

A PSYCHOMETRIC EVALUATION OF THE INTENTION SCALE FOR PROVIDERS –
DIRECT ITEMS

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Abstract

Research on the dissemination and implementation of evidence-based practices (EBP) suggests that there are numerous factors that influence EBP utilization in community mental health settings. This study examined the psychometric properties of the Intention Scale for Providers-Direct Items (ISP-D; 16 items), a questionnaire designed to assess therapists' attitudes, subjective norms, perceived behavioral control, and behavioral intentions towards using EBPs. Participants were youth community mental health providers from the State of Hawaii's Departments of Education ($n = 130$) and Health ($n = 81$). A confirmatory factor analysis was conducted with the total sample to evaluate the factor structure of the ISP-D, which provided support for a revised 14-item ISP-D (Model 3) measure that met benchmarks for adequate to good model fit (i.e., $\chi^2(69) = 117$, RMSEA = .057, SRMR = .068, CFI = .944, TLI = .926). Additional analyses were conducted to examine the ISP-D's reliability and convergent validity. All subscales of the revised ISP-D (Model 3) demonstrated acceptable to good internal consistency, with the exception of the perceived behavioral control scale ($\alpha = .63$; questionable). The majority of convergent validity correlation patterns between the ISP-D and related constructs were statistically significant and in predicted directions. Implications and suggestions for future research are discussed.

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List of Abbreviations

ANOVA	Analysis of Variance
APA	American Psychological Association
ATT	Attitudes
BI	Behavioral Intentions
CAMHD	Child and Adolescent Mental Health Division
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CFIR	Consolidated Framework for Implementation Research
DI	Dissemination and Implementation
DIS	Dissemination and Implementation Science
DOE	Department of Education
DOH	Department of Health
DSM-IV	Diagnostic Statistical Manual, Fourth Edition
EBP	Evidence-Based Practice
EBPAS	Evidence-Based Practice Attitudes Scale
EBP TPB	Evidence-Based Practice Theory of Planned Behavior
EBS	Evidence-Based Services
ISP	Intention Scale for Providers
ISP-D	Intention Scale for Providers – Direct Items
ISP-D14	Intention Scale for Providers – Direct Items (14 Items)
PBC	Perceived Behavioral Control
RMSEA	Root Mean Square Error of Approximation

SBBH	School Based Behavioral Health
SN	Subjective Norms
SPSS	Statistical Package for the Social Sciences
SRMR	Standardized Root Mean Residual
TBIS	Therapist Behavior Intention Survey
TLI	Tucker-Lewis Index
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action

A Psychometric Evaluation of the Intention Scale for Providers – Direct Items

Major progress has been made over the past few decades in identifying evidence-based psychosocial interventions for youth mental health populations (American Academy of Pediatrics, 2011; Chorpita, Daleiden, & Weisz, 2005; Lonigan, Elbert, & Johnson, 1998; National Institute of Mental Health, 2010; Silverman & Hinshaw, 2008; Society of Clinical Child and Adolescent Psychology & Association for Behavioral and Cognitive Therapies, 2010; Weisz, Hawley, & Doss, 2004). Youth efforts of this type first formally emerged in 1998 when the Empirically Supported Psychosocial Interventions for Children Task Force recognized empirically supported treatments for children and adolescents (Lonigan et al., 1998). Since that time, efforts for summarizing youth mental health evidence-base treatment approaches have continued to routinely manifest in hopes of helping to guide large-scale quality improvement initiatives (e.g., Chorpita, Bernstein, & Daleiden, 2011; Chorpita & Daleiden, 2005; Chorpita, Daleiden & Weisz, 2009; Weisz, Hawley, & Doss, 2004).

