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A Tide of Technical Trends: Technology Competence Among Licensed Counselors

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Abstract

The inclusion of technology in mental health care can revolutionize the accessibility, affordability, and effectiveness of counseling services, while furnishing practical solutions to reduce mental health disparities and meet widening care demands. Steered by the Coalition for Technology in Behavioral Science (CTiBS) telebehavioral health (TBH) competencies, this study employed a descriptive survey design to investigate licensed counselors' (LCs') perceived technology competence in mental health care. The following research question steered the study's exploration: What is the nature of perceived technology competence among LCs? The overarching hypothesis speculated that LCs' exposure, familiarity, and current utilization of various mental health technologies would impact their perceived competence to integrate technology into their clinical work with clients. A total of 153 respondents completed all survey items. Through descriptive and chi-square analyses, the results illuminated LCs' perceived technological proficiency. Implications and future study recommendations are detailed.

Keywords

technology in counseling, perceived technology competence, descriptive research

The inclusion of technology in mental health care can revolutionize the accessibility, affordability, and effectiveness of counseling services. The shifting tide in the societal recognition of mental health as a wellness imperative has propelled mental health care towards health prioritization (Kleinman et al., 2016). Unaddressed mental health concerns produce epidemic conditions that can exacerbate physical health ailments, with anxiety, depression, and substance use prevailing as contributors to global health and socioeconomic burdens (Kleinman et al., 2016). Data from the World Health Organization (WHO, 2011, 2019) demonstrates that the gap between the prevalence of mental health disorders and treatment accessibility is increasing.

In a study completed by WHO, "between 35% and 50% of mentally ill clients receive no treatment because appropriate treatment places are rare" (Becker, 2016, p. 220). Parallel data in a WHO (2019) report on universal mental health coverage expands on the mental health services accessibility gap, noting that 80% of individuals with mental health concerns are unable to access even minimally affordable, quality care. When further considering the substantial community, socioeconomic, and global-scale costs of unaddressed mental health concerns, mental health carries even broader public health implications (WHO, 2011; WHO, 2019; Kleinman et al., 2016). Presently, minimal empirical studies exist regarding specific assessments or indicators of counselors' clinical experiences and competence with various forms of mental health technology. Explicitly, the literature has a need for studies on how perceived technological competence impacts counselors' comfortability with infusing mental health technology into clinical practice.

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Technology Competence in Counseling

The promotion of technology in counseling can alleviate attitudinal and structural barriers to mental health care (Rai et al., 2016). Various technologies applied in clinical and community counseling settings can increase service quality, access, and affordability (Barnett & Kolmes, 2016), while furnishing practical solutions to reduce mental health disparities and meet widening demands (Johnson & Mahan, 2020; Rai et al., 2016). Thus, the advancement of technology in counseling serves as a driver for clinical competence, ethical practice, and collaborative strategies to comprehensively address client needs (Callan et al., 2017; Johnson & Mahan, 2020; Maheu et al., 2018).

The Council for Accreditation of Counseling and Related Educational Programs (CACREP) and the Association for Counselor Education and Supervision (ACES) promote the acquisition and application of technological competencies in diagnostics, digitized assessments, resource searches, and knowledge of the ethical and legal guidelines for online counseling as integral to counselor training and development (ACES, 2007; CACREP, 2016; Chandras, 2000). While research exists on counselor educators' technological competence (Myers & Gibson, 1999), technology competence among licensed counselors (LCs) remains understudied. Consequently, the stated emphases support the purpose of this study. As part of a dissertation study, the research questions focused on understanding trends and influences, pinpointing three core areas: (a) mental health technology utilization among LCs, (b) technology-assisted collaborative care engagement among LCs, and (c) LCs' perceived technology competence. For this abridged article, LCs' perceived technology competence constitutes the central focus.

Purpose of the Study

The purpose of this quantitative study was to investigate LCs' perceived technological competence regarding the utilization of technology in mental health care. An aim of this study was to contribute insights into understanding the influences of counselors' perceived technology competence on their decisions to pursue technology-assisted mental health care approaches.

