

Knowledge of and Attitudes Towards Evidence-Based Practices in Community Child Mental Health Practitioners

Brad J. Nakamura · Charmaine K. Higa-McMillan ·
Kelsie H. Okamura · Scott Shimabukuro

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Abstract Research in the dissemination of evidence-based practices (EBPs) suggests that practitioners' knowledge of and attitudes towards EBPs influence their decisions to adopt such practices. This study investigated the relationships between practitioner background variables and EBP knowledge and attitudes, as well as the relationship between knowledge and attitudes among public sector youth direct service providers ($n = 240$). Findings suggest that knowledge and attitudes relate to practitioners' most advanced degree, practice setting, and licensure status. Additionally, lack of knowledge in the form of EBP under-identification was related to negative attitudes. Findings are discussed as they relate to the dissemination of EBPs.

Keywords Evidence-based practice · Dissemination · Knowledge · Attitudes · Child mental health

A portion of these results will be presented at the 44th Annual Convention of the Association for Behavioral and Cognitive Therapies in San Francisco, CA.

B. J. Nakamura (✉) · K. H. Okamura
Department of Psychology, University of Hawai'i at Mānoa,
1601 East-West Road, Honolulu, HI 96848, USA
e-mail: bradn@hawaii.edu

C. K. Higa-McMillan
University of Hawai'i at Hilo, Hilo, HI, USA

S. Shimabukuro
Child and Adolescent Mental Health Division, Hawai'i State
Department of Health, Honolulu, HI, USA

Introduction

Decades of research have established that some treatments outperform services as usual in community settings (e.g., Silverman and Hinshaw 2008; Weisz et al. 2005, 2006). However, adoption of these EBPs in community settings has met a number of barriers (Fixsen et al. 2005; Hoagwood and Olin 2002; New Freedom Commission on Mental Health 2003). Practitioner decision (not) to adopt EBPs is one such barrier. In a study of mental health service providers from communities receiving federal funding to develop and implement a system-of-care for youth with mental health disorders, most providers reported partial implementation of EBPs (Walrath et al. 2006). Providers who reported not using EBPs cited a variety of reasons including knowledge barriers (e.g., lack of familiarity and training), attitude barriers (e.g., protocols too rigid, questionable research, client base too complex and not one treatment can be applied to all children) and contextual or practical barriers (e.g., lack of time, no agency support, too costly). Further, in a national online survey of mental health practitioners, Nelson and Steele (2007) found that practitioner training in EBPs and attitudes towards treatment research were significant predictors of self-reported EBP use. These findings are consistent with the larger body of innovation diffusion literature suggesting that before EBPs are adopted into practice, providers must be *knowledgeable* about and have favorable *attitudes* toward such techniques (e.g., Higa and Chorpita 2007; Rogers 2003). By examining provider specific variables that predict knowledge about and attitudes towards EBPs, we may be able to design more focused and appropriate EBP dissemination and implementation strategies. To date, very little research has examined specific provider variables, and the research that has been published suggests mixed findings.

Based on robust findings from numerous diffusion studies across a wide variety of innovations, such as disease prevention and recycling behavior, Rogers' (2003) innovation diffusion theory proposes that five supporting stages are needed to diffuse an innovation. These include: (a) knowledge—exposure to the innovation and some understanding of how it functions; (b) persuasion—developing a positive or negative attitude toward the innovation; (c) decision—activities leading to a decision to adopt or reject the innovation; (d) implementation—using the innovation; and (e) confirmation—sustainability for or against the innovation. Of these five stages, strongest support exists for the first three, which have come to be collectively known as the knowledge–attitudes–practice process (K–A–P; Rogers 2003). In brief, the K–A–P process predicts that sufficient knowledge and favorable attitudes toward an innovation should influence whether it is adopted into practice.

Overall, research on the K–A–P process in healthcare settings is sparse, and is slightly more established in medical settings. For example, Rim et al. (2009) found a correlation between medical doctors' knowledge about cancer screening procedures and cancer screening practices. Moreover, doctors without adequate knowledge levels evidenced significantly poorer attitudes toward cancer screening. A similar finding was also evidenced in a study of blood transfusion procedures. In their investigation, Salem-Schatz et al. (1993) found a positive relationship between physician knowledge of transfusion care procedures and patient-reported care and quality. To date the K–A–P process in behavioral health care settings has been less well-studied.

Knowledge of EBPs

Various researchers have suggested that knowledge is often the biggest barrier to EBP dissemination (Barker 2004; Dearing 2009; Higa and Chorpita 2007; Sanders et al. 2009; Seng et al. 2006). Chorpita and Regan (2009) commented that the term “dissemination” can be defined as the delivery of knowledge and the management of attitudes and intentions to clinicians. Although provider knowledge of EBPs for adult mental health, especially in the treatment of substance abuse and addiction, has received attention in recent years (e.g., Sholomskas et al. 2005; Walters et al. 2005), provider knowledge of youth EBPs has been less well researched. As one example of a study of youth EBP provider knowledge, Walrath et al. (2006) found that although child and adolescent mental health service providers were not fully implementing EBPs in their own practice, they were at least aware of evidence-based treatments and of their effectiveness as measured by providers' indication of familiarity with and perceived effectiveness of a list of 33 evidence-based protocols. Although these findings are

promising, there are at least three additional areas left unanswered with regard to the assessment of awareness knowledge in this study. First, providers were asked to indicate awareness of EBPs at the protocol or program level. Second, providers were not asked to discriminate protocols for specific youth problem areas (e.g., treatment for anxiety versus disruptive behavior). Finally, the entire list of protocols had demonstrated efficacy (thus providers did not have to discriminate between evidence-based versus non-evidence based protocols).

An alternative method to measuring awareness knowledge of youth EBPs was recently developed to address such issues (Stumpf et al. 2009). Rather than identifying EBPs by a general approach (e.g., “Cognitive–Behavior Therapy”) or by a specific treatment program (e.g., “Coping Cat,” Kendall 1994), interventions are conceptualized as composites of individual strategies or “practice elements” (Chorpita et al. 2007; Chorpita and Daleiden 2009; Chorpita et al. 2005a). To illustrate, an individual may be aware that cognitive–behavioral therapy is empirically supported in the treatment of childhood anxiety problems, but remain uninformed regarding the actual procedures (e.g., exposure to feared stimuli) encompassed within a given treatment protocol. Practice elements are defined as discrete clinical techniques or strategies, such as “relaxation” or “self-monitoring,” that are typically used as part of a larger intervention plan (Chorpita et al. 2005a, 2007). Employing the practice element methodology, Stumpf et al. (2009) developed the Knowledge of Evidence Based Services Questionnaire (KEBSQ), an assessment of EBP knowledge that uses a multiple true–false response format for descriptions of techniques commonly used with youth. Although Stumpf et al. (2009) examined some basic psychometric properties of the KEBSQ, they did not examine the impact of various therapist demographic variables on knowledge. For example, despite finding significant EBP knowledge differences between the community clinician and graduate student samples, they did not test whether years of clinical training or experience, license status, professional discipline, or theoretical orientation affected such knowledge. To our understanding, there are no other studies examining therapist level variables and awareness knowledge of EBPs for youth.