The American Psychological Association (APA) has defined Evidence-Based Practice (EBP) as “the integration of best available research with clinical expertise in the context of patient characteristics, culture and preferences” (APA Task Force, 2006, p. 273). Accordingly, the term EBP has been used to describe clinical practice strategies that integrate empirical evidence, therapist expertise, and client characteristics. Although there has been progress in testing and subsequently identifying EBPs, these interventions tend not to be widely implemented in everyday clinical youth or adult practice settings (Kazdin & Blase, 2011; Reimer, Rosof-Williams, & Bickman, 2005; Stewart & Chambless, 2007), and many stakeholders have thus turned their focus towards EBP dissemination and implementation efforts

(Becker, Nakamura, Young, & Chorpita, 2009; Chorpita & Regan, 2009; Southam-Gerow, Rodríguez, Chorpita, & Daleiden, 2012).

Dissemination and Implementation Science

The goal of disseminating and implementing innovations is not unique to mental health, and Tabak and colleagues (2012) have illustrated the multidisciplinary nature of dissemination and implementation science (DIS) in their collation of 61 dissemination and implementation (DI) theories across multiple fields. One example of a potentially relevant DIS model is Rogers' (2003) innovation-decision process, which posits five necessary stages for the successful adoption a novel practice: (a) knowledge – learning about the practice, (b) persuasion – forming an attitude about the practice, (c) decision – deciding to adopt or reject the practice, (d) implementation – applying the practice, and (e) confirmation- finalizing the decision to use or not use the practice through an accumulation of positive or negative outcomes.

As an effort to consolidate numerous DIS theories across a wide variety of fields, Damschroder and colleagues (2009) proposed the Consolidated Framework for Implementation Research (CFIR), which is a thematic compilation of DIS constructs from over 500 published sources. The CFIR focuses on five major domains: (a) intervention characteristics (e.g., adaptability, cost), (b) outer setting (e.g., external policy and incentives), (c) inner setting (e.g., structural characteristics, culture), (d) characteristics of individuals (i.e., knowledge and beliefs about the intervention, self-efficacy, individual stage of change, individual identification with organization, and other personal attributes), and (e) process (e.g., planning, engaging), along with 39 additional smaller constructs nested within these five larger domains. Several EBP-related DIS studies have already examined and have found preliminary support for a number of the CFIR domains and their associated constructs (Amodeo et al., 2011, Nelson & Steele, 2008;

Shafran et al. 2009). Significant progress has been made within the (d) characteristics of individuals' domain, where measures examining therapists' attitudes and knowledge about EBPs have been created (Aarons, 2004; Borntrager, Chorpita, Higa-McMillan, Weisz, & the Network on Youth Mental Health, 2009; Stumpf, Higa-McMillan, & Chorpita, 2009) and administered in community mental health setting research (Izmirian & Nakamura, 2016; Okamura, Nakamura, Mueller, Hayashi, & McMillan, 2016). Such progress has helped with continued exploration of EBP barriers and facilitators in public mental health dissemination and implementation efforts.

Dissemination and Implementation Barriers.

Research suggests that there are a number of multi-level barriers to EBP dissemination and implementation in community settings. At the individual level, therapists have stated challenges related to attitudes (e.g., protocols are too rigid, ineffective, not generalizable to their client population) and knowledge (e.g., lack of adequate training in EBPs) as reasons for not adopting EBPs (Shafran et al., 2009; Walrath, Sheehan, Holden, Hernandez, & Blau, 2006). Organizational level barriers include a lack of institutional support (e.g., lack of supervision for EBPs, limited resources for EBPs), insufficient time and funding for trainings, and misaligned reimbursement priorities, all of which can affect therapists' ability to utilize EBPs with their clients (Fixsen, Naoom, Blasé, Friedman, & Wallace, 2005; Hoagwood & Olin, 2002; Southam-Gerow et al., 2012; Walrath et al., 2006).

