Like, Comment, and Share: Speech-Language Pathologists' Use of Social Media for Clinical Decision Making

Emily A. Diehm, Ph.D., CCC-SLP[1] Shannon Hall-Mills, Ph.D., CCC-SLP[2]

ABSTRACT

Many social media sites are dedicated for speech-language pathologists (SLPs); however, the extent to which SLPs utilize them in clinical decision making and evidence-based practice (EBP) is not well understood. The purpose of this study was to explore SLPs' use of traditional and modern resources, including social media, within clinical decision making for assessment and intervention practices. Using a stratified random sampling approach, we invited school-based SLPs in Florida and Ohio and on pediatric-focused, SLP Facebook sites to complete an online survey. The majority ($N = 271$) reported using social media for professional purposes at least once per week: most frequently Facebook (19–25% of SLPs) or Pinterest (15–18% of SLPs) to learn about new treatment ideas or resources for (12–18%) or read others' summaries of treatment-related research (8–11%), but rarely to pose or answer a clinical question (3–5%). The number of reasons for one's professional social media use was moderately correlated with frequency of social media use, traditional EBP training, and reading a greater number of articles from ASHA and other sources. The results warrant further consideration of how to leverage social media as a tool to increase SLPs' knowledge and implementation of EBP.

KEYWORDS: clinical decision making, schools, SLP, evidence-based practice

[1]Center for Communication and Social Development, St. Ambrose University, Davenport, Iowa; [2]School of Communication Science and Disorders, Florida State University, Tallahassee, Florida.

Address for correspondence: Shannon Hall-Mills, Ph.D., CCC-SLP, School of Communication Science and Disorders, Florida State University, 201 West Bloxham Street, Tallahassee, FL 32306-1058 (e-mail: Shannon.Hall-Mills@cci.fsu.edu).

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Learning Outcomes: As a result of this activity, the reader will be able to:
- Evaluate SLPs' use of social media for professional purposes.
- Review results of a survey study to determine clinician's use of social media for clinical decision making.
- Discuss implications of survey results to impact professional practices.

Since 2005, the American Speech-Language Hearing Association (ASHA) has expected speech-language pathologists (SLPs) to incorporate evidence-based practice (EBP) in their clinical decision making to provide patients with the highest quality of services.[1] The requirement of EBP use and implementation is related to the finding that health care providers and educators who engage in EBP improve patient/client outcomes.[2] External evidence as well as one's professional expertise, or that of others considered to be experts, and the preferences of a fully informed patient or caregiver are also included as components of EBP.[3] More recent definitions also call for the inclusion of an additional component to EBP, suggesting that SLPs should also use internal evidence (i.e., analysis of client performance data) in their clinical decision making.[3,4]

However, EBP remains challenging to implement[5,6] and SLPs report that they are more likely to rely on their own clinical judgment or request assistance from a colleague than read published case studies, listen to professional development video- or audio tapes, or use research articles.[7,8] Therefore, it seems as if there is a disconnect between what *should* be included in EBP clinical decision making and what *is* often included, with clinicians leaning toward EBP methods that are faster, easier, and cheaper to obtain. Given that patient outcomes are most likely improved when all four EBP components are included (i.e., research evidence, clinical experience, patient/caregiver preferences, clinical data), SLPs (and their clients) may benefit from exploring a variety of resources to promote comprehensive evidence-based decision making.

Resources for EBP

A range of resources exist to support clinicians' efforts in clinical decision making (including implementation of EBP) and it is common for SLPs to gather and utilize EBP resources in a variety of ways.[9] Resources for clinical decision making may include tangible support, such as digitally or commercially available tools, or intangible resources, such as time and professional networking.[10] In previous survey research, school-based SLPs reported having access to and use of tangible resources for EBP including items that could be purchased or printed; however, many lack sufficient time to engage in EBP during the workday, and 89% of them worked in a school system that lacked formal guidance or established procedures for implementing EBP.[10,11]

The stage of a clinician's career seems to influence his or her informal and formal training in EBP. School-based SLPs in the early career stage rely primarily on graduate courses for their formal EBP training. In contrast, SLPs in the latter career stage rely on continuing education and professional development at state, regional, and local conferences for their formal EBP training.[10] Survey research suggests that school-based SLPs often utilize ASHA resources to support EBP, with SLPs across all career stages (i.e., early career to seasoned SLPs) obtaining most of their informal training for EBP through ASHA publications such as the ASHA Leader (67–68%) and ASHA journals (55% of early career SLPs and 45% of seasoned SLPs).[10]

ASHA RESOURCES

Topic-specific resources are available through ASHA via the Practice Portal and the publications of the association. The Practice Portal serves as a digital warehouse which hosts a multitude of clinical and professional resources linked to evidence where available. Within the Portal, clinicians can access a variety of information gathered by lifespan stage (e.g., early intervention for young children), communication disorder category (e.g., speech sound

disorders), or a specific disorder within a category (e.g., childhood apraxia of speech). Where available, evidence maps provide a guide for clinical decision making in audiology and speech-language pathology. Several evidence maps reflect topics of interest to school-based SLPs (e.g., apraxia, spoken language disorders, written language disorders, social communication disorder, augmentative and alternative communication, autism spectrum disorder, fluency, intellectual disability, pediatric brain injury). In addition to the Practice Portal, the ASHA wire provides alerts and headlines for quick and easy dissemination of research findings from ASHA publications including research journals, the ASHA Leader, and Perspectives of the Special Interest Groups. The ASHA online community provides a platform through which members can engage collaboratively within special interest groups, including SIG 16: School-Based Issues.