Attitude Towards EBPs

The methodology of examining specific elements within larger treatment programs may also hold promise for addressing attitude barriers in the implementation of EBPs. This is important because it is believed that providers' attitudes towards and knowledge of EBPs will predict the likelihood of adopting such practices (e.g., Nelson and Steele 2007; Rogers 2003). Some common negative

attitudes towards EBPs and manualized treatments are that they do not allow providers to flexibly tailor individual interventions and they are not able to fully address the complexity of every day treatment cases (Addis and Krasnow 2000; Addis et al. 1999; Baumann et al. 2006; Nelson and Steele 2008; Nelson et al. 2006; Walrath et al. 2006). The method of breaking evidence-based protocols down into manageable parts that function independently addresses both of these concerns because it allows providers to tailor their interventions to meet the needs of their individual clients as well as mix and match EBP elements for complex cases (Chorpita et al. 2005b, 2007; Higa and Chorpita 2007). Recent evidence suggests that therapists trained in such a modular approach demonstrate significantly improved attitudes towards EBPs post-training whereas therapists trained in a standard evidence-based approach (i.e., manualized therapies as they were originally tested in efficacy trials) demonstrate significantly poorer attitudes towards EBPs when specifically asked about flexibility, tailoring interventions, and addressing complex cases (Borntrager et al. 2009). Further, when therapists are asked about how much they value specific strategies used in therapy with clients with disruptive behavior problems (versus being asked about EBPs in general or about manualized treatments), they rate techniques consistent with EBPs as more valuable than techniques not consistent with EBPs (Brookman-Frazee et al. 2009).

A number of different factors appear to affect practitioner attitudes towards EBPs, and the studies to date have produced mixed findings. Aarons (2004) found that intern-level therapists had the most positive attitudes towards EBPs. On the other hand, several studies have not found differences in practitioner attitudes based on level of clinical experience (Brookman-Frazee et al. 2009; Nelson and Steele 2008; Stewart and Chambless 2007). Further, with regard to years of training, these researchers found no differences in attitudes whereas in a recent study of practitioners who were mandated to use EBPs for children and adolescents by the state of Texas, Jensen-Doss et al. (2009) found that those who are less educated have more favorable attitudes towards EBPs. Jensen-Doss et al. (2009) hypothesized that clinicians who have less prior training, knowledge or theoretical orientations upon which to draw might be more open to efforts to implement EBPs. With regard to therapist position within the provider organization, Aarons (2004) found that behavioral health care providers in wraparound programs and Jensen-Doss et al. (2009) found that paraprofessionals held more favorable attitudes towards EBPs. Furthermore, professional discipline does not appear to predict attitudes towards EBPs (Aarons 2004; Brookman-Frazee et al. 2009; Jensen-Doss et al. 2009). Findings are mixed with regard to the clinical setting in which a clinician practices. Whereas Addis and Krasnow (2000) found that psychologists

practicing in academic settings held more positive attitudes, Nelson and Steele (2008) did not find such differences. Finally, concerning theoretical orientation, there is evidence that suggests that therapists with a Cognitive, Behavioral, or Cognitive–Behavioral Orientation have more favorable attitudes than therapists with other theoretical orientations (Addis and Krasnow 2000; Nelson and Steele 2008; Stewart and Chambless 2007). Taken together, more research is needed to clearly identify practitioner-level variables that predict attitudes towards EBPs.

Present Investigation

The present investigation examines practitioner knowledge of and attitudes towards EBPs prior to training in EBPs for youth. This is the first study to date to examine the relationships between youth EBP knowledge and attitudes with community therapist background variables, as well as the relationship of youth EBP knowledge with youth EBP attitudes. There were three major foci for the current study. First, we examined the relationships between EBP knowledge and various therapist demographic variables. Second, we examined the relationships between EBP attitudes and various therapist demographic variables. Given that therapists have demonstrated different attitudes towards EBPs depending on whether or not manuals were specifically queried (Borntrager et al. 2009; Brookman-Frazee et al. 2009), two measures of attitudes were included in this study—one which has been well-established in the literature but refers to manuals (i.e., Aarons 2004) and one which does not refer to treatment manuals when assessing attitudes towards EBPs (Borntrager et al. 2009). As the research on the relationships between EBP knowledge and attitudes with therapist background characteristics is limited and has produced mixed findings to date, analyses for these first two focus areas were exploratory and no specific hypotheses were offered. Third, we examined the associations of youth EBP knowledge with youth EBP attitudes. Although such relationships have never before been examined with the constellation instruments for the current study, the robust nature of Rogers' innovation diffusion theory suggests a positive and significant relationship between EBP knowledge and attitudes. Therefore, for this cluster of analyses, we predicted significant positive relationships between EBP knowledge and attitudes.

Method

Participants

Participants were public sector therapists providing youth mental health services who attended a state sponsored

workshop in evidence-based practices (EBPs) for youth internalizing and externalizing concerns. Of the 397 practitioners who attended the trainings, 240 (63.3%) completed one or more questionnaires from the pre-training survey battery. Participants ranged in age from 24 to 72 ($M = 39.0$, $SD = 11.1$), 74.2% were female ($n = 178$), and the primary ethnicities reported were: White ($n = 106$; 44.2%), Asian ($n = 46$; 19.2%), Hawaiian or Pacific Islander ($n = 20$; 8.3%), Black ($n = 6$; 2.5%), Latino ($n = 5$; 2.1%), and Other ($n = 2$; 0.8%). Fifty five participants (22.9%) did not report a primary ethnicity. As seen in Table 1, participants had varying levels of education, professional disciplines and theoretical orientations. Participants reported an average of 5.6 years of clinical training ($SD = 6.4$), 6.5 years of clinical experience beyond their undergraduate degree ($SD = 6.4$), and 27.5% ($n = 66$) reported holding a state license to practice. Participants came from 19 different mental health agencies, and as indicated in Table 1, worked in a variety of different clinical settings. On average, participants reported having

an active caseload of 10.4 ($SD = 8.9$) and received approximately 1.8 h of supervision per week ($SD = 1.8$).