Research Question and Hypothesis

Given the motivation to understand counselor technology competence (Aggarwal & Ranganathan, 2019; Mertler, 2016), the following research question (RQ) steered the study's exploration on perceived technology competence: What is the nature of perceived technology competence among LCs? The overarching hypothesis speculated that LCs' exposure, familiarity, and current utilization of various mental health technologies would impact their perceived competence to integrate technology into their clinical work with clients. Due to the exploratory nature of descriptive research, a formal hypothesis for the RQ was optional for inclusion in this study (Aggarwal & Ranganathan, 2019; Mertler, 2016). In the absence of an empirical baseline for LCs' perceived technology competence, the omittance of formal null and research hypotheses honored the observational direction of the naturally occurring phenomenon (i.e., perceived technology competence) via descriptive data (Aggarwal & Ranganathan, 2019; Mertler, 2016).

Research Design

As part of the quantitative investigation, a non-experimental, descriptive research design steered the methodology. The purpose of selecting descriptive research entailed the feasibility to capture, describe, and interpret trends surrounding LCs' perceived technology competence in mental health care (Aggarwal & Ranganathan, 2019; Mertler, 2016). A descriptive research approach mirrored the study objectives by depicting the "what exists" elements of LCs' perceived technology competence, thus supporting the necessity for counseling-specific data in this domain (Bickman & Rog, 2009; Heppner et al., 2016; Mertler, 2016).

Population and Sampling

The study population consisted of LCs within the United States. Participant criteria for the study sample included counselors with a state-endorsed licensure credential (i.e., licensed clinical mental health counselor [LCMHC], licensed clinical professional counselor [LCPC], licensed marriage and family counselors [LMFT], licensed mental health counselor [LMHC], licensed mental health practitioner [LMHP], licensed professional clinical counselor of mental health [LPCC], or licensed professional counselor [LPC]). The research's inclusion criteria specified participants who currently meet with clients on a routine (i.e., daily-to-monthly) basis. The exclusion criteria included retired (i.e., non-practicing) LCs who discontinued meeting with clients five or more years before this study. The exclusion criteria furthered the study's goal to identify LCs' present experiences with mental health technology utilization and perceived technology competence (Mertler, 2016).

The study employed purposive and snowballing sampling methods to identify LCs who met the inclusion criteria. These non-probability sampling methods ensured that participants' involvement coincided with the study's objectives (Etikan et al., 2016) while leaving room for participant recruitment via existing qualified participants (Parker et al., 2019). Participant recruitment sources encompassed the following avenues inclusive of counselor identity development: (a) online counselor community databases and professional

listservs (i.e., ACES Clinic Director/Placement Coordinator Interest Network [ACES-CDPC], CESNET-L, COUNSGRADS listserv, and DIVERSEGRAD-L); (b) online networking and communication avenues via professional counseling organizations (i.e., American Academy of Grief Counseling [AAGC], American Counseling Association [ACA] Connect platforms, ACA divisions networks, ACA interest networks, ACA United States branches, Association for Clinical Pastoral Education [ACPE] member directory, American Mental Health Counselors Association [AMHCA], American School Counselors Association [ASCA], Chi Sigma Iota [CSI], International Family Therapy Association [IFTA], MulticulturalCounselors.org, National Association for Addiction Professionals [NAADAC], and National Board for Certified Counselors [NBCC]); (c) social communities and platforms for counselors (i.e., LinkedIn and GroupMe community groups for counselors); and (d) the Telehealth Certification Institute Summit newsletter and network.

Based on a priori sample size calculations, the study required a minimum of 128 participants for a descriptive sample at the 95% confidence level ($\alpha = 0.05$) with a medium effect size (anticipated Cohen's $d = 0.5$) and an 0.8 power level (Qualtrics, 2021a; Soper, 2021). Participant recruitment strategies included the dissemination of a participant recruitment letter, a brief (60-second) recruitment video, and a link to the study instrument hosted on Momentive™ (formerly SurveyMonkey©) via the identified e-communications avenues. Participants accessed all pertinent study content (including study details, risk and benefits disclosures, confidentiality statement, investigator and research ethical board contact information, participation instructions, virtual consent inquiry, screening questions, study instrument questions, and demographic questionnaire) via the Momentive™ study link. Study documents and responses remain under encrypted, password-protected servers.

Data Collection Procedures

The survey peer review process, pilot study procedures, data collection, and data analyses occurred over six months (i.e., August 23, 2021, to February 19, 2022) following receipt of an expedited study approval from Regent University's Human Subjects Review Committee (HSRC). Study instrumentation consisted of a researcher-developed online survey administered via Momentive™. Integral to the instrument's development was the integration of the Coalition for Technology in Behavioral Science (CTiBS) telebehavioral health (TBH) competencies and levels (i.e., novice, proficient, and authority) into the questionnaire as the Likert scale measure for the technology competency questions. Springer Nature granted text extraction licenses for incorporating the CTiBS TBH competencies into a researcher-developed measure for this study.