Another issue complicating EBP DIS is the lack of standardized assessment tools for measuring constructs central to this type of work. Although great strides continue to be made in this area (Lewis, Weiner, Stanick, & Fischer, 2015), the continued proliferation of dissemination and implementation efforts has generally outpaced the careful and scientific instrumentation work in this area. In general, researchers in the field have traditionally relied on creating their

own idiographic, study-specific questionnaires or measures (Beidas & Kendall, 2010; Jensen-Doss & Hawley, 2011; Lewis, Fischer, et al., 2015; Lewis, Stanick, et al., 2015; Nelson & Steele, 2007) to evaluate therapists' characteristics in relation to training and other provider-focused investigations. These study-specific measures are typically characterized by a small set of items that are used to assess constructs related to the adoption of an innovation, without subjecting the items to strict content and other types of validation processes (Martinez, Lewis & Weiner, 2014). Furthermore, Beidas and Kendall (2010) concluded that as a result of this type of idiographic measurement activities, diverse across-studies DIS measurement strategies have become another barrier for synthesizing research findings. As such, they have called for the construction of standardized, reliable, and valid measures to help DIS efforts move forward in more collective and coordinated ways.

Theory of Planned Behavior.

One model that may be particularly helpful in DIS measurement efforts for describing the adoption of novel practices is the Theory of Planned Behavior (TPB; Ajzen, 1991), which is an extension of the Theory of Reasoned Action (TRA; Ajzen & Fishbein, 1980). Although the TPB was initially developed and examined within the context of social psychology, it has become one of the most extensively studied behavior change theories in health-related activities (Albarracín, Johnson, Fishbein, & Muellerleile, 2001; Godin & Kok, 1996; Limbert & Lamb, 2002). Ajzen's TPB model (1991) describes three determinants of behavioral intentions: (a) *attitude* – an individual's overall evaluation or appraisal of the outcomes associated with the behavior in question; (b) *subjective norms* – an individual's evaluation of the social pressure to perform or not perform the behavior in question; and (c) *perceived behavioral control* – an individual's perception of his or her capability and opportunity to perform the behavior in question. The TPB

suggests that an individual's intention to perform a behavior serves as the most immediate determinant of behavior and that, *behavioral intentions*, therefore, may serve as a proximal measure of behavior because it involves motivational factors that influence behavior. The TPB also indicates that attitudes, subjective norms, and perceived behavioral control are affected by their corresponding beliefs and outcome evaluations of the behavior. According to Fishbein and Ajzen's (1975) Expectancy-value Model, an individual's attitudes about a specific behavior are influenced by their belief in the outcomes of that behavior, in addition to the significance or value that is placed on the outcomes of a certain behavior. An individual's subjective norms are also affected by their beliefs about the opinions of other significant members in their social group, as well as their motivation to correspond to anticipated social norms. Perceived behavioral control is similarly influenced by beliefs related to factors that impede or promote engagement in the behavior, along with the perceived effect of these factors on an individual's ability to perform the behavior (Armitage & Conner, 2001).

The TPB further suggests that individuals who have a more positive attitude towards a given behavior feel more social pressure to perform the behavior, are more confident in their ability to execute the behavior, and are more likely to have intentions of engaging in the behavior (Armitage & Conner, 2001). In 2011, Ajzen estimated that the TPB had been utilized in more than 1,200 empirical studies relating to behavioral predictions, and the overall work in this area supports the validity of behavioral intentions for predicting actual behaviors (e.g., Godin & Kok, 1996; Albarracin, Johnson, Fishbein, & Muellerleile, 2001; Hausenblaus, Carron, & Mack, 1997). For example, Armitage and Conner's (2001) meta-analytic review of 185 TPB studies found that the correlation between intention and behavior was .47 and that approximately 27% of the variance in behavior was predicted by behavioral intentions. Furthermore, Randall and

Wolff's (1994) and Sheeran and Orbell's (1998) meta-analyses of the TPB reported similar correlations between behavioral intention and behavior at .45 and .44, respectively. Meta-analyses of the empirical literature have shown that behavioral intentions can be predicted using measures of attitudes toward the behavior (correlations ranging from .45 to .60), subjective norms (correlations between .34 to .42), and perceived behavioral control (correlations ranging from .35 to .46; Ajzen & Cote, 2008).