NON-ASHA RESOURCES

Outside of ASHA, other curated and peer-reviewed sources of EBP for communication science and disorders (CSD) and related disciplines exist. Relevant non-ASHA resources include the What Works Clearinghouse (WWC; US Department of Education; Institute of Education Science), the Cochrane Collaboration/Database, speechBITE, Pearson EBP Briefs, and the Informed SLP. The WWC was designed to provide information needed to make evidence-based decisions in education. WWC resources include reviews of existing research on products, practices, policies, and curricular and intervention programs. Cochrane offers systematic reviews of the evidence, each with a plain language summary for ease of interpretation. The Australian-based website speechBITE allows users to search their database of intervention research that is specific to the field of speech-language pathology and rates some articles to help clinicians determine research quality. Written as case studies, Pearson EBP Briefs are for clinicians engaged in clinical decision making and provide abbreviated summaries of the research evidence on select topics. Lastly, The Informed SLP writes summaries of clinical practice research, emailing more extensive summaries to members who pay for this service.

Barriers and Obstacles to "Traditional" EBP

While there are many resources available to SLPs in support of their EBP, data from multiple investigations reveal barriers and obstacles to SLPs' frequency of engagement in EBP activities. In a survey sample of 240 SLPs, half of respondents reported that they did not have time each week to engage in EBP[8]; only 13% of SLPs in the same sample felt qualified to implement EBP, and another 17% reported that they had access to the resources necessary to utilize EBP when making clinical decisions. Similarly, 25% of SLPs in school settings have reported a lack of formal training for implementing EBP; 91% lack a weekly commitment to engage in EBP, and most of them read zero to four journal articles per year.[10] As a confound to this problem, related findings indicate that clinicians report having limited time to access or review research publications and may struggle to utilize a research report to synthesize the findings and implement relevant techniques.[12,13] Journal articles may also have a paywall, requiring an interested SLP to rent or purchase the article—possibly at their own expense—which may discourage access. Lastly, and perhaps of biggest concern, is that the SLP's scope of practice is more diverse than what has been investigated in published research studies[14] and, historically, there are few clinical practice research articles published relative to the total number of publications in ASHA journals.[15,16] Therefore, SLPs are often faced with clinical questions that the available evidence-based protocols cannot fully answer, especially related to intervention questions.

Currently, it is unclear the extent to which SLPs utilize the range of available ASHA and non-ASHA resources to support EBP in the schools—and will be investigated within the current study. Additionally, considering the wide popularity of social media in the general public, social media may perhaps provide a supplemental or complementary

method to assist clinicians in comprehensive clinical decision making that allows them to go beyond data they have already collected (i.e., clinical data, patient preferences) or possess (i.e., clinical expertise), but to also incorporate the clinical expertise of others, as well as findings from available literature.

Social Media as Medium for EBP Transmission

Social media is described as "electronic tools that enhance communication, support collaboration, and enable users across the globe to generate and share content."[17] Within the last decade, researchers have begun to use social media for a variety of purposes, such as for the development of new research ideas, collaborating on projects, and dissemination; however, scholarly journals remain the primary source of research dissemination.[18] Considering that it typically takes close to 20 years for research findings published in scholarly journals to be implemented in practice,[19] it is interesting that the promotion of new research findings on social media (in this case, Twitter) significantly increases that article's downloads compared to "control" articles that did not have a related blog/tweet.[20] Although we acknowledge that downloading an article and implementing the intervention in daily practice are not the same action, it is possible that social media may have potential to decrease the "research-practice gap" and place clinical practice research into the hands of end-users at a faster rate than what is currently observed with traditional means of research dissemination (e.g., journal publications, conference presentations). Along these lines, a recent forum entitled "Clinical Impact of Research," published by the Perspectives of the ASHA Special Interest Groups, included a tutorial for CSD researchers interested in sharing their research on social media,[21] as well as a review of knowledge brokering tools to increase communication between researchers and clinicians.[22]

PROFESSIONAL USES OF SOCIAL MEDIA

For more than a decade, health care workers have utilized social media for professional purposes, with published recommendations for increased exploration of its benefits and risks,[23] descriptions of ethical professional use of social media,[24–26] and its use as a component of continuing medical education.[27] Social media may be used for a variety of professional reasons, such as learning from peers who have more expertise, consulting (providing *or* receiving) with a colleague or expert on specific cases, and discussing issues related to practice—all of which could potentially lead to improved clinical decision making and better outcomes for patients/clients. Although the extent to which this is true (i.e., health care provider social media use leading to improved patient outcomes) has not yet been investigated, it seems plausible that if the provider has greater access to research-based EBP practices, improved patient outcomes would likely result.

