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Teaching Culturally Responsive Evidence-Based Practice in Speech Language Pathology

RaMonda Horton
Midwestern University, rhorto@midwestern.edu

Maria L. Munoz
University of Redlands, maria_munoz2@redlands.edu

Engaging in evidence-based practice (EBP) has become a cornerstone of communication sciences and disorders (CSD). As such, students in CSD must be taught the principles and process of EBP as foundational to clinical decision making (Spek, et al., 2013). The research on the best ways to teach EBP is sparse; however, a number of pedagogical frameworks have been proposed across a variety of health professions (Apel & Scudder, 2005; Bothe, 2010; Cobus-Kuo & Waller, 2016; Hall-Mills & Apel, 2007; Johnston & Fineout-Overholt, 2005; Shlonsky & Gibbs, 2004). Published frameworks are built on the foundation of the EBP triangle: scientific evidence, clinical expertise, and client and caregiver perspective. What all these frameworks fail to recognize is that each point of the EBP triangle exists within a cultural context.

In general, guidelines for evidence-based practice (EBP) in speech-language pathology rarely address issues of cultural and linguistic diversity (CLD). In fact, much of the literature on evidence-based treatments (EBTs) fails to address systems or contextual aspects of cultural-linguistic diversity. Systems theory asserts that outcomes for a particular phenomenon can be best understood by examining the interaction between functions, behaviors, and societal contexts or environmental systems (Skyttner, 2001; Whitchurch & Constantine, 2009). It has been used in sociology, education, and psychology to explain how sociopolitical and sociocultural context impacts organizational development (Hasse, & Krücken, 2008; 2014) and human development and maturation (Brofenbrenner, 1994; Thelen & Smith, 1994). Brofenbrenner's (1994) bioecological systems model asserted that it is important to take into account the proximal processes mediating outcomes, the person, and the context in which human development and maturation occurs over a lifetime (Brofenbrenner, 1994). Contextual aspects of cultural and linguistic diversity can be defined as those systems and environments which interact with one's identity to produce a mediating or moderate impact on individual outcomes (American Psychological Association, 2017). The World Health Organization- International Classification of Functioning (WHO-ICF) model defines contextual factors as environmental and personal factors that can encompass structural and attitudinal barriers or facilitators and individual characteristics such as age and education (World Health Organization, 2002). For individuals from racial/ethnic groups that have been marginalized in the US, these contextual factors may also include dealing with systemic and institutionalized racism as a daily part of one's life, along with exposure to overt forms of racism (use of derogatory language), and not hiring individuals from certain racial/ethnic groups and aversive or implicit forms of racism (microaggressions), or biases at the individual level (i.e. unconscious attitudes) or practices that are informed by racial stereotypes and generalizations (Banks et al., 2006; Johnson, 2020; Penner et al., 2010).

The EBP literature also actively excludes non-White speakers of languages and dialects that are not White Mainstream American English from study and analyses to maintain homogeneity and broaden the potential for generalization of findings. At this time, there has been little guidance for the integration of culturally responsive practice with the tenets of evidence-based practice as applied within speech-language pathology. Hyter and Salas-Provance's (2019) textbook, *Culturally Responsive Practices in Speech, Language, and Hearing Sciences,* is perhaps one of the few CSD resources available that has attempted to address and operationalize culturally responsive intervention and research as moving beyond addressing individual aspects of culture and diversity (i.e., language of intervention) and superficial or concrete aspects of culture (Hidalgo, 1993) to the importance of considering contextual factors (systemic inequities and structural barriers including racialized practices and implicit bias). These authors frame cultural

responsiveness as being guided by work on culturally relevant pedagogy (Ladson-Billings, 1995) and stages of cultural competence (Cross, et al., 1989). Principles of culturally responsive teaching (Gay, 2002; 2018) emphasize the importance of respecting, honoring, and using knowledge about a student's cultural background to (a) implement instruction that builds on strengths and assets, (b) create a climate and environment that facilitates learning, and (c) develop content and curriculum that is relevant to individual and collective experiences and backgrounds. In the fields of psychology, medicine, nursing, and education there is a robust literature on addressing not just language but also contextual factors that may play a role in intervention outcomes through frameworks and models focused on the cultural adaptation of EBTs (Barrera & Gonzalez Castro, 2006; Nathenson, 2017; Tabak et al., 2015; Wang & Lam, 2017).

Cultural adaptation research proposes and tests models for adapting EBTs to account for contextual and individual aspects of cultural identity and diversity. The models offer systematic processes for modifying scientifically based treatment approaches to facilitate congruence with an individual's culture and language (Chu & Leino, 2017). Cultural adaptation research considers the established evidence of treatment effectiveness and the language, values, and belief systems of those individuals from non-mainstream groups. Examining the extent to which a treatment is or is not compatible with an individual's specific socio-cultural background is necessary to ensure equity in treatment outcomes regardless of one's cultural background (Bernal et al., 2009; Domenech Rodriguez & Bernal, 2012). Cultural adaptation models also address contextual aspects of cultural identity with a specific focus on shared power and knowledge between the provider and recipient of the intervention in order to address systemic inequities and oppression in institutional and organizational systems surrounding racial/ethnic disparities (Duong et al., 2020).

The purpose of this paper is to demonstrate how research in cultural adaptation can be integrated into a framework for teaching culturally responsive EBP to students in CSD. First, we will provide a rationale for the need for cultural adaptation at each point of the EBP triangle. Then we will provide a brief introduction to cultural adaptation research and the frameworks that guided our recommendations for teaching culturally responsive EBP in CSD. Finally, we apply concepts and strategies of cultural adaptation research to a framework for teaching evidence-based decision-making in speech-language pathology.