Whilst a majority of the existing TPB studies explore patient physical health-related behaviors, such as condom use (Albarracin et al., 2001), exercise habits (Courneya, 1995) and smoking (Godin, Valois, Lepage, & Desharnais, 1992), there are only a few studies that explore the application of TPB with mental health therapists' behaviors (Casper, 2007; Kelly, Deane, & Lovett, 2012; Klaybor, 1998; Meissen, Mason & Gleason, 1991). For instance, Klaybor's (1998) study of 249 social workers' intention to use the Diagnostic Statistical Manual, Fourth Edition (DSM-IV) for assessment and treatment purposes found that attitudes, subjective norms, and perceived behavioral control were significant predictors of behavioral intentions. These results also indicated that social workers' self-reported behavioral intention to use the DSM-IV with their clients accounted for 91% of the variance in their observed behavior. Likewise, Meissen and colleagues' (1991) study of 168 clinical psychology and social work graduate students suggested that attitudes toward self-help groups was a significant predictor of their intention to refer clients to self-help groups. Similarly, Casper's (2007) study showed that mental health clinicians enrolled in a continuing education class guided by the principles of the TPB had stronger behavioral intentions for implementing a self-report assessment tool in their practice in comparison to the clinicians who were enrolled in a standard continuing education class. A review by Kelly and colleagues (2012) also demonstrated that the principles of the TPB was used

to predict substance abuse workers' intentions to use EBPs and that 41% of the variance in their behavioral intentions was accounted for by their attitudes, subjective norms, and perceived behavioral control. The results of these studies, along with the extensive TPB evidence-base across various domains, suggests that further research applying the TPB to youth mental health providers may be a potential next step for DIS instrumentation and research efforts.

Measurement.

Research investigating mental health therapists' behavioral intentions of EBP use within the context of the TPB is limited, but measurement development efforts in this specific and related areas have emerged. For example, an existing TPB questionnaire that has been utilized in the area of substance use prevention is the Evidence-Based Practice Theory of Planned Behavior Survey (EBP TPB Survey; Kelly et al., 2012). The EBP TPB Survey is a 15-item self-report measure that was created and uniquely used in a study to examine substance abuse workers' EBP intentions. This instrument utilizes a seven-point bipolar adjective-scale to assess therapists' intentions, attitudes, subjective norms, and perceived behavioral control for using EBPs in their treatment practice with adult substance abuse clients. Although Kelly and colleagues' (2012) study found evidence for the internal consistencies of the EBP TPB Survey scales, other aspects of reliability, validity, and model fit of this measure have not yet been investigated. Likewise, the content validity of the EBP TPB Survey is questionable as it has not gone through the rigors of a multiphase content validation process.

Within the domain of attitudes, there is the Evidence-Based Practice Attitude Scale (EBPAS; Aarons, 2004), which is a measure of therapists' attitudes towards EBPs. The EBPAS is a 15-item Likert scale measure that examines (a) Appeal – appeal of EBPs; (b) Requirements – the extent to which a therapist would adopt an EBP if required by their agency, supervisor, or

state; (c) Openness – the therapists’ openness to try EBPs; and (d) Divergence – unfavorable attitudes toward EBPs. In 2010, Aarons and colleagues built upon Aarons’ (2004) initial psychometric study and published on the psychometric properties and national norms of an expanded version of the original (2004) EBPAS, which increased its potential utility as a standardized measure of a seemingly central DIS-related construct. Although the EBPAS is the most well-tested and psychometrically-supported therapist attitudinal measure in our field, it did not undergo a comprehensive content validation procedure during its initial creation and with specific regard to the TPB, the EBPAS does not assess for perceived behavioral control, subjective norms, or behavioral intentions for using EBPs.

