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Provider self-efficacy in delivering evidence-based psychosocial interventions: A scoping review

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Abstract

Background: Among the many variables that affect implementation of evidence-based interventions in real-world settings, self-efficacy is one of the most important factors at the provider level of the social ecology. Yet, research on the construct of provider self-efficacy remains limited.

Objectives: This scoping review was conducted to enhance understanding of the construct of provider self-efficacy and to examine how the construct is defined and measured in the context of implementation of evidence-based mental health interventions.

Design: Online databases were used to identify 190 papers published from 1999 to June of 2018 that included search terms for providers, evidence-based, and self-efficacy. To be eligible for the scoping review, papers needed to focus on the self-efficacy of mental health providers to deliver evidence-based psychosocial interventions. A total of 15 publications were included in the review.

Results: The construct of provider self-efficacy is not clearly defined but is typically described as confidence to deliver a specific intervention or practice. A range of measures are used to assess provider self-efficacy across both provider and intervention types.

Conclusions: Standardized definition and measurement of provider self-efficacy is needed to advance practice and implementation research.

Plain language abstract: Provider self-efficacy is known to influence implementation of evidence-based mental health interventions. However, the ways in which provider self-efficacy is defined and measured in implementation research literature is not well understood; furthermore, it is not clear what types of providers and interventions are represented in this literature. This scoping review adds to current research by revealing that there is no agreed upon definition or measure of provider self-efficacy in the context of implementation of evidence-based interventions, and that the research includes multiple types of providers (e.g., social workers, counselors, psychologists) and interventions. Self-efficacy appears to change as a function of training and support. To further research in this area, a common definition and agreed upon measures of this construct are needed.

Keywords

Scoping review, mental health provider, self-efficacy, measurement, evidence-based

Efforts to improve the quality of mental health services have focused on the large-scale adoption of a variety of evidence-based and evidence-informed interventions across health, behavioral health, and mental health service delivery systems. Evidence-based psychosocial interventions for depression (Weersing et al., 2017), anxiety (e.g., Coping Cat, Norris & Kendall, 2020), and post-traumatic stress (Trauma-Focused

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Cognitive Behavioral Therapy, Hanson & Jobe-Shields, 2017) have become common and the use of interventions with clear evidence of efficacy and effectiveness continue to be required across human service systems. Notable examples include development of a clearinghouse to identify evidence-based interventions (EBIs) to prevent child maltreatment (https://familyfirstact.org/resources/prevention-services-clearinghouse-website), efforts to bring multiple EBIs into widespread use in the Los Angeles County mental health system (Southam-Gerow et al., 2014), and multi-site implementation of an EBI for adolescents with substance use disorders (Godley et al., 2011). Whether these efforts at adoption result in improved services remains an empirical question that is influenced by the success of the implementation effort.

Implementation is a complex endeavor; many factors influence implementation of EBIs by mental health providers. These factors occur at multiple levels of the social ecology (Aarons et al., 2012; Damschroder & Hagedorn, 2011; Greenhalgh et al., 2004) and can be thought of as being more distal or more proximal to the delivery of care to others. Given the large number of constructs identified within the implementation science field and the proliferation of implementation models, the Consolidated Framework for Implementation Research (CFIR; Damschroder & Hagedorn, 2011) was created to organize and categorize these constructs across models. Five categories were created to capture the distal (i.e., outer setting such as external policies) to proximal influences (i.e., inner setting such as organizational culture and climate) on implementation. One of the most important influences on implementation of EBIs is the provider; indeed, provider-level factors represent the most proximal variables to implementation of an intervention in the CFIR framework (Damschroder & Hagedorn, 2011).

The importance of provider-level factors to implementation is reflected by more than a decade of research by Aarons and colleagues in the development and refinement of measures of provider attitudes toward EBIs (i.e., the Evidence-Based Practice Attitude Scale; Aarons, 2004; Aarons et al., 2012). Yet, the provider characteristics examined in the literature primarily focus on attitudes toward adoption of EBIs (Aarons, 2004; Aarons et al., 2010; Aarons & Palinkas, 2007). A much smaller body of research has examined provider self-efficacy, defined as confidence, to deliver EBIs (Turner et al., 2011; Turner & Sanders, 2006) despite findings that provider self-efficacy predicts implementation of EBIs (Sanders et al., 2009; Shapiro et al., 2012). Thus, if provider self-efficacy is an important implementation driver, it is necessary to have a clear understanding of both how self-efficacy is defined and how it is measured within the mental health intervention implementation literature.