Cultural Linguistic Diversity and the Evidence-based Practice Triangle

The goal of EBP, "to provide optimal clinical service to that client on an individual basis," is intended to be met through the integration of scientific evidence, clinical expertise, and client/caregiver perspective (ASHA, 2005). Each element of the EBP triangle is associated with unique challenges when considered within the context of CLD clients and caregivers.

Scientific Evidence. Hall and Yee (2014) identify several limitations in applying psychological EBTs to CLD individuals that are relevant to speech-language pathology. First, most research has been done with European-American and English-speaking participants raising the question of generalizability of procedures to individuals of other cultural and linguistic groups. Research conducted in languages other than English has often, though not exclusively, been done in the native country. In such cases, the results cannot be clearly applied to minoritized populations in the United States. Additionally, treatment created by and applied to the dominant cultural linguistic

group may fail to capture treatment procedures that might be more effective for individuals from a specific, marginalized cultural-linguistic group.

In general, intervention studies in speech-language pathology have not adequately considered the needs of individuals from culturally and linguistically diverse groups or the importance of culturally responsive research practices (Hyter & Salas-Provance, 2019). For example, Layfield et al. (2013) conducted a review of the treatment efficacy research for aphasia groups. The authors explicitly excluded any studies utilizing bilingual participants and studies in languages other than English. In fact, few studies in aphasiology, unless they directly address issues of bilingualism or race, specify the race of participants (Ellis, 2009) or the language of intervention (Beveridge & Bak, 2011). It is likely that this trend in participant demographics is not unique to aphasiology. In the absence of descriptive data, one can only assume that studies typically include homogenous samples of White middle socio-economic status (SES) English speakers, do not address cultural variables related to race/ethnicity, language/dialect status, or the contexts in which shape the experiences of the disability and its relationship to the other factors. Hyter & Salas-Provance (2019) note that culturally responsive research and intervention necessitates attending to macro and micro level contextual factors of the theory and methods guiding research and clinical practice.

Clinical Expertise. Culturally competent service delivery, at the individual, organizational, and systemic level, is a dynamic process that can and should change over time (Cross et al.,1989). Considerations for service delivery should address the demonstration of the appropriate attitudes, awareness, knowledge, and skills necessary for interacting with and providing services to individuals from culturally and linguistically diverse backgrounds (ASHA, 2004; 2011; 2017). However, at the individual level speech-language pathologists should be able to identify, consider, and integrate an individual's cultural norms and practices in the assessment and intervention of disorders (ASHA, 2011; 2017).

Language differences among various racial/ethnic groups present several challenges. Given that only 6.5% of SLPs identify as bilingual (ASHA, 2019), the vast majority of SLPs are assessing and treating individuals from an English-centric perspective. However, differences in developmental order (Anderson, 1998), the relevance of a particular language structure to language comprehension or production (Hernandez et al., 1996), and the existence of language features not evident in English (such as tone or the subjunctive verb inflection) are considerations that must be considered when making clinical decisions for non-English speaking individuals with communication impairments. Additionally, the challenges posed by working with interpreters, such as the potential for misdiagnosis (Kambanaros & van Steenbrugge, 2004; Langdon & Saenz, 2016), can greatly impact the effectiveness of an assessment or intervention.

A number of surveys have examined the challenges SLPs report in working with CLD individuals in the assessment and treatment of communication impairments. For example, Kohnert et al. (2003) found that clinicians recognized cultural-linguistic differences but lacked the knowledge and skills necessary to provide services, particularly given the diversity of languages and cultures served. The authors suggest that SLPs need additional development of cultural competence, a broad understanding of the theories and methods of clinical practice, and an awareness of their own cultural-linguistic values and biases and how they impact clinical decisions-making. These types of findings lend merit to frameworks which emphasize the dynamic and reciprocal nature of the processes and experiences within and outside an individual that impact one's ability to

demonstrate the highest level of competence, proficiency, and responsiveness in practices (Cross et al., 1989; Hyter & Salas-Provance, 2019). Cultural adaptation research offers frameworks that can be implemented to systematically consider these factors in adapting EBTs.

Client and Caregiver Experiences and Perspectives. Growing health and persistent educational disparities related to ethnicity, socioeconomic status, and language are negatively impacting outcomes (Assari, 2018; Hanushek, 2019; Hung et al., 2020; Owen et al., 2020). Minority individuals are more likely than their majority peers to suffer from negative health consequences in large part due to a variety of factors related to the following: their lack of knowledge about healthcare options, access to resources, miscommunications, and culturally insensitive and racialized practices that occur during service delivery (Brach, & Fraserirection, 2000; Cheung et al., 2016; Fadiman, 1997; Schnierle et al., 2019). Furthermore, educational disparities persist for children of color in US educational systems. Children of color continue to attend schools in highly segregated communities, receive educational instruction in poorer quality schools, and demonstrate lower performance on statewide assessments and indices of educational attainment (Barton & Coley, 2010; Chatterji, 2006; Feliciano, 2018; National Center for Educational Statistics, 2011; Reardon et al., 2019). Educational disparities are also believed to persist due to social class differences, systemic and implicit biases in educational environments and teacher practices, and differential responses to instructional practices (Bottiani, et al., 2017; Sosina & Weathers., 2019; Quintana & Mahgoub, 2016).

In the context of early educational childhood settings, early interventions efforts have focused a great deal on family-based service delivery with a particular emphasis on parent training programs. Research indicates that culture plays a significant role in the child rearing styles of parents in the US (Pinquart & Kauser, 2018; Power, 2013; Russell et al., 2010). Additionally, factors that influence the modeling of communication behaviors during child rearing has been shown to differ for various racial and ethnic groups and to impact young children's individual social and language behaviors (Pungello et al., 2009; Whiteside-Mansell et al., 2009).

