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Counseling and neuroscience: The cutting edge of the coming decade

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“Experiences, thoughts, actions and emotions actually change the structure of our brains. … Indeed, once we understand how the brain develops, we can train our brains for health, vibrancy and longevity.” — John J. Ratey, A

USER’S GUIDE TO THE BRAIN

Counseling builds new brain networks. Research in neuroscience and cognitive science is highly supportive of our emphasis on listening, empathic understanding and building strengths and wellness. Somewhat surprisingly, neuroscience’s findings on the brain result in a more complete awareness of how environment and culture shape the individual. The bridge between biological and psychological processes is erasing the old distinction between mind and body, between mind and brain — the mind is the brain.

How and why are neuroscience and cognitive science relevant to counseling practice? First, neuroscience provides comforting research that suggests most of counseling theory and practice is on target. But it also gives us a clearer understanding of why what we do actually works. Moreover, it imparts ideas for improving our work with clients. We also learn that our wellness and environmentally based orientation is correct. Unless we have a meaningful and effective environment, we cannot grow and change. In counseling, this means that our key word relationship is all that more important and that we need to honor and respect what we have done and what we can do in the future.

You likely have noticed frequent stories on television and in the popular media on brain research and its implications for the future. This research has reached a state of precision where it now has immediate meaning for counseling process and outcome. Neuroscience and neuroimaging have found that measurable structural changes occur in client brains as a result of cognitive and interpersonal therapy. Advances in positron-emission tomography scans and functional magnetic resonance imaging have made it possible to measure areas of the brain that “light up” or “fire” under various stimulus conditions. And it is not just the client who develops new neurons and neural nets in the process of counseling; the counselor’s brain is changing as well.

Getting our field to accept and learn this new area will be challenging, however. We aren’t aware of any curriculum that includes a serious discussion of how we can use neuroscience and cognitive science in counseling and therapy practice. Fortunately, our major accrediting association, the Council for Accreditation of Counseling and Related Educational Programs, anticipated this future in its 2009 standards. In relation to one of CACREP’s “eight common core curricular areas,” we found the following statement incorporating these new ideas:

“Human Growth and Development — studies that provide an understanding of the nature and needs of persons at all developmental levels and in multicultural contexts, including all of the following:

a. theories of individual and family development and transitions across the life span;

b. theories of learning and personality development, including current understandings about neurobiological behavior …”

This CACREP Standards statement provides a rationale and direction for our new future. We are now at a point where neuroscience and its related areas can and will provide a powerful impetus for adding new content to our counseling curriculum and practice. Unless we become aware of this new paradigm and change, we are in danger of falling behind in our daily practice, teaching and research. John Cacioppo and Jean Decety have written that “psychological science in the 21st century can and should become not only the science of overt behavior, not only the science of the mind, but the science of brain function.” Not only does neuroscience clearly indicate that we are on the right track, but it also demonstrates the need for updating our field if we are to remain current and relevant.

Many counseling professionals worry about the “medical model” and a possible focus on pathology. However, you will find that neuroscientists have a strong environmental orientation — client development over the life span clearly impacts the brain. Evidence suggests that effective counseling and therapy can change the brain in positive ways. In truth, neuroscience reinforces counseling’s wellness model.

FIVE BASIC CONCEPTS

Five basic concepts illustrate the usefulness of neuroscience to counseling.

1) Neuroplasticity: Simply put, the brain can change — it is not fixed. Instead, it responds to external environmental events and/or actions initiated by the individual. The old idea that the brain does not change is simply wrong. Neuroplasticity means that even in old age, new connections and neural networks are born and can continue development. Regardless of age, genetic background or life experience, change can happen. As Jeffrey Schwartz and Sharon Begley have noted, “Neuroplasticity can result in the wholesale remodeling of neural networks … a brain can rewire itself.” Effective counseling not only changes minds but changes brains as well. As helpers, we find that our brains also grow and change.