In addition to understanding how provider self-efficacy is defined and measured, it is also important to understand the types of mental health providers that this construct has been examined with. Mental health providers come from a variety of fields (e.g., social work, psychology, counseling, and education). Importantly, wide scale adoption of EBIs varies across disciplines; use of research to guide practice has been noted as a challenge in the field of social work (Bellamy et al., 2006). In psychology, efforts to identify and to enhance the use of EBIs by providers dates to the early 1990s (Chambless, 2015). One study found that provider self-efficacy to implement EBIs varied by discipline (Shapiro & Charest, 2020); however, research on this topic is scarce. Enhancing understanding of how self-efficacy for implementation of EBIs may vary across providers from different disciplines has important implications. From an implementation science perspective, understanding how self-efficacy varies by provider type can refine knowledge of implementation drivers (Fixsen et al., 2005).

The task of understanding provider self-efficacy to implement EBIs is further complicated by the large number of such interventions used in practice. Common EBIs include those that target parenting behaviors (Boggs et al., 2004; Sanders et al., 2014; Webster-Stratton, 2001), child externalizing behaviors (Barkley, 2006; Kaiser & Pfiffner, 2011), depression (Weersing et al., 2017), anxiety (Hourigan et al., 2012), obsessive compulsive disorder (Barrett et al., 2008), substance use (Meyers et al., 2011), and trauma (Cohen et al., 2018). While provider self-efficacy has been demonstrated to influence implementation of evidence-based parenting interventions (Sanders et al., 2009; Shapiro et al., 2012), less is known about provider self-efficacy in implementation of other types of EBIs.

One implementation driver known to influence provider self-efficacy is training. Training in specific EBIs has long been associated with increases in provider self-efficacy (Beidas & Kendall, 2010; Shapiro et al., 2008; Turner et al., 2011). Furthermore, Shapiro and Charest (2020) found that, in addition to profession, provider self-efficacy was associated with the number of EBIs that a provider was accredited to deliver (as well as with another implementation driver, workplace support). While it is understood that a range of facilitators and barriers influence implementation (see the conceptual model by Turner et al. (2011), as an example), what remains less clear is a deeper understanding of factors that may predict initial provider self-efficacy (i.e., prior to training). Enhancing understanding of factors that are associated with initial provider self-efficacy could be important for a number of implementation drivers, including selection, training, and ongoing support.

In sum, advancing understanding of provider self-efficacy with regard to implementation of EBIs is important for both implementation research and practice. Advancing research on the construct of provider self-efficacy requires a clear understanding of how it is conceptualized and measured. Understanding what types of mental health providers and interventions have been the focus of studies on provider self-efficacy can provide important information relevant to implementation drivers such as provider selection and

support (Fixsen et al., 2005). Expanding our knowledge of factors that influence provider self-efficacy within existing studies can support refinement of conceptual models of implementation. To thus deepen our understanding of provider self-efficacy, a scoping review was conducted. A scoping review is a method of synthesizing research evidence to enhance understanding of the extent, range, and nature of research activity on a topic by systematically searching, selecting, and synthesizing existing knowledge (Arksey & O'Malley, 2005). The specific research questions driving this scoping review are the following:

1. How is mental health provider self-efficacy defined?
2. How is mental health provider self-efficacy measured?
3. What types of mental health providers are represented in research concerning self-efficacy to deliver EBIs?
4. What types of mental health interventions are represented in research on self-efficacy of providers?
5. What factors influence or predict mental health provider self-efficacy?

Methods

Based on the exploratory nature of the research objectives, a scoping review was conducted in accordance with PRISMA-ScR Guidelines (Tricco et al., 2018), an evidence-based guide for reporting scoping reviews.

Search strategy

A comprehensive literature search was completed in an effort to identify studies that met the following inclusion criteria: (a) written in English and (b) published between January 1999 and June 2018. This time period was selected to capture more recent research on provider self-efficacy coinciding with efforts to identify and promote EBIs in the last two decades (Chambless, 2015). In an attempt to capture a comprehensive collection of research on self-efficacy, professions outside mental health, that may use evidence-based practices (EBPs), were included in the original search plan (i.e., educational research, medical research). A research librarian was consulted and aided in decision making regarding which search databases to use and in identifying appropriate index terms and Boolean search modifiers. Given our specific interest in mental health providers, the search was then limited to mental health providers as the focus for the current review.

In June 2018, five scholarly databases were searched: PsychINFO, Professional Development Collection, MEDLINE with Full Text, Social Sciences Full Text (H.W. Wilson), and Social Work Abstracts. The authors utilized the following index terms and search Boolean combination: "counselors" OR "therapists" OR "social workers" OR "psychologists" OR "psychiatrists" OR "psychiatric nurses" OR "mental health personnel" AND "evidence based" AND "self-efficacy" OR "self-confidence" OR "confidence."