Culture also influences the perception of behaviors and what will be considered as impaired or disabling behaviors and conditions (Pachter & Dworkin, 1997). Racialized practices, including implicit biases in observations of even very young children's behavior has been documented in the literature (Gilliam et al., 2016). Culture also influences worldviews and how individual clients may interpret and explain their experience (Klassen et al., 2008). Culture also influences what types of interventions will be sought and who will be involved in the process (Vaughn et al., 2009). Additionally, the traditional medical models of healthcare that are prevalent in mainstream US society may not be congruent with a client's cultural values and beliefs (Unschuld, 2009) or acknowledge the impact of institutionalized racism and implicit bias on health disparities (Schnierle, et.al., 2019; Smedley et al., 2003).

An Introduction to Three Cultural Adaptation Models

Cultural adaptation research from the fields of psychology and education holds promise for ameliorating some of the effects of the challenges associated with carrying out EBP that considers cultural and contextual factors. Research on effective models of intervention that take into consideration the cultural practices and values of specific communities may result in higher levels of treatment compliance and longer impacts on targeted behaviors (Bernal et al., 2009).

Additionally, culturally adapted treatments may demonstrate greater ecological validity, i.e., the degree to which the intervention findings are representative of the types of behaviors and outcomes that would be observed in daily settings and routine activities (Wegener & Blakenship, 2007).

Numerous recommendations, models, and frameworks have been put forth to help guide clinicians' efforts to culturally adapt practices and strategies while still retaining the psychometric properties that allow for high levels of effectiveness (Domenich-Rodriguez & Bernal, 2012; Healy et al., 2017). While there are various cultural adaptation models, three specific models will be used to illustrate how cultural adaptation research can shape EBP: The Ecological Validity Framework (EVF), The Selective and Directed Treatment Adaptation Framework (SDTA) and The Heuristic Framework, and Culturally Responsive Models. As outlined in Table 1, these three models collectively address issues related to language and communication; client and clinician mismatches; intervention content and processes; socio-ecological risk and resilience factors; social validity; community norms; and socio-political context and opportunities/access.

Table 1

Themes/Concepts/Issues in Cultural Adaptation Models

Theme/Concept	EVF Model	SDTA/ Heuristic	Culturally Responsive
Language Communication	X		X
Client/Clinician Mismatch	X		X
Intervention Content and Processes	X	X	X
Socio-Ecological Risk/Resilience Factors		X	X
Social validity	X	X	
Community Norms	X		X
Socio-Political Context/Opportunities/Access	X	X	X

The Ecological Validity Framework. Bernal et al. (1995) developed the Ecological Validity Framework (EVF). Ecological validity refers to the match between a client's cultural linguistic experience and the cultural properties inherent in the treatment or assumed by the clinician (Domenich Rodriguez et al., 2012). Ecological validity for intervention research is obtained when there is "congruence between the environments as experienced by the subject and the properties of the environment the investigator assumes it has" (Bernal et al., 1995, p. 69). The EVF proposes eight dimensions on which to evaluate the match or mismatch between a CLD client and an intervention: language, persons (referencing all individuals engaged in the therapeutic process), metaphors, content, concepts, goals, methods, and context. While originally developed to guide the cultural adaptation of cognitive behavioral and interpersonal treatment models for alleviating symptoms of depression in Puerto Rican adolescent populations, the eight dimensions can provide a rubric for evaluating the cultural applicability of a variety of EBTs (Bernal et al., 1995; Rossello

& Bernal, 1999). A primary guiding strategy in helping to address the eight dimensions is the incorporation of participatory action research. Participatory action research (PAR) is a methodological process which seeks to bring together the researcher, practitioner, and a particular community of people to engage in a collaborative processes of inquiry and discovery, and generating knowledge (Arellano, et. al., 2016; Holt & Asagbra, 2021; Shamrova & Cummings, 2017). Bernal et al., (2019) reports that culturally adapted versions of cognitive behavioral therapy continue to result in stable, clinically significant improvement of depression in Latino adolescents, even after a one year follow-up.

The EVF approach has been successfully implemented across various fields. In psychology, it has been used to adapt cognitive behavioral therapies to treat a number of mental health conditions (Bernal & Adames, 2017; Chu & Leino, 2017, Nicolas et al., 2009; Nicolas & Schwartz, 2012). Breland-Noble et al. (2010) implemented the EVF to account for the experiences of African American adolescences in adapting EBTs for depression. Specifically, the investigators noted that African American adolescents held unique beliefs concerning mental health issues and when, how, or if symptoms of depression are externalized differently for the teens in their research. The adaptation of interventions for this particular cultural group involved the development of culturally specific strategies to address cultural beliefs about causes of mental illness, engagement, and prioritizing the use of community-based resources and organizations to help develop plans (Breland-Noble et al., 2011).

The Selective and Directed Treatment Adaptation Framework and The Heuristic Framework. The Selective and Directed Treatment Adaptation Framework (SDTA) and the conceptually related Heuristic Framework have been used to address the cultural adaptation of counseling interventions (Barrera & Gonzalez Castro, 2006; Lau, 2012). The SDTA, developed by Lau (2006), is a data driven approach that emphasizes adaptations that target engagement and/or outcomes. Lau argues that cultural adaptations must be selective (relying on evidence that specific aspects of the intervention do not match the CLD client) and directed (adaptations have been demonstrated to increase engagement or improve outcomes). Additionally, they suggest a four-step process for determining which aspects of an intervention warrant cultural adaptation: gather information, make preliminary adaptations, test preliminary adaptations, and refine adaptations (Barrera & Gonzalez Castro, 2006).