An instrumentation effort specifically designed to examine youth mental health therapists’ behavioral intentions towards implementing EBPs has begun recently with the development of the Intention Scale for Providers (ISP; Burgess, Chang, Nakamura, Izmirian, & Okamura, 2017). The ISP is a self-report measure that assesses therapists’ views of EBP implementation through their self-report of attitudes, subjective norms, perceived behavioral control, and behavioral intentions. Burgess and colleagues (2017) developed the ISP through a comprehensive content validation procedure, which involved four key phases: (a) defining the constructs of interest, (b) utilizing informant interviews to generate the item content, (c) modifying the items based on input from an expert panel, and (d) evaluating each of the items based on quantitative and qualitative reviews by an expert panel (e.g., university-based researchers), key stakeholders, and the target population (e.g., youth community mental health therapists). Haynes and colleagues (1995) cogently argue that content validation is an extension of construct validity by which the elements of an instrument are evaluated in relation to the target constructs, population, and purpose. Content validation procedures are meant to increase the

likelihood that questionnaire items are relevant to their intended constructs, and not relevant to irrelevant constructs. Haynes and colleagues (1995) posit that comprehensive content validation approaches for generating and reviewing items are fundamental steps for establishing an instrument's content validity. Building upon the ISP's strengths of having undergone a multiphase content validation process, a psychometric evaluation of the ISP's factor structure, reliability, and validity seems to be the next logical step for studying this measure. A psychometrically reliable and valid TPB youth therapist-report measure on EBP utilization may be a valuable next step for DI instrumentation and research efforts. For example, such an instrument may be used to evaluate the effects of DI interventions that are intended to increase EBP implementation rates and if found useful, would ultimately allow for cross-study comparisons with the context of a robust theory of behavior.

Each of the TPB constructs of the ISP may be measured either directly—asking the participants plainly and candidly for their attitudes, subjective norms, perceived behavioral control, and behavioral intentions about the behavior, or indirectly—asking the participants about their corresponding beliefs and outcome evaluations of the behavior. The ISP consists of 16 direct measurement items, which includes five items for the attitudes scale, four items each for the perceived behavior control and behavioral intentions scales, and three items for the subjective norms scale, in addition to 54 indirect measurement items. An advantage of including indirect measurement items in a TPB measure is that indirect items are less likely to produce socially desirable responses if the respondents are unlikely to guess what the items are trying to measure (Francis et al., 2004). Including the belief-based indirect measurement items may also provide additional information about attitudinal considerations (e.g., why people hold certain attitudes, subjective norms, or perceptions of behavioral control) that guide individuals'

decisions to engage in or not engage in a specific behavior (Ajzen, 2002) and capture the underlying determinants (e.g., beliefs and outcome evaluations) of attitudes, subjective norms, and perceived behavioral control (Ajzen, 2014). These benefits notwithstanding, utilization of an abbreviated version of the TPB measure, which includes only the direct measurement items, also has its own merits. Most noteworthy is the amount of time for survey administration (i.e., 16 versus 54 items), especially within the context of scientific investigations where multiple surveys are typically administered together. Indeed, Ajzen (2014) suggests a brief version of a TPB measure with just the direct measurement items of the TPB is sufficient when the goal of the study is to predict intentions and behavior.

Present Investigation

The overarching purpose of the current study was to examine the psychometric properties of the Intention Scale for Providers-Direct Items (ISP-D), which is an abbreviated version of the ISP, limited to its 16 direct measurement items. Four aims were subsumed under the larger goal of examining the ISP-D's psychometric properties. First, a confirmatory factor analysis (CFA) was conducted in order to examine the item-to-factor relations of the ISP-D. It was hypothesized that the ISP-D would demonstrate a four-factor structure along the lines of the TPB domains of attitudes, subjective norms, perceived behavioral control, and behavioral intentions. Second, the reliability of the ISP-D was examined via internal consistency of the subscales. It was hypothesized that the four ISP-D subscales would demonstrate good internal consistency. Third, the ISP-D's construct validity was examined through convergence with related measures of attitudes, subjective norms, perceived behavioral control, and behavioral intentions. For this third aim, it was hypothesized that the ISP-D subscales would positively and significantly correlate with convergent indices of Attitudes, Subjective Norms, Perceived Behavioral Control,