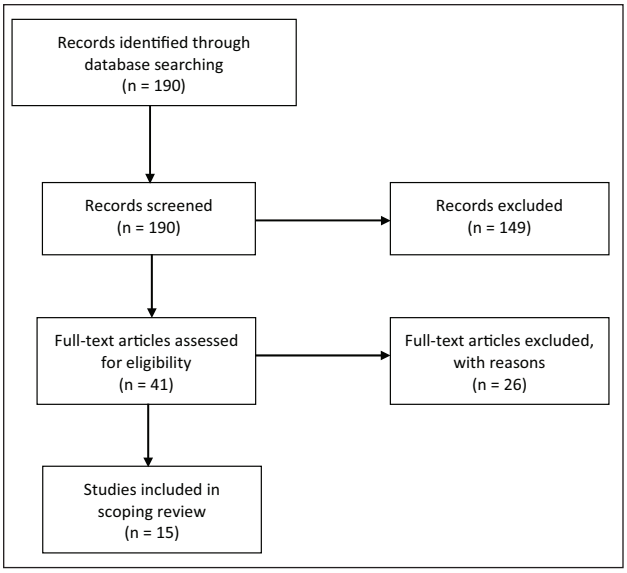

Figure 1. Scoping review flow diagram.

Data evaluation and extraction

The original search produced a sample of 190 items that met the search criteria (duplicate publications were removed by the search algorithm). Article abstracts were screened by the second and third authors according to more focused inclusion criteria. Article abstracts were reviewed to assess whether they focused on mental health providers, included information regarding mental health provider's self-efficacy and whether self-efficacy was related to the use of an EBI. Dissertations and published books were excluded at this phase of the evaluation as well as studies focused on non-mental health professionals (i.e., occupational therapists, speech therapists, physiotherapists, etc.), and articles published in languages other than English. Based on these criteria, 149 articles were further excluded from the current review (Figure 1). The first author randomly chose 10 articles from the 190 reviewed by the second and third authors to evaluate as to their inclusion or exclusion to assess inter-rater reliability. Nine out of the 10 articles randomly reviewed by the first author were either included or excluded in accordance with the other authors' decisions; all three authors reached agreement regarding the one article that was not fully agreed upon. The first author also reviewed the final inclusion/exclusion decisions based on abstract screening.

The 41 articles remaining after abstract screening were further appraised for appropriateness by full text review by either the second or third author as well as the lead author; an additional 26 articles were eliminated in this step (see Figure 1). Data were extracted from the 15 remaining articles (see Table 1). Data extracted included whose self-efficacy was

Table 1. Studies included in the final scoping review sample.

Reference	Participant type	Evidence-based intervention or practice	Study design	How self-efficacy is measured
Ager et al. (2011)	Professionals–addiction counselors (*n* = 136)	Motivation enhancement therapy	Quantitative, experimental	Three items measured self-efficacy
Brothers et al. (2015)	Professionals–mental health professionals from multiple disciplines including social work, psychology, nursing, and other disciplines (*n* = 62).	*Unspecified biobehavioral intervention designed to alleviate cancer stress and enhance coping*	*Quantitative, descriptive*	*Counselor activity self-efficacy scale* *BBI self-efficacy scale*
Brown & Nicholson Perry (2018)	Professionals–psychologists (*n* = 100)	Cognitive behavioral therapy for Bulimia	Quantitative, descriptive	Personal efficacy beliefs–eating disorder scale
Campbell et al. (2013)	Professionals–community addictions therapists (*n* = 32)	12-step facilitation	Quantitative, descriptive; part of a larger randomized clinical trial	Addictions counseling self-efficacy scale
Currie & Davidson (2015)	Professionals–educational psychologists (*n* = 22)	The Scottish Mental Health First Aid: Young people training program	Mixed-methods, descriptive	Confidence measured by qualitative feedback
Edmunds et al. (2013)	Professionals–therapists (*n* = 99)	Coping Cat: CBT for youth anxiety	Quantitative, descriptive	Provider efficacy questionnaire
Harned et al. (2014)	Professionals–mental health providers of varying discipline and degrees (*n* = 181)	Exposure therapy for anxiety disorders	Quantitative, experimental	Adapted version of the self-efficacy subscale in the behavioral anticipation and confidence questionnaire
Kerns et al. (2016)	Students–graduate level in multiple disciplines (*n* = 81)	Multiple EBIs: parenting intervention (helping the noncompliant child), TF-CBT, and other EBI (elements of DBT, MST, MI) for more complex disorders	Quantitative, descriptive	One item of general self-efficacy of delivery of an EBI
Kim et al. (2018)	Professionals–community mental health therapists (*n* = 733)	Multiple EBIs: Seeking safety, child parent psychotherapy, cognitive behavioral intervention for trauma in schools, managing and adapting practice, TF-CBT, positive parenting program	Quantitative, descriptive	Two items measured self-efficacy in a larger survey
Kingston et al. (2014)	Students–doctoral level in clinical psychology (*n* = 19)	Schema therapy	Mixed methods, descriptive	Created survey questions to measure confidence in use of Schema therapy concepts and confidence in use of Schema therapy techniques
Morgenstern et al. (2001)	Professionals–substance abuse counselors (*n* = 29)	Cognitive behavioral therapy	Mixed methods, experimental	One item measured self-efficacy
Pemberton et al. (2017)	Professionals–mental health professionals of varying discipline and degrees (*n* = 178)	Trauma focused cognitive behavioral therapy	Quantitative, descriptive	Created a confidence scale with 13 items
Runyon et al. (2018)	Professionals–school psychologists (*n* = 405)	Applied behavioral analysis	Quantitative, descriptive	Created self-efficacy scale with 14 items
Ruzek et al. (2016)	Professionals–licensed mental health professionals of varying discipline and degrees (*n* = 943)	Prolonged exposure therapy	Quantitative, descriptive	14 items measured self-efficacy of intervention specific delivery
Sigel et al. (2013)	Professionals–mental health professionals (*n* = 461)	Trauma focused cognitive behavioral therapy	Quantitative, descriptive	Created confidence scale with 13 items related to TF-CBT