The SDTA identifies specific conditions that indicate the necessity to engage in cultural adaptation of EBTs and explains how to develop adaptations. Lau (2006; 2012) suggests that EBT practices be adapted to enhance the level of engagement among ethnic minority communities who might implement and use therapeutic strategies. Adaptations should consider how treatment content and processes may or may not align with the cultural values, practices, language, and parenting styles of some racially/ethnic minority groups. Lau (2006, 2012) argues that it is necessary to utilize a selective and directed framework for certain groups and targeted populations when there is a high likelihood of poor generalization and inequitable outcomes using well established EBTs, or when a specific cultural group might face unique and clinically significant behaviors. Selective adaptions should be made when evidence indicates a lack of congruence between an EBT and a CLD group. Directed adaptations are made to content and procedures when there is evidence that modification increases engagement and/or positive outcomes.

Barrera and Gonzalez Castro (2006) propose the Heuristic Framework which extends the SDTA by incorporating three additional components of an intervention that should be addressed when two or more cultural groups are targeted by the intervention. These three additional components include (a) engagement and outcomes, (b) action theory (will the intervention impact factors that mediate outcomes?), and (c) conceptual theory (will equal changes in mediator create equal changes in outcomes?).

Researchers in psychology have used the SDTA or the Heuristic Framework for the cultural adaptation of parent-management training models to reduce behavioral issues in children and the abusive behaviors by parents (Baumann et al., 2014; Coard et al., 2004; Lau, 2006; McCabe et al., 2005). Historically, literature in this arena has indicated that such programs may have differential outcomes for children of color and their parents due to cultural differences in beliefs about family roles; parent-child communication, and child rearing practices. Lau (2006; Lau et al., 2010) implemented the four-stage process of the Heuristic Framework to guide the adaptation of a parent training intervention with Chinese immigrant parents of school aged children who were "at risk" for poor behavioral outcomes. These parents were referred to the researchers via their school or Child Protective Services due to suspected abuse or concerns about parenting and disciplinary practices. Results of the pilot indicated that the 14-week adapted model of the Incredible Years Parenting Program was effective in increasing positive parenting behaviors and decreasing negative child behaviors (Lau et al., 2011). Additionally, the level of parent engagement was reported to be high (Lau, 2006, 2012; Lau et al., 2010).

Culturally Responsive Interventions. In the field of education and psychology cultural adaptation has been framed within the context of culturally responsive intervention (CRI) with additional focus on practitioner sensitivity and awareness (Garcia & Ortiz, 2008; Gay, 2002; Ladson-Billings, 1995). Within the field of psychology, CRI has focused on eliminating or decreasing mismatches between the characteristics of the client and those of the clinician and addressing sociopolitical contexts of intervention. CRI approaches may be "top down", meaning an intervention developed for mainstream populations is modified for use with individuals from non-mainstream backgrounds. CRI approaches may also be "bottom-up", meaning that the intervention is specifically designed to be effective with a specific population that demonstrates unique culturally specific needs and behaviors (Hall et al., 2016; Hwang, 2006).

Koss-Chioino and Vargas (1992) developed a framework which recommended that CRI approaches in psychology address two dimensions of culture and structure within therapy contexts; specifically, characteristics associated with the clinician and those associated with intervention modality. The culture dimension is broken down into content (behavior and emotions) and context (social environments which may influence behavior and participation across various environments). For example, the ways in which poverty, racism, acculturation, and expectations for mainstream normative performance affect an individual's behavior are areas that need to be considered in designing interventions. The structure dimension of the model is broken down into process (changes that occur) and form (therapy methodology).

Similarly, Hwang (2006) developed the Psychotherapy Adaptation and Modification Framework (PAMF) to help guide the process of adapting EBT for individuals from culturally and linguistically diverse backgrounds, as well as improve the level of cultural competence among clinicians. The PAMF is comprised of six domains and 25 principles. The six domains address

dynamic issues and cultural complexities, orienting clients to therapy, cultural beliefs, the client-clinician relationship, communication differences, and cultural issues of salience. Table 2 provides an overview of the concepts and principles associated with each of the domains. Hwang's model has been effectively used to adapt psychological treatments so that they are more consistent and compatible with service provision for Chinese Americans. Recent randomized controlled trials were completed for examining the effectiveness of non-adapted vs. culturally adapted cognitive behavioral therapy for individuals with depression. The culturally adapted version was developed using focus groups with Asian-American mental health providers, affinity support groups, and interviews with spiritual advisors, Buddhist monks, and Chinese medicine practitioners. Cultural metaphors, linguistic variability and regional variations for translation of materials, and orientation to therapy and perspectives on mental illness were all addressed. Chinese American participants receiving the culturally adapted version of cognitive behavioral therapy experienced twice the reduction in their symptoms as measured by the Hamilton Depression Rating Scale (Hwang, et al., 2015).

In the education arena, CRI has been characterized as adopting a pedagogical style which takes into consideration existing knowledge about how differences present themselves in various culturally and linguistically diverse groups. CRI also utilizes prior experiences in teaching new information, and recognition of how socio-political contexts play a role in the learning environments and larger communities of students (Gay, 2002; Utley et al., 2011). Culturally responsive interventions have been shown to improve a number of social and literacy skills in school-age children and adolescents (Bui & Fagan, 2013; Lo et al., 2015; Robinson-Ervin et al., 2016). In addition, cultural responsiveness has evolved to incorporate a critical perspective of educational practices that will explicitly addresses racism in curriculum and classroom dynamics (Love, 2019).

Applying Cultural Adaptation to teaching Evidence-based Practice in Speech-Language Pathology

The purpose of teaching EBP is to help students understand and use EBP principles to positively influence clinical practice. Students must be taught to understand and integrate the elements of the EBP triangle. First, EBP is best taught as a bottom-up process beginning and ending with consideration of the client experiences and priorities (Shlonsky & Gibbs, 2004). Second, students must learn data mining skills to access and interpret scientific research (Collins, et al., 2007). Additionally, in the absence of evidence, students must learn to use their knowledge of "theory, structure, function, and/or process to help drive their clinical decision making" (Apel & Scudder, 2005, p.11). Lastly, students must understand the parameters of clinical expertise and gradually transition away from dependence on the experienced clinical supervisor (Collins, et al., 2007).