2) Neurogenesis: Counseling can support the building of new neurons! One of the most startling findings is that completely new neurons can be generated in the learning process, even in older people. The idea that we only go “downhill” in later life has been proved wrong. Neurogenesis occurs in many areas of the brain. We develop new neural networks throughout the life span in response to new situations or experiences in the environment. Exercise is particularly important as a lifetime process to ensure brain and physical health. Exercise increases blood flow and the release of positive neurotransmitters such as serotonin. Many of you reading this article have experienced the serotonin “high” of running or other physical activity. This positive high through exercise needs to be part of your treatment regime for clients. Serotonin release is particularly helpful in mitigating depression. If clients are sad, encourage them to walk or run. Not only will they feel better, but their brains will be expanding as well.

3) The importance of attention and focus: Our basic concepts of attending behavior and attention — required for the learning process that is counseling — are measurable through brain imaging. When client and counselor attend to the story, the brain of both interviewer and client become involved. Factors in attention include arousal and focus. Arousal involves the reticular activating system, at the brain’s core, which transmits stimuli to the cortex and activates neurons firing throughout many areas. Although the brain is holistic, the executive frontal cortex can determine the direction of attention. If you attend with energy and interest, and this is communicated effectively, expect your client to see you as a positive resource. The microskill of attending behavior becomes ever more important. Meditation is an excellent treatment to facilitate client focus and attention. As with exercise, evidence is clear that meditation is an important treatment and wellness alternative.

4) Clarifying our understanding of emotions: We think of the basic emotions as sad, mad, glad and fear. Disgust and surprise have been added through Paul Ekman’s research. Brain imaging now reveals that each of the emotions fires different parts of the brain. Again, we see that our basic counseling concepts are verified. The amygdala is the major seat of the negative emotions of sad, mad and fear, but it is also an energizer for learning and absorbing new input and memories. Many areas of the brain are activated by positive emotions. The prefrontal cortex and the hippocampus are obviously important, but the nucleus accumbens sends out signals to the dorsal cingulate cortex and prefrontal cortex, making it possible to focus on the positive. Thinking and feeling positively are heavily influenced by executive cognition functions.

5) Focusing on wellness and the positives: When counselors focus on negative issues and problems, this builds a self-reinforcing circularity between the “demons” of the amygdala and the frontal cortex. The result? Negative thinking, accompanied by negative feeling, which is characteristic of depression. Pessimism feeds on itself. Research is clear, however, that an effective executive frontal cortex focusing on positives and strengths can overcome the negative. Appropriate medication (for example, Lexapro and Wellbutrin) can enhance positive thinking by increasing the supply of serotonin. Albert Ellis’ and Aaron Beck’s cognitive behavior counseling does the same thing. As the old popular song goes, “You’ve got to accentuate the positive, eliminate the negative.”

Keep in mind that wellness activities such as exercise, positive reframing of old stories, interpersonal relationships, meditation and leisure all facilitate our ability to control the demons of negative thinking and feeling.

EMPATHY AND MIRROR NEURONS

Empathy is not just an abstract idea; it is identifiable and measurable in the physical brain. Fascinating research on brain activity validates what the helping field has been saying for years. As Decety comments, “The basic building blocks (of empathy) are hardwired into the brain and await development through interaction with others. … Empathy (is) an intentional capacity.”

Let us “unpack” the meaning of that complex sentence and its implications. Mirror neurons are neurons that fire when we behave, think or feel, and they also fire when we see others behave, think or feel. Mirror neurons enable you to sense and understand what the client is saying and feeling. These neurons even impact your internal bodily responses when you are empathically experiencing the world of the client. This is a natural talent you can encourage and develop by increasing your awareness of the client and noting what happens inside your own body.

At the same time, you are awakening the mirror neurons in the client and facilitating his or her development of new connections in thoughts, feelings and action. This awakening shows in the verbal behavior of clients and the action they take as a result of the interview. And as clients restory their issues, new neural connections are born. Your empathic behavior and the relationship are central to change, further emphasizing the importance of a positive approach to change. If we listen and selectively attend only to problems as counselors, this will reinforce negative patterns in the brain and make the change process slow and clumsy.