SOCIAL MEDIA AND SLP

According to an ASHA technology survey,[28] a large percentage of SLPs use social media, including Facebook (FB; 77% of responding SLPs) and Pinterest (51% of responding SLPs); however, this survey did not ask if SLPs use social media for both recreational and professional reasons. It is common to see friends posting and sharing information for both recreational and professional purposes, and many social media platforms have dedicated pages for SLPs to engage with one another for professional reasons. Indeed, SLPs commonly engage in professional discussions via social media, and recommendations exist for how to do so in an ethical manner.[29] In 2018, ASHA published the "Ethical Use of Social Media" online,[30] shedding light on the possibility that SLPs may violate the ASHA Code of Ethics if they post defamatory statements, give confidential details about a client, or misrepresent their credentials or services. More recently, there is evidence that SLPs engaged more in social media exchanges within professional networks about telepractice during the initial stage of the COVID-19 pandemic.[31] Despite the seemingly widespread use of social media for professional purposes, as well as national recognition that SLPs utilize social media for professional purposes, no study, to our knowledge, has investigated the extent to which SLPs use a variety of traditional and modern resources to engage in EBP.

CONCERNS REGARDING SOCIAL MEDIA USE FOR EBP

Unlike articles published in academic journals, much of the electronic information posted or shared online by SLPs (especially when not shared by a professional organization, such as the Informed SLP) may not be subject to a traditional peer-review process. Although one may argue that open, accessible posts may be subjected to the "ultimate form of peer review,"[23] information posted to online platforms could be outdated or have no research to support its use,[32] or worse, may be inaccurate,[33,34] potentially resulting in practitioners making inappropriate or harmful clinical decisions. At times, information posted online may both promote and reject a specific intervention approach, as has been the case for facilitated communication—a widely debunked, yet persistent pseudoscientific treatment.[35] When these conflicts exist in public or professional domains, clinicians may become more confused than when they began their research, especially when agreed-upon indicators of information quality, such as ASHA's levels of evidence, do not currently exist for online content. Lastly, beyond credibility concerns with social media use, there may be additional concerns related to financial and nonfinancial disclosures. For example, as clinicians may now create and sell their own materials online through sites like Teachers Pay Teachers, online advice or recommendations may not be accompanied with a description of relevant disclosures.

Present Study

Although it now seems easier and faster to locate resources online, the quality of information obtained through social media platforms may not be subjected to the same level of scrutiny and review as traditional publications and presentations, thus raising potential concerns regarding its reliability and validity. Yet, no study, to our knowledge, has investigated the extent to which SLPs use social media, as well as other online resources, as part of their clinical decision making and EBP, nor attempted to understand SLPs' perceptions of social media use for professional purposes. Therefore, in the current project, we used a cross-sectional survey design to collect information from a large sample of school-based SLPs to obtain a snapshot of their practices, beliefs, and perceptions of social media for EBP. As such, we proposed the following exploratory research questions:

1. What online and social media resources do SLPs use, for what purposes, and how frequently?
2. What are SLPs' perceptions regarding social media use for professional purposes?
3. For SLPs who utilize social media in EBP, what is the relationship between one's frequency of social media use and one's engagement in "traditional" EBP activities (e.g., reading research articles)?

We hypothesized that school-based SLPs utilize a variety of social media resources for professional purposes, including both ASHA and non-ASHA resources. Within the non-ASHA resources, we hypothesized that SLPs may engage on FB and Pinterest more often than other social media platforms—similar to what has been previously reported for SLPs' use of social media.[28] Furthermore, we expected respondents to have both positive and negative perceptions of social media for professional purposes, as is also observed in people's preferences for using social media use for recreational reasons. Lastly, we hypothesized there would be a positive correlation between engagement in traditional EBP activities and social media use for professional purposes. This final hypothesis is rooted in research that suggests social media increases article downloads and has the potential to increase one's awareness of newly published research and opportunities for professional development.

METHODS

Survey

In order to explore SLPs' use and perceptions of social media for professional purposes, as well as their traditional EBP activities, we developed a web-based survey using Qualtrics Software (Qualtrics, Provo, UT). We designed the survey in accordance with reporting guidelines for formulating items, crafting response items,

and creating the overall survey formatting and organization.[36,37] Specifically, we:

- Ensured consistency in the instructions and visual layout to help respondents locate important information efficiently. This included formatting response items into only one column and balancing the visual, numeric, and conceptual midpoint of response options.
- Ensured that each item applied to each respondent to increase the completion rate. We used branching strategies when part of an item may have been more relevant for some respondents than for others (e.g., if a participant answered "no" to using social media for professional purposes, she was not asked any further questions about which social media sites she used).
- Chose item formats that answered the questions of interest. We used forced-choice format to encourage participants to provide complete responses and limit any guessing on our part for whether a participant skipped over part of the question or a portion of the response items.
- Limited open-ended responses for consistency of interpretation.
- Used verbal labels instead of numeric labels for scaled responses and ensured all response options were labeled.
- Selected an appropriate number of response options to balance the number of opportunities for participants to adequately represent their beliefs and perceptions of social media use without overloading respondents with too many response options, reducing the efficiency of the survey and undermining the completion rate.
- Used positive language to ease cognitive processing (e.g., avoiding un-, in-, anti-).
- Ensured participant anonymity to reduce the effects of potential response biases (e.g., social desirability effect, acquiescence effect, naysaying, and fence sitting).

