



Clinical and Research Perspectives on Nonspeech Oral Motor Treatments and Evidence-Based Practice

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Purpose: Evidence-based practice (EBP) involves the incorporation of research evidence, clinical expertise, and client values in clinical decision making. One case in which these factors conflict is the use of nonspeech oral motor treatments (NSOMTs) for children with developmental speech sound disorders. Critical reviews of the research evidence suggest that NSOMTs are not valid, yet they are widely used by clinicians based on their expertise/experience. This investigation presents detailed descriptions of clinicians' and researchers' views and opinions on NSOMTs and EBP.

Method: Individual interviews with 11 clinicians who use NSOMTs and 11 researchers in child phonology were conducted. The interviews were transcribed and organized into themes, following a phenomenological research design.

Results: Five themes were identified: (a) NSOMTs are effective, (b) EBP is useful, (c) there is no published research supporting NSOMTs, (d) research evidence may change clinical use of NSOMTs, and (e) researchers and clinicians have separate but shared roles in clinical decision making.

Conclusions: The participants' responses provided detailed and complex insights into each group's decisions regarding NSOMTs. These responses also suggested questions that should be considered when making decisions about approaches that are not fully supported by EBP.

Key Words: clinical practice, speech therapy, qualitative research, controversial therapies

There has been strong advocacy over the past decade for clinically based speech-language pathologists to engage in evidence-based practice (EBP; e.g., American Speech-Language-Hearing Association [ASHA], 2005; Dollaghan, 2004; Gallagher, 2002; Yorkston et al., 2001). EBP is "the integration of the best current research evidence available regarding a topic, with clinical expertise, and client values" (Sackett, Strauss, Richardson, Rosenberg, & Haynes, 2000, p. 1). It is a process by which clinicians select assessment and intervention approaches to provide the most effective and efficient services possible. Current research evidence refers to support from the research literature that has been conducted on the topic. Clinical expertise includes clinicians' experiences and personal views on a topic. Clients' or patients' values incorporate their experiences and perspectives into the clinical processes. Agreement and collaboration among these three aspects maximize the potential for successful outcomes. According to ASHA, "The goal of EBP is providing optimal clinical service to that client/patient on an individual basis. Because

EBP is a continuing process, it is a dynamic integration of ever-evolving clinical expertise and external evidence in day-to-day practice" (ASHA, 2005, p. 1).

Despite this attention and the publications and conference presentations that have provided detailed descriptions and procedures (e.g., Dollaghan, 2004, 2007; Gillam & Gillam, 2006; Johnson, 2006; Justice & Fey 2004; Meline & Paradiso, 2003), there have been difficulties with the clinical implementation of EBP. The first is that only some clinicians fully incorporate it into their daily practice. A survey of 240 speech-language pathologists (Zipoli & Kennedy, 2005), for example, revealed that clinical decisions are made significantly more on the individual's previous experiences and the opinions of colleagues than on evidence from the research literature. In other words, clinicians rely on one aspect of EBP (their expertise) over the others. Half of the respondents cited professional time as a barrier to using EBP, while 22% or less identified the quantity and quality of available research, resources for conducting searches, and knowledge and skills in implementing EBP as barriers. Similarly, Brackenbury,

Burroughs, and Hewitt (2008) concluded that the resources needed, time involved, and availability of relevant information make current guidelines for EBP challenging for most full-time practitioners.

Another difficulty that has faced clinical implementation is agreement among the three aspects of EBP. Ideally, the research evidence, clinical expertise, and client values should all point to the same conclusion. Disagreements between these may negatively affect clients due to assessment or treatment techniques that are inappropriate, inefficient, and/or harmful. These disagreements may also cause controversy or conflict between researchers, clinicians, and clients, which may alienate them from each other.

The focus of the present study is situations in which there are conflicts between the research evidence, clinical expertise, and client values. Specifically, we looked at the use of a controversial form of treatment for children with developmental speech sound disorders: nonspeech oral motor treatments (NSOMTs). NSOMTs are controversial because they lack research evidence, yet many clinicians use them based on their expertise. Rather than advocate for or against the use of NSOMTs, we explored how clinicians and researchers incorporate EBP into their decision-making processes in relation to these approaches.

NSOMTs (also referred to as nonspeech oral motor exercises and oral motor therapy) are a particular type of oral motor exercises. As a broad category, oral motor exercises encompass “nonspeech activities that involve sensory stimulation to or actions of the lips, jaw, tongue, soft palate, larynx, and respiratory muscles that are intended to influence the physiological underpinnings of the oropharyngeal muscles to improve its function” (McCauley, Strand, Lof, Schooling, & Frymark, 2009). NSOMTs focus on the use of these activities with the direct intention of improving speech—as opposed, for example, to increasing muscle tone to decrease drooling. In other words, they are therapy techniques that do not require the child to produce a speech sound but are believed to influence the development of speaking abilities (Lof, 2006). Although some of the techniques used in NSOMTs have been available for many decades, it wasn’t until the 1990s that they gained widespread use as a primary method of intervention (prompting the development of acronyms like NSOMT; Marshalla, 2007, 2008; Ruscello, 2008). These techniques differ from the phonetic placement and sound modification procedures of traditional articulation therapy because they are not directly related to the speech act. Examples include, but are not limited to, blowing through whistles of various sizes and shapes, drinking from straws, repetitive motion exercises (e.g., moving the tongue up and down repeatedly), resistance exercises (e.g., pushing the lips against a tongue depressor), and sensory stimulation (Ruscello, 2008).

Support for the use of NSOMTs with children with developmental speech sound disorders has been based primarily on theories of motor speech development, clinical reports, and prior case success. NSOMTs are believed to improve speech by increasing sensorimotor awareness, normalizing tactile sensitivity, breaking the complex behavior of speech into smaller parts, and teaching more normal movement patterns from oral actions like sucking and chewing (e.g.,

Forrest, 2002; Rosenfeld-Johnson, 1999). Detractors, however, have argued that speech does not develop in this manner and that the activities used in NSOMTs do not achieve these goals (e.g., Bunton, 2008; Clark, 2008; Forrest, 2002; Lof, 2003, 2007; Love, 2000; Moore & Ruark, 1996; Wilson, Green, Yunusova, & Moore, 2008). Although advocates of NSOMTs have presented supportive cases (e.g., Rosenfeld-Johnson, 2007), there are no peer-reviewed published reports that document their effectiveness (Brackenbury et al., 2008; Davis & Velleman, 2000; Forrest & Iuzzini, 2008; Lass & Pannbacker, 2008; McCauley et al., 2009; Ruscello, 2008).