EBI: evidence-based interventions; TF-CBT: Trauma Focused Cognitive Behavioral Therapy; DBT: Dialectical Behavior therapy; MST: multisystemic therapy; MI: motivational interviewing.

evaluated (mental health professional type), how self-efficacy was defined, how self-efficacy was measured, study design details, EBI/practice being assessed, sample size and location of study, and general study outcomes.

Results

How is mental health provider self-efficacy defined?

Among the 15 studies examined, provider/therapist/student self-efficacy was noted as one variable of interest with regard to adoption, training, or implementation of an evidence-based psychosocial intervention. In describing self-efficacy within the identified studies, the most common definition included confidence in delivery of the EBI that was the focus of the study (12 of 15 studies examined: Ager et al., 2011; Brothers et al., 2015; Campbell et al., 2013; Currie & Davidson, 2015; Edmunds et al., 2013; Harned et al., 2014; Kerns et al., 2016; Kingston et al., 2014; Morgenstern et al., 2001; Pemberton et al., 2017; Ruzek et al., 2016; Sigel et al., 2013). One study used the term confidence along with knowledge (Kim et al., 2018). One study defined self-efficacy as "certainty" that providers could do tasks related to a specific intervention (Runyon et al., 2018). Finally, one study used a multi-dimensional scale in which one item was confidence (Brown & Nicholson Perry, 2018). Importantly, self-efficacy was rarely defined in an explicit manner; extraction of the definition relied on the operational definitions of self-efficacy as detailed in the "Method" (measures) section of the manuscripts examined.

How is mental health provider self-efficacy measured?

Each of the 15 studies used a different measure of self-efficacy. Five studies used short scales consisting of one to three questions each created for each study and that assessed confidence in delivery of the intervention that was the focus of the intervention (Ager et al., 2011; Kerns et al., 2016; Kim et al., 2018; Kingston et al., 2014; Morgenstern et al., 2001). Of the nine studies that used a multi-item scale to measure self-efficacy, each used a different scale; one final study collected qualitative data only.

Two studies used existing scales: the Addiction Counseling Self-Efficacy Scale (Campbell et al., 2013), and the 25-item Counselor Activity Self-Efficacy Scale, assessing confidence in both general and advanced counseling skills (Brothers et al., 2015). Three studies adapted existing scales or subscales. These included an adapted version of the Provider Efficacy Scale (nine items assessing confidence in delivery of CBT for youth anxiety; Edmunds et al., 2013) and an adapted 27-item version of the Self-Efficacy subscale of the Behavioral Anticipation and Confidence Questionnaire (Harned et al., 2014). Brown and Nicholson Perry (2018) used a modified version of the 10-item Personal Efficacy Beliefs Scale, called the Personal Efficacy Beliefs Eating Disorders Scale, on which respondents rated agreement or disagreement with each item using a Likert-type format.