Before delivering the survey instrument to participants, the preliminary phases of study implementation involved peer review and pilot study elements with the aim of ensuring the reliability and validity of the developed instrument (Colton & Covert, 2007; Heppner et al., 2016). The finalized survey questions numbered 31 after the peer review and instrument refinement processes. The survey instrument comprised eight sections: (a) study information and informed consent page (opening survey screen), (b) screening questionnaire (Section 1), (c) study-specific questionnaires and measures (Sections 2–5), (c) demographic questionnaire (Section 6), and (e) redirection (skip logic) to a survey completion confirmation page or disqualification page message (closing survey screen).

Statistical Analyses

The successive sections articulate the data analysis procedures for the research that are suitable for study replication. Data anonymization necessitated deleting the columns Collector Name, Collector ID, Start Date, and End Date from the SPSS® file. The Momentive™ platform allowed the exclusion of IP Address, Email Address, and First and Last Name from respondents' surveys during data gathering. Initial data screening consisted of rectifying missing data by omitting two or fewer cases for demographic responses. The "select cases" function in SPSS® provided a means for filtering demographic response values of three or more cases for inclusion in the final statistical analyses. Further, the "select cases" function accounted for non-reported or under-reported (i.e., less than 0) cases in the data set. Frequencies identified disqualified surveys ($n = 23$) and post-screening survey discontinuations ($n = 28$) for removal from the data. Retained for the analyses were 190 respondents' surveys. Variable responses and values underwent recoding to transform continuous data into nominal categorical data as appropriate for the descriptive analysis. Multiple response ("please select all that apply") survey variables required merging and defining separate variable outcomes for a question into a new variable.

Descriptive Analysis and Chi-Square Test of Independence

This study sample required a minimum of 128 LC respondents to meet the baseline assumption for the descriptive analysis. Tabulations in SPSS® captured LCs' demographic information and displayed the descriptive statistics for perceived technology competence. Secondary data analysis involved the chi-square test of independence to examine generation-specific age variations in LCs' perceived technology competence.

The chi-square test allowed separately analyzing group differences in LCs' perceived technology competence (Brace et al., 2018; McHugh, 2013). Preliminary assumptions testing encompassed (a) frequencies or case counts for the data, (b) mutually exclusive categories for each viable, (c) single-subject comparisons, (d) independent samples, (e) the appearance of nominal or ordinal variables, and (f) expected cell counts of five or more for 80% of the cells (Brace et al., 2018; McHugh, 2013; Tabachnick & Fidell, 2013). When examining the data for chi-square suitability, the combined survey outcomes for Section 4 (Perceptions of Technology Competence) met the expected frequency criteria of at least five counts for 80% of the cells (McHugh, 2013). Frequency outcomes confirmed the chi-square independence criteria for the generation-specific age groups.

Results

A total of 3,654 LCs received invitations to participate via direct, undisclosed recipient email correspondences. Undeliverable or declined emails accounted for 137 unreachable LCs, thus leaving 3,517 total emailed surveys. Circulation of the study information was also carried out via public posting of the recruitment materials and survey link on LinkedIn, which returned a total of 245 views for the publicly displayed study announcement. The total number of returned surveys per LinkedIn views is unknown given the study's anonymity. After contacting 100 counseling organizations, divisions, and U.S. chapters and branches to appeal for permission and collaboration with forwarding the study information and survey to their members, 18 organizations favorably responded to the request. The 18 collaborating organizations circulated the study letter, brief recruitment video, and survey link among their members via their (a) email or newsletter listservs, (b) online networking platforms (i.e., ACA Connect), and (c) social media (i.e., Facebook) accounts. Three of the consenting organizations gave permission to directly share the research announcement via their LinkedIn pages. Given the undisclosed numbers of members within each organization, approximate totals of delivered and returned surveys from these organizations are unavailable.