Despite the lack of research evidence, a majority of clinicians who work with children with speech sound production problems use NSOMTs. Survey studies by Hodge, Salonka, and Kollias (2005) and Lof and Watson (2008) both found that 85% of respondents reported using NSOMTs within the past 5 years ($n = 149$ and 537 speech-language pathologists, respectively). The majority of the respondents in both surveys were clinicians who had practiced for 10 or more years and worked within early intervention programs and/or elementary schools. The primary reasons given for using NSOMTs were (a) a high degree of exposure to NSOMT products and materials, (b) reports of prior clinical success with NSOMTs (either their own or reports from a colleague), and (c) beliefs that NSOMTs help in forming the foundation to acquire more complex movements required for speech, that speech develops from earlier occurring oral behaviors, and that NSOMTs help to build up strength needed to produce speech. In contrast, a survey of 91 university instructors found that 75% of them did not teach their students to use NSOMTs (Watson & Lof, 2009). Taken together, the results of these surveys highlight the differences of opinion that clinicians and clinical instructors/researchers can have about NSOMTs.

This investigation was motivated from a review of the literature and numerous conversations with students, clinicians, and faculty members. These activities revealed that controversial treatments like NSOMT present multiple challenges for new and seasoned professionals alike. Students can be confused over the mixed messages that they receive from faculty and clinical supervisors, in both the choice to use or not use NSOMTs and how EBP gets implemented in the field. Clinicians may feel pressure to use or not use NSOMTs within the particular setting they are working in. Faculty members can have difficulty teaching their own views while simultaneously developing students’ skills in making informed decisions. An additional challenge that everyone faces is how individuals communicate their perceptions and opinions of NSOMTs with others. We have been part of and witnessed many complex and insightful conversations on the subject. We have also experienced exchanges in which discussants on one or both sides of the issue have demonstrated intolerance and/or disrespect for others’ perspectives. This is concerning because it can prevent individuals from truly understanding why NSOMTs should or should not be advocated; it can also fractionalize members of the profession. If we are to move beyond arguments and assumptions about other people’s points of view, we need to gain a better understanding of each other’s experiences and decision-making processes.

The purpose of this investigation was to gain a better understanding of how professionals who have reached different conclusions about NSOMTs support their decisions, especially in relation to EBP. The focus was to examine the processes by which clinicians who actively use NSOMTs and researchers who study speech production disorders in children support their conclusions. The principal research questions were as follows:

1. How do clinicians who use NSOMTs support their decision to do so, especially in relation to EBP?
2. How do researchers who do not advocate for the use of NSOMTs support their decision, especially in relation to EBP?
3. How can this information be used to further the dialogue between professionals involved in NSOMTs?

It is important to note that this investigation was based on documenting, understanding, and interpreting individuals' experiences, and not on testing a particular hypothesis or theory of speech sound development or intervention. This differs from most of the published research in communication sciences and disorders. One direct result of this is that traditional quantitative methods of investigation were not appropriate to answer the research questions. Qualitative research designs, on the other hand, were well suited to this study because they focus on personal and/or social experiences as lived, without investigator manipulations. These types of research emphasize the whole of the experience and how it can be extrapolated into broader themes, rather than controlling individual variables within the experience (see, e.g., Creswell, 2008; Maxwell, 2005).

The specific qualitative approach that was taken was the phenomenological method. Phenomenological research examines the experiences of multiple individuals in regard to a particular event or phenomenon (Creswell, 1998; Miles & Huberman, 1994; Moustakas, 1994). In this investigation, the individuals were clinicians who actively used NSOMTs and researchers who studied speech production disorders in children. The phenomenon was the decision of whether to use NSOMTs in light of EBP. In general, the procedures used in phenomenological research include identifying and interviewing individuals who have experienced the phenomenon, recording and transcribing the participants' statements, grouping the statements into themes, and reflecting on the meanings of the experience.

Method

Eleven clinically based speech-language pathologists and 11 university-based researchers in communication disorders participated in the study. Ten clinicians were practicing in northwest Ohio, and one was in Florida. The clinicians received their graduate degrees from seven different universities, five in Ohio and two in Illinois. Although five had graduated from the same university, they had done so over a period of 25 years (suggesting variability in the training they had received). The clinicians had been in practice from 7 to over 30 years, with a mean of 16 years, and they had extensive experience with NSOMTs (between

5 and 30 years, with a mean of 13 years). They were employed in a variety of work settings: eight from public schools, two from hospitals, and one from a private school and clinic. All of the clinicians had caseloads that included children with speech sound disorders (phonological and/or articulation), ranging from "a few" to 85% (mean of 47%). They were recruited from a list of university off-site supervisors, telephone calls, and word-of-mouth contacts.

The researchers' years of experience in the field ranged from 10 to 35, with a mean of 20 years. They all had published in the area of child phonology, although their specific areas of interest differed. Six of them reported focusing primarily on treatment efficacy, two on bilingualism, and two on assessment procedures (one did not specify). Only two of the researchers reported having conducted research directly related to NSOMTs. Nine of the researchers had previous clinical experiences working directly with children who had developmental speech sound disorders (most in public schools). The other two reported clinical experiences with these children during their master's training. Three of the researchers mentioned that they also supervised students working with these types of children. The researchers were recruited via a posting on an e-mail list for researchers in child phonology and direct telephone and e-mail contacts.

Interviews

One-on-one interviews were conducted with each of the participants. The interview process included three steps: initial interviews with all of the clinicians, interviews with the researchers, and short follow-up interviews with the clinicians (one clinician chose to not participate in this because of time issues). This arrangement allowed us to ask the researchers to respond to comments made by the clinicians and vice versa. The first author conducted all of the interviews with the clinicians, and the second author spoke with the researchers. The interviews were digitally recorded, and notes were taken during them. All but four of the clinician interviews took place face-to-face, in settings that were convenient to the clinicians (e.g., at the clinician's workplace). The other clinician interviews and all of the researcher interviews were conducted over the telephone.