Four studies used a scale created by study authors to examine confidence in delivery of a specific intervention. These included a 13-item scale to assess confidence in delivery of TF-CBT (Pemberton et al., 2017) and a 14-item scale (derived from factor analysis) assessing clinician confidence in delivery of Prolonged Exposure (PE) therapy (Ruzek et al., 2016). Sigel and colleagues (2013) utilized pre-post-training evaluations that covered a variety of topics including self-efficacy related to delivery of TF-CBT (no details were provided regarding measure length or items regarding self-efficacy). Runyon and colleagues (2018) created a 15-item scale to assess self-efficacy to conduct evidence-based ABA; participants rated how certain they were that they could do each task on a scale from 0 to 100. Finally, one study collected solely qualitative data (Currie & Davidson, 2015). In sum, each study examined used a different measure to assess provider self-efficacy.

What types of mental health providers are represented in research concerning self-efficacy to deliver EBIs?

Most of the studies included mental health professions ($n = 13$); two studies had student samples. Among studies that included professionals, three focused on professionals in the substance use treatment field (i.e., "substance use providers" and "addictions counselors"). Three studies included psychologists (including educational and school psychologists). The remaining seven studies identified participants as "clinicians," "therapists," "mental health providers," "mental health professionals," or "licensed mental health providers."

Of the two studies in which participants were identified as students (Kerns et al., 2016; Kingston et al., 2014), one included clinical psychology graduate students while the other surveyed students across multiple disciplines including psychiatry, psychology, educational psychology, social work, nursing, education, and special education.

What types of mental health interventions are represented in research on self-efficacy of providers?

Across the 15 studies, a variety of EBIs or processes were examined with regard to provider self-efficacy. The most common type of interventions, noted in 8 of the 15 studies examined, were behavioral (e.g., exposure-based therapies; Harned et al., 2014; Ruzek et al., 2016) or cognitive-behavioral (e.g., Trauma-Focused CBT, CBT; Brown & Nicholson

Perry, 2018; Edmunds et al., 2013; Morgenstern et al., 2001; Pemberton et al., 2017; Runyon et al., 2018; Sigel et al., 2013). Two studies involved the training and/or delivery of multiple interventions within each study (Kerns et al., 2016; Kim et al., 2018). The specific interventions are listed in Table 1. The five remaining studies explored self-efficacy in the implementation of Schema Therapy for the treatment of personality disorders (Kingston et al., 2014), Motivation Enhancement Therapy (Ager et al., 2011), Scottish Mental Health First Aid (Currie & Davidson, 2015), an evidence-based biobehavioral intervention designed to alleviate stress and enhance coping among cancer patients (Brothers et al., 2015), and an "emerging evidence-based treatment" of 12-step facilitation (Campbell et al., 2013).

What factors influence or predict mental health provider self-efficacy?

Among the studies involving students, significant improvements in self-efficacy were seen as a function of participation in training in specific interventions or models, and in courses for EBPs (Kerns et al., 2016; Kingston et al., 2014). Similarly, in the studies that examined mental health services delivered by real-world service providers, self-efficacy was found to increase as a function of training (Brothers et al., 2015; Currie & Davidson, 2015; Morgenstern et al., 2001; Ruzek et al., 2016; Sigel et al., 2013). One study found that self-efficacy was not differentially affected by type of training (e.g., online training, computerized intervention, web-based learning community; Harned et al., 2014). While self-efficacy was found to be predictive of implementation fidelity (Brown & Nicholson Perry, 2018; Campbell et al., 2013), self-efficacy, assessed post-training, was found to be unrelated to post-training consultation activities (e.g., phone calls) meant to support implementation (Edmunds et al., 2013; Pemberton et al., 2017). Furthermore, self-efficacy was found in one study to be inversely related to the adoption of motivational enhancement therapy among addictions counselors (Ager et al., 2011) and was found in another study to mediate the relationship between training and implementation of applied behavioral analysis (Runyon et al., 2018). Finally, self-efficacy was found to be protective for service providers in that greater self-efficacy was related to lower levels of emotional exhaustion (Kim et al., 2018). Thus, in the studies reviewed, self-efficacy was used as an outcome variable, as a predictor of treatment implementation, as a predictor of fidelity, or as a mediator.

Discussion

Summary of evidence

Using the methodology of a scoping review, we sought to better understand the construct of provider self-efficacy in the context of implementation of evidence-based psychosocial interventions. Our research questions focused on how self-efficacy was defined and measured, what types of interventions and providers were represented in the literature, and finally, on what influences were found on provider self-efficacy. In the period selected for this review, 15 studies were located that met our inclusion criteria: (a) written in English and (b) published between January 1999 and June of 2018, and (c) involved self-efficacy of mental health providers in delivery of evidence-based psychosocial interventions. These studies encompassed both student and professional service providers and a wide variety of intervention models were represented.

