

NEUROCOUNSELING

Brain-Based Clinical Approaches

edited by

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*We dedicate this book to everyone who has been working
toward integrating neuroscience into the counseling field
and to the next generation of counselors,
eager to understand the bridge
between brain and behavior.*



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PREFACE

Many therapeutic fields are embracing principles of neuroscience in their practice, and such principles are rapidly influencing best practices. The counseling field is also beginning to consider how neuroscience and neurobiology can inform, explain, and enhance the theory and practice of counseling. Some leaders in the counseling field have already articulated that neuroscientific findings are becoming the “practice standards of the future” (Myers & Young, 2012, p. 21). In recognizing the growing influence of neuroscience on counseling practice, the American Counseling Association, Association for Counselor Education and Supervision, and American Mental Health Counselors Association have each established separate Neuroscience and Neurocounseling Interest Networks that work collaboratively to present a unified vision of how neuroscience can be used to explain and enhance counseling practice. The newly published 2016 Council for the Accreditation of Counseling and Related Educational Programs (CACREP) Standards (CACREP, 2015) contain nearly three times the number of references to neurobiology as the 2009 CACREP Standards (Jones, 2015). In addition, a growing number of counseling texts and national, regional, and state conference presentations have highlighted the integration of neuroscience into counselor practice. In this preface, we underscore how integrating neuroscientific principles related to the central nervous system and physiological processes underlying all human functioning into the practice of counseling can support and advance the profession (Beeson & Field, 2017).



2016 CACREP Standards

With that background in mind, this preface addresses the section of the 2016 CACREP Standards pertinent to the common core area of Professional Counseling Orientation and Ethical Practice (Standard II.F.1.):

- History and philosophy of the counseling profession and its specialty areas (Standard II.F.1.a.)

The preface also addresses the following 2016 CACREP Specialization Standard:

- Role of counselors and counselor educators advocating on behalf of the profession and professional identity (Counselor Education and Supervision, Standard VI.B.5.i.)



Definition of Counseling

Who are counselors? What do they do? What does it mean to be a counselor? How are we similar to and different from other mental health professions? How do advances in the field, such as neuroscience and neurobiology, pertain to counseling?

All of these questions are important to ponder throughout one's career, from new graduate student to experienced practitioner. As counselors consider who they are as professionals, neuroscience provides the information and tools to support their belief in certain core principles as foundational to counseling practice.

The field of counseling is unique among the mental health professions in its historical beliefs about the human condition and how to enhance optimal living. In 2010, a consensus definition of *counseling* was agreed on by multiple stakeholders in what was formally titled 20/20: A Vision for the Future of Counseling. The definition distilled into one sentence how the counseling profession could be defined: "Counseling is a professional relationship that empowers diverse individuals, families, and groups to accomplish mental health, wellness, education, and career goals" (para. 2). This definition identifies several important concepts as foundational to counseling practice: The professional relationship takes precedence; the goal of counseling is to empower people, especially those from diverse backgrounds, and address systemic barriers that prevent optimal health; and counseling assists people to achieve optimal mental health and wellness, not only to alleviate distress and mental disorders.

Neuroscience supports the importance of these concepts and provides models for how to implement them into counseling practice. As the chapters in this book elucidate, neuroscience can help counselors understand how relationships are forged, leading to deeper and more meaningful working relationships with clients; recognize the persisting impact of systemic barriers such as oppression, marginalization, and trauma on clients' ability to achieve their goals; and take a wellness and strengths-based perspective that serves to empower clients and increase optimal performance. In other words, neurocounseling is commensurate with the orientation and identity of the counseling profession.

Definition of Neurocounseling

The field of mental health services, including counseling, is rapidly evolving. One of the most important emerging trends in the field has been the integration of neuroscience into counseling practice (Beeson & Field, 2017). This new counseling approach has been termed *neurocounseling* (Montes, 2013). Neurocounseling has been defined as “the integration of neuroscience into the practice of counseling, by teaching and illustrating the physiological underpinnings of many of our mental health concerns” (Russell-Chapin, 2016, p. 93). Neurocounseling has a variety of uses. For example,

- Neurocounseling can be used by clinicians to understand how and why psychotherapy changes the brain (Russell-Chapin, 2016).
- Neurocounseling can help us better understand client concerns, conceptualize cases, and plan treatment by using a brain-based perspective.
- Neurocounseling can help clients understand their experience through brain-based psychoeducation.
- Neurocounseling provides counselors with a more holistic, wellness-based, and mind–body integrative approach to client work.
- Technical approaches such as biofeedback and neurofeedback can be used to determine the physiological and neurological underpinnings of a client’s distress and dysfunction (assessment) and can help clients to modify physiology and brain waves to enhance their functioning and reduce distress and dysfunction (intervention).
- Neurocounseling approaches such as biofeedback and neurofeedback can also be used to improve optimal performance, not only to modify distress and dysfunction.