The interviews consisted primarily of open-ended questions on a variety of topics. The questions focused on clinical caseloads; knowledge of intervention strategies for children with developmental speech sound disorders; training, knowledge, and use of NSOMTs; views on the research evidence for and against NSOMTs; and opinions on the roles played by the research community, ASHA, and clients in the selection of treatment approaches. The same set of primary questions was asked of the participants within each group. Follow-up questions varied within each interview depending on the participant's responses to the primary question. This allowed us to probe for more details when needed and resulted in interviews that were more conversational than interrogational. The clinician interviews lasted between 34 and 80 min, with a mean of 54 min. The researcher interviews lasted between 20 and 45 min, with a mean of 27 min. These were shorter because fewer questions were asked and the researchers' responses tended to be briefer.

As with other forms of research, phenomenological investigations are concerned with the validity and credibility of their findings. Of particular concern is the degree to which the information presented represents the actual experiences of the participants (Creswell, 1998; Maxwell, 2005; Miles & Huberman, 1994). Establishing validity and credibility in this investigation was done in two primary ways. The first focused on the participants themselves. This began by selecting participants who had clearly experienced the phenomenon. The length of the interviews added to credibility because it provided ample time for the participants to consider and share their experiences. Finally, the participants engaged in member checking, meaning that they were allowed to edit and alter the transcript of their interview before it was analyzed.

The second approach used to establish validity and credibility related to the authors/investigators. The efforts in this direction were devoted to identifying and limiting the potential effects of our own bias (i.e., bracketing). All three of the authors engaged in the development of the study, the interviews, transcription, and data analysis. As a result, there were many potential options for unchecked bias to unduly influence the investigation. The process began with each of the authors identifying his or her own thoughts, experiences, and biases on the subject of NSOMTs. The first author was working on her master's degree in communication disorders during the study. She had been trained on and used NSOMTs during her undergraduate studies in India. She was surprised to learn during her graduate training that NSOMTs were controversial. The second author was an undergraduate senior in communication disorders who did not know about the topic before participating in this work. The third author was a certified and licensed speech-language pathologist with over 15 years of direct clinical experience. He had taught undergraduate and graduate courses in phonology for 9 years and had clinical experience using some of the activities involved with NSOMTs as oral motor exercises to address feeding and swallowing goals for children with developmental disorders. He did not support the use of NSOMTs for children with developmental speech sound disorders (based on his review of the literature and clinical experiences).

Validity checks in the form of postinterview discussions were conducted to ensure that the interviewers asked questions in an objective manner. These were done immediately after the first three interviews within each participant group. They were led by the third author, who asked the participants about the clarity of the interview questions and any bias that they might have felt from the interviewer. No major concerns were expressed about the questions asked, although some minor adjustments were made in subsequent interviews. Only one comment was made on the topic of potential perceived bias. The first researcher cautioned the interviewer to make sure that interjections (e.g., "yeah" and "uh-huh") made in response to the interviewees' statements expressed her comprehension of the statements as opposed to support for the particular views expressed. The interviewer made adjustments, and none of the subsequent researchers identified this as an issue.

Analysis

All the interviews were transcribed in their entirety by the first two authors and two graduate research assistants. Each transcribed interview was then shared with the participating clinician or researcher. The participants were asked to review the transcription to ensure that their perceptions and opinions had been captured accurately, and to modify or elaborate on their responses (i.e., member checking). The majority of the changes made were in the areas of grammar and phrasing. All of the changes made by the interviewees were included in the final transcriptions.

The interview transcriptions were descriptive and lengthy. Data reduction was conducted by removing comments and questions made by the participants that did not relate to the topics under discussion. Each transcript was summarized individually by the first two authors, who then cross-checked their results with the other for accuracy. Information included in one summary but not the other remained in the final version. The thematic analysis began by entering each summary transcript into a spreadsheet, with separate ideas placed in individual cells. These were color coded according to the questions or topics they were in response to, allowing the source of each comment to be easily identified later in the analysis (if needed). Each individual's spreadsheet was printed out, and the individual comments were cut into separate pieces of paper. The authors then reorganized the responses into themes. Some responses easily fit into themes, while others were placed into themes via group consensus. The consensus method was chosen because it reduced the influence of bias from any one of the investigators. This procedure was conducted separately for the comments made by the clinicians and the researchers. The goal of this thematic analysis, as opposed to presenting the responses directly to the questions asked, was to achieve a broader understanding of how clinicians and researchers view NSOMTs and EBP.

Results

Analysis of the coded responses revealed five main themes. These themes are listed in Table 1 and described in detail below. It is important to note that phenomenological research considers all ideas expressed by participants to be of equal worth, regardless of how many of the participants made similar statements (Creswell, 1998). For this reason, the results expressed here do not include specific counts of the number of clinicians or researchers who expressed the same idea (although quantifiers like *all*, *some*, and *a few* will be used).

The definitions of NSOMTs given by the clinicians and the researchers were similar to each other. They all viewed these as activities/exercises/movements of the oral musculature that did not include sound production but whose long-term outcomes were to improve speech. These definitions were similar to those in the literature, with the exception of references to sensory stimulation techniques (although some of the participants brought up sensory stimulation during other parts of the interviews). The clinicians often included comments related to short-term outcomes of NSOMTs in

TABLE 1. Summary of the main themes and the participant groups' perspectives.

Theme	Perspectives
1: NSOMTs are effective.	Clinicians: They increase motoric abilities and are effective for a variety of clients. Researchers: NSOMTs might have a clinical place in addressing feeding, sensory, and/or motor issues, but not in speech improvement.
2: EBP is useful.	Clinicians: EBP is important but difficult to apply clinically. Researchers: EBP is very important to providing good treatment.
3: There is no published research supporting NSOMTs.	Clinicians: There are enough clinical examples to support their use. Researchers: Advocates of NSOMTs need to provide valid research data.
4: Research evidence may change clinical use of NSOMTs.	Clinicians: Some, but not all, clinicians will change their use based on research evidence. Researchers: Other issues will also need to be addressed in order for clinicians to change.
5: Researchers and clinicians have separate but shared roles in clinical decision making.	Clinicians and researchers: Research input should guide and support clinical decisions, but not dictate the selection of approaches.

their definitions, such as “to improve awareness, strength, and range of motion,” “as a stepping stone to sound,” and “relate to feeding and swallowing.” The researchers emphasized distinctions between NSOMTs and oral motor activities that directly related to the act of speaking, such as the placement cues and direct sound instruction used in articulation therapy.