Definition of provider self-efficacy

Our first research question was focused on how mental health provider self-efficacy was defined. While the most common definition found was confidence in delivery of the EBI that was the focus of the study, it is noteworthy that self-efficacy was rarely defined in an explicit manner. Examination of the measures and items used in the studies reviewed was required to clarify how self-efficacy was defined. In the studies reviewed, participants were most commonly asked to rate how confident they were to use the intervention or intervention strategies under study. Far less frequently, participants were asked to rate how prepared they felt to deliver the intervention or strategies of interest, or how certain they were that they could perform tasks relevant to the intervention that was the focus of the study.

Self-confidence in the studies reviewed appears to have been equated with self-rated capability. Importantly, measures of self-efficacy may confound capability with motivation (Burrell et al., 2018; Williams et al., 2020). Given that studies have found associations between provider self-efficacy and program implementation (e.g., Shapiro et al., 2012), disentangling confidence from motivation appears particularly important. Indeed, in research examining provider attitudes toward the use of EBIs using the Evidence-Based Practice Attitudes Scale or EBPAS (Aarons, 2004; Aarons et al., 2010, 2012), one common predictor of implementation is the Requirements subscale of this measure (e.g., Shapiro et al., 2012). That is, when providers perceive that their organization requires them to use EBIs, implementation can increase. Having a clear conceptual definition of provider self-efficacy can help disentangle the contributions of provider motivation and provider self-efficacy in support of implementation of EBIs.

An additional consideration with regard to the definition of self-efficacy is how it may differ from outcome expectations. Inconsistency and lack of clarity in the definition of these terms (as arose in the seminal work on self-efficacy by Bandura) and their relationship has been noted for decades (Kirsch, 1985). Expected outcomes can influence self-efficacy; the tension between these constructs has been the subject of considerable debate (Williams, 2010). Indeed, Williams (2010) argues that research has

focused on self-efficacy to the exclusion of expected outcomes, which has impact on both the definition and measurement of self-efficacy. In sum, a clear and shared conceptual definition of provider self-efficacy can help disentangle the contribution of provider self-efficacy from related constructs of motivation and outcome expectations in the implementation of EBIs.

Finally, in the studies reviewed, self-efficacy was most frequently assessed as confidence in the ability to deliver one aspect of an intervention, or an intervention as a whole. A more nuanced approach may be helpful to better understand provider self-efficacy. As an example, Blooms taxonomy, an educational framework for learning, could provide an interesting framework for understanding how confident a provider might feel with regard to their level of operation of the skill or intervention. For example, such an approach could reveal differences in confidence between knowing what an intervention component is, and confidence in creating a tailored approach for a particular client while maintaining fidelity.

Measurement of provider self-efficacy

As noted earlier, the definition of provider self-efficacy was found to be integrally related to our second research question regarding how self-efficacy is measured. In a number of the studies reviewed, understanding the definition of self-efficacy was only possible by examining the description of the measures used to assess self-efficacy, and, in particular, the rating scale anchors or response choices. Across studies reviewed, we found little to no concordance in the assessment measures, subscales, or questions used to measure self-efficacy. A range of existing scales and subscales were used, along with measures that were created by study authors. Importantly, only two studies of the 14 reviewed that used quantitative measures relied on established measures for which psychometric data on reliability and/or validity is available.

Assessment measures created by study authors included studies that examined confidence in delivery of the intervention and/or techniques related to the intervention of interest using multiple items (Edmunds et al., 2013; Kingston et al., 2014) as well as studies assessing confidence in delivery using one- to three-item (Kerns et al., 2016 and Ager et al., 2011, respectively). Reliance on measures of unknown reliability and validity raises concerns about construct validity, especially if single items are used. Only one study, by Ruzek and colleagues (2016), provided psychometric data on a measure that they created to assess self-efficacy (a 14-item measure with high internal consistency).

An additional consideration with regard to measurement of self-efficacy involves the construction of the items used within the assessment across the studies reviewed. For example, while Likert-type scale items were common, the anchors for the items differed by measure. Kingston and colleagues (2014) used anchors of "knowledge," "confidence," or "willingness" which may help disentangle confidence with motivation, while other studies used anchors only described as confidence (Brothers et al., 2015; Edmunds et al., 2013; Ruzek et al., 2016). The range of Likert-type scale responses also varied in the studies examined, including 7, 10, or 11 elements, introducing further variability into the measurement process. As verbal and numerical anchors can influence respondent ratings, it is important that items or scales created for specific studies be carefully constructed and evaluated prior to use (Blais & Grondin, 2011). Construction of item response scales with equal intervals is also important and can impact associations detected (Casper et al., 2020).