Measures

Knowledge of Evidence Based Services Questionnaire (KEBSQ; Stumpf et al. 2009)

The KEBSQ is a 40-item measure assessing awareness knowledge of various evidence-based and non-evidence-based techniques for youth with Anxious/Avoidant (A), Depressed/Withdrawn (D), Disruptive Behavior (B), and Attention/Hyperactivity (H) problems. Respondents are asked to circle all problem areas for which a particular type of practice element is considered evidence-based. Each individual item is then scored on a scale from zero to four, with correctly endorsed and omitted responses per problem area each receiving one point each. As an example for the present study, exposure has been classified as an evidence-based technique for Anxious/Avoidant problems according to Chorpita and Daleiden (2007). In this case, a respondent would get one point for circling A, one point for not circling D, one point for not circling B, and one point for not circling H, for a grand total of four points. In order to differentiate a no-response (e.g., the participant refused to answer the question) from actively choosing to indicate that a particular technique is not considered evidence-based for any of the four problem areas, participants have the option of circling the letter N (None) for each item. Total possible scores on the KEBSQ can range from zero to 160. The KEBSQ has demonstrated adequate test–retest reliability in a sample of graduate level and community clinicians ($r = .56$) and the ability to discriminate between these two populations. Previous mean scores of the KEBSQ ranged from 96.02 (pre-training; $SD = 8.03$) to 110.01 (post-training; $SD = 11.02$) for community clinicians participating in a half-day workshop. KEBSQ pre-training scores ($M = 93.9$, $SD = 9.18$) for the present study were consistent with Stumpf et al.'s (2009) original findings.

The KEBSQ is a particularly unique and comprehensive way of assessing clinician knowledge due to the dynamic structure of its scoring key. For example, when the KEBSQ was originally developed, Stumpf et al. (2009) used the 2004 version of the Child and Adolescent Mental Health Division (CAMHD) Biennial Report to inform the answer key. However, given that all data were collected in the current study at trainings in 2008 and 2009 (well after the 2007 version of the CAMHD Biennial Report was released into Hawaii's system of care), the scoring key for the KEBSQ in this study was altered to reflect findings from the 2007 CAMHD Biennial Report (Chorpita and Daleiden 2007). Consistent with Stumpf et al.'s (2009) original

Table 1 Participant demographic information

	<i>n</i>	Percentage
Most advanced educational degree		
Associates or Bachelor Degrees	38	15.8
Masters-level degrees (e.g., M.Ed., MSW, LCSW, M.A., M.S., R.N., L.P.N.)	169	70.4
Doctoral Student, Intern, Psy.D., Ph.D., M.D.	25	10.4
Missing	8	3.3
Professional disciplines		
Counseling	59	24.6
Marriage and Family Therapy	58	24.2
Social Work	57	23.8
Psychology or Psychiatry	22	9.2
Other (Nursing, Family Support Worker, "Mental Health Specialist")	37	15.4
Missing	7	2.9
Primary orientation		
Behavioral	22	9.2
Cognitive or Cognitive–Behavioral	46	19.2
Eclectic	11	4.6
Object Relations	3	1.3
Psychodynamic	4	1.7
Systems or Family Systems	25	10.4
Missing	129	53.8
Primary clinical setting		
Out of home	62	25.8
Intensive in-home and community	49	20.4
Outpatient	97	40.4
Missing	32	13.3

study, a technique was considered evidence-based for a particular problem area if that technique was utilized in 10% or more of all treatment protocols receiving Best (Level 1) or Good (Level 2) Support for that specific problem area.

Evidence-Based Practice Attitude Scale
(EBPAS; Aarons 2004; Aarons et al. 2010)

The EBPAS is a 15-item well-established measure of clinician attitudes towards EBPs. Participants respond on a four-point Likert-scale (0 = “not at all” to 4 “to a very great extent”) the extent to which they agree to a particular statement. Higher mean scores indicate more favorable attitudes. The EBPAS generates four scales including (a) appeal—appeal of EBPs, (b) requirements—EBP use is required by the provider’s organization, (c) openness—openness to trying EBPs, and (d) divergence—unfavorable attitudes toward EBPs (reverse scored). In a study of 322 clinicians, Aarons (2004) found evidence for the measure’s factor structure and good internal consistency for these scales, with Cronbach’s α s ranging from .77 for the total to .90 for the requirements subscale. Aarons et al. (2010) recently administered this measure to a large nationwide sample of 1,089 mental health service providers and found strong psychometric support for this instrument, replicating and building upon Aaron’s (2004) original findings. Cronbach α coefficients for all EBPAS scale scores in the current study were consistent with those reported by Aarons’ (2004) and Aarons et al. (2010); appeal ($\alpha = .76$), requirements ($\alpha = .94$), openness ($\alpha = .81$), divergence ($\alpha = .72$), and total ($\alpha = .82$). EBPAS mean and standard deviation indices for the current sample were slightly higher (lower for the divergence scale) than those reported by Aarons (2004) and Aarons et al. (2010); appeal ($M = 3.12$, $SD = 0.67$), requirements ($M = 2.90$, $SD = 0.93$), openness ($M = 2.91$, $SD = 0.68$), divergence ($M = 1.06$, $SD = 0.65$), and total ($M = 2.99$, $SD = 0.48$).

Modified Practice Attitude Scale
(MPAS; Borntrager et al. 2009)

The MPAS is an eight item self-report measure of clinician attitudes towards EBP, which is based off Aarons’ (2004) EBPAS. The MPAS was included in addition to the EBPAS given that clinician attitudes towards EBPs have been shown to differ based on whether or not the term manual is mentioned when assessing for attitudes (Borntrager et al. 2009). On the MPAS, participants respond on a four-point Likert-scale (0 = “not at all” to 4 “to a very great extent”) the extent to which they agree to a particular statement, with higher scores indicating more favorable attitudes. The MPAS has evidenced good internal

consistency ($\alpha = .80$) and a moderate correlation with the EBPAS ($r = .36$, $p < .01$) in a sample of 59 community clinicians. The authors of the MPAS posit that this measure differs from the original EBPAS in that the MPAS aims to assess EBP attitudes without an emphasis on treatment manualization (Borntrager et al. 2009). Cronbach α coefficient, mean, and standard deviation data for the current sample were consistent with those reported by Borntrager et al. (2009); $\alpha = .77$, $M = 21.8$, $SD = 4.45$).

Therapist Background Questionnaire (TBQ)

The TBQ was developed for this study and assesses basic demographic information (age, gender, ethnicity/race, ethnic identity), training and experience information (degrees earned, state license, professional specialty, theoretical orientation, years of clinical training, years of clinical experience), and work setting information (agency name/type, position, clinical setting, current caseload, hours of supervision per week).