Theme 1: NSOMTs Are Effective

Clinicians' responses. The clinicians reported a wide range of benefits they had personally experienced by using NSOMTs. Increases in children's motoric abilities and awareness were listed the most frequently and described with the most depth. Many of the clinicians saw improvements in motoric abilities as prefoundational skills for speech. They proposed that working to increase strength, accuracy, and range of motion of the articulators via NSOMTs resulted in greater movement accuracy, sequencing, flexibility, and range of motion. These changes, in turn, can lead to increases in speaking ability/intelligibility and an overall reduction in therapy time. The connection between improvements in motor abilities and speech are highlighted in the following quotes from two clinicians: One said that working on oral motor skills was “almost a direct correlation then to their speech improving,” and another said, “They're talking. Their mouth and their tongue are just not all over the place.” The clinicians also felt that NSOMTs were beneficial because they could be used to (a) analyze the nature of the child's speech problems (based on the areas of oral motor weakness and/or progress made), (b) pretrain or “wake up” the articulators at the start of therapy sessions, and/or (c) provide parents with tangible activities that could be done at home and lead to identifiable progress.

NSOMTs were purported to be effective for a wide variety of disordered populations. The most commonly listed groups were children with childhood apraxia of speech, low muscle tone, or oral defensiveness. Benefits were also reported for children with phonological disorders, children who had just a few sound errors, children with limited lip and/or tongue movements, and those who did not respond to other treatment approaches. The clinicians stated that NSOMTs generally worked well for a majority of children but seemed to be better for younger or preschool-age children, as well

as children with average or above average intelligence (because of the need to follow specific directions). NSOMTs were reported to be especially beneficial for the phonemes /θ, ð, s, r, l/. Positive indicators for client success with NSOMTs included greater speech sound stimulability, strong motivation and interest, and parent involvement. These techniques were described as being the most successful when used consistently in therapy and paired with another approach.

The clinicians expressed some limitations to the benefits that they had seen from NSOMTs. Clients who were reported to have difficulty with these techniques were children who had problems following directions, below average intelligence, or simple articulation errors. In contrast to some of her peers, one clinician stated that she did not find NSOMTs helpful for children with severe childhood apraxia of speech.

Researchers' responses. The researchers did not believe that NSOMTs were effective. Their argument against these techniques related to the lack of research evidence, both for its effectiveness and for theoretical motivation. They did not support the tenets of NSOMTs as applied to speech sound production (such as NSOMTs providing the building blocks to produce speech sounds). Some of the researchers made specific comments related to the oral musculature changes that clinicians reported. For example, one researcher dubious about increased awareness of the articulators improving speech production said,

I'm talking to you just fine, and I have no awareness of my mouth. And so I'm not sure if you even want to increase that much awareness—you want automaticity, more than awareness. . . . It doesn't make sense—it's not waking up the mouth because kids probably don't have the awareness.

Other researchers agreed, suggesting that treatment in this area should focus on speaking techniques to increase the agility of the articulators.

The researchers were not entirely dismissive of potential benefits of NSOMTs. They generally agreed with the idea that these procedures might be helpful for other nonspeech oral motor goals, such as treating feeding, sensory, and/or identified motor issues. At the same time, however, they strongly supported the notion that improvements in these areas did not transfer into speech sound facilitation. In other

words, they felt that NSOMTs might have a clinical place in addressing nonspeech oral movements and skills but not in increasing speech sound production.

About half the researchers stated that NSOMTs were problematic because their implementation took away time that could have been spent on other techniques. One said: "You are wasting their [the client's] time when they could be working on something else that is more efficient. In that sense, it hurts them. There is a loss of potential learning if there is some other more efficient way. . . ." Another researcher expressed concerns over the funds that were being used to pay for such unsubstantiated treatments, saying, "I think it's an absolute scandal that public money is spent on speech therapy and nobody asks those programs to demonstrate that what they are doing is effective." Several of the researchers felt so strongly about these concerns that they referred to using NSOMTs as unethical.

The researchers suggested two primary reasons for the clinical improvements commonly associated with NSOMTs. The most frequent reason was general maturation (i.e., factors outside of the treatment process). The other was the practice of using NSOMTs in conjunction with other techniques. According to one researcher,

In every single case you don't know what the source of change is, because there are parents, and teachers, and peers, and the child himself, and the myriad of different speech therapy activities that the clinician might be engaged in. So you don't know which variables are critical ones for this particular child.

Many of the clinicians agreed that maturation and the concurrent use of other therapy techniques might be facilitating improvements. However, they felt that the NSOMTs were contributing to clients' successes above and beyond these factors. Descriptions of clients whose speech quickly improved after these techniques were implemented were given as evidence of their success.

Theme 2: EBP Is Useful

Clinicians' responses. The clinicians spoke about their knowledge and general use of EBP in many ways, including defining it and discussing how they attempted to incorporate EBP in their individual clinical settings. Only one clinician gave a definition of EBP that included all three aspects: clinical expertise, research evidence, and the client's values. The definitions that the others gave tended to focus on only one of these aspects. Some clinicians felt like EBP referred to their own clinical experiences and using techniques they felt worked for them. Many of the clinicians felt that using EBP meant using treatment that was based or supported by research, books, reports online, and information from ASHA-approved workshops they had attended. A few clinicians said they felt that collaborating and talking to their colleagues was a part of EBP, while others described it as taking the client's (or their parent's) thoughts and views into consideration.

There was also variety in how the clinicians implemented EBP into their clinical practices. Many reported that they engaged in it by reading and trying to utilize that information

in their therapy. Some described their use of EBP as identifying that a certain technique was not working and then trying something different (without clarifying how they chose the new technique). Others said using EBP was intuitive to them, and they did not specify how they used it. One clinician stated she would use researched techniques/EBP, provided these techniques worked for her. Another reported using EBP to educate her staff and client's parents, and a third said that she used EBP to evaluate clients' progress (although she did not specify how this was achieved).

Despite these different views on EBP and how it was used, all of the clinicians felt that EBP was advantageous and that it should be implemented in clinical settings. They felt that using EBP meant that they were using techniques that were proven to be ethical and effective. Using such procedures made treatment more credible or accountable. EBP was described as helpful diagnostically, the basis for intervention, a good place to begin therapy, and a means to "think better." The clinicians said that EBP was not just a part of best practice but also part of being a good clinician. As one said, "As SLPs we do all have a responsibility to use evidence-based practice. I guess it means for some of us taking more time to find out exactly what those things are."

