Counselors' Perceptions of Ethical Considerations for Integrating Neuroscience With Counseling

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As with many advancements in science and technology, ethical standards regarding practice often follow innovation. The integration of neuroscience with counseling is no exception, as scholars are just beginning to identify important ethical concerns related to this shift in the profession. Results of an inductive thematic analysis exploring the perspectives of 312 participants regarding the ethics of integrating neuroscience with counseling are presented. This study is the first of its kind to explore mental health counselors', counselors-in-training's, and counselor educators' perceptions of neuroscience integration. The researchers identified a continuum of concern ranging from no concerns to grave concerns. In addition, they identified four specific ethical quandaries: a) neuroscience does not align with our counselor identity, b) neuroscience is outside the scope of counseling practice, c) challenges with neuroscience and the nature of neuroscience research, and d) potential for harm to clients. Implications include four key considerations for counselors prior to proceeding with integrating neuroscience into practice.

Keywords: **neuroscience, integration, counselor identity, ethics, counseling practice**

The integration of neuroscience with the mental health professions continues, and with this expansion comes the risks associated with any nascent area of innovation (Luke et al., 2019). Neuroscience integration, as used herein, is understood using Beeson and Field's (2017) definition of neurocounseling, a synonym for the integration of neuroscience with counseling:

> A specialty within the counseling field, defined as the art and science of integrating neuroscience principles related to the nervous system and physiological processes underlying all human functioning into the practice of counseling for the purpose of enhancing clinical effectiveness in the screening and diagnosis of physiological functioning and mental disorders, treatment planning and delivery, evaluation of outcomes, and wellness promotion. (p. 74)

Counselors and the counseling profession, under code C.2.b of the American Counseling Association's *ACA Code of Ethics* (2014), are charged with scrutinizing innovations and specialty areas prior to and throughout their use in clinical practice; this is a safeguard to protect clients from risky or poorly evidenced theory or practices. For example, some of these risks, as they pertain to neuroscience (i.e., the study of the brain and central nervous system) and neurobiology (i.e., literally, the biology of the neurons and the nervous system), include accuracy, embellishment, misapplication, and hype (Beeson & Field, 2017; Kim & Zalaquett, 2019; Luke, 2016).

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The first and perhaps most salient ethical concern in terms of counseling values is that neuroscience integration is not a unilaterally benevolent addition to counseling (Luke, 2019). Although limited research has focused specifically on mental health counselors, several authors have closely examined the effects of using neurobiological language and frameworks to explain and understand mental health disorders in other mental health fields (Fernandez-Duque et al., 2015; Haslam & Kvaale, 2015; Lebowitz et al., 2015; Luke et al., 2019; Nowack & Radecki, 2018). Haslam and Kvaale (2015) summarized the literature on the effects of brain-based explanations of mental health conditions, such as schizophrenia and depression. Their findings challenge long-held notions that biogenic and neurobiological explanations for mental health and psychopathology are singularly positive. The larger assumption in the profession has been that biomedical explanations can reduce self-blame and public shaming of individuals with substance use and other mental health disorders (Badenoch, 2008; Lebowitz & Appelbaum, 2017). Unfortunately, these biological explanations can at times carry unintended consequences that operate against this positive outcome. Clients may be less likely to invest in psychosocial treatments, believing that while on the one hand their biogenic (i.e., brain-based) condition (e.g., depression) is not their fault, it is also therefore out of their control (Lebowitz & Appelbaum, 2017). In other words, one risk of these biological explanations is that they may reduce outcome expectancy with counseling, while increasing the belief that only biological-based treatments (e.g., psychotropic medication) will work for them.

Mental health providers also seem to be similarly affected by these biased perceptions, at times experiencing less empathy for clients in cases framed as neurobiologically based (Lebowitz & Ahn, 2014). Lebowitz et al. (2015) demonstrated that these negative effects could be mitigated somewhat through training. However, Haslam and Kvaale (2015) asserted that it is imprudent to believe that training is sufficient, because "it is unlikely that all of the ill effects of biogenetic explanation can be reversed simply by educating laypeople about bioscience, or that the fundamental problem is their ignorance of neuroplasticity and epigenesis" (p. 402). It is notable that the research above did not include mental health counselors, so the extension of these concerns to counselors remains uncertain. Nevertheless, the concerns seem warranted regarding the allure of neuroscience conceptualizations (Beeson & Miller, 2019; Field et al., 2019; Luke, 2020). Fernandez-Duque et al. (2015) demonstrated how easily humans can be deceived based on the use of the "prestige of science" hypothesis (p. 926). In a series of experiments, the authors used superfluous neuroscientific jargon and images to fool participants into viewing the content as more veracious. Additionally, concerns about the encroachment of science-based reductionism on the humanistic ethos of counseling has begun to resound through the counseling literature (Beeson, Field, et al., 2019; Beeson & Miller, 2019; Field, 2019; Luke, 2019; Luke et al., 2018). Wilkinson (2018) offered a review of the threats of neuroscience to counseling by highlighting the perceived superiority of objective brain-based methods over the humanistic principles of the counseling profession.