Procedure

Twenty-six half-day voluntary trainings in EBPs for youth internalizing and externalizing concerns were held between May 2008 and July 2009 across the state of Hawaii’s four counties. These workshops were not required for licensure of any kind and were standard continuing education opportunities. Questionnaires were administered to attendees prior to workshop participation. If a practitioner attended more than one training workshop, his questionnaire from the first training he attended was utilized for analyses. Prior to any data collection, all participants underwent standardized Institutional Review Board-approved notice of privacy and consent procedures.

Data Preparation

Questionnaires were retained if no more than 20% of their overall items were missing (cf. Ebesutani et al. 2010). At an instrument case level, this resulted in 220 EBPAS, 196 KEBSQ, and 224 MPAS questionnaires, for a total listwise sample of 188 respondent survey batteries. A power analysis was conducted in order to determine if a listwise analytic approach could be afforded over a pairwise one. Hypothesizing small to medium effect sizes (Cohen 1992) for detecting knowledge (cf. Stumpf et al. 2009) and attitudinal (cf. Jensen-Doss et al. 2009) differences between seven groups (i.e., for the predictor variable of theoretical orientation, which contained the most number of categories among all predictor variables), a power analysis revealed the need for 32–195 participants per group at an omnibus ANOVA level (Cohen 1992). This suggested that a total

pool of 224–1,365 participants seemed appropriate for this study. Given this projection, all analyses were performed in a pairwise fashion in order to capitalize on all instrument cases. Missing data were handled using the Missing Value Analysis (MVA) module of SPSS 18.0 (SPSS 2009). Within each instrument, the SPSS MVA module first examined missing data patterns with Little's Missing Completely at Random (MCAR) test (Little and Rubin 1987). Next, the SPSS MVA module imputed missing values for continuous MCAR variables through a maximum likelihood method based on expectation maximization algorithms. Little's MCAR tests performed within the EBPAS ($\chi^2 = 115.2$, $df = 159$, $p = 1.00$), MPAS ($\chi^2 = 27.4$, $df = 42$, $p = .96$), and KEBSQ ($\chi^2 = 1686.0$, $df = 1620$, $p = .12$) were all non-significant, suggesting that data was MCAR, and thus data were imputed accordingly. Finally, the EBPAS, MPAS, KEBSQ, and continuous demographic data were examined for both statistical outliers and distribution normality. Although results suggested the need for data transformation, given that all outcomes were identical between transformed and non-transformed data sets, non-transformed results are reported to aid comparative interpretation across other knowledge and attitude studies.¹

Analytic Strategy

Exploratory analyses examining the relationship between EBP knowledge, attitudes, and various demographic variables were examined in the following manner. Relationships between EBP knowledge and attitude scale scores and other continuous variables such as age were examined through zero-order bivariate correlations. The strength of these correlations were interpreted by the conventions of .10, .30, and .50, irrespective of sign, as small, medium, and large coefficients, respectively (Green and Salkind 2005). Relationships between EBP knowledge and attitude scale scores and categorical variables such as highest degree earned were examined through ANOVAs. The strength of these initial ANOVAs were assessed by η^2 (.01, .06, and .14 interpreted as small, medium, and large effect sizes, respectively; Green and Salkind 2005). In performing follow-up tests to evaluate pairwise mean differences for statistically significant ANOVAs with three or more groups, Tukey's HSD tests were used when Levene's test of equality of error variances was found non-significant. If equal variances could not be assumed, Dunnett's *C* test was

¹ Regarding outlier identification, standardized scores were calculated for relevant continuous data and responses in excess of 3.29 ($p < .001$, two-tailed test), were considered outliers (Tabachnick and Fidell 2007). The Shapiro–Wilk's *W* statistic (Shapiro and Wilk 1965) was utilized for testing distribution normality, with p values $< .001$ indicating non-normality (Tabachnick and Fidell 2007).

utilized for post hoc comparisons. Alpha levels were set at .05.

Results

Knowledge of EBPs

All zero-order bivariate correlations between KEBSQ total scores and age, years of training, years of full-time clinical experience, typical number of active treatment cases, and number of hours of supervision per week were statistically non-significant, suggesting no meaningful relationships between knowledge and these background variables (see Table 2). Interestingly, however, practitioners' most advanced degree was significantly associated with greater KEBSQ total scores, $F(2, 187) = 4.94$, $p < .01$, $\eta^2 = .05$ (see Table 3). Masters level therapists' and Doctoral level therapists' KEBSQ total scores were both significantly higher than those of Associate or Bachelor level therapists, but not significantly different from each other. KEBSQ total scores also varied as a function of the primary clinical setting in which therapists delivered treatment services, $F(2, 168) = 7.82$, $p < .01$, $\eta^2 = .09$ (see Table 4). Out-patient therapists had significantly higher KEBSQ total scores than both out of home (e.g., acute hospitalization) and intensive in-home and community therapists (e.g., Multisystemic Therapists). Out of home and intensive in-home and community therapists' KEBSQ total scores did not differ significantly from one another.² KEBSQ total scores did not significantly vary as a function of licensure status (see Table 5) or professional specialty [Counselor ($n = 51$), Marriage and Family Therapist ($n = 49$), Psychologist or Psychiatrist ($n = 19$), Social Worker ($n = 44$), Other ($n = 27$)]. Of the 240 participants in the current study, only 103 therapists reported their primary theoretical orientation (i.e., response rate of 42.9% response rate for this particular question): Behavioral ($n = 22$), Cognitive or Cognitive Behavioral ($n = 37$), Eclectic ($n = 11$), Object Relations ($n = 2$), Psychodynamic ($n = 2$), Systems of Family Systems ($n = 23$), and Other ($n = 6$). As such, the ANOVA examining the

² Given that therapists were nested within 19 different mental health agencies (see "Participants" section), organizational effects may have been present for this and other dependent variables. Therefore, seven one-way ANOVAs were conducted in order to preliminarily examine whether agency accounted for significant variability on knowledge (KEBSQ total scores) and all attitudinal indices (all EBPAS scale scores, MPAS total scores). All ANOVAs were non-significant against an alpha level of .05, suggesting that agency did not account for significant variability on these indices. However, this study could have benefited from a larger sample size for examining such effects. This and other limitations are further explored in "Discussion" section.