Most of the clinicians mentioned that there were difficulties to using EBP clinically (although two reported no difficulties or disadvantages). These clinicians wanted to use EBP but reported that searching and accessing articles was too cumbersome and interfered with their heavy caseloads and limited time. A few of the clinicians were not familiar with how to use EBP, and some even mentioned that they were uncomfortable with the label "EBP." As one said, "Articles and research and evidence-based material can be very intimidating. So, I think sometimes, for me, I probably do not read some of the articles, and/or read them in depth when I should because it makes me feel very intimidated." Some mentioned that EBP was not "real life" and that it might stifle creativity. The clinicians stated that they would use EBP only if it gave results. If clear direction were not given from EBP, they reported that they would go back to what they had been doing all along.

Researchers' responses. The researchers were all strong proponents of using EBP practice. Their comments on EBP focused more on the available evidence than the aspects of clinical experience or client/family values. Most of them reported that they used and discussed EBP the most often when teaching students. Their emphases here focused on improving critical thinking skills, teaching the components of EBP, reporting the evidence for treatment approaches, and having students analyze the evidence for other approaches. Some of the researchers highlighted the mechanics of EBP, while others focused more on problem solving. One researcher who stressed the latter said, "I don't teach them things to do—I try to teach them ways of thinking about speech pathology and helping them learn to make decisions on the basis of the evidence."

One researcher discussed a particular problem with how EBP was taught and then used incorrectly. Her concern was that the EBP training that many students and clinicians had received overly focused on research design issues. Her particular issue was with discussions of the different levels

of evidence, in which some types of research are considered to be more important than others (such as randomized controlled trials over controlled case studies; see Dollaghan, 2007, and Gillam & Gillam, 2006, for discussions of levels of evidence). As a result, practitioners overemphasize the importance of the level of evidence, rather than making decisions based on the evidence that is available. The researcher summed up her concerns by stating,

What we are not helping clinicians do is make the linkages from the theory from the basic research (sometimes even animal research) to the clinical research, so that they can't say, "There is no randomized control trial telling me exactly what to do, then the field is wide open. I can do whatever I want."

Theme 3: There Is No Published Research Supporting NSOMTs

Clinicians' responses. The clinicians presented a wide variety of sources of evidence on NSOMTs that they had accessed, including their own personal thoughts/reasons, opinions they had heard from other clinicians, articles, books, and workshops they had attended. None of the clinicians (or researchers) directly cited evidence either for or against the use of NSOMTs at the strong or medium levels of evidence. A few of the clinicians reported reading articles that supported NSOMTs, but none of them could recall specific titles or authors. One felt that NSOMTs were justified because ASHA gives out continuing education units (CEUs) in workshops that advocate for their use, which suggested to the clinician that ASHA thereby supports these techniques (see the Discussion section below for more on this topic). Another clinician felt that NSOMTs were confusing because the research on them was conflicting.

Most of the clinicians were aware that there was not much research support for NSOMTs, and many reported hearing evidence against NSOMTs. An article describing Gregory Lof and his views on the subject (Banotai, 2007) was mentioned often. Some of the clinicians said they had heard that NSOMTs were not effective and that there was no progress seen when using them, although no specific sources were mentioned. A few had also heard that NSOMTs had no connection to speech and did not increase strength or range of motion. One clinician mentioned attending a workshop in which the presenter did not emphasize oral motor kinds of activities. Some clinicians had heard from their colleagues who did not use NSOMTs that they were uncomfortable or afraid of using them. There were a couple of clinicians who had not read or heard anything against NSOMTs. One of these clinicians said, "I know it's controversial. After you talked about it, I looked it up. I didn't realize it was as controversial as it is."

The clinicians expressed two differing opinions about sharing evidence or information on NSOMTs with parents. Some felt it was advantageous to do so, whereas others felt that clinicians needed to be cautious when sharing information. The specific information about NSOMTs that clinicians tended to discuss with parents included the techniques

that they thought would and would not work, how the child would benefit, related practice words, and information about the child's progress. The majority of these clinicians, however, did not share any research-based evidence on NSOMTs with parents. The primary reason that was given for this was that it would be too overwhelming for parents to understand. There were two clinicians who said that they had told parents that there was no evidence supporting NSOMTs and that they were unsure that the techniques would work. For both clinicians, the parents were reportedly open to trying NSOMTs out of respect for the clinicians and their decisions.

Researchers' responses. The sources of evidence for NSOMTs cited by the researchers focused on the experimental literature, with some comments about cases presented in workshops. The majority of the researchers directly stated that there was no direct supportive research evidence. One researcher, when discussing his own work in the area, stated,

There are no studies that we were able to review [during our literature search] on nonspeech oral motor exercises for speech. There were some for swallowing, and for drooling and for feeding, but there were none that we could review that met the standard of quality, with the scientific rigor, that we could study/use.

About half of the researchers directly identified this lack of experimental evidence as the reason why they did not use or advocate NSOMTs. The researchers were skeptical of the types of evidence that the clinicians discussed, citing the lack of experimental designs (resulting in little or no control over other variables that could influence the treatment outcome).

The researchers (and clinicians) expressed frustration over the lack of research evidence on NSOMTs and discussed many different reasons as to why this was the case. A few stated that there was an overall lack of research being done in child phonology (and the field in general), in part because of the diminishing number of researchers in communication sciences and disorders. Some mentioned that clinical research in general was difficult to conduct and that treatment efficacy studies were particularly costly. As one said,

I think it's hard to do. Whenever you are trying to do treatment efficacy on children, even single-subject design, without doing multiple treatment approaches it's hard stuff to do... I doubt that there's much funding available to do the kind of research that needs to be done.

As a result, few researchers were interested in spending the time, energy, and effort that this type of research required. This was especially true for a topic whose basic tenets they did not support and that they did not believe to be effective. Instead, they appeared to be opting to examine approaches that they felt had strong theoretical support and would be beneficial.

Some of the researchers questioned who should be looking for the evidence for or against NSOMTs. They suggested that it should be up to the professionals who believe that NSOMTs are effective for children with speech sound disorders to conduct efficacy studies. They suspected that

this was not being done because most NSOMT supporters have not been trained to conduct research, are not required by anyone to do so, lack the resources to conduct studies, and have invested commercial interests that would be hurt by contrary results. These sentiments were expressed in the following quotes from two different researchers: “I think that the people on the commercial end should actually be the ones doing the research. [They] don’t do the research because they aren’t researchers and they have a vested commercial interest in not identifying that their tools don’t work” and “The literature is incomplete. The people who do oral motor therapy do not have peer-reviewed studies, and they are influenced by the fact that they are making money off it.”