SURVEY ITEMS

Using the survey guidelines earlier, the final survey (see Supplementary Material) included a total of 40 items, each with a closed set of forced-response answer choices; however, the "other" option was provided when appropriate for participants to write in a unique answer that was not listed as an option. According to the Qualtrics software, the survey was estimated to take 10 to 12 minutes to complete. Items were structured to balance the information related to respondents' use, beliefs, and perspectives of social media for EBP and their frequency of use of EBP. The first survey item confirmed the participants' consent to participate in the study. Following consent, the remaining survey questions were presented one at a time and were gathered into four main sections:

1. **Demographic information**: Twelve questions in the first section of the survey were constructed to gather information on respondent demographics (e.g., age, years of experience, highest degree earned). Participants had an opportunity to answer all questions in this section.
2. **Use of social media**: The second section of the survey included 13 questions regarding the respondents' use of social media for recreational and professional purposes. Participants had an opportunity to answer at least two questions in this section (e.g., Do you use social media for recreational purposes? Do you use social media for professional purposes?). Follow-up questions were presented only if a participant selected "yes" to either or both (two additional questions for "yes" to recreational use; nine additional questions for "yes" to professional use).
3. **Perceptions and preferences of social media**: The third portion of the survey contained eight questions designed to cover a variety of factors related to SLPs' perceptions and beliefs of social media use for professional purposes. Most of these questions were Likert-scale items in which participants indicated the extent to which they agreed or disagreed with a statement about the professional use of social media. Participants had an opportunity to answer all questions in this section.
4. **Traditional EBP activities**: The fourth and final part of the survey contained seven questions regarding the participants' "traditional" EBP training and how often they posed clinical questions and read research

articles. Participants checked boxes to indicate which "traditional" EBP activities were included during pre- or post-professional training (e.g., development of PICO questions, comparing quality of evidence across articles). These activities were also investigated in a prior school-based SLP survey on EBP practices.[10] Participants had an opportunity to answer all questions in this section.

SURVEY REFINEMENT

The survey was piloted with a smaller sample of SLPs with current or prior school-based experience and who were colleagues of the authors. These individuals provided feedback on the draft survey. Pilot respondents were asked if the questions were easy to understand and whether the scope of questions was broad enough to capture beliefs, perspectives, and practices regarding social media and EBP. Items were revised and reworded as necessary following the outcome of the survey pilot; however, the number of items (i.e., 40) did not change. Cronbach's alpha (reported below) was calculated to determine the internal consistency of the survey.

SURVEY VALIDITY

Face validity of the survey was established via the survey pilot with a group of experts in the field (i.e., those with experience using a variety of resources to conduct EBP in a school-setting). Content validity was established through the organized review of survey contents through collaboration of the authors as well as pilot review from experts in the field, including five other individuals who had their ASHA Certificate of Clinical Competence in Speech-Language Pathology and worked in schools.

Recruitment and Distribution

In order to sample practices and beliefs from SLPs with different backgrounds and experiences who would be representative of the population of interest, we used two recruitment strategies to obtain a cross-sectional sample. The first method included recruiting from a sample of randomly selected school-based SLPs across two different states (Florida [FL] and Ohio [OH]). These states were chosen due to the authors' familiarity with state-level practices and an assumption that an SLP who lives in the authors' states may be more likely to respond to the survey invitation.[a] The second recruitment strategy was not random, and instead sampled SLPs who were members of SLP FB groups. We believed that this strategy would allow us to better understand the use and perceptions of SLPs who we already know engage on social media for professional purposes. Both procedures are described in more detail later. Given the differences in recruitment methods for these two populations, we present data for each sample separately in the remainder of the article. All procedures were approved by the Institutional Review Boards of each investigator's university prior to data collection.

FLORIDA/OHIO SAMPLE

A database of school-based SLP contacts was developed for each state based on publicly available school staff directories. Initially, we developed a list of school districts (FL) or counties (OH) by district, or population size, respectively. Then, 50% of the districts or counties were selected using a stratified random sampling approach to preserve the proportionality of district or county size within our database. After districts (FL) and counties (OH) were randomly selected, we then located the emails of SLPs within selected districts and counties. The invitation to participate in the survey and the survey link was emailed to 500 SLPs in FL and 548 SLPs in OH in November with a reminder/thank you email sent 2 weeks later in December. The survey was open and active for 1 month. Respondents provided their consent to participate in the survey by answering the first question following survey instructions: "*Do you agree to participate in this study?*" One respondent from FL clicked on the survey link but then elected not to participate in the survey.

FACEBOOK SAMPLE

As mentioned earlier, we employed a second, non-randomized recruitment strategy via social media a few months later to increase our sample size, as well as to observe possible differences in responses when sampling SLPs who are already members of social media sites. In this method,

we posted a description and link to the survey on six closed-FB group sites that are specifically for SLPs. These sites included (1) Preschool Speech-Language Pathologists, (2) Speech Pathologists at Large, (3) School-based SLPs: For Professionals Only, (4) Speech Language Pathologists Roles in Language and Literacy, (5) Speech Therapy Ideas, and (6) Clinical Research for SLPs. We posted on each site three times (with posts occurring in early and mid-March, as well as early April) for a total of 18 FB posts. The survey linked to these posts was slightly different than the original survey, as additional questions/filters were added to ensure that we received responses only from SLPs who work part-time or more in a school setting. We also asked participants to indicate the state in which they were employed. Although it would have been preferred to conduct random sampling across all 50 states, we did not believe this to be feasible or appropriate for an initial exploratory study such as this. This method allowed us to reach a broader, national audience including a group of SLPs who already used social media for professional purposes.