Nowak and Radecki (2018) introduced a special issue in the *Consulting Psychology Journal: Practice and Research* focused on "neuro-mythconceptions." The authors explored the many ways that neurobiology might be exploited by professionals to justify their current practices. Their concern centered on how plausible neuroscience-based claims can sound. Such plausibility results in professionals passing along dubious information to clients in the name of cutting-edge advances in optimizing human performance. The risk of neuromyths also have been cited in the professions of counseling (Beeson, Kim, et al., 2019; Kim & Zalaquett, 2019) and education (Dekker et al., 2012; Deligiannidi & Howard-Jones, 2015; Gleichgerrcht et al., 2015; Karakus et al., 2015; Macdonald et al., 2017; Papadatou-Pastou et al., 2017; Simmonds, 2014).

Purpose of the Present Study

The potential concerns identified above highlight the need to consider potential ethical implications of counselors integrating neuroscience within their practice. Although ethical concerns regarding the implementation of neuroscience have been referenced anecdotally in conceptual reviews (e.g., Beeson & Miller, 2019; Field, 2019; Luke, 2019; Wilkinson, 2018), no studies were found that explored concerns of the counseling community regarding the broader ethical assumptions about the integration of neuroscience with practice. Therefore, this research is the first to empirically address this critical gap by eliciting the counseling community's perceptions of ethical concerns related to the integration of neuroscience and counseling. The research question guiding this study explored if counselors perceive ethical concerns pertaining to integrating neuroscience with their counseling practice, and if so, the nature of these concerns.

Method

This study utilized a survey-based qualitative methodology to explore counselors' perceived ethical concerns regarding the integration of neuroscience with their counseling practice (Merriam & Tisdell, 2016). A single open-ended survey question was selected for qualitative data analysis in this study. This question was part of a larger survey examining counselor perceptions of neuroscience and neuroscience integration with counseling. Given the exploratory nature of the study and the current status of neuroscience literature in the counseling profession, a thematic analysis of a single item from a larger survey was chosen. This methodology was best suited to obtain a general, broad understanding of the concerns within the profession. Use of thematic analysis is consistent with other research in which a standardized measure of the construct (i.e., ethical integration of neuroscience with counseling) does not exist (Bengtsson et al., 2007; Donath et al., 2011). A total of 458 participants completed the larger survey, with 312 participants (67.9%) responding to the question, "What ethical concerns do you have regarding the integration of neuroscience into clinical practice (if any)?"

Participants

Integration of neuroscience with counseling practice affects multiple professional roles within the counseling profession. As such, the survey was developed for counselors, counselor educators, and counselors-in-training. We sought to gain responses from counseling practitioners, counselor educators and supervisors, and current master's- and doctoral-level counseling students. Inclusion criteria for the study consisted of at least one of the following: (a) being licensed as a counselor, (b) belonging to a professional counseling organization, (c) being a current student in a counseling program, or (d) being a current faculty member in a counseling program. Participants who did not meet one of these four criteria were excluded from the study.

Participants varied in their educational attainment, with the highest percentage of participants having graduated with their master's degree and not pursued doctoral study (35.3%, $n = 110$). This group was followed by master's-level students (27.2%, $n = 85$), doctoral-level graduates (22.1%, $n = 69$), and doctoral-level students (15.4%, $n = 48$). Most of the sample (81.4%, $n = 254$) had attended programs accredited by the Council for the Accreditation of Counseling and Related Educational Programs (CACREP). Many participants (60.9%, $n = 190$) reported they were exposed to neuroscience in their graduate programs.

The majority of doctoral-level graduates (85.5%, $n = 59$) were full-time faculty members in counselor education programs. The other 10 doctoral-level graduates were either administrators of clinics, working in private practice, or retired. Of those 59 faculty members, 62.7% ($n = 37$) provided direct counseling services within the past year. In comparison, 81.0% ($n = 205$) of the non-faculty

participants provided direct counseling services in the past year. When combined, the majority of the sample (77.9%, *n* = 243) provided direct counseling services within the past year.

The mean number of years of counseling experience was 10.13 years, with a large amount of variance (*SD* = 10.87). The range for years of experience was 0 to 40 years. Doctoral graduates had the most years of experience on average (*M* = 19.91, *SD* = 11.04). They were followed by master's graduates who were not pursuing doctoral study (*M* = 11.70, *SD* = 10.42), doctoral students (*M* = 7.29, *SD* = 5.21), and current master's students (*M* = 1.74, *SD* = 4.98). A subset of the sample comprised full-time counselor educator faculty (18.9%, *n* = 59). Faculty members in the study had more counseling experience (*M* = 17.83 years, *SD* = 11.00) than non-faculty participants (*M* = 8.33, *SD* = 10.04). No age differences existed by education level. The mean age for the sample was 42.55 years (*SD* = 13.66) with a range from 21 to 82 years.