Table 2
Guiding Questions for Each of the Cultural Adaptation Models (Adapted with permission from Bernal et al., 1995)

Theme/Concept	*EVF Model (Bernal et al.,1995; Bernal & Saez-Santiago, 2006)*	*SDTA/Heuristic (Lau, 2006; Barerra & Gonzalez Castro, 2006)*	*Culturally Responsive (Hwang, 2006)*
Language Communication	Does the clinician recognize the importance and power of language for service delivery and its relationship between identity, cultural knowledge, and expression of emotion? (Language)	X	Are there differences in the non-verbal and verbal aspects of communication? (Cross cultural communication)
Client/Clinician Mismatch	To what degree is there a clinician-client mismatch (culture, worldviews, experiences)? (Person)	X	Does the therapist have the sensitivity, awareness, knowledge, and skills to understand how to engage families in the process, elicit information, explain and demonstrate expertise about intervention offered to client? (Client Therapist Relationship)
Intervention Content and Processes	Has the clinician developed an appreciation and understanding of the values and practices of a specific cultural group? Has the clinician used such information in the development and implementation of therapy? Are strategies appropriate and aligned with knowledge about specific group and their culture? (Content and Method)	Are there differential levels of compliance with implementation and use of strategies associated with the intervention? Is there evidence to suggest that certain ethnic/racial/cultural beliefs or practices might influence level of client participation in intervention activities?	Does client understand objectives and framework of intervention? (Orientation)

Socio-Ecological Risk/Resilience Factors	X	Is there evidence to suggest that a particular clinical problem will arise given a set of ecological factors (risk and resilience) for a particular racial/ethnic or social group?	Does treatment need to be modified based on individual's background or unique traits? Is there an intersection of various identities (race, class, gender, sexual orientation, religion? (Dynamic Issues and Cultural Complexities)
Social validity	What cultural symbols and concepts can be used to facilitate compliance, motivation, and compatibility of the environmental context of therapy? (Metaphors)	Is there evidence that certain racial/ethnic or social groups will respond poorly to a particular approach?	X
Community Norms	Do treatment targets devalue the normal patterns of appropriate behavior for that particular culture? (Goals)	X	Is client view of disability different than practice model? Are there any beliefs that might impact how/when behaviors are reported? (Cultural Beliefs/Orientation)
Socio-Political Context/ Opportunity /Access	Are there any sociopolitical factors that may play a role in the effectiveness of treatment? (Context)	Do certain racial/ethnic or social groups have limited awareness about the availability of the intervention or access to the intervention? Is there evidence or data that indicates that there are certain factors which result in differential access to the intervention program?	Are there sociopolitical factors and structural barriers that may impact treatment outcomes? (Cultural Issues of Salience)

Client centered intervention must include consideration of cultural and linguistic diversity. However, current guidelines for teaching EBP do not consistently address how CLD and systemic barriers related to race and ethnicity should be considered throughout the EBP process. For example, Patterson and Avent (2006) introduce an ASHA Special Interest Group 2 Perspective series that explores EBP principles as applied to the same case study from differing points of view. The authors introduce the case of TW, a 67-year-old female from southeast Asia who is bilingual in Tagalog and English. They then overview the contributions to the EBP process made by each point in the EBP triangle. Finally, they apply Sieban's 6-step model of implementing EBP to the case study (Sieban, in press, as cited in Patterson and Avent, 2006). The authors do not explicitly address that the person with aphasia (PWA) is from a racially/ethnically and linguistically marginalized background and how that might impact the EBP process. The authors of the related articles address CLD to varying degrees. Mahendra (2006) specifically looks at a culture-oriented view towards assessing TW that includes cultural informants, dynamic assessment, ethnographic interviewing, language assessment in both languages, and cultural-linguistic modifications of testing procedures. Spencer (2006) stresses the importance of accounting for TW's bilingualism and accented production of English in the management of dysarthria but provides minimal guidance on how these CLD characteristics might or might not impact the effectiveness of any specific intervention. Buzolich (2006), in discussing TW's AAC needs, indicates that TW is bilingual and communicates with family in the Philippines. The author indicates that that the AAC device has custom pages that allow for recording statements in TW's native language. Otherwise, it is unclear how decisions on AAC selection, programming, and use were adapted to account for TW's bilingual communication needs. Kelly (2006) acknowledges that the hearing self-assessments that could be used with TW have not been examined in a multicultural context. While the authors in the series recognize TW as is a CLD, only Mahendra (2006) provides guidelines for redefining clinical practice to effectively account for the cultural and linguistic needs of the client.

Hall-Mills and Apel (2007) propose a model for teaching students the 6 key steps of engaging in EBP:

- Formulating a key question
- Searching the evidence
- Evaluating the evidence
- Determine how the evidence should guide clinical decision making
- Provide clinical services based on research, clinical expertise, and client values
- Evaluate the outcomes

In order to provide appropriate intervention services to children, adults, and their families from CLD backgrounds, each of these key steps much be considered within a culturally responsive framework. As such, we have generated a set of recommendations on teaching the key steps of culturally responsive EBP. These recommendations incorporate key concepts from the cultural adaptation models described above (Barerra & Gonzalez Castro, 2006; Bernal & Adames, 2017; Hwang, 2006; Lau, 2006, 2012) and current guidelines for making evidence-based decisions with child and adult populations (Cherney et al., 2008; Gillam & Gillam 2006; Paul and Norbury, 2012).