For some clinicians, neurocounseling can be used as part of what the clinician is already doing, as another tool in the toolbox (i.e., an adjunctive strategy to psychotherapy). However, neurocounseling can also entirely change the way clinicians conceptualize client cases, conduct assessments, and select interventions. For example, Lori A. Russell-Chapin wrote in 2016, “For decades, my goal was to assist clients in changing their unwanted thoughts, feelings and behaviors. Today . . . the overarching goal of all my counseling is to help clients to improve their emotional and physiological self-regulation” (p. 94).

Purpose of This Text

As counselors learn more about neuroscience, they are in need of guidance regarding how to integrate this new brain-based knowledge into counseling practice with clients. The ability to translate complex

knowledge to clients is a separate skill set that requires the ability to distill rather than dilute information. Counselors whose case conceptualizations are becoming informed by neuroscientific knowledge also require guidelines regarding how to apply these concepts in clinical practice.

The purpose of this text is to provide a resource for how neuroscientific concepts can be translated and applied to the counseling field, with the objective of both explaining and enhancing the theory and practice of counseling. In doing so, we hope to provide guidance and facilitate learning about how counselors are integrating neuroscience into their work, with the hope of better understanding and identifying methods for effectively and responsibly incorporating key principles of neuroscience into the profession. To advance this effort, we use the new 2016 CACREP Standards as our markers of learning to ensure that CACREP-accredited programs (and all programs) have the information needed to apply neuroscientific concepts to all the major areas of counseling practice.

While writing and editing this text, we also understood that for some counselors, especially those for whom science and research are not strengths, neuroscience can be an overwhelming and frightening concept. The scientific terminology, complex anatomy, and technology-based brain measurements may seem irrelevant to daily counseling practice with clients who bring forth deep existential human struggles that cannot be easily quantified. The specialized knowledge required to be a neuroscience-savvy practitioner may also seem outside the scope of counseling practice.

With that in mind, the purpose of this text is to provide counselors with guidelines, ideas, and tips on how to become effective and skillful neuroscience-informed counselors. We have purposefully asked each author to convey these concepts in a way that is understandable yet retains important information (distill, not dilute). The chapters are organized so that you will understand foundational neuroscience concepts that inform client case conceptualization (e.g., human development, social and cultural background) before learning how to approach assessment and intervention from a neurocounseling perspective.

We hope that this text will be useful not only to current counseling practitioners but also to current master's-level students in counseling programs. In that regard, the book addresses the 2016 entry-level educational standards of the main accrediting body of the counseling profession, CACREP. Each of the eight common core areas of counseling knowledge and skills are covered (professional counseling orientation, social and cultural foundations, human growth and development, career development, helping relationships, group counseling and group work, testing and assessment, research and program evaluation). We also address several 2016 CACREP Standards that are integrated into the eight common core standards, such as the impact of crises, disaster, and traumatic events; the neurobiology of addic-

tions; wellness and optimal performance; and psychopharmacology. Some chapters also address doctoral-level 2016 CACREP Standards for counselor education and supervision. We are proud that this text is the first publication to discuss the application of neurocounseling and neuroscience to the CACREP Standards specifically. In addition, the text represents the first publication to broadly address the application of neurocounseling and neuroscientific concepts across the core counseling curriculum, an approach that provides a practical, comprehensive model for the integration of neuroscience into counseling practice.

In addition to being an adjunctive text for all common core courses in the master's-level counseling curriculum, this text can also serve as a primary resource for counseling students (both master's and doctoral level) who are taking specialization courses in neuroscience, neurocounseling, brain and behavior, biological basis of behavior, and so forth. Finally, the text could also be a resource for counselor educators and supervisors who want to learn more about neuroscientific applications to counseling practice. As such, it is broadly designed for practicing counselors in the field, counselor education students in training, and counselor educators and supervisors.

Text Organization and Chapters

The text is divided into five sections. The first section reviews foundational information about neuroanatomy and neurophysiological development across the life span before exploring the impacts of social and cultural issues such as marginalization, oppression, and traumatic stress on neurophysiological functioning. The second section applies foundational knowledge from the first section to counseling relationships and assessments. Chapters emphasize the role of attentional processes in empathy and microskills, along with establishing safety within the counseling environment, neuroscience-informed counseling theory, completing a comprehensive neurocounseling assessment, and assessing for client wellness and enhancing optimal performance.