Theme 4: Research Evidence May Change Clinical Use of NSOMTs

Clinicians’ responses. The clinicians were split as to whether research evidence could cause them to change their minds regarding NSOMTs. Some were amenable to change, such as one who said, “I think in order to be a good clinician and to use best practice, we will have to change as we learn more information.” Among those with a similar view, there was a great deal of variety as to the types of evidence it would take. Most stated that studies showing negative outcomes of NSOMTs (i.e., that they were harmful to children) would cause them to rethink their use of these techniques. Others said it would take a long-term study that examined multiple factors and phonemes, several studies with similar results, demonstrations that a children’s progress was caused by some other factor outside of NSOMTs, and examinations in which the only difference between the experimental and the control group was the use of NSOMTs. Some of the clinicians said that they would be more receptive to evidence regarding NSOMTs from researchers who were clinicians or who were more clinically oriented. One clinician said she would stop using NSOMTs if ASHA took a stand against them. Finally, one clinician was open to using new evidence but uncertain about what kinds of evidence would be necessary to change her mind.

A few clinicians said that they would continue to use NSOMTs regardless of the evidence; one said, “If I don’t feel like I’m hurting the child, and I feel that for me through what I’ve seen actually helps, then irregardless of any evidence, I will probably go ahead and continue to do things the way that I am doing them.” Another expressed a belief that the evidence was contradictory because there were studies that supported NSOMTs and others that refuted them. As she stated, “You can find articles to support about anything you want to believe. You find what you believe and then you can support [its use].”

Researchers’ responses. All of the researchers considered the clinical application of NSOMTs to be problematic based on the lack of supportive evidence. Overall, they felt that there was a general misunderstanding among clinicians about NSOMTs and the data regarding their effectiveness. Amongst the problems they noted were misinformation presented at workshops, misinterpretation of the literature, inadequate education about NSOMTs and phonological

development/theory, and persuasion by people and websites promoting NSOMTs.

Some of the researchers proposed non-evidence-based reasons as to why clinicians might use NSOMTs. One such hypothesis was that the clinicians were not finding the results that they wanted with other approaches, which might be due to the complexity of speech sound disorders and/or limited knowledge about a variety of approaches. The researchers also identified the step-by-step series of tangible exercises that made up most NSOMTs as an appealing feature for clinicians (because they could be easily followed and conveyed to parents). As one researcher stated, “Clinicians who are working in the field want to do good work with their clients and are looking for something that’s already programmed for them. And [from] that point of view, the oral motor intervention is a program that they can follow.”

Theme 5: Researchers and Clinicians Have Separate but Shared Roles in Clinical Decision Making

Clinicians’ and researchers’ responses. The clinicians and researchers all agreed that research should play a role in clinical decision making. They all felt that researchers’ input should guide and support clinicians rather than dictate approaches. The clinicians who were supportive of research evidence cited the benefits of learning which techniques were effective and which were not. The other clinicians expressed concerns about the real-world applicability of research and their own expertise. One clinician demonstrated this when she said,

I think as a clinician that’s why we have gone to school, and that is why we have been practicing for several years. . . . we are professionals, and we are able to decide based upon our past experiences and educational level what we feel is best for the student and/or for the child.

The researchers generally defined research as “a structured way to answer questions” that included “systematic hypothesis testing.” They stated that research was conducted on many levels and included clinicians within their descriptions of “researchers” (because of the problem solving that must be done as part of assessment and intervention). They also stated that each client provided an opportunity to conduct a single-case research project (although they did not advocate doing so with every client). This is reflected in the following statement by one researcher, who advocated for lifelong learning based on viewing clients as case studies: “Clinicians certainly can be researchers. I treat the clinic as a laboratory. I tell my students that I want them to be a clinician with 10 years’ experience, not a clinician with 1 year of experience 10 times.” At the same time, some researchers expressed a concern that clinicians needed more training on the details of executing a single-case study design before conducting their own research.

All but one of the clinicians agreed that they too were researchers. In doing so, however, they often described their own research with qualifying terms, such as “informal” and “on a small scale.” The research activities that they reported engaging in included data collection and analysis to examine what worked and what did not. Limitations that were expressed about doing research included a lack

of time, no control groups, and ethical dilemmas related to withholding treatment from some children.

Many of the clinicians and researchers expressed a desire for more collaboration. Examples of this came from a clinician who stated that “we should all be intertwined because . . . they [researchers] are not out in the field working with the people—we can provide information as well” and a researcher who said,

Research has to be controlled, and then clinicians need to be taught how to generalize from the controlled research to the situations in which they’re working. But we as researchers need to take into account better the conditions under which clinicians are working.

Both the clinicians and researchers offered ideas for how to improve collaboration and communication. The clinicians proposed obtaining grants through various agencies/organizations to support collaborative research and professional development, having researchers work with clinicians on-site, and setting up dialogues similar to medical grand rounds. The researchers suggested placing a greater focus on research-based questions from clinicians, opening up more controlled studies, conducting larger treatment studies, and improving master’s programs by having more course work on single-case research designs. In summary, one researcher said,

A growth in mutual respect might be very helpful. . . . I think researchers should be producing research, and they should be working in concert with actual practitioners where possible, and I think ASHA could play a facilitating role in that process.

The role of ASHA in clinical decision making was also discussed by the clinicians and researchers. The clinicians unanimously agreed that ASHA should have an influence in what treatment approaches are used. But, they said, ASHA’s input should be based on careful consideration of the evidence, and the final decisions should be left up to individual clinicians. The following quote from one of the clinicians sums up this point of view:

It would depend on what it [the treatment approach] was and how extensive their research had been before they decide or say, “This is what you must do for treatment.” But sure . . . if there are certain treatment methods that they really feel strongly about, then . . . I don’t think there’s anything wrong with them saying, “This is the way to go” or “This is the way you shouldn’t go.” . . . I think they have an obligation to let us know “These are some therapy treatments that really seem to be effective.” But I think there should be a choice in that.

The researchers also believed ASHA should have a role in research and clinical activities because all certified researchers and clinicians were members of the organization. One researcher described ASHA’s role by saying, “ASHA isn’t the Good Housekeeping Seal of Approval; they aren’t the FDA. ASHA is us, a membership organization that we voluntarily join, so I guess all of us who belong to it have a role to play in this.” Other researchers expressed preferences for ASHA to take a greater role in promoting

treatments for which evidence exists and minimizing the use of approaches with no evidence support. As one of the researchers said, and others reiterated, “ASHA should be able to decidedly say that something has been shown to be nonefficacious and that it should be removed from the scope of practice.” Additionally, several researchers stated that ASHA needed to work to increase research funding so that more treatment efficacy studies could be conducted.