Formulating a Key Question. The formulation of patient/problem, intervention, comparison treatment, and outcome (PICO) questions is usually foundational to teaching students how to engage in evidence-based decision-making (Dollaghan, 2007; Gillam & Gillam, 2006). Development of PICO questions has been described as a meta-activity to guide the clinician's

search for external evidence that supports or does not support the use of a treatment approach with a specific client. Models of cultural adaptation emphasize the importance of recognizing when cultural and linguistic differences are present prior to identifying potential treatments. However, dimensions of culture and sociopolitical context generally have not been explicitly addressed within the PICO process.

Dollaghan (2007) notes that successful searches for EBTs are dependent on "how questions about evidence are framed" (p. 9). Therefore, the PICO question should be formulated in such a way that the cultural characteristics of the client and/or family are a primary consideration throughout the EBP process. Formulating the PICO question with cultural characteristics in mind allows the clinician to identify whether or not there is a mismatch between the client and the clinician or intervention. Using questions about the client-clinician mismatch from the EVF model and Hwang's CRI framework (see Table 2) the clinician can cultivate an awareness of his or her own underlying assumptions about the role that culture may or may not play in intervention planning and effectiveness. Additionally, the process should make the clinician more cognizant about what types of internal and external evidence will need to be considered and gathered in order to guide additional decision-making. For example, if a clinician identifies that there is a significant mismatch, they would then need to begin the process for acquiring the knowledge and skills necessary to alleviate the mismatch. It should also prime and prompt the clinician to consider what types of social stratification mechanisms (racism, discrimination) may need to be considered within the healthcare or educational settings when moving forward through the EBP process to step two.

Searching the evidence. Engaging in a culturally responsive process for formulating a PICO question makes the clinician more cognizant about what types of internal and external evidence will need to be considered and gathered. Using questions about the client-clinician mismatch from the EVF model and Hwang's CRI framework (see Table 2) the clinician can cultivate an awareness of how CLD informs the search for evidence. For example, if a clinician identifies that there is a significant mismatch between the client and the treatment and/or the clinician, they would then need to begin the process for acquiring the knowledge and skills necessary to alleviate the mismatch.

The search for external evidence would include additional literature on strategies for addressing the mismatch. The models and frameworks for cultural adaptation provide guidelines for the determining the needed supplemental information, such as the following: culturally different group norms, culturally appropriate intervention targets, and group performances on the types of outcome measures used in intervention studies so that potential biases are minimized.

Internal evidence refers to evidence gathered through clinical practice and experience (Dollaghan, 2007; Paul & Norbury, 2012). The clinician should make sure to utilize resources and knowledge gained during the assessment process with the collection of client/family preferences, case history information, family and caregiver interviews, routines-based interviews, and behavioral observations when deciding whether cultural adaptation might be necessary (Dollaghan, 2007; Gillam & Gillam, 2006). This type of data collection will be helpful in understanding the preferred learning styles, values, beliefs, acculturation status, and priorities of the individual and/or family. Clinicians who utilize these types of ecologically valid tools are able to determine if the preliminary treatment or comparison treatment under consideration is appropriate. Information

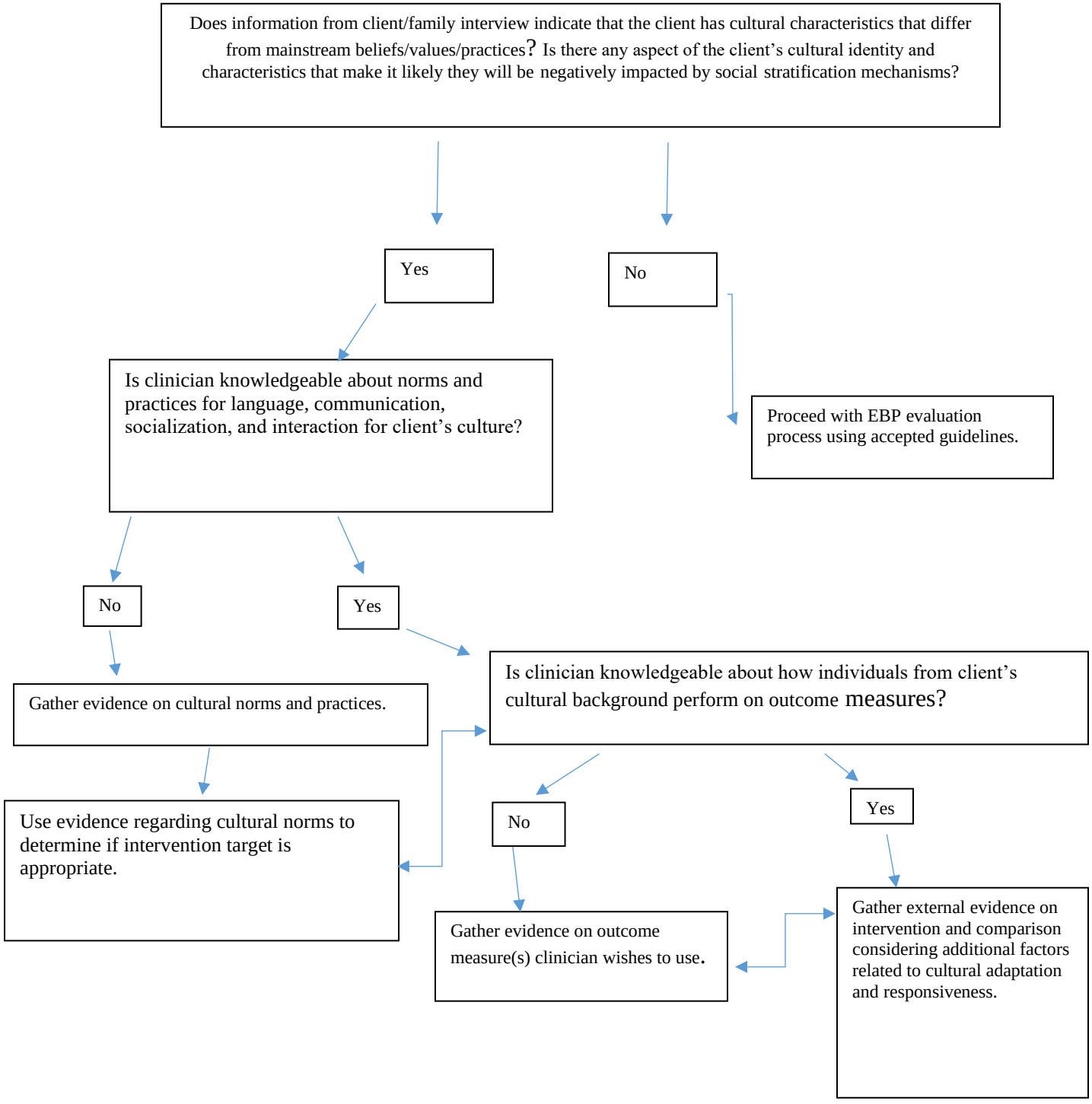
collected will help provide answers to questions outlined in Table 2 for cultural adaptation related to language and communication, intervention content and processes, and community norms. Furthermore, clinicians should call upon their own professional experiences and background in helping answer questions related to opportunity and access, social validity, and sociopolitical context/factors. Figure 1 provides an integrated overview of the PICO formulation and gathering of internal evidence might look like during the decision-making process.