Apart from the professional counseling organizations, the research announcement also reached a total of 949 group members among two ACA Connect groups: (a) Calls for Study Participants (413 members) and (b) Counseling and Technology Interest Network (536 members). Additionally, survey link distribution occurred across CESNET-L, COUNSGRADS listserv, and DIVERSEGRAD-L. The ACES-CDPC listserv was omitted due to hindrances with posting feasibility. The study invitation encompassed three calls for participation across the direct email, professional listservs, and online counselor communication avenues. The Momentive™ platform allowed setting the data collection parameters to one completed survey per respondent if accessing the survey via the same device. This parameter sought to deter duplicate survey responses from participating LCs. Due to the anonymity of survey respondents, response rates are unknown for the surveys sent via the ACA Connect interest groups and professional listservs. Returned surveys totaled 241 responses from survey distribution across direct email, collaborating organizations, professional counseling networks, and snowball survey circulation. A total of 153 respondents completed all survey items, representing a completion rate of 4.3% out of 3,517 emailed surveys and 16.1% out of 949 ACA Connect group members.

Outcomes of the Demographic Questionnaire

Of the 151 respondents who reported their age in years, the mean age was 46.65 (range 26–75, SD 12.795). Generationally, most respondents (n = 60, 31.6%) reported ages within the Millennial category, followed by Generation X (n = 53, 27.9%) and Boomers (n = 38, 20.0%). No respondents reported ages corresponding with the Silent Generation (ages 76–93). In terms of sex assigned at birth, a total of 150 respondents provided this information, with 60.0% (n = 114) of participating LCs identifying as female and 18.9% (n = 36) identifying as male. Most respondents identified as cisgender (n = 110, 57.9%; agender: n = 8, 4.2%; non-binary: n = 1, 0.5%; preferred not to answer: n = 17, 8.9%), with a predominant preference to report sex versus gender identity (n = 16, 8.4%) reiterated in the "prefer to self-describe" option.

Respondents received encouragement to share their diverse backgrounds by highlighting any or all ethnic identities applicable. Among the 153 respondents who shared their ethnic backgrounds, 103 (64.8%) identified as White; 37 (23.3%) identified as Black or African American; 8 (5.0%) identified as Hispanic, Latino/a/x, or Spanish origin; 3 (1.9%) identified as American Indian or Alaska Native; 3 (1.9%) identified as Asian; 1 (0.6%) identified as Middle Eastern or North African; and 1 (0.6%) identified as Native Hawaiian or Pacific Islander. Geographically based on U.S. census (2021) regions, most respondents (n = 72, 37.9%) resided within the South. Fewer respondents indicated residence in the Northeast geographic region (n = 21, 11.1%), and the smallest number of respondents reported "United States" or "U.S." as "other" responses (n = 3, 1.6%).

Among the respondents who shared their total years as LCs (N = 152), most participating LCs reported having their license for one-to-five years (n =

Table 1
Sociodemographic Characteristics of Respondents

Category	*n*	%
Age Generation	Valid *N* = 151	79.4%
Millennials (Ages 25 - 40)	60	31.6%
Generation X (Ages 41 - 56)	53	27.9%
Boomers (Ages 57 - 75)	38	20%
Sex assigned at birth	Valid *N* = 150	
Female	114	60%
Male	36	18.9%
Ethnicity	Valid *N* = 153	80.5%
American Indian or Alaska Native	3	1.9%
Asian	3	1.9%
Black or African American	37	23.3%
Hispanic, Latino/a/x, or Spanish Origin	8	5.0%
Middle Eastern or North African	1	0.6%
Native Hawaiian or Other Pacific Islander	1	0.6%
White	103	64.8&
Prefer not to answer	3	1.9%
Geographical region	Valid *N* = 153	80.5%
Midwest: IL, IN, IA, KS, MI, MN, MO, NE, OH, ND, SD, WI	31	16.3%
Northeast: CT, ME, MA, NH, NJ, NY, PA, RI, VT	21	11.1%
South: AL, AR, DE, DC, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV	72	37.9%
West: AK, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, WY	26	13.7%
Other: Responded “United States” or “U.S. Citizen”	3	1.6%
Years as a licensed counselor	Valid *N* = 152	80.0%
Less than one year	1	0.5%
One to five years	47	24.7%
Six to 10 years	37	19.5%
11 to 15 years	28	14.7%
16 to 20 years	15	7.9%
21 or more years	24	12.6%
Primary work site/location	Valid *N* = 152	80.0%
College/university counseling center	12	6.3%
Community agency	23	12.0%
Inpatient mental health center	2	1.0%
Nonprofit organization	19	9.9%
Private practice	114	59.7%
Residential treatment center	2	1.0%
School counseling setting	6	3.1%
Other	13	6.8%
Additional counselor roles	Valid *N* = 152	80.0%
Doctoral student	35	18.8%
Counselor educator	22	11.8%
Supervisor	60	32.3%
None	59	31.7%
Other	10	5.4%