Participants

Detailed demographic information for participants may be found in Supplementary Table S1 of the supplemental materials and is summarized here. Participants included a total of 271 SLPs who were employed in a school setting (83 in Florida, 80 in Ohio, and 108 connected via FB group sites). FB participants represented 38 states (see Supplementary Table S2). Most participants were employed full-time in a school setting and held both a master's degree and certificate of clinical competence in speech-language pathology from ASHA. Although we asked SLPs to report the geographic region of their school in different formats (i.e., FL by district size, OH by county size, FB by nominal category), SLPs from each sampling format reported employment in schools that varied from rural to urban school districts. Most respondents from FL and OH had more than 10 years of experience in the field, while the FB respondents had 10 or fewer years of field experience. Differences in work experiences are likely related to the slightly younger age of FB participants (mode response = 25–34 years), while the FL/OH SLPs reported a slightly older age range (mode response = 35–44 years). School caseload sizes varied for the participants; 80% of FL respondents had an average caseload of 41 to 80 students, with a higher percentage of caseloads above 80 students than what was reported by OH or FB participants. This finding was consistent with previous survey research that FL SLPs consistently have one of the highest average caseloads in the country.[38] Similarly, 78% of OH respondents reported an average caseload of 41 to 80 students. However, only a few OH respondents reported caseloads above 80, as OH has a statewide caseload cap of 80 students. The most common response for FB respondents (68%) was a caseload in the range of 31 to 70.

Across all three groups of participants, the majority of respondents worked with children in prekindergarten through grade five, with a minority of respondents working with students in grades six and above. The main service delivery option reported across all three groups was outside of the general classroom (e.g., in a therapy room or other separate room; FL = 79.52%; OH = 85.90%; FB = 80.41%). The second most frequently reported service delivery location was small groups within the general education classroom (FL = 14.46%; OH = 10.26%; FB = 11.34%).

Data and Analyses

With respect to our research questions, we used descriptive statistics to analyze participants' responses regarding social media use for recreational and professional purposes from survey items 14 to 26 (question 1—What social media resources do SLPs use, for what purposes, and how frequently?; see Supplementary Table S3). We also used descriptive statistics to examine SLPs' perceptions of social media use for professional purposes using participant Likert-scale responses from survey items 27 to 33 (question 2—What are SLPs' perceptions regarding social media use for professional purposes?; Supplementary Table S4). Data are presented by group (FL, OH, and FB) within these tables, as we wished to explore trends and differences within and across sampling groups.

To determine the relationship between frequency of social media use and engagement in traditional EBP activities (question 3), we first aggregated the FL/OH data, as their results were comparable across most survey responses upon visual inspection. Item 18 (How often do you use social media for professional purposes?) was reverse coded so that higher values indicated more frequent social media use. Additionally, to more easily assess the correlations among key variables, we also calculated several sum scores to condense multiple-response items in order to aid in our interpretation of results. These sum scores included tallying up: (1) all reasons for professional social media use (item 20; maximum score of 15), with higher values indicative of using social media for more purposes; (2) all reported obstacles for professional social media use (item 30; maximum score of 15), with higher values indicative of more perceived obstacles; and (3) all reported "traditional" EBP activities (item 34; maximum score of 10), with higher values indicative of more comprehensive EBP training in pre- or post-professional activities. Lastly, we calculated Spearman's correlations (given the nonparametric nature of the data) and set the significance level at 0.05 (Table 1).

SURVEY RELIABILITY

For survey items that required participants to select only one answer choice, the Social Media Use and Perceptions Scale had good internal consistency, with a Cronbach's alpha coefficient of 0.80. Items for which a participant could select multiple choices (e.g., Which Social Media sites do you use?) were not included within this analysis.

RESULTS

In this study, we explored school-based SLPs' use and perception of social media for professional purposes. In total, we received 271 responses to the survey; however, not all participants completed the survey in its entirety. Furthermore, depending on participants' responses to questions (e.g., yes or no), the number of questions presented to a participant varied. As such, the number of responses per question is indicated throughout the text and Supplementary Tables. Participants' survey responses were included in the current study if survey completion was 49% or greater—indicating that the participant answered at least one question beyond the demographic section.

SLP's Use and Perception of Social Media and Other Resources

The first aim of the present study was to describe what online and social media resources SLPs use, the purposes for which they use them, and the frequency of use. Supplementary Table S3 includes a summary of the participants' responses to all survey items across the three location groups. Most participants reported that they use social media daily for recreational purposes, most often via the platforms of FB, Pinterest,

Table 1 Spearman's correlations among key demographic variables, professional social media use, and reported EBP training for FL/OH SLPs

	1	2	3	4	5	6	7	8	9	*n*
1. Length of time since last degree	–									166
2. Age	0.71[a]	–								165
3. Years of experience in schools	0.88[a]	0.73[a]	–							165
4. Caseload size	−0.13	−0.17[b]	−0.10	–						163
5. Frequency of professional social media use	0.09	0.01	0.08	−0.17	–					106
6. Reasons for professional social media use (sum)	−0.06	0.01	−0.07	−0.14	0.44[a]	–				104
7. Obstacles of professional social media use (sum)	−0.15	−0.14	−0.12	0.02	−0.13	0.00	–			166
8. Traditional EBP training (sum)	−0.21[a]	−0.10	−0.19[b]	−0.05	0.11	0.30[a]	0.21[a]	–		166
9. ASHA and non-ASHA articles read (sum)	−0.14	−0.04	−0.10	−0.09	0.11	0.44[a]	0.02	0.41[a]	–	156

Abbreviations: EBP, evidence-based practice; FL, Florida; OH, Ohio; SLP, speech-language pathologist
Note: This item was reverse coded so that higher values indicate more frequent use of social media.
[a]$p < 0.01$.
[b]$p < 0.05$.

