune system function, which leads to better health. Johnstone calls it mind over matter. And many minds at that. “Nearly 90 percent of people in the United States say religion is important to them, and two-thirds pray on a regular basis. This is where most people turn to cope — to beliefs, rituals and especially to fellow congregants.”

Selfless brain of the future

The brain evolves, Johnstone says, and research on spirituality may help explain the way forward. “Humans have gone from being primarily loners and hunters to being more social and farmers. Some say the next step in brain evolution is to respond to the increasing need to get along better with others. That may mean becoming more selfless. We all need to move beyond figuring out how to take care of ourselves and instead figure out how we are going to take care of each other, different species, the Earth. That’s the logical progression.” To get updates on new content please [Join MIZZOU magazine on Facebook](#).



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Reader Feedback

This is a very interesting article about Dr. Brick Johnstone's research at MU's School of Health Professions. But the last paragraph is not supported by the research. Maybe the brain evolves, but it sounds like wishful thinking to say that the "logical progression" of the brain means that in the future "we are going to take care of each other, different species, the Earth." The related article about Dr. Harold G. Koenig's research on the following page was equally interesting and surprising.

Ronald D. Kunzelman, BS '61 | Dec. 1, 2009

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