47, 24.7%), and fewer than 1% (n = 1, 0.5%) reported being licensed for less than one year. Regarding primary work locations, respondents (N = 152) indicated all applicable work sites appropriate to their routine clinical interactions with clients. Participating LCs frequently reported private practice among their primary work settings (n = 114, 59.7%), with impatient mental health centers (n = 2, 1.0%) and residential treatment centers (n = 2, 1.0%) least indicated by respondents. Table 1 presents the frequency findings for the explored demographic outcomes.

Perceptions of Technology Competence

The RQ asked, "What is the nature of perceived technology competence among LCs?" Participating LCs' subjective evaluations of perceived technology competence positioned most respondents within the proficient competency level (Table 2). On average, 83 respondents (43.7%) viewed themselves as technologically proficient across the CTiBS TBH competency domains. Of the respondents, an average of 45 (23.7%) reported their telebehavioral competence at the authority level across domains, and an average of 31 (16.3%) respondents perceived their technology competency to be at the novice level. The findings held steady at the proficient level within CTiBS TBH competency domains.

Perceived Technology Competence and Age Generations

The secondary data analysis involved the chi-square test of independence to examine generation-specific age variations in LCs' perceived technology competence. Respondents' combined CTiBS TBH competencies across all domains showed no difference by generation: $\chi^2(6, N = 158) = 6.19$, $p = .402 > .05$. The findings from the chi-square test for each TBH competency domain were as follows:

- clinical evaluation and care: $\chi^2(6, N = 158) = 5.26$, $p = .511 > .05$
- virtual environment and telepresence:$\chi^2(6, N = 158) = 3.89$, $p = .692 > .05$
- technology: $\chi^2(6, N = 158) = 6.44$, $p = .376 > .05$
- legal and regulatory issues: $\chi^2(6, N = 158) = 6.88$, $p = .332 > .05$
- evidence-based and ethical practice: $\chi^2(6, N = 158) = 7.39$, $p = .287 > .05$
- mHealth technologies and apps: $\chi^2(6, N = 158) = 4.71$, $p = .582 > .05$
- telepractice development: $\chi^2(6, N = 158) = 7.94$, $p = .243 > .05$

Thus, there was no significant influence of respondents' age generations on perceived technology competence.

Discussion

This quantitative, descriptive study investigated LCs' perceived competence regarding technology utilization in mental health care. At first glance, respondents' consistent self-perceptions of being at the proficient level of technology competence indicated a confounding habituation response bias, as detailed in the limitations section of this report. When viewed alongside respondents' pre-, during, and post-pandemic preparedness and comfort level in incorporating technology into mental health care within the comprehensive dissertation manuscript, multiple respondents' CTiBS TBH competence perceptions mirrored an environmental catalyst that motivated situational and experiential technology competence development (Sheperis & Smith, 2021). For example, a respondent who felt hesitant about technology utilization before the COVID-19 pandemic may perceive themselves as more competent, prepared, and willing to integrate technology into counseling practice after the pandemic, given the dismantling of initial technology hesitancies through real-time, experiential learning. In this context, the data did not reveal whether the proficient technology competence perceptions across CTiBS TBH competency domains mirrored professional trends of copious telemental health CE offerings in the wake of the pandemic. Hence, the results support the desideratum for ongoing research adjacent to this study.

Generation-Specific Variations in Technology Competence

The present study contradicted other research that found generational differences in perceived technology competence (Anderson & Perrin, 2017; Perrin & Astke, 2021). Instead, the present study supports the proposals of Olson et al. (2011) and O'Hanlon et al. (2010) in that claims of late technology adoption are often disproportionately applied to individuals 65 and older. Respondents' perceived technology competence per the CTiBS TBH competencies questionnaire outcomes revealed no significant difference or relationship based on generational age. Within-competency results for each CTiBS TBH competency domain item returned too few counts (i.e., less than five counts for 80% of the cells) to determine generational age differences for each TBH item. Still, within-competency outcomes held solid at no generational differences across competencies. Quite possibly, LCs' professional and ethical responsibilities to maintain technological competence as applicable to mental health care, combined with the COVID-19 pandemic, compelled LCs to obtain further training and continuing education (CE) to meet telemental health demands. These factors may explain the technology competence perceptions for each age generation represented in the study.