Table 2 Bivariate correlations for attitudinal and knowledge measures with all continuous variables

	EBPAS Requirement	EBPAS Appeal	EBPAS Openness	EBPAS Divergent	EBPAS Total	MPAS Total	KEBSQ Total
Demographics							
Age ($n = 224$)	.02	-.01	-.01	-.02	.01	.00	-.03
Training ($n = 191$)	-.14	-.07	-.03	.01	-.09	-.03	-.11
Experience ($n = 189$)	-.03	-.06	.01	-.01	-.03	.04	.00
Cases ($n = 201$)	-.09	.07	-.05	.09	-.06	-.12	.01
Supervision ($n = 203$)	-.02	-.01	.00	-.07	.01	.07	-.09
EBPAS ($n = 220$)							
Requirement	–						
Appeal	.50**	–					
Openness	.29**	.49**	–				
Divergent	-.05	-.03	-.14**	–			
Total	.71**	.76**	.73**	-.44**	–		
MPAS ($n = 224$)							
Total	.23**	.12	.30**	-.65**	.47**	–	
KEBSQ ($n = 196$)							
Total	-.01	.04	.06	-.11	.07	.11	–
Commission errors	.06	.13	.05	-.07	.11	.08	-.66**
Omission errors	-.05	-.14*	-.07	.20**	-.17*	-.17*	.26**

* $p < .05$; ** $p < .01$

relationship between KEBSQ total scores and primary theoretical orientation collapsed Behavioral and Cognitive or Cognitive Behavioral responses into one group and all other responses into another group. This ANOVA was non-significant.

Attitudes Towards EBPs

All zero-order bivariate correlations between EBPAS scale and total scores and MPAS total scores and age, years of training, years of full-time clinical experience, typical number of active treatment cases, and number of hours of supervision per week were statistically non-significant, suggesting no meaningful relationships between EBP attitudes and these background variables (see Table 2). Higher advanced degree was significantly associated with higher scores on the EBPAS Openness Scale, $F(2, 211) = 4.05$, $p = .02$, $\eta^2 = .04$ (see Table 3). Doctoral level therapists' EBPAS Openness Scale scores were significantly greater than those of Masters' level therapists. Interestingly, however, Associate or Bachelor level therapists' Openness Scale scores did not differ significantly from those of Doctoral or Masters level therapists, suggesting this group scored between Masters' and Doctoral level therapists. EBPAS Requirements, Appeal, Divergence, and Total as well as MPAS Total scale scores did not differ significantly

as a function of a therapists' highest educational degree (see Table 3). Concerning results for therapists' primary clinical setting, no significant differences were detected on the MPAS or the EBPAS (see Table 4). Interestingly, licensed providers (see Table 5) evidenced higher MPAS Total [$F(1, 222) = 5.33$, $p = .02$, $\eta^2 = .02$] scale scores than non-licensed providers, but no differences on the EBPAS were detected. Additionally, all ANOVAs for professional specialty emerged non-significant. Finally, utilizing the same grouping strategy as that employed for KEBSQ differences by primary theoretical orientation, no significant differences for EBP attitudes by theoretical orientation emerged.

Knowledge–Attitude Relationship

Contrary to our predictions that there would be a significant relationship between overall knowledge and attitudes, KEBSQ total scores did not significantly correlate with EBPAS Appeal, Openness, Divergence, or Total scale scores or the MPAS Total scale score (see Table 2). Given these surprising results, four follow-up analytic strategies were pursued in order to more deeply investigate the nature of these findings. First, basic descriptive statistics for all measures for the current sample were examined in comparison to those originally reported by Aarons (2004),

Table 3 Highest degree earned by three categories

	<i>N</i>	Mean (<i>SD</i>)
KEBSQ**		
Associates or Bachelor Degrees	28	89.4 (7.14) ^a
Masters-level degrees (e.g., M.Ed., MSW, LCSW, M.A., M.S., R.N., L.P.N.)	141	94.5 (9.31) ^b
Doctoral Student, Intern, Psy.D., Ph.D., M.D.	21	96.9 (8.84) ^b
EBPAS Requirements Scale		
Associates or Bachelor Degrees	34	2.99 (0.87) ^a
Masters-level degrees (e.g., M.Ed., MSW, LCSW, M.A., M.S., R.N., L.P.N.)	157	2.90 (0.91) ^a
Doctoral Student, Intern, Psy.D., Ph.D., M.D.	23	2.78 (1.12) ^a
EBPAS Appeal Scale		
Associates or Bachelor Degrees	34	3.07 (0.64) ^a
Masters-level degrees (e.g., M.Ed., MSW, LCSW, M.A., M.S., R.N., L.P.N.)	157	3.12 (0.67) ^a
Doctoral Student, Intern, Psy.D., Ph.D., M.D.	23	3.23 (0.70) ^a
EBPAS Openness Scale*		
Associates or Bachelor Degrees	34	2.99 (0.65) ^{ab}
Masters-level degrees (e.g., M.Ed., MSW, LCSW, M.A., M.S., R.N., L.P.N.)	157	2.91 (0.68) ^a
Doctoral Student, Intern, Psy.D., Ph.D., M.D.	23	3.33 (0.62) ^b
EBPAS Divergence Scale		
Associates or Bachelor Degrees	34	1.13 (0.69) ^a
Masters-level degrees (e.g., M.Ed., MSW, LCSW, M.A., M.S., R.N., L.P.N.)	157	1.05 (0.65) ^a
Doctoral Student, Intern, Psy.D., Ph.D., M.D.	23	1.05 (0.69) ^a
EBPAS Total Scale		
Associates or Bachelor Degrees	34	2.98 (0.43) ^a
Masters-level degrees (e.g., M.Ed., MSW, LCSW, M.A., M.S., R.N., L.P.N.)	157	2.97 (0.49) ^a
Doctoral Student, Intern, Psy.D., Ph.D., M.D.	23	3.09 (0.44) ^a
MPAS Total Scale		
Associates or Bachelor Degrees	32	21.1 (3.99) ^a
Masters-level degrees (e.g., M.Ed., MSW, LCSW, M.A., M.S., R.N., L.P.N.)	162	21.8 (4.55) ^a
Doctoral Student, Intern, Psy.D., Ph.D., M.D.	24	22.4 (4.79) ^a

^{ab} Differing letter superscripts indicate a significant pairwise mean differences at 95% confidence interval

* $p < .05$; ** $p < .01$

Borntrager et al. (2009), and Stumpf et al. (2009) for the EBPAS, MPAS, and KEBSQ, respectively. As reported in “Methods” section above, Cronbach α coefficients, means, and standard deviations for all EBPAS scale and total scores as well as the MPAS total score were consistent with those reported in their initial psychometric investigations. Given that each item of the KEBSQ represents an independent and unique treatment technique, Stumpf et al. (2009) posit that calculation of a Cronbach α coefficient is not warranted for the KEBSQ total score, and this index was not calculated in their original or the present investigation. However, it should be noted that mean and standard deviation data between this and Stumpf et al.’s (2009) study were consistent with one another (see “Methods” section). On a surface level, these analyses did not suggest deviant responses from the current study’s participants.