and Behavioral Intentions. Fourth, the relationship between therapist demographic variables (e.g., theoretical orientation, age, and years of experience) and therapists' EBP attitudes, subjective norms, perceived behavioral control, and behavioral intentions were explored with regard to their relationships to the ISP-D's factors. Given the lack of existing research regarding the relationships between therapist background variables and TPB-related constructs for youth EBP implementation, the analyses for this portion of the study were exploratory in nature with no a priori hypotheses.

Method

Participants

The target population included public sector youth mental health therapists within the State of Hawaii. Therapists, across all levels of care, contracted with the Department of Health (DOH), Child and Adolescent Mental Health Division (CAMHD) and from the Department of Education's (DOE's) School Based Behavioral Health (SBBH) program were recruited for participation. CAMHD therapists provide mental health services to children and their families across a variety of settings including those that are home-, community-, and residential-based, while SBBH therapists mainly provide outpatient services to children in the school setting. These therapists were surveyed because they provide the majority of direct services to youth in the public mental health sector in Hawaii. Therapists who participated in the current study were asked to sign an informed consent form prior to participation (see Appendices A and B). No data related to therapists' patients (i.e., youth) were used in this study.

Concerning the CAMHD therapists, all ($K = 15$) direct-service provider agencies contracted with CAMHD were contacted to participate. Of those, 11 (73%) leaders of different mental health agencies across four Hawaiian Islands (i.e., Oahu, Maui, Kaua'i, and Big Island)

agreed to and participated in the current study. DOE participants were represented from all four districts in Oahu, Hawaii (i.e., Honolulu, Central, Windward, and Leeward) with participation across 19 out of the 22 (86%) complexes within these districts. Across these two major organizations, a total of 235 therapists (92 CAMHD and 143 DOE therapists) were approached to complete the survey battery. Response rates for CAMHD and DOE therapists were 88.0% and 90.9%, respectively, with a total response rate of 89.8% for all participants. A total of 211 therapists (81 CAMHD and 130 DOE therapists) completed one or more of the questionnaires from the survey battery. Participants ranged in age from 24 to 76 ($M = 39.6$, $SD = 10.1$), 75.4% were female ($n = 159$), and the primary ethnicities reported were: Asian ($n = 63$; 40.6%), White ($n = 54$; 34.8%), Multiethnic ($n = 56$; 26.5%), Hawaiian or Pacific Islander ($n = 20$; 12.9%), Black ($n = 8$; 5.2%), Latino or Hispanic ($n = 6$; 3.9%), and Other ($n = 3$; 1.9%). Participants reported an average of 5.3 years ($SD = 5.3$) of clinical training and an average of 8.5 years ($SD = 7.6$) of full time clinical experience since earning their terminal degree. Approximately 45.5% ($n = 85$) of participants reported holding a state license to practice. Participants' primary clinical work settings were 59.7% ($n = 126$) school, 19.9% ($n = 42$) in home, 8.5% ($n = 18$) hospital or residential, 4.3% ($n = 9$) therapeutic foster care, 2.4% ($n = 5$) outpatient clinic, and 1.4% ($n = 3$) other. Seven participants (3.3%) did not report a primary clinical setting.¹ Participants reported attending an average of 26.2 hours ($SD = 22.1$) of continuing education workshops, trainings, or conferences per year and reported having an average of 5.0 ($SD = 14.9$) conference presentations or peer reviewed publications to date. As indicated in Table 1, participants had varying levels of education, professional specialty, and theoretical orientation. On average, participants reported

¹ Note that if participants marked more than one primary clinical setting, it was indicated that they did not report a primary clinical setting.

having an active caseload of 11.6 ($SD = 8.1$) clients and received approximately 3.2 hours ($SD = 3.8$) and 2.3 hours ($SD = 1.6$) of group and individual supervision per month, respectively.