Discussion

The overall goal of this investigation was to further the dialogue between professionals involved in NSOMTs by learning more about the thoughts and views of clinicians and researchers. Data from more than 20 hr of interviews yielded five primary themes. The groups expressed a variety of agreements and disagreements within each theme. The views, support, and conclusions that they shared revealed interesting perspectives on NSOMTs and EBP, as well as provided questions for further discussion.

There were two misconceptions that came up during the interviews that warrant direct clarification. The first is the belief expressed by one of the clinicians that ASHA supports the approaches, techniques, and views that are given during ASHA-approved CEU experiences. This is not the case, as shown by the following quote that appears on ASHA-approved CEU forms: “ASHA CE Provider approval does not imply endorsement of course content, specific products or clinical procedures” (ASHA, 2009). The second misconception is that being a researcher precludes one from also being a clinician. This was expressed by the clinician who suggested that researchers should work in conjunction with “actual practitioners.” Although clinical experience is not a requirement for a research degree, many researchers also have had direct clinical experiences. This was the case for nine of the 11 researchers who participated in this study.

Group Results

When considering each of the identified themes in general terms, the clinicians tended to show overall agreement. There was noticeable variability, however, when specific aspects of each theme were discussed. For example, they all described benefits and limitations to NSOMTs, but they did not necessarily agree for whom these treatments were best or when they should not be used. They all knew about EBP but described its use in different ways and reported implementing it to varying degrees. Most of the clinicians were aware of the lack of research evidence in support of NSOMTs. This resulted in limiting some clinicians’ use of them but did not seem to have an effect on others. There was further division as to how much and what types of evidence it would take to change their practice. Some were amenable to change, given certain types of research results, while others stated that they would not change unless they themselves saw no benefits. The majority of clinicians viewed their work as being related to research to some degree. They were divided, however, in how they shared the research evidence on NSOMTs with parents.

As a group, the researchers were more consistent in their responses. They repeatedly cited the lack of supportive research studies and problems with the theoretical support as reasons for not using NSOMTs. Some researchers also cited concerns with using valuable treatment time on NSOMTs when there were other approaches with better evidence available. They proposed that the changes reported from using NSOMTs related more to uncontrolled variables (such as maturation), other experiences, and the simultaneous use of multiple treatment approaches. The researchers advocated for the use of EBP, with an emphasis on the current research evidence. It is unclear why the researchers were so much more in agreement than the clinicians. Among the numerous possibilities are similarities in how researchers are trained, the amount of time that they spend reviewing and critiquing the literature, their focus on the research literature over other sources like workshops and word-of-mouth support (thus reducing the variability of information in their decision making), and discussions with each other at conferences (which they may be more likely to attend than clinicians).

Not surprisingly, the clinicians and researchers agreed in some areas and disagreed in others. Both defined and described NSOMTs and EBP in similar ways. Many of the clinicians and most of the researchers agreed that NSOMTs were more beneficial for some speech sound errors and clients than for others, although their opinions of when and with whom to use these techniques diverged. The clinicians and researchers were in the most agreement when they expressed that researchers should not be dictating what clinicians should be working on and how they should be treating clients. They wanted to communicate and work better with each other as shared partners in the clinical process.

Questions to Consider

Along with the themes that were identified from the interviews, a number of questions arose that deserve deeper consideration. We offer these as starting points to initiate and guide further discussion of EBP and controversial assessments and treatments like NSOMTs.

How Should the Three Aspects of EBP Be Weighted in Clinical Decision Making?

This question seems to be one of the fundamental causes of the different conclusions that these clinicians and researchers reached about NSOMTs. The clinicians placed more emphasis on clinical experiences than on the research literature or client values. The researchers, on the other hand, emphasized research evidence over the other two areas. It is uncertain if one of these views is more correct than the other. They both seem to be consistent with each group's working environment. The majority of a clinician's time is spent assessing and treating clients. These daily interactions forge clinicians' experience and expertise. Given the large number of factors that can influence a child's progress, the clinician's experience has the potential to be a highly valid indicator of what will or will not work in the future. Researchers' primary goal, on the other hand, is to answer

questions in a rigorous and precise manner. They must control as many potential influences on performance as possible, in order to specifically identify the cause(s) of change. Researchers must constantly interact with the literature because individual studies are built upon previous investigations (see Fey & Johnson, 1998, for more on the different roles of clinicians and researchers).

Another issue that relates to how the aspects of EBP should be weighted concerns people who fully ignore one or more aspects. This was directly stated by a few of the clinicians, who said that no amount or type of evidence could change their views on NSOMTs. If EBP is to achieve its goals, all three aspects need to be considered.

How Should Clinicians Make Decisions, Given the Current State of Treatment Research Evidence in Child Phonology?

Even for clinicians who are proponents of using research evidence, there is a paucity of high-quality information available. Almost all of the commonly used approaches (e.g., cycles training, metaphon therapy, and traditional articulation therapy) present no evidence higher than case descriptions in their support. For example, in their book describing cycles therapy, Hodson and Paden (1983, 1991) stated that the approach was based on their work with over 200 clients at a university clinic and presented a few individual case studies. While they acknowledged the value of higher level evidence, they were unwilling to conduct a controlled study that withheld treatment (although they did not discuss direct comparisons of alternative treatment methods). Some of the more recent approaches, such as maximal opposition and multiple opposition, have published controlled case studies that directly examined a variety of aspects of their methods (e.g., Gierut, 1989, 1990; Gierut, Morrisette, Hughes, & Rowland, 1996; Williams, 2000a). Even in these cases, however, the evidence is considered by most to be at the low to midlevels.

If most of the evidence for current treatment approaches for children with developmental speech sound disorders is at low to midlevels, then one may question whether the evidence for NSOMTs is any less compelling than that for other approaches. There are at least two pieces of evidence which suggest that this is not the case. The first is that no case evidence for NSOMTs has been published in a peer-reviewed journal (Brackenbury et al., 2008; Davis & Velleman, 2000; Forrest & Iuzzini, 2008; Lass & Pannbacker, 2008; McCauley et al., 2009; Ruscello, 2008), while other approaches have some published evidence. Another reason is that the theoretical support for the other approaches is more strongly supported than that of NSOMTs. Gierut (1998), for example, presented treatment efficacy results from more than 68 published studies of interventions for children with "functional phonological disorders" (see Gierut, 1998, 2001, and Williams, 2000b, for further examples). This issue brings up a concern for clinicians who engage in EBP. To do so successfully, they must search the literature for both the approaches they are considering and the theoretical support behind them. This requires having a firm understanding of the support, being a critical reviewer of its evidence, and having the time and resources to complete these activities.