Approximately half (54.5%, *n* = 170) of participants were currently licensed as counselors or psychologists. In addition, 31.1% (*n* = 97) held the National Certified Counselor (NCC) certification. The majority of the sample (87.5%, *n* = 273) were members of counseling associations. Participants self-reported their gender identity, racial/ethnic identity, age, and number of years of counseling experience. The sample consisted of 73.3% (*n* = 229) females, 25.0% (*n* = 78) males, 1.0% (*n* = 3) non-binary, and 0.6% (*n* = 2) transgender. One person did not report gender identity. The survey gave participants the option to report multiple racial/ethnic identities. Fifteen percent of participants (*n* = 48) identified as multiracial, whereas 84.6% identified as Caucasian/White (*n* = 264, of which 45 were multiracial). Of the remaining participants, 8.0% identified as Asian or Asian American (*n* = 25, of which 19 were multiracial), 5.4% as African American/Black (*n* = 17, of which 13 were multiracial), 3.8% as Hispanic or Latinx (*n* = 12, of which 10 were multiracial), 1.0% as American Indian or Alaskan Native (*n* = 3, of which three were multiracial), and 0.3% as Arab/Arab American (*n* = 1, of which zero were multiracial). No participants identified as Pacific Islanders.

Procedure

The question addressed in this article was drawn from questions used in a larger study that explored training and attitudes related to neuroscience and counseling. The question used in this study was included intentionally as a means to gain a better understanding of perceptions of the ethics of neuroscience integration, recognizing it as a stand-alone construct for the purposes of analysis. The full survey was constructed by the authors, following a thorough review of the literature around the integration of neuroscience in counseling. All survey questions were constructed to conform to Patton's (2015) conventions and recommendations for qualitative questions, such as using open-ended and neutral questions, asking one question at a time, and avoiding "why" questions. The specific question analyzed and presented in this report was "What ethical concerns do you have regarding the integration of neuroscience into clinical practice (if any)?"

We utilized convenience and snowball sampling to recruit participants, which makes calculating response rate difficult. However, as the purpose of the project was exploratory and the method qualitative, the participants were not intended to be fully representative. The potential response bias inherent to this study could mean that participants were aware to some degree of the status of the profession with regard to integrating neuroscience into clinical practice, both positively and negatively. Following IRB approval, the authors electronically distributed the Survey Monkey–created online survey to the following: neuroscience interest networks in counseling, the counselor education listserv, CESNET-L, and direct emails to colleagues for distribution. A link to the informed consent and full questionnaire was included in the email. Interested participants clicked on the link and were asked to give their consent in order to continue to the survey. Three separate requests for

participants were disseminated, with each request coming 2 weeks apart. Participants who completed the survey in full had the option of submitting their email in a separate survey to be included in a drawing for two signed copies of neuroscience in counseling texts.

Role of the Researchers

To limit unconscious bias in the research process, we engaged in discussions throughout survey development, data collection, and data analysis. Such conversations detailed our respective passions, assumptions, histories, and visions of the profession. Several prior assumptions emerged in this recursive process. These ethical concerns largely mirrored the issues raised in existing literature and described in the introduction section of this article. The primary assumption included the belief that incorporating neuroscience into counseling is a largely positive endeavor but that counselors should follow ethical guidelines outlined by professional counseling organizations to avoid ethical concerns related to integration. One author explicitly assumed that participants would generally default to the *ACA Code of Ethics* in their response, such that responses might begin with, "According to the *ACA Code of Ethics* regarding new specialty areas of practice. . . ." One author assumed that most participants would preface their response with "It depends on what you mean by 'integration'" because integration was intentionally undefined in the survey. We continually challenged and actively reflected on these assumptions in order to understand the impact on the authors' relationship with the data and subsequent themes (Hays et al., 2016; Hunt, 2011). We also engaged in reflective writing, particularly through writing memos (Hunt, 2011), in order to maintain awareness of worldviews and potential for bias in coding. Commonly referred to as reflexivity, this process aided in being transparent about assumptions rather than trying to behave as if any researcher would be able to be free from biases in approaching a set of data (Hays et al., 2016). Additionally, we established an electronic audit trail that enabled returning to the data, tracking the process, and checking that the coding remained close to the words of the participants. Lastly, two of the authors served as auditors for the results, having familiarized themselves with the data, but refraining from engagement in analysis and theme development.