Instagram, YouTube, Snapchat, and Twitter. Participants were less likely to use social media for professional purposes, although many respondents reported doing so daily or weekly. FB, Pinterest, Blogs, the ASHA Community, and YouTube were the most frequently reported social media platforms used for professional activities. Within these platforms, SLPs reportedly use social media for a variety of professional purposes, most commonly to locate ideas and resources for treatment (70.66%), professional networking (33.20%), locating ideas and resources for teachers' professional development (33.20%), locating ideas and resources for training and coaching parents (32.82%), referencing typical communication development (25.90%), and locating ideas and resources for norm-referenced (25.01%) and criterion-referenced assessment (21.62%). To a lesser extent, participants reported using social media to pose their own clinical questions for treatment (22.01%) and assessment (17.40%), and to answer other people's clinical questions for treatment (24.71%) and assessment (18.92%). A larger percentage of clinicians reported reading other people's summaries of research evidence for treatment (43.63%) and assessment (32.05%). Finally, about one-third of respondents indicated that they locate and read new scholarly journal articles regarding treatment (33.20%) and about one-fourth locate and read articles on assessment (23.55%).

Next, we wished to explore SLPs' perceptions of social media use for professional purposes in accordance with our second research question. Data are presented in Supplementary Table S4. With respect to using new knowledge learned from social media platforms in supporting clients with communication disorders, approximately one-quarter to one-third of participants in FL (26.51%), OH (35.90%), and FB (33.68%) agree, with similar percentages of SLPs in somewhat agreement (FL, 38.55%; OH, 34.62%; FB, 29.487%). Relatively few SLPs (approximately 3–11% across samples) disagree with the idea of using social media for clinical decision making. However, when it comes to the use of social media for professional networking, many more SLPs agree (somewhat agree to strongly agree), with favorable responses reported by nearly 90% of respondents. The majority of respondents also believe that undergraduate and graduate students should be encouraged to use social media to support their pre-professional learning, with FB and OH participants responding more favorably than FL participants; however, approximately one-fifth of each sample neither agree or disagree with universities encouraging students to use social media. Responses were similar regarding participants' beliefs about licensed SLPs being encouraged to support their professional learning using social media, again, with FL respondents indicating less agreement than their peers in OH or on FB. Approximately 15% of SLPs across groups remained neutral in their endorsement of social media use for licensed SLPs. With respect to researchers'/academics' use of social media in the training of pre-professional or post-professional SLPs, 75%+ of respondents responded positively (somewhat agree, agree, or strongly agree). Lastly, participants perceived a need for researchers/academics to provide professional development activities on social media platforms that are geared toward post-professional SLPs more than those still enrolled in university programs, as evidenced by more "strongly agree" ratings, especially by those in FL and FB.

Factors Related to Social Media Use and Traditional EBP Activities

We conducted a correlation analysis to explore the relationship among key variables of interest after creating sum variables. Spearman's correlations are provided in Tables 1 and 2, with separate correlations shown among the FL/OH sample versus those SLPs from the FB sample. Logically, strong correlations were observed among age- and experience-related variables. For example, the age of FL/OH respondents was strongly related to the length of time since their last degree ($r = 0.71$, $p < 0.\ 01$) and years of SLP experience ($r = 0.88$, $p < 0.01$). Similar correlations were observed for SLPs recruited through FB (r ranging from 0.75 to 0.78). One's reported exposure to "traditional EBP training" (Supplementary Table S5) was also correlated to experience-related variables in both samples, albeit to a lesser extent and in a negative manner (r range: -19 to -0.47). These negative

Table 2 Spearman's correlations among key demographic variables, professional social media use, and reported EBP training for Facebook (FB) SLPs

	1 2	3	4	5	6	7	8	9	*n*
1. Length of time since last degree	– 0.75[a]	0.87[a]	0.12	0.08	0.38[a]	−0.08	−0.47[a]	−0.27[a]	100
2. Age	–	0.78[a]	0.19	−0.07	0.35[a]	−0.19	−0.31[a]	−0.16	97
3. Years of experience in schools		–	0.14	0.09	0.35[a]	−0.08	−0.45[a]	−0.15	99
4. Caseload size			–	−0.01	−0.08	−0.02	−0.16	−0.08	95
5. Frequency of professional social media use				–	0.20	0.01	−0.13	0.05	90
6. Reasons for professional social media use (sum)					–	0.03	−0.05	0.04	88
7. Obstacles of professional social media use (sum)						–	0.28[a]	−0.13	94
8. Traditional EBP training (sum)							–	0.39[a]	96
9. ASHA and non-ASHA articles read (sum)								–	94

Note: This item was reverse coded so that higher values indicate more frequent use of social media.
[a]$p < 0.01$.

correlations indicate that newer SLPs have had greater exposure to traditional EBP activities than their peers who graduated longer ago and have more years of experience. In both groups, however, one's reported exposure to traditional EBP was positively related to the number of ASHA and non-ASHA articles read (r range: 0.39–0.41, $p < 0.01$).