The third section addresses specialization areas related to neuroadaptation and addiction processes. Chapters examine the neuroscience of substance use and psychopharmacological intervention. The fourth section uses information from earlier chapters to explore a neuroscience-informed approach to specialized counseling modalities such as group counseling and career counseling. The fifth section describes a brain-based approach to conducting research and evaluating neurocounseling programs, and the final chapter provides guidance on integrating neuroscience into counseling practice. Ten tips are provided for counselors, with information from all prior chapters applied to the case study presented later in this preface.

Text Features

As editors, we sought to ensure that each chapter made direct connections between the content and clinical practice. As an anchor for the content knowledge, each chapter references a case study to ensure the material is relevant to client work. This preface starts that trend by presenting a case study that includes reflection questions that are further explored in the final chapter. Reflection questions are integrated throughout each chapter so that you can pause and consider how the content knowledge that has been covered could be relevant to the client case being discussed. We encouraged authors to share their own brain-based approach to the case study presented in their chapter so that you can consider how to use the information presented with clients in your own unique way. A few quiz questions are included at the conclusion of each chapter so that you can test your knowledge. The quiz answers are located at the back of the text. A glossary is also provided at the conclusion of the text so that you can evaluate whether you understand the concepts taught in the chapters. You are encouraged to return to sections of the chapter in which those terms are described if you are not confident in your knowledge.



Clinical Case Study

Muna is a 42-year-old Iraqi woman who is experiencing anxiety at her new job in an accounting firm. Muna lives and works in a metropolitan area of a large U.S. city. She is also struggling with feelings of inadequacy related to her long-standing dating relationship of nearly a decade. Her family lives in Iraq, and she emigrated to attend a U.S. college in her early 20s. She lives in constant dread of her family finding out that she is living with her boyfriend outside of marriage. She has been drinking alcohol to cope, mostly at night (four to five units). Muna also struggles with sleep at night, usually only getting 3 to 5 hours. She sometimes binge eats when she wakes up at night. Muna has a past diagnosis of attention-deficit/hyperactivity disorder and takes 20 mg of Adderall twice a day. In terms of her medical history, Muna was born prematurely at 28 weeks but otherwise has no history of medical issues. When asked about her family history, Muna mentions that she experienced psychological abuse from her father throughout her childhood. She is very warm and engaging during the initial interview, though her nonverbal fidgeting suggests she is somewhat anxious.

Concluding Thoughts

Over the course of the subsequent chapters, you will learn information that will help you conceptualize, assess, and intervene with this client on a deeper level. You will learn possible answers to important questions such as the following:

- How might the client's premature birth be playing into her current struggles?
- Which areas of her brain are being compromised?
- How does anxiety "happen" in the body?
- Why might the client struggle to think her way out of anxiety?
- What is the potential impact of emotional abuse on the client's functioning?
- How can stimulants interact with alcohol?
- How can the client tame anxiety without using alcohol?

In the final chapter of this text ("Ten Practical Guidelines for Neurocounseling"), we review each of these questions on the basis of knowledge you will acquire from each of the chapters that precede it.

As Lori likes to say, once you have learned about how the brain works in relationship to physical and emotional health, you cannot go back. We are confident that this knowledge will forever change how you approach case conceptualization, assessment, and intervention in clinical practice. We hope the subsequent chapters will be your starting point on this journey.

References

- Beeson, E. T., & Field, T. A. (2017). Neurocounseling: A new section of the *Journal of Mental Health Counseling*. *Journal of Mental Health Counseling*, 39(1), 71–83. <http://amhcajournal.org/doi:10.17744/mehc.39.1.06>
- Council for Accreditation of Counseling and Related Educational Programs. (2009). *2009 CACREP accreditation manual*. Alexandria, VA: Author.
- Council for the Accreditation of Counseling and Related Educational Programs. (2015). *2016 CACREP standards*. Retrieved from <http://www.cacrep.org/wp-content/uploads/2012/10/2016-CACREP-Standards.pdf>
- Jones, L. K. (2015). The evolving adolescent brain. *Counseling Today*, 57(7), 14–17.
- Kaplan, D. M., Tarvydas, V. M., & Gladding, S. T. (2014). 20/20: A vision for the future of counseling: The new consensus definition of counseling. *Journal of Counseling & Development*, 92, 366–372. <http://dx.doi.org/10.1002/j.1556-6676.2014.00164.x>