Data Analysis

We selected thematic analysis, grounded in a pragmatist framework (Duffy & Chenail, 2008), to guide the inquiry into perceptions regarding the ethics of integrating neuroscience and counseling. Clarke and Braun (2017) defined thematic analysis as "a method for identifying, analyzing, and interpreting patterns of meaning ('themes') within qualitative data" (p. 297). We reviewed literature related to content analysis and thematic analysis and found that there was significant overlap (and sometimes merging) of the two approaches in published literature. Our best understanding of the two related approaches is that they exist on a continuum, with content analysis stopping at the manifest level of analysis and thematic analysis continuing to identify broader meanings. Although we stayed very close to the participants' responses in coding, we did move beyond content analysis "categories" to extract some inductive-level themes across cases.

We followed Braun and Clarke's (2006) six-phase framework, utilizing an inductive and semantic approach to thematic analysis. Braun and Clarke described these connected approaches to analysis as "a process of coding the data without trying to fit it into a preexisting coding frame, or the researcher's analytic preconceptions . . . themes are identified within the explicit or surface meanings of the data" (pp. 83–84). Given that the data were obtained through an open-ended survey question versus an in-depth interview protocol that could capture greater context and meaning, we aimed to stay close to participants' exact words. In this way we resisted the urge to include guesses at participants' motivations or assumptions as part of themes. The emergent codes and themes reflect an inductive, descriptive account of participants' perceptions. We followed the subsequent steps in analyzing the data.

The first three authors served as members of the coding team for data analysis. We first familiarized ourselves with the data by reading all responses through several times and taking notes on general observations and personal reactions to the data (Braun & Clarke, 2006). Afterward, we met via videoconferencing and looked at all the responses together, line by line, to begin identifying initial codes. The average length of responses was one to two sentences; the range of responses was from one word to over 200 words (a paragraph).

We then searched for patterns in the data, noting frequently used words and phrases and commonly expressed ideas. Fourth, we identified connections and grouped codes into preliminary themes. In doing so, we further expanded the overarching themes into subthemes, capturing some of the nuance represented in participants' responses. We discussed and resolved differences in coding data via consensus.

Fifth, we reviewed the preliminary themes in light of the raw data and the research question, paying particular attention to our own perspectives and values. The third author re-read each participant response and matched each response to one of the theme groups. Parts of responses at times fell into different theme groups. For example, one participant wrote, "Ethical concerns would be keeping into consideration what the clinician's scope of practice is, the potential for any side effects or results of rapid growth and brain training, and what insurance companies will cover." The first part was coded in theme 2 (scope of practice) and the second part was coded in theme 4 (potential harm).

The first and second authors worked with the codes and themes in a more abstract and creative manner, developing thematic maps and conceptual continua that reflected relationships between and among participant responses. This process led to combining some themes and changing the title of other themes to better reflect the descriptive accounts of participants. Lastly, in refining the theme list, we discussed theme definitions and final theme names, attempting to capture the nature and essence of each thematic group (Braun & Clarke, 2006; Clarke & Braun, 2017). Clarke and Braun (2017) noted that "each theme has an 'essence' or core concept that underpins and unites the observations, much like characters have their own psychological makeup and motivations" (p. 108). In examining these underlying core concepts in our data, we identified questions that seemed to be illuminated through participants' expressed concerns. As an additional step, we calculated frequency counts to convey the saturation of each theme within the data. Because the purpose of tallying frequencies was to report the strength of qualitative findings rather than to specifically quantify the results, greater weight was given to qualitative data than quantitative frequencies.

Results

In reviewing the conceptual maps of participant responses, it appeared that participants varied in their degree of ethical concerns. To make meaning of this variation, the authors placed responses on a continuum from "none" to "yes." These items were coded based upon whether an ethical concern was reported and under what conditions the ethical concerns existed. Some participants (4.2%, $n = 13$) entered "n/a," but it could not be determined if these responses indicated whether they had any ethical concerns.

Continuum of Ethical Concerns

During the initial review of the data, the authors observed a response range that led to a further analysis of the continuum of responses. Most participants (78.2%, $n = 244$) indicated some level of ethical concern regarding the integration of neuroscience in counseling. These responses had various

degrees of certainty and conditions. Most responses (65.1%, *n* = 203) fell into the *yes, with no conditions* grouping. Example responses included: "Deeply concerned" and "There's a lot of misinformation out there! It's a complex subject and I have seen varying degrees of ability to explain things easily and correctly. Also I think sometimes people want it to provide answers that it can't or read more into the research than is truly there."

The second category identified was *yes, if/only* (3.5%, *n* = 11). One example response included in this subtheme was: "I would only be concerned if counselors use their knowledge of the brain to profess some magical or intellectual superiority in controlling a client." The third category was *none, but* (3.2%, *n* = 10). For example, responses included in this subtheme were: "none—except more research is needed," and "none other than the importance of competence."