When examining the correlations among variables related to professional social media use, we observed differences in strength and significance between the two groups (i.e., FL/OH and FB). For example, among the SLPs recruited from FB, age- and experience-related variables were moderately related to one's use of social media for a variety of reasons (r range: 0.35–0.38, $p < 0.01$). This means that older and more experienced SLPs in the FB sample were using social media for more professional reasons. This was not the case in the FL/OH sample, where one's reasons for professional media use was only significantly related to other social media variables, such as frequency of social media use ($r = 0.44$, $p < 0.01$), exposure to traditional EBP training ($r = 0.30$, $p < 0.01$), or number of research articles read per year ($r = 0.41$, $p < 0.01$). Within both groups, however, we found smaller, yet similar correlations between traditional EBP training and reported obstacles that occur when using social media for professional purposes (r range: 0.21–0.28, $p < 0.01$). All remaining correlations were nonsignificant and negligible.

DISCUSSION

In the current study, we investigated school-based SLPs' use and perception of social media for professional purposes, as well as their use of more traditional methods for clinical decision making. We found that over half of our respondents (i.e., 64–91%) indicated that they used social media for professional purposes: higher percentages than have been reported by professionals in other fields, such as nursing (59%) and pharmacy (48%).[39] SLPs view social media sites frequently, at least once per week. Akin to other studies of SLPs' and health care professionals' social media use,[28,39] FB was the most popular social media site, followed by Pinterest, YouTube, blogs, and the ASHA Community. When engaged on these sites, SLPs reported that they were most often interested in learning of new ideas or resources for treatment activities or would read others' summaries of intervention research articles. Given the relative disparity of clinical practice research, especially those articles that describe and inform intervention procedures,[15,16] it comes as no surprise that school-based SLPs look to social media for new ideas.

The results of this study provide preliminary evidence about the extent to which SLPs use social media as an EBP tool. One concern, however, is that we know very little about the quality of posts that SLPs view. The verity of information is of increasing concern on social media.[40] It is concerning to think about the

impact that inaccurate or outdated practices may have on our students and clients should an SLP fail to adequately judge the accuracy and quality of the information. Some researchers have even posited that information posted on social media and elsewhere on the internet may be more impactful for clinicians in some areas of clinical practice than peer-reviewed sources.[41] However, given the current workload of school SLPs, we acknowledge that SLPs need an efficient method to learn about new research findings or recommendations that may impact the type or quality of services they provide.

There are important implications for pre-professional and professional training of SLPs. SLPs who graduated within the past 10 years were more likely to report having receiving training on EBP. For this reason, continuing education is necessary for SLPs to engage consistently in EBP. As with prior research,[10] relatively few participants of our sample reported reading journal articles on a regular basis. Indeed, most respondents indicated that they read one to two assessment and intervention articles per academic year—an amount that is likely not sufficient to stay abreast of recent evidence-based assessment and intervention procedures. Although we did not ask participants to describe why they did or did not read many research articles, participants' responses to their traditional EBP activities may provide some insight. For example, few of our respondents indicated that they received pre- or post-professional training on how to search for research, compare methodological quality across studies, or interpret and apply research findings into practice.

The frequency with which SLPs in the current study reported utilizing social media for professional purposes highlights the possibility that pre-professional programs may need to extend their discussion of the research process and EBP within the curriculum. Pre-professional SLPs may also benefit from learning about how to use social media in an effective and ethical manner to support their evidence-based clinical decisions. This argument is supported by the work of Zipoli and Kennedy[8] who used multiple regressions to identify variables that predicted SLPs' attitude toward EBP. Of the six variables included in their model, only two variables—(1) exposure to research and EBP in graduate school and (2) exposure to research and EBP during clinical fellowship year—significantly predicted SLPs' current attitudes toward research and EBP. Their work highlighted the important role pre-professional programs may play in cultivating SLPs and audiologists who are knowledgeable of EBP and successful at incorporating EBP into their clinical practice.

Beyond graduate training, school-based SLPs also look to others to summarize extant research, especially for treatment-related activities. Researchers, university faculty and staff, and spokespeople from professional organizations in social media sites such as Twitter and FB may increase the quality of information shared and promote use of EBP. Researcher and expert involvement within these social websites may also encourage practitioners to pay more attention to the credibility of the source rather than accepting any received suggestions. In order to promote the use of EBP, researchers must be willing to discuss their findings and suggestions on platforms that practicing SLPs and audiologists *want* to use. This is not to say that publication in academic journals should be dismissed or discontinued, as journals remain highly utilized by researchers as a primary source of new information; however, because practitioners infrequently engage in the act of reading research articles, alternative options must be explored on their behalf.