Second, scatter plots graphing all pairwise relationships between KEBSQ scores and EBPAS scores and MPAS

scores were visually examined for the possibility of truncation effects or exponential or other non-linear relationships. Such inspection did not suggest any such effects or relationships. Third, potential differential knowledge–attitude relationships were investigated through systematically varying the KEBSQ’s answer key. Specifically, rather than defining a technique as evidence-based for a particular problem area if that technique appeared in 10% or more all Level 1 or 2 treatments (see “Methods” section), we reran all analyses utilizing percentage cut off points of 20, 30, 40, and 50% or more. As one final follow-up analysis for this cluster of inquiries, respondents’ total number of circled responses was also calculated to examine for potential over-identification effects (i.e., a respondent’s general tendency towards endorsing all techniques for all problem areas, indicating that he/she believes every technique works for all types of problems). Zero-order bivariate correlations between all of the KEBSQ scoring iterations

Table 4 Primary clinical setting

KEBSQ**		
Out of home	45	91.4 (10.1) ^a
Intensive in-home and community	45	92.1 (8.61) ^a
Outpatient	81	97.1 (8.41) ^b
EBPAS Requirements Scale		
Out of home	56	2.86 (0.91) ^a
Intensive in-home and community	48	2.75 (0.94) ^a
Outpatient	88	3.02 (0.95) ^a
EBPAS Appeal Scale		
Out of home	56	3.13 (0.71) ^a
Intensive in-home and community	48	2.92 (0.77) ^a
Outpatient	88	3.12 (0.61) ^a
EBPAS Openness Scale		
Out of home	56	2.96 (0.64) ^a
Intensive in-home and community	48	2.89 (0.79) ^a
Outpatient	88	2.96 (0.66) ^a
EBPAS Divergence Scale		
Out of home	56	1.04 (0.67) ^a
Intensive in-home and community	48	1.15 (0.71) ^a
Outpatient	88	1.04 (0.64) ^a
EBPAS Total Scale		
Out of home	56	2.99 (0.45) ^a
Intensive in-home and community	48	2.85 (0.51) ^a
Outpatient	88	3.03 (0.46) ^a
MPAS Total Scale		
Out of home	57	21.9 (4.44) ^a
Intensive in-home and community	49	21.4 (4.13) ^a
Outpatient	91	22.3 (4.46) ^a

^{ab} Differing letter superscripts indicate a significant pairwise mean differences at 95% confidence interval

* $p < .05$; ** $p < .01$

above and EBPAS scale and total scores and MPAS total scores were statistically non-significant.

As the fourth and final follow-up strategy, participants' KEBSQ error patterns were examined for meaningful relationships with all attitude indices. Incorrect answers for all subcomponent true–false responses were classified as either an error of commission (i.e., incorrectly indicating that something is evidence-based when it is actually not) or omission (i.e., incorrectly indicating that something is not evidence-based when it actually is). For the present sample, the mean number of commission errors was 37.3 ($SD = 19.9$) and the mean number of omission errors was 27.9 ($SD = 15.6$). All zero-order bivariate correlations between commission and omission errors and EBPAS scale and total scores and MPAS total scores can be seen in Table 2. Participants' KEBSQ commission errors (i.e., being overly inclusive of the evidence-base) did not correlate with any EBPAS scale or total scores or MPAS total

Table 5 State licensure

	<i>N</i>	Mean (<i>SD</i>)
KEBSQ		
Unlicensed	137	93.5 (8.85) ^a
Licensed	59	94.7 (9.91) ^a
EBPAS Requirements Scale		
Unlicensed	156	2.90 (0.91) ^a
Licensed	64	2.91 (0.98) ^a
EBPAS Appeal Scale		
Unlicensed	156	3.11 (0.68) ^a
Licensed	64	3.14 (0.67) ^a
EBPAS Openness Scale		
Unlicensed	156	2.96 (0.69) ^a
Licensed	64	2.97 (0.67) ^a
EBPAS Divergence Scale		
Unlicensed	156	1.09 (0.67) ^a
Licensed	64	0.99 (0.62) ^a
EBPAS Total Scale		
Unlicensed	156	2.97 (0.48) ^a
Licensed	64	3.01 (0.48) ^a
MPAS Total Scale*		
Unlicensed	159	21.4 (4.27) ^a
Licensed	65	22.9 (4.75) ^b

^{ab} Differing letter superscripts indicate a significant pairwise mean differences at 95% confidence interval

* $p < .05$; ** $p < .01$

scores. However, participants' omission errors did significantly and inversely correlate with EBPAS Appeal and Total scale scores and MPAS total scale scores, indicating that an excessively restrictive view of what constitutes an EBP is related to EBPs being less appealing and having an overall less favorable attitude towards EBPs. Additionally, a significant positive correlation between omission errors and EBPAS Divergence scale scores emerged, suggesting that an excessively restrictive view of what constitutes EBPs is related to increased perception that research interventions are not clinically useful and less important than clinical experience. The magnitude of all omission-related correlation coefficients mentioned above fell between small and medium effect size convention benchmarks.

Discussion

This was the first study to date to examine the relationship between provider background and knowledge and attitudes of EBPs for youth as well as the relationship between knowledge and attitudes. Since a provider's decision for or against EBP adoption may serve as an implementation

barrier, examining provider variables that predict poor knowledge and unfavorable attitudes may be one first step towards designing effective dissemination and implementation interventions that specifically address individual provider barriers. Given the exploratory nature of this study combined with the fact that there is very limited data to date in this area, we did not have many a priori hypotheses. In general we found that very few practitioner level variables were related to pre-training knowledge of and attitudes towards EBPs. Age, years of training, years of full-time clinical experience, typical number of active treatment cases, number of hours of supervision per week, licensure status, professional specialty, and primary theoretical orientation were all not related to EBP knowledge levels. It is an interesting observation that EBP knowledge did not vary significantly as a function for these wide range of therapist background variables; especially licensure status, since such tests aim to assess therapist knowledge of empirical findings. However, practitioner's most advanced degree was related to knowledge, such that Masters and Doctoral level practitioners were more knowledgeable than practitioners with Associates and/or Bachelor's degrees, suggesting that practitioners with graduate training have more exposure to youth EBPs than those without advanced training. Although this statistically significant finding evidenced an overall medium effect size, one wonders about the clinical significance behind such differences. For example, KEBSQ group mean scores ranged from 89.4 to 96.9 out of a total 160 points, respectively, for the lowest and highest scoring groups broken down by highest academic degree. Crudely translating this to percentage points on a test, these scores equal 55.9 and 60.6%, respectively, perhaps arguably very poor grades on a test of general knowledge. Interestingly, these data are consistent with community therapists' scores reported in Stumpf et al.'s (2009) investigation. However, in the absence of an appropriately norm-referenced scoring scheme for the KEBSQ, score interpretation remains speculative at this point. Regardless, increasing EBP knowledge among Associates and/or Bachelor level therapists seems a fruitful endeavor, and since it is likely that these practitioners do not provide direct services without supervision, one potential solution for increasing EBP knowledge among such therapists might be increasing their exposure to these practices during ongoing supervision and/or internal staff development training.