The fourth category we identified was *just like any other* (3.2 %, *n* = 10). Some participants indicated that they had ethical concerns that were no different than for other methods of counseling. For example, one participant stated they felt "the same as with any other evidence-based practice: counselors need quality training and an understanding of what it means to be 'competent.'" A fifth category was *unethical not to integrate* (3.2%, *n* = 10). An example response included in this subtheme was: "At this point, it would be unethical NOT to formally integrate these studies" (emphasis in original). Nearly 20% of participants (19.9%, *n* = 62) believed there were *no ethical concerns* regarding the integration of neuroscience in counseling. Given the methods of the study, the "n/a" responses were kept separate from the *no ethical concerns* group, as the analysis aimed to stick close to the participants' actual words rather than infer their intention. Therefore, "n/a" could have been listed for any number of possible reasons that could not be determined in the current study. These responses were further divided into the following groups: (a) participants who believed there were explicitly no ethical concerns (13.8%, *n* = 43), (b) participants who believed there were no ethical concerns at the current moment (3.8%, *n* = 12), and (c) participants who believed there were no ethical concerns as long as certain conditions were met (2.2%, *n* = 7). This continuum provided a richer understanding of the emergent themes, as discussed below.

Themes of Participant Concerns

Most participants (78.2%, *n* = 244) identified ethical concerns. From the continuum above, these are the responses from the following groups: unethical not to integrate; no ethical concerns but; ethical concerns if/only; ethical concerns with no conditions; and ethical concerns just like any other. The analysis of these responses produced a total of four themes and ten subthemes and are summarized in Table 1. The four major themes were: *neuroscience does not align with our counselor identity*, *neuroscience is outside the scope of counseling practice*, *challenges with neuroscience and the nature of neuroscience research*, and *potential harm to clients*. For each subtheme, response frequencies are reported to provide a contextual understanding of how commonly the theme occurred. Subthemes all were deemed equally meaningful, regardless of the response frequency.

Theme 1: Neuroscience Does Not Align With Our Counselor Identity

The first theme was reflective of participants' concerns that integrating neuroscience into counseling might be inherently inconsistent with or even violate counselors' identity. Specifically, participants emphasized the loss of humanistic principles by either directly using the word "humanistic" or using terms consistent with humanistic principles (e.g., holism, human-first, subjective data, process, compassion, relationship, and wellness). Two subthemes related to the overarching theme were as follows: Subtheme 1.1) *overemphasis and/or overreliance* (*n* = 27), and Subtheme 1.2) *reductionism and/or*

determinism (*n* = 25). These connected, yet discrete, subthemes reflected participants' particular areas of apprehension. These areas of concern centered on either giving too much weight to biological, brain-based conceptualizations at the cost of clients' subjective worlds (e.g., "undervalue subjective experience") or reducing human experience in a way that neglected human agency (e.g., "reducing human experience to just science").

Theme 2: Neuroscience Is Outside the Scope of Counseling Practice

The second theme was reflective of participants' reservations that neuroscience was within counselors' scope of practice based on educational backgrounds, training, knowledge, and/or skills. Three subthemes were identified as follows: Subtheme 2.1) *training and education* (*n* = 59), Subtheme 2.2) *lack of standards for training and practice* (*n* = 21), and Subtheme 2.3) *competence* (*n* = 69). Sample responses from this theme included feeling "woefully untrained." Some participants focused more on academic background and elements of training (e.g., continuing education, supervision) as indicative of scope, whereas other participants highlighted counselors' understanding of neuroscience concepts, focusing more on knowledge and application skills. A smaller group of responses emphasized the absence of current training and/or practice standards (e.g., "inadequate training standards"). This line of responses included concerns around an absence of qualified trainers, certification opportunities, and/or general laws and regulations.

Theme 3: Challenges With Neuroscience and the Nature of Neuroscience Research

The third theme captured participants' varied reservations about the general field of neuroscience and the accurate translation of neuroscience research into clinical work. Participants expressing concerns in this area seemed to be asking, "How can we be sure this is done right or well?" Subtheme 3.1, *ever-changing and evolving* (*n* = 14), included responses related to challenges counselors might face in staying current with neuroscience findings. These concerns were centered around the vastness of the field and the fast pace at which research is emerging. Subtheme 3.2, *quality of research* (*n* = 23), included more critical commentary on the type of research being conducted in the neuroscience field (e.g., relevance of lab-based research to clinical practice, insufficient applied research). Subtheme 3.3, *interpreting and applying research* (*n* = 52), emphasized concerns with counselors overstating, speculating, misrepresenting, and misinforming clients of neuroscience research and concepts. Participants voiced concerns with "overhyping findings," "unknown practical use," and the "ever-changing and not fully understood" research base.