Limitations of the Study

The empirical findings reported in this study should be considered in light of common research limitations.

Table 2

Perceptions of Technology Competence among Respondents

	Competency level					
Clinical Evaluation and Care	Novice		Proficient		Authority	
CTiBS TBH competency	Count (n)	%	Count (n)	%	Count (n)	%
Assess client appropriateness for telebehavioral health services	13	6.8	96	50.5	49	25.8
Assess and monitor client comfort with telebehavioral health	14	7.4	92	48.4	52	27.4
Apply/adapt in-person clinical care requirements to telebehavioral health	15	7.9	92	48.4	51	26.8
Implement and adapt a telebehavioral health service plan with policies/procedures adjusted accordingly	19	10.0	92	48.4	47	24.7
Monitor therapeutic engagement related to each telebehavioral health modality	19	10.0	86	45.3	53	27.9
Assess for cultural factors influencing telebehavioral health care	29	15.3	91	47.9	38	20.0
Virtual Environment and Telepresence	Novice		Proficient		Authority	
CTiBS TBH competency	Count (n)	%	Count (n)	%	Count (n)	%
Describe aspects of telepresence	25	13.2	90	47.4	43	22.6
Adjust the clinical environment to be conducive for telebehavioral health	14	7.4	90	47.4	54	28.4
Adjust technology to facilitate presence	19	10.0	84	44.2	55	28.9
Assess clients' communication styles and adjust for telebehavioral health	18	9.5	90	47.4	50	26.3
Technology	Novice		Proficient		Authority	
CTiBS TBH competency	Count (n)	%	Count (n)	%	Count (n)	%
Assess client's use of and comfort with technology	14	7.4	91	47.9	53	27.9
Adjust pros and cons of technology to client's needs/preferences when possible	14	7.4	92	48.4	51	26.8
Skillfully operate technologies	13	6.8	83	43.7	62	32.6
Educate the client on telebehavioral health technology	14	7.4	85	44.7	59	31.1
Use evidence-based technology choices and approaches	29	15.3	82	43.2	47	24.7
Legal and Regulatory Issues	Novice		Proficient		Authority	
CTiBS TBH competency	Count (n)	%	Count (n)	%	Count (n)	%
Adheres to telebehavioral health-relevant laws and regulations	21	11.1	91	47.9	46	24.2
Practices in accordance with and educate others on adherence to telebehavioral health-relevant legal and regulatory requirements	28	14.7	89	46.8	41	21.6
When in doubt, apply/adapt in-person legal/regulatory standards to telebehavioral health	22	11.6	89	46.8	47	24.7
Evidence-Based and Ethical Practice	Novice		Proficient		Authority	
CTiBS TBH competency	Count (n)	%	Count (n)	%	Count (n)	%
Identify, employ, and develop relevant documents for ethical telebehavioral health service delivery	29	15.3	82	43.2	47	24.7
Engage in discussion, consultation, and training of telebehavioral health ethical issues	25	13.2	86	45.3	47	24.7
Assess uses of social media and other technologies that may be deleterious to telebehavioral health client and documents such client use of technology	40	21.1	83	43.7	35	18.4
Identify and monitor legal/regulatory social media and digital information collection privacy issues related to telebehavioral health	44	23.2	87	45.8	27	14.2
Apply in-person legal and regulatory rules to technology use in professional care in the form of best practices and policies	22	11.6	91	47.9	45	23.7
Encourage reflection and discussion about boundary issues related to searching client information online	10	5.3	90	47.4	58	30.5

Table 2, cont.