Evaluate the Evidence. Evaluation of the evidence should prioritize dimensions of culture that might make an intervention approach more or less likely to work with a clinician's individual client and whether or not there will be contextual factors that will be barriers or support when moving forward with the selected treatment. In particular, clinicians will need to consider examining identified treatment studies for their level of cultural responsiveness. Therefore, beyond the evaluation of quality indicators outlined in published guidelines for our field, we recommend that clinicians be taught to evaluate studies for key criteria for cultural responsiveness (CR) detailed by Trainor and Bal (2014; Bal & Trainor, 2016). Specifically, as it relates to helping determine if cultural adaptation of a treatment will be necessary or possible, clinicians should be taught to ask the following questions about studies that they read:

1. What are the participant characteristics of the treatment and control group? Do participants' characteristics match client's characteristics? If a clients' race/ethnicity, language proficiency, socioeconomic status, religion, and other socio-cultural characteristics differ from the characteristics of the described participant pool this should indicate that clinicians will need to proceed cautiously with the implementation of the approach or strategy. When language differences are the issue, clinicians will need to consider evidence on norms for a specific cultural group.
2. What are the characteristics of the clinician(s)? Clinicians will need to read the identified studies and evaluate whether or not the intervention can be administered regardless of specific clinical skill sets, or racial/ethnic differences. For example, a monolingual clinician may choose an intervention program for bilingual clients specifically designed for implementation by monolingual clinicians.
3. In what setting does the intervention occur? Under what context is the intervention administered? Are interventions carried out in the everyday regular community settings that are similar to client's realities? Are the contexts in which strategies and techniques implemented consistent with those that are likely to occur in the client's daily functioning? The environment and the contexts in which our client's live are very much shaped by their socio-cultural factors that need to be considered. If the intervention describes settings and contexts that are not aligned with the client's everyday life, the clinician may need to find a way to compensate for this within the intervention program.
4. Is there an adequate description of processes, content and materials necessary for administering intervention? An adequate description of the content and materials necessary for administering the intervention will be useful in helping to determine if processes, content, and materials will be mismatched to the client's preferred learning styles, cultural preferences, and values. If there is a mismatch, then the clinician will need to consider information regarding cultural norms in adapting processes, content, and materials.

Figure 1.

Cultural Responsiveness, PICO, and Evidence (Internal and External)