Theme 4: Potential for Harm to Clients

The fourth theme reflected participants' concerns that integrating neuroscience into counseling could put clients, and potentially counselors, at risk. A total of 18 participants used the exact phrase "potential harm" or the related idea of informed consent. Fourteen participants referred to concerns with potential harm, and four people noted concerns with informed consent. In Subtheme 4.1, *neuroscience information may be intentionally misused in a way that harms clients* (*n* = 21), participants feared counselors deliberately using "embellishment" and "manipulation." Subtheme 4.2, *unintended potential negative side effects* (*n* = 18), reflected ways that integration could inadvertently harm clients or harm counselors These concerns included giving false hope and creating problems with insurance claims to issues with liability and malpractice.

Table 1

Summary and Frequencies of Themes and Subthemes

Theme	Subtheme	Description	Frequency	Sample Statements
Theme One: Neuroscience does not align with our counselor identity	Sub 1.1 Overemphasis and/or overreliance	The integration of neuroscience in counseling may lead to counselors giving preference to non-humanistic aspects of the client and/or the treatment process (e.g., psychopharmacology, science, the brain).	*n* = 27	• Too reliant on brain • Science over compassion • Defaulting to neuro • Brain obsession • Undervalue subjective experience
	Sub 1.2 Reductionism and/or determinism	The integration of neuroscience in counseling may lead to counselors moving away from holistic conceptualizations and limiting human agency.	*n* = 25	• Oversimplification • Takes away focus on interpersonal • Reducing human experience to just science • Cultural bias
Theme Two: Neuroscience is outside the scope of counseling practice	Sub 2.1 Training and education	Counselors do not have sufficient training and/or educational backgrounds to ethically integrate neuroscience into counseling practice.	*n* = 59	• Insufficient training • Woefully undertrained • Not having qualifications • Scope of training • No formal supervision
	Sub 2.2 Lack of standards for training and practice	There are insufficient standards for guiding the training and practice of neuroscience integration.	*n* = 21	• Lack of laws, regulations, and guidelines • Standards for qualifications • Qualifications of trainers
	Sub 2.3 Competence	Counselors are integrating neuroscience into counseling practice without sufficient knowledge and/or skills.	*n* = 69	• Lack of knowledge • Scope of competence • Not being informed • Skill level of clinician
Theme Three: Challenges with neuroscience and the nature of neuroscience research	Sub 3.1 Ever-changing and evolving	The field of neuroscience is continuously evolving, serving as a barrier to counselors staying sufficiently up to date to ethically integrate principles into counseling practice.	*n* = 14	• Ever-changing and not totally understood • Staying current • Constantly evolving • Keeping up to date • Vastness of the field
	Sub 3.2 Quality of research	Neuroscience research is often too complex, poorly conducted, and/or insufficient for counselors to apply to their work.	*n* = 23	• More research needed • Poor research • Generalizability of research • Lack of scientific foundation of knowledge • Unknown practical use
	Sub 3.3 Interpreting and applying research	Neuroscience research is being misunderstood, misinterpreted, and/or inaccurately applied to clinical practice.	*n* = 52	• Accurately interpreting and applying • Overstatement • Misrepresenting science information • Giving incorrect information

Theme	Subtheme	Description	Frequency	Sample Statements
Theme Four: Potential for harm to clients	Sub 4.1 Manipulation	Neuroscience information may be intentionally misused in a way that harms clients.	*n* = 21	• Manipulation leading to damage • Misuse of knowledge • Controlling the client
	Sub 4.2 Unintended potential negative side effects	The integration of neuroscience into counseling may have unintended negative consequences on clients and/or counselors.	*n* = 18	• Jargon alienates – feeling inferior • Clients misperceiving counselor identity/role and not attending other appointments

Note. $N = 312$

Discussion

Counselors, counselor educators, and counselors-in-training reported a wide range of ethical concerns regarding the integration of neuroscience with clinical practice. These concerns largely reflected existing ethical guidelines (ACA, 2014) and existing literature related to neuroscience and counseling (e.g., Beeson & Miller, 2019; Field, 2019; Luke, 2019; Wilkinson, 2018). We developed four primary themes through the data analysis process. In reviewing these themes, we identified questions that participants seem to be asking through their expressed concerns. Each of the themes shared a meaningful connection, through implication and association, with major sections of the *ACA Code of Ethics* (ACA, 2014). These connections are discussed below.

Theme 1: Neuroscience Does Not Align With Our Counselor Identity

Humanistic concerns in this theme reflect counselor concerns that the integration of neuroscience may shift the profession away from wellness and focus on pathology. As already noted, other scholars have shared this concern (Wilkinson, 2018). However, other authors have alluded to the possibility for neuroscience to expand rather than reduce the client experiences and actually enhance counselor identity (Beeson, Field, et al., 2019; Beeson & Miller, 2019; Field et al., 2019; Ivey & Daniels, 2016).