Perceptions of Technology Competence among Respondents

Mobile Health Technologies and Applications (Apps)	Competency level					
	Novice		Proficient		Authority	
CTiBS TBH competency	Count (n)	%	Count (n)	%	Count (n)	%
Assess client use of mobile health technologies	38	20.5	86	45.3	33	17.4
Purposefully select a mobile health technology with client, document selection, and monitor outcomes	51	26.8	73	38.4	33	17.4
Practice and educate with evidence-based mobile health technologies and approaches	48	25.3	80	42.1	30	15.8
Telepractice Development	Novice		Proficient		Authority	
CTiBS TBH competency	Count (n)	%	Count (n)	%	Count (n)	%
Develop a professional digital identity and integrate this identity with one's offline professional identity, as applicable	46	24.2	71	37.4	41	21.6
Tailor the digital identity to the clinical care, culture, and business standards of the communities accessed and served	48	25.3	70	36.8	39	20.5

During the recruitment and data collection processes, methodological strategies were utilized to secure a nationally representative sample, including multitudinous counseling concentrations, specialties, sociodemographic identities, and geographical states. In these efforts, the data collection process achieved overarching success despite the unanticipated hindrances encountered (e.g., inactive state chapters, member-only information sharing, unresponsiveness to the study invitation, and policy restrictions) in attempting to reach respondents within all professional counseling organizations, divisions, state, and chapter branches. Still, there are potential limitations on the findings' generalizability to all LCs within the United States. Equally, the absence of respondents from the Silent Generation (ages 76–93) demonstrates the findings' age-wise generalizability limitations. The focus on perceived technology competence may expose the data to potential socially desirable responses from participating LCs, therefore posing a threat to internal validity. Additionally, a habituation response bias may have appeared in the data when respondents felt inundated by the number or repetitiveness of some questions. In addition to participant or response biases is the possible risk of the halo effect on study outcomes, particularly if the research appealed to LCs who were already technology enthusiasts in counseling.

From an instrumentation viewpoint, creating a new measure specifically designed to gather descriptive information for this study may carry validity and reality limitations in lieu of selecting a formal, standardized scale or assessment of technology competence. Before embarking on the study, a comprehensive review of the literature returned no known or existing standardized measures to evaluate technology competence among counselors. Accordingly, a researcher-developed instrument was an inevitable necessity for the study, which included implementing peer review and pilot study processes to enhance instrument reliability and validity. Lastly, a concluding limitation entails that respondents' perceived technology competence reported during the study may differ from respondents' actual technology competence in mental health care. Readers of this study are encouraged to bear in mind these and other common research limitations when interpreting the study results.

Implications of the Study

This study's premise was to examine the progressive status of perceived technology competence within the counseling profession. Where the counseling profession excels in this mission, as apparent from the data, is in nurturing the competence and self-efficacy of counselors to adapt traditional clinical practices in the face of an ever-evolving therapeutic landscape. The discoveries from this study should continue to ignite a propensity among counselors, clinical supervisors, counseling organizations, training programs, and avenues of competence and skill acquisition to provide specialized CE resources to facilitate telemental health competence in all phases of counselor development. Counselor educators are responsible for teaching and professional advocacy promotion that bring about meaningful progression in course content, curriculum development, and CACREP standards for innovative approaches to counseling (e.g., integrating the CTiBS TBH competencies into course learning objectives). Lastly, scholars of the counseling profession must ensure that the dialogue on technology in counseling continues beyond the scope of this study. Such empirical persistence drives the credibility of counselors' technological competence in every other realm of counseling.

Conclusion and Future Research

An empirical imperative derived from this study is the development of a formal, objective CTiBS TBH scale or

measure. The CTiBS TBH framework contains an interdisciplinary set of competencies conducive and attentive to the variation in helping professions' identities (Maheu et al., 2018). To date, however, counselors are still left to self-evaluate technology competence in practice through informal or subjective measures in the absence of a validated measure. As such, the creation of an objective, empirically normed scale or assessment comprising the CTiBS TBH competencies can enhance the following: (a) standardized training program expectation and evaluations of counselor technology competence in clinical practice; (b) ongoing counselor development in the realm of mental health technology competence; (c) counselors' self-efficacy regarding delivering mental health services through technology; and (d) counselors' competence, confidence, and willingness to extend clinical collaboration into holistic, interdisciplinary avenues of care. The present study formulated the beginnings of a competency scale that the researcher seeks to pursue in creating an empirical instrument.

This study aimed to examine trends in perceived technology competence among LCs. The investigation emphasized LCs' competence in leveraging technology to enhance mental health care services. This research crucially contributed to a formative body of literature with regard to the necessity to cultivate counselors capable of effectively navigating the landscape of mental health technology. Further, this research propelled an expanded awareness of LCs' needs regarding professional training and CE opportunities surrounding mental health technology.

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