A final consideration with regard to measurement of self-efficacy regards who the rater is. In the studies reviewed, self-efficacy was measured by self-report (in accordance with self-efficacy theory; Bandura, 1977). Of interest is the level of accuracy of self-ratings with regard to implementation. For example, in clinical supervision and practice, it is possible for self-ratings of self-efficacy to be high, while the quality of implementation of a specific intervention is moderate to low. Self-evaluation, as an aspect of self-regulation is important (see, for example, Sanders & Mazzucchelli, 2013); however, there can be limitations to reliance on self-report for both self-efficacy and implementation outcomes such as fidelity (as is common in real-world practice).

As a final point regarding measurement of provider self-efficacy, in the majority studies reviewed, the reliability and validity of the measures used is not known. It is understandable that questions used to assess self-efficacy for understanding or delivery of EBIs are unique to the intervention under study, as studies have found greater utility in assessing task-specific self-efficacy as compared to general self-efficacy (e.g., Sanders & Woolley, 2005). However, this approach serves to further research on specific evidence-based models but does not serve to advance broader understanding of provider self-efficacy.

Types of mental health providers

Our third research question was designed to improve our understanding of the types of mental health providers included in studies of provider self-efficacy to implement EBIs. Two studies involved student samples, while 13 involved professionals. The studies included a wide variety of mental health disciplines including counseling, social work, and psychology. This was consistent across both professional and student samples. While this variety of provider disciplines and types (student vs. professionals) can be seen as a strength, it is also a barrier to deeper understanding of the construct of provider self-efficacy. Provider self-efficacy to deliver EBIs could vary in

important ways across level of education. For example, in one study, level of education was significantly associated with level of self-rated confidence in delivery of behavioral family interventions over the course of training (Shapiro et al., 2008). It is also possible that the factors impacting self-efficacy for students are different than those that can impact professional providers in delivery of EBIs. A parallel can be found in the use of technology—youth born in a digital era, "digital natives," as compared to individuals who were not (termed "digital immigrants") are more comfortable using and adopting new technologies as they become available (Vodanovich et al., 2010). It is possible that provider self-efficacy for students educated in an "EBI rich environment" is different from provider self-efficacy for professionals who were not exposed to EBIs until they reached service settings. These differences remain to be explored, and could predict potential differences in implementation of EBIs.

Given that the majority of evidence-based psychosocial interventions (e.g., cognitive-behavioral approaches, parenting interventions) do not require a degree in a specific field, the finding that multiple types of mental health providers were included across the studies reviewed is not surprising. However, this variability also raises the question of potential between-profession differences in self-efficacy with regard to the use of EBIs. For example, Garcia and colleagues (2020) examined implementation of evidence-based psychotherapies for veterans with post-traumatic stress disorder by providers in the Veterans Health Administration. In this sample, overall use of the two most common EBIs (prolonged exposure or PE, and cognitive processing therapy or CPT) was relatively low, but social workers were found to have spent more time using CPT as compared to psychologists (Garcia et al., 2020, p. 230). Such variations in use are likely related to variations in self-efficacy, however, how these are related to cross-professional differences is not known. Relatedly, 7 of the 15 studies reviewed did not specify the types of mental health professionals involved, which could mask important differences in self-efficacy by provider type.

Types of EBIs

Overall, with regard to our fourth research question, while a range of EBIs were used in the studies included in this scoping review, the majority were cognitive-behavioral in orientation. To some degree, this is expected given that many evidence-based psychosocial interventions share this general approach. Advancing research and theory with regard to provider self-efficacy requires examination of this construct across a broader range of psychosocial approaches that have empirical support, including psychodynamic or systems-oriented interventions, or multi-component modular approaches to treatment that have increased in popularity (Chorpita et al., 2017).

Regardless of the type of intervention approach, EBIs are typically complex, consisting of multiple elements or strategies and delivered over a series of sessions. However, a number of studies reviewed measured self-efficacy for delivering the intervention of interest in a global way with a small number of items, as noted earlier. Several studies created items assessing confidence or certainty in provider ability to perform component skills of the intervention being studied (Pemberton et al., 2017; Ruzek et al., 2016). This latter approach offers a more nuanced view of provider self-efficacy for specific components of an intervention and can inform both practice and implementation support. Importantly, as many EBIs share specific techniques or component skills (e.g., modular treatment approaches, Chorpita & Daleiden, 2009), creating standardized measurement items and scales to assess self-efficacy for these treatment elements paves the way for use of common measurement instruments across intervention approaches.