Humanistic concerns are consistent with criticisms in the literature regarding essentialism (Schultz, 2018). *Essentialism*, in particular Schultz's *neuroessentialism*, is the process of reducing individuals down to mere brain function. This position reflects the positivist, materialist approach to science in general and neuroscience in particular. All human experience is based in neurobiological process (Kalat, 2019), which can feel deterministic and therefore diminish the hope that counselors are called to instill (Schwartz et al., 2016). This theme aligns with several ACA ethical codes, including counselor professional identity and values (Beeson & Miller, 2019). However, influential scholars in the counseling profession have elevated how neuroscience is an extension of the wellness perspective, akin to the professional identity of the counseling profession (Cashwell & Sweeney, 2016; Ivey et al., 2017; Russell-Chapin, 2016). Whereas this theme indicates that some counselors believe neuroscience poses ethical risks to professional identity, the reality remains unclear.

Theme Two: Neuroscience Is Outside the Scope of Counseling Practice

Concerns regarding the requisite knowledge or expertise of counselors aligns well with two specific ACA ethical code standards in this regard: C.2.a. Boundaries of Competence and C.2.b. New Specialty Areas of Practice. This theme assumes that there is a standard of competence that exists. In order for a counselor to be competent, there must be a standard to which they are compared. However, what qualifies a counselor to be competent integrating neuroscience is unclear. There are a few neuroscience-related standards outlined in the American Mental Health Counseling Association (AMHCA) *Standards for the Practice of Clinical Mental Health Counseling* (2020) pertinent to biological bases of behavior and CACREP practice standards (2015) pertinent to neurobiology. However, these standards are not widely known among counselors and lack recommendations for implementation (Beeson, Field, et al., 2019). This lack of explicit direction is similar to concerns regarding the implementation of other counseling standards, such as the Multicultural and Social Justice Counseling Competencies (Ratts et al., 2016).

Theme Three: Challenges With Neuroscience and the Nature of Neuroscience Research

The third theme highlighted the concern that understanding and applying the body of literature that undergirds integration are essential (Field et al., 2019; Luke, 2019). Neuroscience literature is ever-changing, ever-evolving. This rapid pace of change creates two challenges for counselors. First, counselors could have difficulty staying abreast of the state of the art of integration, leading to the potential for using outdated information in practice. Second, counselors might integrate early findings too quickly before there is enough evidence to support their integration. The quality of neuroscience-related research also appears to be a barrier to integration in that counselors may struggle to discern high-quality research from low-quality research (Gruber, 2017; Kim & Zalaquett, 2019). Related to this, counselors face the challenge of accurately interpreting and applying relevant research for practice. Results indicate a primary concern related to issues of accuracy, leading to misapplication, overstating implications, and misinforming clients. This concern is elevated by other research warning against presumed superiority in neuroscience research, given the potential for neuroscience to seduce, allure, and enchant consumers of literature (Coutinho et al., 2017; Lilienfeld, 2014; Weisberg et al., 2008). Concerns regarding the accuracy of neuroscience knowledge among counselors also have been cited (Kim & Zalaquett, 2019). However, counselors in at least one study indicated more accurate neuroscience knowledge and average endorsement of neuromyths when compared to educators, undergraduate students, and coaches (Beeson, Kim, et al., 2019).

These concerns align with several ACA ethical codes, including Section C: Professional Responsibility (2014). When counselors practice based on emergent literature with which they are only superficially familiar, they risk miscommunication with clients and damaging the veracity and integrity of the profession as it relates to client care. This finding is consistent with previous research (Bott et al., 2016; Luke, 2016) that highlights the risk of using information without great care.

Theme Four: Potential for Harm to Clients

The fourth theme has the highest salience for the profession, as safeguarding client safety and welfare are paramount (Kaplan et al., 2017). Results indicated that manipulation is a real concern among participants. Manipulation can occur through misuse, misrepresentation, embellishment, and controlling of clients through invoking neuroscience (Bott et al., 2016). Respondents reported that the actions leading to client harm may be overt. For example, in a desperate attempt to instill hope in a client, a counselor might overstate the concept of neuroplasticity. Similarly, in an effort to present as more competent than perhaps they feel, a counselor might use neuroscience-laden language with clients, resulting in alienation (Lebowitz et al., 2015). Harm may also occur through unintended consequences of integration. Clients may experience negative side effects such as false hope, deflected responsibility, and forgoing medical

consultation. Similar concerns have been found in recent literature (Haslam & Kvaale, 2015; Lebowitz & Applebaum, 2017). These authors note that although on the surface integration seems positive, harm is possible. This underscores the purpose and importance of the *ACA Code of Ethics* regarding new specialty areas: "Counselors practice in specialty areas new to them only after appropriate education, training, and supervised experience. While developing skills in new specialty areas, counselors take steps to ensure the competence of their work and protect others from possible harm" (ACA, 2014, C.2.b).