How Are Clinical Decisions to Be Made, Once the Evidence, Experiences, and Values Have Been Considered?

There was a striking difference between how the researchers and some of the clinicians reached their final conclusion concerning NSOMTs, especially when considering the lack of positive research evidence. The researchers saw the lack of positive evidence as justification for not using these techniques (i.e., if no benefit has been shown, then do not use the approach). Thus, the researchers appeared to have been focusing on the notion of beneficence (i.e., taking action for the benefit of others). Some of the clinicians, on the other hand, saw the lack of positive evidence in a very different light. Instead of attending to a lack of data for positive change (as the researchers did), they attended to the lack of any harm shown within the evidence. In other words, there was no research evidence that showed that NSOMTs were contributing to speech problems or delaying progress. This thinking appears to be a variation of nonmaleficence (i.e., to do no harm). It is important to note, however, that this view is in opposition to ASHA's Code of Ethics, which states, "Individuals shall evaluate the effectiveness of services rendered and of products dispensed, and they shall provide services or dispense products only when benefit can reasonably be expected" (ASHA, 2009, p. 2 [Principle of Ethics I, Rule I]).

These different opinions of how to interpret the lack of positive evidence are also evident in the research literature. Lass and Pannbacker (2008) and McCauley et al. (2009), for example, both presented reviews of the extant literature in which no peer-reviewed evidence in support of NSOMTs was identified. Their interpretations of these findings, however, were quite different. Lass and Pannbacker concluded that NSOMTs "should be excluded from use as a mainstream treatment until there are further data" (p. 408). This is similar to the view expressed by the researchers in the present study. McCauley et al.'s interpretation was somewhere between those of the researchers and clinicians. They concluded that there was "insufficient evidence to support or refute" the use of NSOMTs (McCauley et al., 2009, p. 353), although clinicians were recommended to focus their interventions on approaches that were supported by research evidence.

Duchan, Calculator, Sonnenmeier, Diehl, and Cumley (2001) offered a seven-step framework for clinicians and researchers to implement when considering the use of a controversial practice. The steps included identifying the source of controversy, understanding how the controversial approach fits within more established ones, utilizing informed consents designed around the approach, developing specific procedures for using the approach, receiving specialty training in the approach, documenting and evaluating the outcomes, and preparing for challenges. Although the focus of the present study was on the determination to use a controversial approach, it appears that all of these steps can (and should) be followed by those choosing to use NSOMTs. One very positive aspect of this approach is that it promotes communication between groups involved in EBP. For example, the use of specially designed informed consents ensures a flow of information between clinicians, clients, and their

families. Likewise, by sharing the outcomes of their work, clinicians can inform and assist researchers in investigations of treatment effects.

Whose Responsibility Is It to Show That Treatment Is Sufficiently Effective? Should One Group Be Held More Accountable Than Others in Providing Evidence?

There are at least four constituent groups involved in the implementation of specific treatment approaches: clinicians, clients and their families, advocates of the approach (who may or may not be clinicians or researchers), and researchers. We do not discuss clients and families here because they were not included in this study. Each of the three professional groups has important roles in providing treatment evidence. As previously stated, clinicians are bound by their code of ethics to use treatment approaches in which reasonable benefit can be expected. Clinicians are also the final determiners of how clients are treated. As a result, they need to be able to clearly share this knowledge with clients, their families, and funding sources. This places responsibility on them for supporting their treatment choices (primarily through the use of EBP). But clinicians do not bear the sole responsibility for treatment efficacy. The advocates of particular approaches must also be accountable for justifying their points of view. After all, these are the people informing clinicians that one particular approach should be selected over another. For clinicians to be able to trust their word, advocates need to supply evidence that is complete and at the highest levels available. Researchers are also involved in treatment efficacy because they are the people who are directly involved in the investigations that provide the research evidence.

Another constituency that should also be considered in this process is ASHA. Through the use of advisory boards and position statements, ASHA may serve as an influence over which approaches are considered to be sufficiently effective and which are not. One approach that ASHA has recently taken in this direction is the development of evidence-based systematic reviews (EBSRs). These reviews are formal explorations of the research literature regarding specific clinical questions. They describe the support that is available but do not make specific recommendations regarding clinical use (ASHA, 2010). The previously discussed article by McCauley et al. (2009) is the EBSR that has been conducted for nonspeech oral motor exercises as applied to speech (i.e., NSOMTs).

Based on our interviews, neither clinicians, advocates, researchers, nor ASHA have successfully addressed all three aspects of EBP for NSOMTs. We are encouraged by the number of recent publications that have addressed this topic (including the EBSR) and hope that continued dialogue between all of the parties involved can lead to improved treatment for children with speech sound disorders. As suggested by the participants in the present study, the best route to achieving balance in EBP is by working collaboratively.

Conclusion

Despite the fact that the results of this study raised many questions about EBP and clinical decision making, there were important commonalities across all of the participants.

They applied features of EBP toward NSOMTs, they were aware that others had different views, and their final decision was reflective of their experience and work environment. In other words, their final conclusions were principled, regardless of the fact that others might label them as “right” or “wrong.” One way to explain these principled but different conclusions is through the concept of “alternative frameworks.” Alternative frameworks come from the literature on science education and describe the conceptual structures (e.g., ideas and beliefs) that students bring with them to classes and how they interpret new information through these structures (see Halldén, 1994, for a review). An alternative frameworks approach considers the possibility that a student’s incorrect response may not be a miscomprehension but “a correct statement, if it is considered within a different system for describing and explaining the world” (Halldén, 1994, p. 29). If clinicians and researchers come to controversial issues like NSOMTs with alternative frameworks, then it should not be too surprising when they reach different conclusions.

The results of this study bring to light some of the difficulties that our profession faces when using EBP. It is easy to apply in cases where the research, clinical expertise, and client values all agree with each other. There are likely other situations across the scope of practice where these aspects of EBP do not concur. If we are to progress in this area, we need to be respectful and considerate of the research evidence as it currently exists, the successes and failures that clinicians have experienced, and the experiences and viewpoints of our clients. All of these pieces of information should be considered within the alternative frameworks that different professionals and clients might bring to the topic. By doing so, we can have informed discussions that may help us work through these disagreements.

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