The only other practitioner variable that significantly differentiated groups on EBP knowledge level was primary clinical setting. In this sample, providers primarily practicing in outpatient settings evidenced significantly greater knowledge of EBPs for youth than providers practicing in either in-home and community or out-of-home settings. This finding is thought-provoking and may potentially be

due to several factors. Careful analysis of the treatment outcome literature on generalizability variables such as treatment delivery setting indicates that the majority of all treatment outcome trials have been conducted in clinic and school settings (Chorpita and Daleiden 2007, 2009). Given the less developed nature of the knowledge base for in-home, community, and out-of-home settings then, therapists primarily practicing in these areas may still be receiving little education, guidance, and instruction in the way of EBPs as they were originally developed and tested in clinic and school settings. Another possible explanation relates to the structure of Hawaii's children's public sector service delivery system. In Hawaii, children receiving outpatient services are served primarily in schools through the Department of Education's (DOE) School-Based Behavioral Health (SBBH) Services by state-employed SBBH providers whereas children receiving services in home, community, and out-of-home settings are served primarily through provider agencies contracted by the Department of Health, CAMHD to provide mental health services. It may be possible that there is an organizational/cultural difference in the way in which providers from these two different state agencies manage and maintain provider knowledge of EBPs for youth. However, given the confounded nature of the service structure (i.e., DOE provides lower-end services and CAMHD provides higher-end services) for investigating this question, this potential hypothesis cannot be fully investigated at this time.

Similar to the findings on EBP knowledge, very few therapist background variables were related to attitudes towards EBPs. Consistent with previous studies, no relationship between therapists' attitudes and years of training, clinical experience (Brookman-Frazee et al. 2009; Nelson and Steele 2008; Stewart and Chambless 2007), or professional discipline (Aarons 2004; Brookman-Frazee et al. 2009; Jensen-Doss et al. 2009) were evidenced. Consistent with Nelson and Steele (2008) but inconsistent with Addis and Krasnow (2000), attitudes did not differ based on the primary clinical setting in which the therapist practices. Further, inconsistent with past research (Addis and Krasnow 2000; Nelson and Steel 2008; Stewart and Chambless 2007), participants' attitudes in the current study did not vary as a function of self-reported primary theoretical orientation. This may be due several factors such as the low self-report rate of primary theoretical orientation in the current study or therapists over-identifying themselves with a Behavioral or Cognitive-Behavioral Orientations. Additionally, contrary to Jensen-Doss et al. (2009), favorable attitudes towards EBPs did not inversely relate to formal education levels. In this study, Doctoral level practitioners were more open to EBPs than Masters level practitioners. This finding could be due to a number of different factors. It is possible that greater exposure to

EBPs during graduate training could result in more openness to newer or more protocol-driven type therapies. It may also be possible that individuals who hold a Doctoral degree have more exposure to research in general in graduate school and thus may be more open to new treatments developed by researchers. Additionally, however, findings from the current study suggest that the overall relationship between practitioners' openness to EBPs and formal education may not be entirely linear in nature. That is, although Doctoral level therapists were more open to EBPs than those of the Masters level, practitioners with Associates or Bachelor's degrees did not significantly differ from either of these groups. Therefore, a dosage of graduate training in and of itself does not seem to be responsible for practitioners' openness to EBPs, and factors such as the type of training may also play an important role in shaping one's openness to EBPs (Stewart and Chambless 2007).

Related to the finding that Doctoral level practitioners reported more openness to EBPs than Masters level practitioners in the current study, licensed practitioners also evidenced significantly better overall attitudes towards EBPs on the MPAS than unlicensed practitioners. It is an interesting observation that licensed practitioners did not indicate significantly higher openness towards EBPs (on the EBPAS) than non-licensed practitioners, suggesting some differential performance of the attitude instruments in the current study. Given that the MPAS (Borntrager et al. 2009) was designed to specifically avoid mention of manualized treatments (versus the EBPAS which does mention manualized treatments), some differential findings on these measures are to be expected. It is possible that since the MPAS de-emphasizes manuals and the EBPAS Openness scale specifically asks about willingness to try new therapies using a treatment manual, licensed clinicians may hold favorable attitudes towards therapies with empirical evidence but may not be more likely than unlicensed clinicians to use a treatment manual. Before clear recommendations about how these findings can help to close the research-practice gap, additional research is needed to determine if these findings are consistent across samples and identify the specific reasons for these differences.

In addition to examining practitioner variables' relationships with knowledge and attitudes, this study was the first to date to examine the relationship between knowledge of EBPs and attitudes towards EBPs for youth. In this sample, contrary to our original hypothesis, overall EBP knowledge accuracy (i.e., correctly being able to identify an EBP as an EBP and a non-EBP as a non-EBP) did not significantly relate to attitudes towards EBPs. Interestingly, however, therapists' overall number of omission errors for EBP identification did evidence strong relationships with various EBP attitude indices. Specifically, errors of

omission (i.e., an excessively restrictive view of the evidence base) were associated with lower EBP attitude appeal and total scores. Additionally, such errors were associated with an increased attitude that EBPs are not clinically useful. These findings collectively lend some support to Rogers' (2003) innovation diffusion K–A–P chain with regard to EBP knowledge and attitudes; although overall EBP knowledge did not relate to EBP attitudes, a lack of knowledge in the form of EBP under-identification related to negative attitudes. The authors speculate at least two major reasons for such under-identification problems. First, as pointed out by Higa and Chorpita (2007), some efforts for identifying EBPs have traditionally placed an excessively narrow view on defining such practices, qualifying treatments as a best practice only at the level of a brand name manual. Encouragingly, and as mentioned above, several researchers have begun moving away from this approach towards one that emphasizes technique commonalities across manualized EBP protocols (e.g., Brookman-Frazee et al. 2009; Chorpita and Daleiden 2009; Garland et al. 2008). Noteworthy of repeated mention here, the knowledge measure in the current study embraced this latter approach for conceptualizing EBPs and EBP knowledge, and this study is now the third addition to the published literature for assessing EBP knowledge within such a framework (cf. Stumpf et al. 2009; Weist et al. 2009). A second potential reason for the under-identification problem mentioned above strongly relates to the first problem above. Namely, the field of mental health has not yet come to a consensus for defining the EBP construct, a very core and seemingly essential process for dissemination and implementation efforts. Lacking a consensual definition, it is not entirely surprising that misinformation effects about this construct permeate everyday practice settings.

