

WHERE DO MENTAL HEALTH PROFESSIONALS LOOK FOR NEUROCOUNSELING RESOURCES?



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A seismic shift in the field of counseling

Mental health professionals such as counselors, counselor educators, graduate students, and researchers live and work in an exciting but challenging era. There is a seismic shift in the field of counseling that clinical practice, counselor education and training, and research require not only clinical observations of human behavior and functioning, but also an extension of the scope of knowledge on some aspects of different branches of biology to meet the unique needs of clients and students. Neurobiology, neurophysiology, microbiology, immunology, genetics and epigenetics are a few to list in order to help readers to better understand diversity in the different branches of science. Furthermore, it is noteworthy that the significant stance of the field of counseling on mental health and accompanying directional change in clinical practice and research is multidisciplinary in reciprocity and collaboration with one another rather than speaking the clinical language of one discipline. However, not many mental health professionals in the contemporary era may have readily proficiency in speaking language of another discipline such as neurobiology unless they have some sort of relevant past education, training, or clinical or personal experience in the aforementioned area but are encouraged to incorporate neuroscience into their clinical practice, education and research. If there is anyone out there as a mental health professional who has ever wondered, whether or not you are prepared enough to keep up with the shift in the field, you are not alone.

Challenges some mental health professionals face



As of August 7, 2017, there are 801 Master's or doctoral programs in counseling and counselor education and supervision in the United States that are currently accredited by Council for Accreditation of Counseling and Related Educational Programs (CACREP). Although the standards encourage program innovation in meeting both the intent and spirit of the 2016 CACREP Standards, at present, the eight common core areas representing the foundational knowledge required of all entry-level counselor education graduates involving professional counseling orientation and ethical practice, social and cultural diversity, human growth and development, career development, counseling and helping relationships, group counseling and group work, assessment and testing, and research and program evaluation do not include areas in neuroscience or bioscience. The current counseling curriculum does not discourage proactive learning of graduate students, counselor educators, counselors, and researchers, but it does not appear to reflect the contemporary direction in the field of mental health. This may mean that there are not be in-house courses in neurocounseling and neuropsychology available for students and other mental health professionals without sufficient knowledge and training in such areas to take even though they may be interested. How many counseling programs out of the currently CACREP accredited programs provide in-house courses in neurocounseling and neuropsychotherapy for their students? Counselors in training, counselors, counselor educators, and researchers who are interested in expanding the scope of knowledge and/or training in neurocounseling and neuropsychotherapy will mostly need to make additional personal efforts in meeting their educational and clinical training needs by taking a proactive role so that they can stay parallel to the contemporary shift of the field of mental health.

How to and where to look for educational resources of neuroscience



The next question you may ask yourself may be, “So where do I look for neurocounseling resources?” In particular, this article was written with the hope of providing mental health professionals with some resources that might be helpful in learning the aspects of the different branches of science and incorporating the learned knowledge into their clinical practice, teaching, and research. Here are some technological tools as a function of assisting in your learning, in particular for visual learners.

My Love Affair with the Brain: The Life and Science of Dr. Marian Diamond: This film is a 2016 award-winning documentary about Dr. Diamond’s life as a pioneering female scientist. It portrays her passion for the human brain, research, and love of teaching. Dr. Diamond was one of the most influential scientists who had published research into the neuroanatomy of the forebrain with the discovery of the impact of the surrounding environment on brain development and the association between positive thinking and health of the immune system. Recently, we sadly lost Dr. Diamond, but the impact of her research and teaching has influenced varying areas of science on brain functioning and a number of individuals from her former students to mental health professionals living in the current time.

3D Brain: This app produced by the Cold Spring Harbor Laboratory DNA Learning Center for smart phones consists of 29 interactive structures that can be rotated in 3D space. Each structure contains information on associated functions, disorders, brain damage, case studies, and links to contemporary modern research. This app is available to the public free of charge.