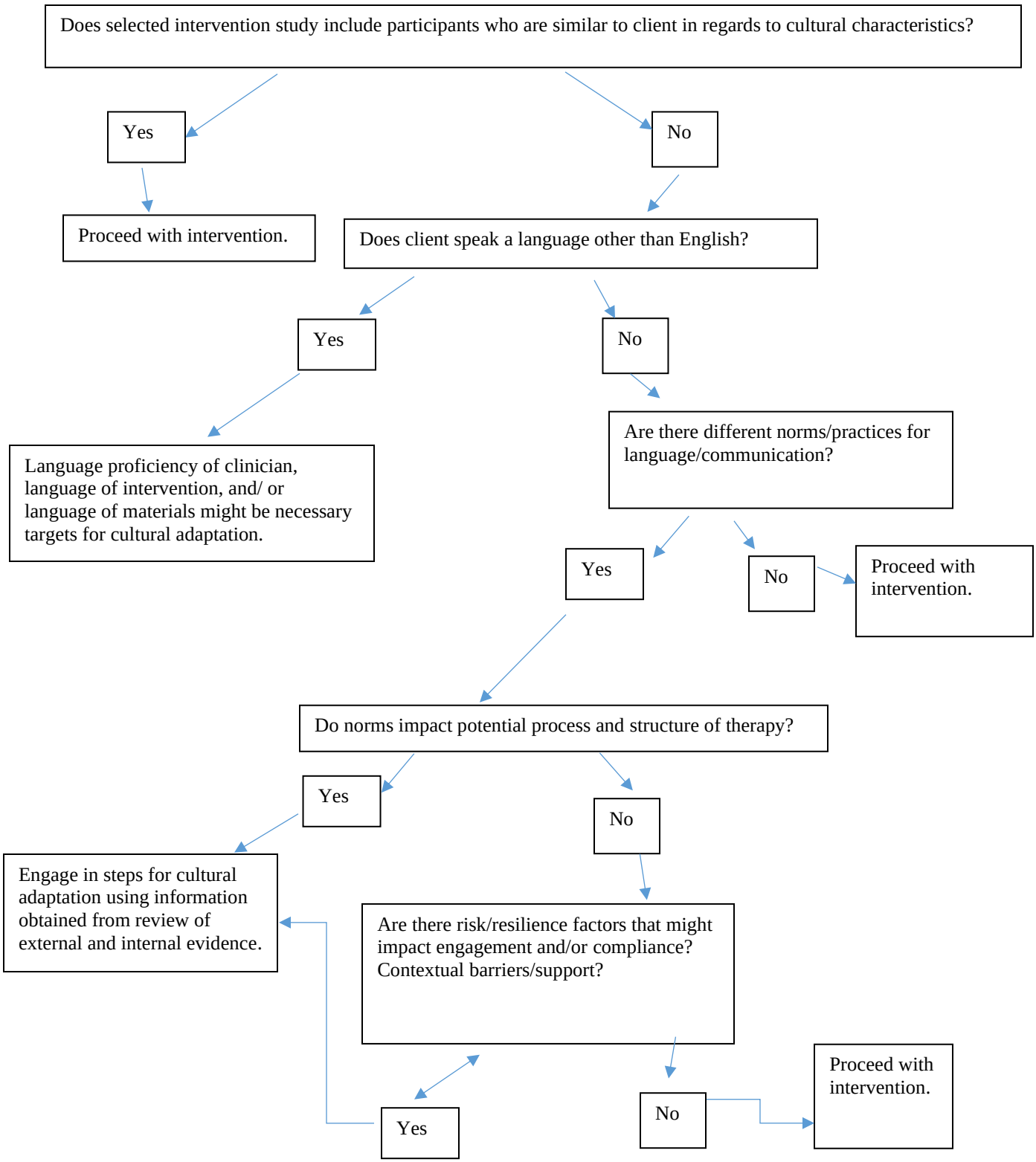
5. Is there discussion of cultural considerations as it relates to generalizing intervention findings? Is there any mention of institutional resources, supports, or challenges that might be encountered when attempting to implement the selected intervention with a particular population or suggestions about what types of modifications to make when certain socio-political contexts interfere with compliance and follow through on treatment (i.e. racialized immigration policies). If researchers are able to identify specific issues to consider in implementing the intervention approach, strategy, or technique across cultures then a clinician may have a place to begin in thinking about whether or not to adapt an intervention.

Determine How the Evidence Should Guide Clinical Decision Making. Once the clinician has pulled together the literature with a focus on quality indicators (study design, blinding, etc.) and the examination of those questions outlined above regarding Trainor and Bal's (2014) criteria for cultural responsiveness, the information will need to be integrated with other types of internal evidence (clinician factors, family priorities, etc.). If there are studies which address a large majority of quality indicators and key participant characteristics are similar (i.e., race/ethnicity or language), then these would be the preferred starting points for beginning to try a specific intervention approach. However, when participant characteristics do not match or study data is not disaggregated by key cultural variable, clinicians may need to consider a trial period or cultural adaptation using the frameworks and models discussed earlier. Figure 2 provides an overview of the process of integrating the internal and external evidence for deciding if cultural adaptation is necessary.

Provide Clinical Services. The model for teaching EBP presented by Hall-Mills and Apel (2007) is a hybrid model that emphasizes the importance of affording students the opportunity to implement EBP principles within a guided clinical context. Teaching and modeling the EBP process is particularly effective when the case under consideration is a real person with whom the student will have direct knowledge of the intervention outcomes. Looking at EBP from a cultural lens can and should be done with any client as each person has a unique set of cultural experiences that influence their communication. However, it is particularly important for students when working with clients and families whose cultural experiences differ from theirs in meaningful ways.

It is critical for university clinics to prioritize diversity within their client population. Horton-Ikard and Muñoz (2010) conducted a survey on multicultural competencies in graduate training in speech-language pathology and found that 58% of programs reported that at least 30% of clients were non-White. Continued efforts to diversify the clients seen in university clinics could include partnering with educational and health provides to provide services in diverse communities, educating key community members about clinic services to facilitate referrals, and hiring support staff who facilitate communication with community members.

Figure 2. Integrating Internal and External Evidence to Determine Need for Cultural Adaption



Evaluating Decisions and Outcomes. Students must learn that EBP decision making guidelines require documentation of the outcomes related to treatment decisions. The documentation of outcomes will need to consider cultural variables. Specifically, SLPs must collect baseline data and monitor progress using outcome measures that were identified during the development of the PICO question as least biased and appropriate for use with individuals similar to the client. Additionally, based on recommendations for cultural adaptation, the Participatory Action Framework utilized in Ecologically Valid Cultural adaptation models (Bernal, et al., 1995; Shamarova & Cummings, 2017) will be useful in helping to evaluate outcomes. PAR strategies focus on the collection of data from families and clients about their perspectives on the treatment (pros, cons, difficulties, naturalness, etc.). This is also consistent with current EBP guidelines for using family preferences to guide decision-making. The inclusion of PAR strategies to evaluate outcomes can also help improve social validity of treatment. If families or clients indicate that certain aspects of a treatment were problematic or not a priority for them this may help to determine if effectiveness was decreased due to issues with compliance and/or motivation. The clinician also will want to consider whether there are institutional or structural barriers in place that might impact a client or client's family ability to participate or engage in treatment.

Conclusions

Approaches to teaching EBP have been based on an unwritten assumption that interventions were being provided to individuals from mainstream groups. In CSD, research regarding the effectiveness of interventions has typically not addressed the importance of socio-cultural factors in determining whether treatment approaches can or should be utilized across individuals from culturally and linguistically diverse background. However, across a broad variety of other fields, the topic of cultural adaptation and cultural responsiveness of interventions has resulted in some emerging and consistent guidelines for how to evaluate the need for adaption or responsiveness of EBP. The current paper offers suggestion on how students can be taught to emphasize culturally responsive clinical practice as they learn to engage in evidence-based practice.

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