What we learn here is that the empathic person’s brain responds to another person’s experience, even though he or she does not actually experience that person’s world. Many studies over the years back up this central point. For example, around their second year, children indicate concern for others cognitively, emotionally and behaviorally by comprehending others’ difficulties and trying to help. Perhaps you have seen two young children playing together. One falls and starts crying. Even though the second child has not been hurt, he or she also cries. This ability to observe the feelings of others could be considered the developmental roots of empathic understanding.

Decety points out that the antisocial, criminal personality has a reduced ability to appreciate the emotions of others. There is less firing of mirror neurons in the prefrontal cortex, and this deficit also appears to be a dysfunction of the energizing amygdala and hippocampus (long-term memory). Decety’s breakthrough work with children diagnosed with conduct disorder again reveals less activity in mirror neuron areas of the brain.

The nucleus accumbens is related to sexual functioning and the “high” from certain recreational drugs. It is particularly responsive to marijuana, alcohol and related chemicals and thus is key in addiction. When we seek to help an addicted client, we are working against some very powerful parts of the brain. One of our great challenges is helping these clients examine and rewrite their stories and find new actions through healthy alternative highs to replace the strengths of addiction. When you find these clients developing new life satisfactions and interests (wellness), you are influencing them toward behavior that can result in new positive responses in the nucleus accumbens and other parts of their brain. William Glasser, the founder of reality therapy, long ago stated the importance of building positive addictions to combat drugs, antisocial behavior and alcohol.

NEUROSCIENCE, STRESS AND SOCIAL JUSTICE

Stress management becomes a central strategy as we develop an increased understanding of neuroscience. Toxic and long-term stress is damaging. Paul Krugman summarizes: “Poverty in early childhood poisons the brain. …

Neuroscientists have found that many children growing up in very poor families with low social status experience

unhealthy levels of stress hormones, which impair their neural development. The effect is to impair language development and memory — and hence the ability to escape poverty — for the rest of the child’s life.” Racism, sexism and other forms of oppression send damaging cortisol into the brain.

Clients need to be informed about how social systems affect personal growth. As counselors, we can help clients understand that the issue does not lie in them, but in oppressive systems. They should avoid self-blame and self-pity. We can build strengths through a wellness approach and a focus on positive gender and cultural identity. Neuroscientists have found that the brain fires most when seeing faces that resemble one’s own. This is an important component of antiracism training. We all need to work against our personal and cultural conditioning. We can do this by studying, but more effective is moving into culturally different communities and meeting and working with people different from ourselves.

Finally, there is social action. What are you doing in your community and society to work against social forces that bring about poverty, war and oppression? Are you teaching your clients how to work toward social justice themselves? A social justice approach includes helping clients find outlets to prevent oppression and work with schools, community action groups and others for change.

LOOKING TO THE FUTURE

Neuroscience research provides an important biological foundation for understanding the impact of our work as counselors. The very act of interviewing and counseling produces changes in client memory (as well as your own). Always be aware that learning and new ideas are being constructed in the session. We suggest that counselors continue to study and learn about brain structures and functions because new findings may provide further support for our work and suggest specific guidelines for practice.

Space does not permit exploration of how specific microskills, theories and therapeutic strategies are likely to affect neurotransmitters at the deepest levels. But data are beginning to suggest that effective counseling can be more long lasting than medication in many cases. Why? We are clearly impacting neurotransmitters in the process of developing new neural networks, which contain our thoughts and feelings, which lead to behaviors. And we are simultaneously teaching skills that will last long after medication has ceased.

Brain research is not in opposition to the cognitive, emotional, behavioral and meaning emphasis of interviewing and counseling. Rather, it can help us pinpoint types of interventions that are most helpful to the client. In fact, one of the clearest findings is that the brain needs environmental stimulation to grow and develop. We can offer a healthy atmosphere for client growth and development. We advocate the integration of counseling, psychotherapy, neuroscience, molecular biology and neuroimaging, and the infusion of knowledge from such integrated fields of study, into practice, training and research.

Note: This article is adapted from Intentional Interviewing and Counseling: Facilitating Client Development in a Multicultural Society, seventh edition, by Allen Ivey, Mary Bradford Ivey and Carlos Zalaquett (Brooks/Cole/Cengage).

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