Influences on provider self-efficacy

The fifth and final research question sought to identify factors that may influence or predict provider self-efficacy in the identified articles. Given the common definition of provider self-efficacy as confidence, several studies examined found increases in provider confidence as a function of instruction (e.g., Kerns et al., 2016) or training (Edmunds et al., 2013; Kingston et al., 2014; Morgenstern et al., 2001; Ruzek et al., 2016). These findings are largely consistent with the extant literature regarding influences on self-efficacy (Shapiro & Charest, 2020). Influences of provider self-efficacy on factors related to program implementation (e.g., attitudes toward EBIs) and fidelity were also noted (Campbell et al., 2013; Harned et al., 2014). Campbell and colleagues (2013), in particular, found self-efficacy for general counseling skills to be related to fidelity of implementation of Twelve-Step Facilitation (TSF; an intervention for addiction) while higher self-efficacy for addiction-specific counseling skills was related to lower TSF fidelity. This underscores the importance of assessment of both global and specific self-efficacy separately, and the need to examine influences on implementation fidelity more specifically. Moving forward, adoption of a systems contextual approach that acknowledges the interplay of providers, interventions, training, organizations, and systems will be important to achieve a more nuanced understanding of the role that provider self-efficacy plays in implementation of EBIs (Beidas & Kendall, 2010).

Methodological limitations

Finally, it is important to note that there were a number of methodological limitations noted in the studies reviewed. The most important limitation was that the majority of the

studies examined were quasi-experimental, consisting of single group, pre-test- post-test designs (Ager et al., 2011; Brothers et al., 2015; Currie & Davidson, 2015; Kerns et al., 2016; Kingston et al., 2014; Morgenstern et al., 2001; Ruzek et al., 2016). Reliance on quasi-experimental approaches, including lack of a comparison or control group, represent a threat to internal validity. Use of experimental designs that vary factors such as training and support, which are known to influence self-efficacy, may be more helpful in revealing mechanisms behind changes in self-efficacy in use of EBIs. Furthermore, provider self-efficacy was often only one of a number of factors examined in these studies and was rarely the primary focus of interest. Studies that directly examine self-efficacy are needed if advances are to be made in understanding this construct within the context of delivery of EBIs. This may be particularly instructive from a practical standpoint as new EBIs emerge.

Study limitations

Efforts were made to conduct this systematic review according to existing guidelines. However, several important limitations must be noted. This review focused only on provider self-efficacy to deliver EBIs and not on EBP approaches (e.g., Mullen et al., 2008). The literature review was limited to the last two decades to obtain a better understanding of the current research on provider self-efficacy. Formal examination of only 10% of the studies coded for inclusion/exclusion were reviewed for agreement between raters. To mitigate the likelihood of errors in classification, the first author reviewed the extraction database for final decisions regarding inclusion/exclusion and ongoing discussions were held during the review process between all three authors to address questions and to reach consensus. Despite these precautions, relevant publications may have been missed in this review. Furthermore, this review included publications through June of 2018. While an additional search conducted in March 2019 using the same search Boolean and index terms did not reveal additional studies for inclusion, the sample dates are a limitation of this review. Finally, the conclusions drawn here are limited to provider self-efficacy in the samples included in the studies reviewed, and in the context of use of a limited number of EBIs.

Conclusions and recommendations

Advancing theory, research, and practice regarding provider self-efficacy in delivery of evidence-based psychosocial interventions can best be served in several ways. First, researchers are urged to include an explicit definition of provider self-efficacy in studies involving this construct. Clarifying how self-efficacy is different from motivation or outcome expectations is particularly important. Second, use of existing measures with established psychometric properties is encouraged. Should new measures be created, it is important to consider use of multi-item scales and to provide psychometric data on the measures used. Third, inclusion of conceptual models of self-efficacy in the provider population of interest (i.e., students or professionals) and clarification of the specific types of mental health providers included in study samples is needed. Fourth, it is important to examine provider self-efficacy to deliver a broader array of psychosocial EBIs. Research focusing on self-efficacy for intervention elements as compared to global self-efficacy is especially encouraged. Finally, research that can predict self-efficacy prior to training, during training, and across delivery of EBIs over time can be a fruitful avenue for enhancing research on provider self-efficacy, as well as for improving training, consultation, and implementation supports. Implementation of EBIs over time in real-world settings is needed to achieve the promise these interventions hold to improve the lives of those we serve; deeper understanding of provider self-efficacy as one important step that can help us reach this goal.

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