Although the results of the present study are promising with respect to continued exploration of the relationship between practitioners' background variables and knowledge of and attitude towards EBPs as well as the relationship between such knowledge and attitudes, a few caveats are in order. First, in order to maximize the size of the present sample, analyses were done utilizing a pairwise rather than a listwise deletion strategy. Utilizing a listwise strategy would have brought the sample size down from 240 to 188 for a final overall participation rate of 47.4%. A larger initial sample would have conceivably allowed for not only more stringent deletion strategies, but also perhaps a more representative sample of practitioners and more powerful statistical analyses. Sample representativeness is a limitation for the current study. It should again be noted that data were collected at voluntary trainings that focused on internalizing and externalizing childhood concerns. As such, perhaps only therapists enthusiastic about EBPs in these childhood problem areas attended these workshops.

Given these concerns with both the questionnaire participation rate and the self-selection process for attending such workshops in the first place, caution is warranted when thinking about the generalizability of this study's findings. Concerning sample size, a larger sample size would have allowed for more penetrating analyses such as factorial ANOVAs or bivariate knowledge–attitude correlations for subsets of participants in order to investigate the possibility of potentially meaningful interaction effects. As an example, it is an interesting observation that Doctoral level practitioners were more open to EBPs than Masters level practitioners and more knowledgeable about EBPs than Associate or Bachelor level practitioners. Demonstrating both high levels of knowledge and attitudes then, perhaps a meaningful positive relationship actually does exist between overall EBP knowledge and attitudes, but only for Doctoral level practitioners. Analyses for this question were underpowered in the current study, as only 21 Doctoral level participants filled out a KEBSQ questionnaire. Given the highly diverse nature of practitioners' backgrounds and their respective agencies' organizational climates and structures (across numerous variables) in the public sector, it will be important for future studies on EBP knowledge and attitudes to collect data from even larger and more heterogeneous samples.

Other study limitations relate to instrumentation and study design issues. Concerning instrumentation, although the knowledge measure in the current study drilled down to discrete techniques for specific types of problems (e.g., is the technique of exposure evidence-based for anxiety problems?), EBP attitude measures were more broad and general (e.g., I like to use new types of therapy/interventions to help my clients). In theory, an optimal measurement scheme would have been specific for both knowledge and attitude constructs (e.g., I like to use exposure for anxiety problems). However, given the density and length of the KEBSQ questionnaire, such a strategy was not feasible. Also, related to instrumentation, measurement of knowledge might have also been examined in a more advanced way. For example, rather than assessing for knowledge at the general awareness level (e.g., does exposure work for anxiety?), knowledge might have been assessed at the specific how-to or implementation level (e.g., what are the specific steps and procedures for successfully doing exposure for childhood anxiety?). Although potentially fruitful, such a line of inquiry seems advanced at this stage of the research base and perhaps should follow only after more foundational general awareness knowledge studies have been completed. For example, one could cogently argue that general awareness knowledge is a precursor or necessary condition for the more advanced how-to or implementation knowledge for any type of treatment technique. One last instrumentation issue relates

to notion that additional potential moderator data were not collected and examined in the current investigation. For example, contextual and organizational variables have been found to influence practitioners' attitudes towards EBPs (Aarons and Sawitzky 2006), and the current study did not assess for such variables. Finally, another area of improvement relates to the cross-sectional nature of this investigation. As with all other cross-sectional studies, causal and longitudinal inferences cannot be made when such a design is employed and inquiry into how knowledge and attitudes change or do not change over time may be especially beneficial for dissemination research.

Research following this study could build upon this investigation's limitations noted above for furthering research into the relationships between practitioner background variables and attitudes towards and knowledge of EBPs. As briefly mentioned above, forthcoming investigations may consider increased specificity for measurement strategies that attend to instrumentation issues for both attitudes towards and knowledge of EBPs, while also concurrently assessing for contextual and organizational variables. Investigators should also aim for more representative samples, and rather than working with participants of convenience that self-select to EBP training workshops, researchers should actively pursue those types of participants that would not attend EBP workshops in the first place. Such samples would be sufficiently large in size to allow for examination of potential knowledge and attitude moderator effects related to therapist background and agency variables. Additionally, given the cross-sectional design issues mentioned above, repeated assessment strategies for examining potential knowledge and attitude changes over time are recommended. In the mean time, findings from the current study suggest several implications for clinical practice. Supervisors of youth practitioners may stand to gain from increasing their providers' knowledge of EBPs in the form of correcting under-identification tendencies as such misperceptions are linked to negative attitudes towards such practices. Related to this recommendation, given that Masters and Doctoral level practitioners demonstrated higher overall EBP knowledge than practitioners with Associates and/or Bachelor's degrees, targeted educational efforts for those with Associates and/or Bachelor's degrees may be especially warranted. Also, since ongoing training and supervision take away from direct service delivery time, administrators and leadership should be explicitly supportive of and patient with such opportunities for their staff, knowing that such learning processes need time and repeated exposure for making meaningful changes (Beidas and Kendall 2010). Additionally, at the administrative level, it is recommended that agency leadership provide clarity and guidelines as to what exactly constitutes as an EBP, at least within their

organizational unit. Problems with under-identification of and misperceptions about EBPs most likely at least partially arise because of a current lack of standardization for defining such an important construct. Concurrently, the entire mental health field may stand to benefit if scientists, researchers, and other stakeholder groups collaboratively move towards greater standardization for defining youth EBPs.

Despite these limitations and indications for future research, the present study is the first systematic investigation of the relationships between youth EBP knowledge and attitudes with community therapist background variables, as well as the relationship between knowledge and attitudes. Findings suggest that both knowledge and attitudes relate systematically to only a small number of therapist background variables, such as a practitioner's most advanced degree, primary practice setting, and licensure status. Results from the present investigation also lend some support to the idea that the K–A–P innovation diffusion chain (Rogers 2003) may apply to youth EBP dissemination efforts such that a lack of knowledge in the form of EBP under-identification was found to relate to negative attitudes. Given the complexity and importance of youth EBP dissemination and implementation efforts, advancing systematic inquiry into variables such as knowledge and attitudes continue to be worthwhile and may ultimately contribute with other efforts for bridging the science-practice gap.

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