NIH RePORTER: This is a database of research projects provided by the National Institutes of Health (NIH). RePORTER is updated weekly, and the information found in the database is drawn from several extant databases including eRA databases, Medline, PubMed Central, the NIH intramural database, and iEdison. RePORTER includes information on research projects funded by the NIH as well as the Centers for Disease Control and Prevention (CDC), Agency for Healthcare Research and Quality (AHRQ), Health Resources and Services Administration (HRSA), Administration for Children and Family (ACF), and U.S. Department of Veterans Affairs (VA). The database also includes links to publications and patents citing support from these projects. With the search term of “neuroscience” with the limit of a publication search from 2016 and to 2017, the search outcome provides them 2,179 results of research projects, 2,805 publications supported by 3,370 active projects, and 111 clinical trial studies for the projects matching the search criteria. Particularly, under the tab of DATA & VISUALIZE on the page of search results followed the aforementioned search term, the search results can also be demonstrated in visual presentations such as bar and pie charts and tables. Each chart or table on the website can be exported to PowerPoint or Excel, and thus, it is not only quality data, but also appreciates an efficient, effective way of retrieving the data to facilitate the user’s learning in the relevant area of their interests.

NIH Guide LISTSERV: NIH Guide for Grants and Contracts is the official publication for NIH medical and behavioral research grant policies, guidelines and funding opportunities. This information may be particularly useful for mental health professionals interested in conducting research on mental health or mental illness. The NIH guide announcements are published daily. At the end of each work week, usually on Friday afternoon, the NIH transmits an e-mail to NIH Guide LISTERVE subscribers with the current weekly table of contents (TOC), including links to announcements published during the week.

Facebook Pages of NIH’s 27 Institutes and Centers: Most of the 27 institutes and centers at NIH run a Facebook page for their institute or center and update it relatively frequently. Mental health professionals who are Facebook users and who are interested in being updated with NIH’s news on a range of issues from neuroscience to mental illness, following the Facebook page of the institutes or centers of their interest can be a good resource.

NIH's Resources for Students and Educators: Here are some more free resources provided by NIH. In particular, for mental health professionals interested in brain education, you can follow this pathway to reach the information. Go to the NIH's main website à click the tap of Research & Training à then go to Science Education à under either Resources for Students or Resources for Educators, click NINDS Brain Resources. The NINDS stands for the National Institute of Neurological Disorders and Stroke. On that site, quality educational resources related to brain health and function can be found for mental health professionals. Under the tap of Games, the Lobe-oratorium, which is an interactive game to help you understand how different parts of the brain work, can be found. Some brochures are also available in PDF files about Genes at Work in the Brain, The Life and Death of a Neuron, Know Your Brain, Understanding Sleep, and Preventing Stroke and more, etc. For some mental health professionals who prefer written neurocounseling materials to electronic ones for the same aim, below you will find a list of written educational resources such as books and some strategies to obtain them at cheaper prices.

Molecular Biology of The Cell (6th): This book written by Dr. Alberts and his colleagues is a classic, in-depth text reference in cell biology. This book was the textbook for this writer in undergraduate school working toward a major in cell biology. To help mental health professionals in and outside the United States understand the significance of the book in cell biology and other relevant fields, *Molecular Biology of The Cell (6th ed.)* could be compared to the *Diagnostic Manual of Mental Disorders-5 (DSM-5: American Psychiatric Association, 2013)*, which a number of mental health professionals should be familiar, and which is one of the reference books that could not be missed for mental health education and training. The book was written in clear and concise language and illustrated with original drawings. Some of the contents of the book involve the introduction to the cell, basic genetic mechanisms, ways of working with cells, internal organization of the cell, and cells in their social context. The book sets forth the current understanding of cell biology but also explores the intriguing implications and possibilities of that which remains unknown. Just as a side note, there is *Molecular Biology of the Cell (MBoC)*, which is an online journal published twice monthly and owned by the American Society for Cell Biology (ASCB).