No prior studies, to our knowledge, have investigated research faculty members' use or desire to share information via social media. However, in terms of social media use in the classroom, few faculty use or believe that social media should be used for this professional purpose, and instead think that social media is better used for personal reasons.[42,43] Despite faculty's opinion regarding social media, students have reported that they enjoy social media use in the classroom, with empirical studies suggesting that students learn more content when social media is included as part of a course compared to courses where social media is not leveraged as a teaching tool.[44]

In addition to social media use, research-lab websites (especially those containing access to a blog and/or summary of research findings)

may serve as another method to disseminate research findings and expert opinions. The website www.csdisseminate.com, managed by volunteer researchers and clinicians in the CSD field, has been particularly impactful in their ability to encourage researchers to publish preprint versions of their journal manuscripts to personal websites as a way to bypass journal paywalls and increase clinician access. Beyond access to journal article preprints, research-lab websites would allow researchers to post additional resources or information that, due to journal page limitations, was not included in the published article. For example, clinicians may be interested in viewing an intervention script or researcher-created assessment tool utilized within a study of interest, both of which may not have been included in an article's appendices. Additional resources, especially when freely downloadable, may allow clinicians to more easily implement the evidence-based practices recommended in the article. Although greater online-presence and social media usage by researchers within the fields of speech-language pathology and audiology will likely not solve the dilemma we currently face of few clinicians incorporating research findings into clinical decisions, the results from the current study suggest that it may be a worthwhile attempt.

Limitations

Surveys provide a useful way to measure phenomena that are not directly observable, such as clinicians' beliefs and perceptions about social media as a tool to use in clinical decision making, and thus EBP. However, there are some limitations worth acknowledging. First, surveys rely on self-report. It is unknown how representative a respondent's answers are to their actual behaviors. Participants share information to the point that they are aware of their own behavior, reasons, practices, etc. Recall bias can make it difficult to estimate accurate responses to questions relying on recall of past events or practices. Therefore, we acknowledge that results of the current study may not be as accurate as if we had been able to collect and analyze participants' actual social media and EBP activities across the same school year. Although it may be possible to empirically investigate our research questions with direct observation and/or analyses of participants' social media posts, such an endeavor would be extremely time-consuming, and some participants may consider it intrusive.

Another limitation was school zoning differences between FL and OH (school-level organization by county and district, respectively). FB respondents may have had difficulty accurately reporting the size of their district or county, so we asked them only to rank their school district as "rural," "urban," or "city." These differences did not allow us to easily compare SLPs' social media use and perceptions based on county/district size. Size of one's district could potentially impact one's social media use. For example, SLPs from rural counties/districts with limited opportunities to engage with other SLPs may use social media more frequently and for more reasons. However, the extent to which this is true could not be evaluated within our current investigation and could be explored in future studies.

As this was the first study to explore school-based SLPs' use and perceptions of social media as a clinical decision making tool, we are limited in our ability to generalize the findings of this study. Although we used stratified random sampling to identify and invite school-based SLPs in FL and OH to participate, participants still needed to self-select into the study by clicking on the invitation link within the email. It is possible that our participant sample contained an overrepresentation of SLPs who are interested in social media, and an underrepresentation of SLPs who have no desire to use social media for (recreational or) professional purposes. Indeed, approximately 90% of our respondents used social media for recreational purposes—higher than the national average of 72%.[45] We therefore acknowledge the possibility and plausibility of self-selection bias. It is also possible that SLPs who live in FL or OH may have encountered the survey invitation twice (once in an email, and again on FB). However, as no identifying data were collected from participants, we are unsure if a participant responded more than once. Lastly, we should reiterate the descriptive and correlative nature of our data. As such, we cannot discuss how using social

media for professional purposes enhances or degrades one's clinical decision making for assessment and intervention. Furthermore, the exploratory nature of our study does not allow us to pinpoint whether professional social media usage improved client outcomes.

Finally, the data presented here represent SLPs' use and perceptions of social media when sampled at one point in time. Social media platforms and sites can change frequently. Therefore, it is feasible for participants' social media uses and perceptions to evolve over time and potentially differ from what was reported here. Future surveys could incorporate sampling at multiple time points across an extended period to examine whether significant changes occur in SLPs' uses and perceptions of social media for professional purposes. Despite these limitations, we believe that the findings from this study continue to have relevant and important implications for researchers and clinicians alike.

CONCLUSION

The implementation of evidence-based assessment and intervention practices is essential to meet clients' needs. Social media has the potential to inform clinical decision making. The majority of SLPs in our sample reported using social media weekly for professional and recreational purposes. Across sampling groups (FL, OH, FB), more than two-thirds of SLPs ($N =$ 271) reported using social media for professional purposes—often logging on to sites at least once per week. SLPs most frequently use FB (19–25% of SLPs) or Pinterest (15–18% of SLPs) for professional purposes, especially to learn about new treatment ideas or resources for (12–18%) or read others' summaries of treatment-related research (8–11%). Less common purposes include posing or answering a clinical question (3–5%). The number of reasons for one's professional social media use was moderately correlated with frequency of social media use, traditional EBP training, and reading a greater number of ASHA and non-ASHA academic articles. School-based SLPs frequently use social media as part of their EBP process. Given their use, graduate programs may wish to discuss effective and ethical uses of social media for clinical decision making. Furthermore, researchers and clinical faculty, along with spokespeople from relevant professional organizations, may wish to consider leveraging social media as a tool to increase school-based SLPs' knowledge and implementation of EBP.

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CONFLICT OF INTEREST
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