Limitations

As with any qualitative data analysis, transferability is limited. The authors obtained the data from an online survey, using a convenience and snowball sampling method. Therefore, respondents may have had strong opinions regarding neuroscience and not necessarily be representative of the profession. Another limitation was the use of a single, open-ended question that did not allow for an in-depth follow-up. We made conservative inferences regarding the meaning and intent of the data in the discussion. However, interviews would have allowed for more context into participants' answers. This has long been viewed as a threat to trustworthiness and transferability (Creswell & Plano-Clark, 2018). The structure of the survey in general and the question also could have influenced this result. For example, there was insufficient information available from the responses to know respondent motivation for "n/a" or "none" responses. Although it is likely that respondents did not feel they had enough information to identify ethical concerns, other reasons for such a response are also possible. White females also were overrepresented in the survey sample. This representation is consistent with surveys of CACREP-accredited graduate programs, in which White females are also overrepresented in student and faculty composition (CACREP, 2017). The findings from this study may have been different had the sample been more diverse. The voice of counselors-in-training may be overrepresented in the data. This may also reflect the increasing interest in new counselors-in-training and counselor educators–in–training of neuroscience-informed counseling (Beeson, Field, et al., 2019; Kim & Zalaquett, 2019).

Implications for Practice and Research

This research highlights the need for continued debate and evolution of who we are as counselors and what role neuroscience integration plays in our professional identity, training, and practice. Remaining silent runs the risk of counselors indiscriminately, and perhaps unethically, integrating neuroscience without adequate consideration to counselor professional identity (Luke, 2020). Forgoing these discussions also introduces the risk that counselors may not ensure that such integration enhances rather than detracts from our professional identity. Failing to do so would further support concerns described in *20/20: A Vision for the Future of Counseling* (Kaplan & Gladding, 2011). The concerns highlight the consistent trend that best practices tend to be "dictated to counselors by other mental health professions" (p. 371).

A second implication is the need to clarify counselors' scope of practice with regard to neuroscience. Only one comprehensive set of standards related to neuroscience currently exists (AMHCA, 2020). Yet even with these standards there is little awareness or training around application. Understanding scope will support preventing client harm by ensuring the previous themes are addressed. In this way, counselors will better understand the strengths and limitations of integrating neuroscience information with practice. Further, counselors should continue to practice humility regarding neuroscience evidence. In doing so, they will ensure that they also will be maintaining values (e.g., humanistic orientation) that are hallmarks of the counseling profession.

The results of this study highlight the need for more training in accessing, interpreting, and being current in neuroscience research. This focus includes the need to increase resources to support high-

quality neuroscience-based studies in counseling. As scholars have asserted (e.g., Myers & Young, 2012), neuroscience provides a unique strategy to evaluate the outcomes of counseling services. The challenge, as we demonstrate in this article, is how the profession moves forward in view of these ethical standards. It is one thing to assert that counselors operate only within their scope of competence. It is another thing to articulate and circumscribe the limits of competence in an emergent area like neuroscience.

Determining ethical concerns regarding the integration of neuroscience in counseling requires several professional milestones to be met. This could begin with consensus building in the profession regarding neuroscience and counselor scope of practice. To accomplish this step, counselors need to define what it means to integrate neuroscience with practice. As noted in the current study, participants relied on their own operationalization of the integration of neuroscience. The resulting data seemed to indicate that most viewed this integration as neuroeducation (Miller, 2016) or technical applications (e.g., neurofeedback). Many have expressed more broad integration of neuroscience (e.g., Field et al., 2019) as a means to conceptualize client experiences and guide the selection and timing of various techniques.

Next, once integration is defined, there needs to be a clear standard for the training and practice of all master's-level students (e.g., how much neuroscience does a master's-level counselor need to know?). In addition, standards for advanced practice postgraduation also require consideration. It is unrealistic to think that master's-level programs can prepare counselors to be experts in any area of practice, including neuroscience. As such, the profession also needs to define how much training is enough to ethically practice technology-based (e.g., neurofeedback) and non–technology-based (e.g., using to guide case conceptualization and treatment planning) integration. In doing so, counseling will create the scope of practice that can be used as a gauge of competence and limit risks to practicing outside of one's scope.

Lastly, the counseling profession needs to develop an intentional research effort to validate training standards and therapeutic outcomes related to integration. Additional research is needed before we can appropriately discern future directions of integration. The current paucity of neuroscience literature in the counseling profession is concerning. Of particular concern is the lack of empirical and outcomes-based articles. The lack of training in how to design and evaluate research using emerging paradigms, such as the National Institutes of Health's Research Domain Criteria, further isolates counselors from participating in national discourse regarding the future classification of mental functioning and mental health diagnoses. As the profession accomplishes these tasks, we will promote ethical care, limit the potential for harm, and ultimately advance the profession as a whole.

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