- Montes, S. (2013, December). The birth of the neurocounselor. *Counseling Today*, 56(6), 32–40.
- Myers, J. E., & Young, S. J. (2012). Brain wave feedback: Benefits of integrating neurofeedback in counseling. *Journal of Counseling & Development*, 90, 20–28. <http://dx.doi.org/10.1111/j.1556-6676.2012.00003.x>
- Russell-Chapin, L. A. (2016). Integrating neurocounseling into the counseling profession: An introduction. *Journal of Mental Health Counseling*, 38, 93–102. <http://dx.doi.org/10.17744/mehc.38.2.01>

About the EDITORS

The three editors of this text are the three chairs of the respective Neuroscience Interest Networks. Lori A. Russell-Chapin is the chair of the American Counseling Association (ACA) Neurocounseling Interest Network. Laura K. Jones is the chair of the Association for Counselor Education and Supervision (ACES) Neuroscience Interest Network. Thomas A. Field is the chair of the American Mental Health Counselors Association (AMHCA) Neuroscience Interest Network. We are excited about what neuroscience can bring to the counseling field and how it can be used in a manner that both honors its unique professional identity and keeps the field at the cutting edge of client care.

Thomas A. Field, PhD, LMHC (WA), LPC (VA), NCC, ACS, is an associate professor in the Master of Arts in Counseling program at the City University of Seattle. Thom holds a PhD in counseling and supervision from James Madison University. He has 10 years of counseling experience with more than 1,000 clients in a variety of settings, including outpatient, inpatient, schools, and private practice. He maintains a small private practice to inform his work as a counselor educator. His research and clinical interests include the neuroscience of counseling practice, clinical mental health counseling and supervision, and social justice and advocacy issues in counseling. Thom has published on the neuroscience of counseling in peer-reviewed journals and has presented at national conferences on the integration of neuroscience into counselor preparation and practice. Thom is currently part of a research team (Eric Beeson, Thom Field, Laura Jones, Raissa Miller) that is studying the development of an emerging counseling theory called *neuroscience-informed cognitive behavior therapy*. Thom is the current chair of the AMHCA Neuroscience Interest Network and is also a member of the ACA and ACES Neuroscience/Neurocounseling Interest

Networks. He is also the associate editor of the Neurocounseling section of the *Journal of Mental Health Counseling* along with Eric Beeson. In 2013, Thom was the first-ever recipient of the 2013 AMHCA Dissertation Research Award.

Laura K. Jones, PhD, MS, NCC, ACS, is an assistant professor at the University of North Carolina at Asheville. She holds a PhD in counseling and counselor education from The University of North Carolina at Greensboro, as well as an MS in psychology-cognitive neuroscience from the University of Oregon. She uses her training in both disciplines to inform her research, clinical, and pedagogical practices. Laura's primary interest lies in the confluence of neuroscience and counseling, with specific interest in the intentional and informed integration of neuroscience into the counseling field and counselor training programs, as well as in the neuroscience of trauma and recovery as it relates to elucidating the impact of trauma on interpersonal relationships; perceptions of safety following trauma; and efficacious interventions for survivors. She has presented at numerous national and international conferences on the integration of neuroscience into clinical practice and has authored and coauthored publications and book chapters detailing the application of neurophysiology to clinical mental health counseling and trauma and crisis intervention. Laura serves as the chair of the ACES Neuroscience Interest Network, is a member of the ACA Neurocounseling Interest Network, and is coeditor of the monthly column in *Counseling Today* titled "Neurocounseling: Bridging Brain and Behavior."

Lori A. Russell-Chapin, PhD, NCC, CCMHC, LCPC, BCN, is a professor of counselor education at Bradley University in Peoria, Illinois. Lori earned a PhD in counselor education from the University of Wyoming and a master's in counselor education from Eastern Montana College. Currently, Lori teaches graduate counseling courses in Bradley University's campus-based and online brain-based master's programs. She codirects the Center for Collaborative Brain Research, a partnership among Bradley University, OSF Saint Francis Medical Center, and the Illinois Neurological Institute. Lori has authored or coauthored seven books ranging in topic from practicum-internship supervision to neurotherapy and neurofeedback. Lori is the chair of the ACA Neurocounseling Interest Network and coeditor of the monthly column in *Counseling Today* titled "Neurocounseling: Bridging Brain and Behavior." Lori edits the monthly magazine for AMHCA, *The Advocate*. She is an award-winning researcher and teacher at Bradley University and the recipient of the AMHCA Outstanding Counselor Educator of the Year.

About the CONTRIBUTORS

We are very fortunate to have been able to gather together some of the best minds (pun intended!) within the field of neurocounseling to share with you their expertise related to core counseling content areas. The authors who contributed to this book are listed in alphabetical order.

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