Wendy Suzuki at the New York University: Dr. Wendy Suzuki is a neuroscientist and professor in the Center for Neural Science at the New York University. Dr. Suzuki was a former student of and deeply influenced by the teachings of Dr. Diamond at the University of California at Berkeley. Her major research interest continues to be brain plasticity. Dr. Suzuki's work, more recently, has focused on understanding how aerobic exercise can be used to improve learning, memory, and higher cognitive abilities in humans. Amazingly, Dr. Suzuki has been professionally trained in aerobic exercise not only for her health benefits but also for the implementation of the learned training and her personal experience in exercise into her classroom and research at the NYU. At the education session with the title of Can exercise change your brain? during the 2017 American Psychology Association's conference in Washington, D.C., Dr. Suzuki emphasized the importance of the effects of regular exercise on brain function in terms of adult neurogenesis. Adult neurogenesis continuously occurs in the two specific regions of the brain throughout adulthood that are the subgranular zone (SGZ), as part of the dentate gyrus of the hippocampus, and the striatum. Dr. Suzuki suggested during the session that mental health clinicians provide their clients with education on the positive effects of exercise on mental health and actively incorporate exercise into clinical practice not only by encouraging them to exercise more in words but also by assisting them in making an exercise plan for themselves and exercising with them during the session.

Continuing Education: The Foundation for Advanced Education in the Science (FAES) is a non-profit foundation at NIH and provides advanced educational programs and supports biomedical research within the NIH intramural program. The FAES graduate school delivers high quality and innovative courses in a dynamic learning setting made up of 8 departments and offers 150 evening courses annually to fit the schedule of working professionals.

The online registration for 2017 fall courses is open July 27 through September 8 and includes Human Neuroscience, Foundations of Cellular Neuroscience, Current Trends in the Neurobiology of Mental Illness, Human Microbiome, Principles of Endocrinology, and Molecular and Cellular Mechanisms of Immunity I and II. The courses are typically 1-3 credits. And the tuition is \$160 per credit, and the cost of tuition for most courses ranges between \$160-480. More information can be found on the FAES at NIH website.

Applications into clinical practice



The diversity in different branches of science and the contemporary shift in the direction of the field of mental health may challenge many mental health professionals with a massive amount of information to search for and sort out relevant information, make additional personal efforts and dedication of time and energy in education and training for themselves, and apply and implement the learned knowledge into their clinical practice, teaching, and research in an effective manner in order to meet unique needs. However, mental health professionals can certainly take advantage of the abundance of information available. Now, the reader is invited to apply some practical strategies that can be used in clinical practice when working with their clients. Due to space limitations for the article, the application was intentionally tailored to clinical practice only. In counseling and psychotherapy, clinicians with appropriate education and training are encouraged to actively incorporate the aspects of neurobiology learned on an ongoing basis in information gathering, assessment, diagnosis, case formulation, and other clinical decision making to help clients have a better understanding of the relations between the function and structure of the human brain and symptoms of mental disorders and other psychological programs manifested behaviorally, emotionally, and cognitively. In doing so, it is imperative that clinicians be encouraged to recognize the diversity of learning styles of their clients in clinical practice and accommodate the uniqueness of each learning style (e.g., visual, tactile, auditory, or a mix of more than one sense). For example, some clients who identify as visual learners, you can facilitate the provision of your psychoeducation on the function of the human brain with visual presentations such as 3D Brain in session with them. Using a scale plastic brain model may be another way to accommodate effective learning and therapeutic treatment. The scale brain model can be purchased online or in a bookstore by searching for "brain models" and can be purchased for around \$30 USD. Dr. Allen Ivey has emphasized the significance of human life style (e.g., exercise, healthier diet, and mindfulness) on mental health over the past several years. As mentioned earlier in the current article, regular exercise is associated with a healthy brain and can influence the brain functioning throughout adulthood, in particular, attention, long-term memory, and even the genesis of new neurons. As Dr. Suzuki suggested, mental health professionals are encouraged to take a more active role in counseling and psychotherapy by assisting their clients in making a plan for healthier diets, monitoring the process and progress of plans, and even exercising together with the client in session. Finally, some mental health professionals can introduce their clients to the opportunity for participating in mental health research. As an example, the All of Us Research program operated by NIH is a historic effort to gather data over many years from one million or more people living in the United States. According to the NIH's description of the program, All of Us will serve as a national research resource to inform thousands of research studies covering a wide range of health conditions. Researchers, including mental health researchers, will use data with the de-identified participant information to learn more about how individual differences in lifestyle, environment, and biological make-up can influence health and diseases. The national effort may not only benefit the researcher to use collected data, it may also help the participant learn more about their own health and contribute to an effort that may advance the health of generations to come.