Measures

Evidence-Based Practice Attitude Scale (EBPAS; Aarons, 2004), see Appendix C).

The EBPAS is a 15-item therapist-report measure of attitudes towards EBPs that utilizes a five-point scale to measure the amount with which participants agree with a statement, ranging from 0 (“not at all”) to 4 (“to a very great extent”). The average score for each subscale ranges from 0 to 4, with higher scores demonstrating more favorable attitudes toward EBPs. The EBPAS has four subscales: (a) Appeal – appeal of EBPs; (b) Requirements – the extent to which a therapist would adopt an EBP if required by their agency, supervisor, or state; (c) Openness – the therapists’ openness to try EBPs; and (d) Divergence – unfavorable attitudes toward EBPs (scored in reverse before used to compute the Total Score). Aarons’ (2004) initial psychometric study of 322 therapists found evidence for the measure’s factor structure and internal consistency of the scales, with Cronbach’s alphas of .59 for the Divergence subscale, .78 for the Openness subscale, .80 for the Appeal subscale, .90 for the Requirements subscale, and .77 for the Total score. In 2012, the EBPAS was updated to incorporate eight additional domains of attitudes toward EBPs, including (e) Limitations; (f) Fit; (g) Monitoring; (h) Competence; (i) Burden; (j) Job Security; (k) Organizational Support; and (l) Feedback (Aarons, Cafri, Lugo, & Sawitzky, 2012). For the current study, the original EBPAS was used over the updated EBPAS-50 due to administration time concerns with the entire survey battery. In the current study, EBPAS mean and standard deviation indices (see Table 2) were slightly higher (lower for the Divergence scale) than those reported by Aarons (2004): Appeal ($M = 3.20$, $SD = 0.63$), Requirements ($M = 3.01$, $SD = 0.88$), Openness ($M = 2.86$, $SD = 0.73$), Divergence ($M = 1.28$, $SD = 0.75$), and Total

($M = 2.94$, $SD = 0.46$). The coefficient alphas for the EBPAS subscales in the current study ranged from questionable to excellent, with Cronbach's alphas of .66 for the Divergence subscale, .78 for both the Appeal and Total subscales, .80 for the Openness subscale, and .92 for the Requirements subscale (see Table 3). These Cronbach alpha coefficient values were similar to those reported in Aarons' (2004) original study.

Evidence-Based Practice Theory of Planned Behavior Survey (EBP TPB Survey; Kelly et al., 2012, see Appendix D). The EBP TPB Survey is a 15-item questionnaire created to examine the predictors of EBP intentions by substance abuse therapists. This measure utilizes a seven-point Likert-scale to measure the amount with which participants agree with a statement, ranging from 0 ("strongly disagree") to 7 ("strongly agree") and a seven-point bipolar adjective-scale (e.g., Extremely Difficult...Extremely Easy) that assesses therapists' intentions, attitudes, subjective norms, and perceived behavioral control for using EBPs in their treatment practice with adult clients for substance abuse. Even though this measure was developed within the context of substance abuse therapists, its original wording was retained given that there was no reference specifically to substance abuse problems. The EBP TPB Survey has four subscales: (a) Attitude toward the behavior – attitude towards the use of EBPs; (b) Subjective norms – the extent to which therapists identify subjective pressure to employ EBPs into treatment practice; (c) Perceived behavioral control – therapists' perceived capability of employing EBPs; and (d) Intentions – therapists' intentions to employ EBPs into their current work practices. Kelly and colleagues (2012) used Miller, Sorensen, Selzer, and Brigham's (2006) definition of EBPs in their study which was defined as "an approach which integrates the most appropriate clinical information and scientific evidence, with a view to improving psychological interventions and therapeutic relationships, and producing the best treatment outcomes for clients." Kelly and

colleagues' (2012) investigation of substance abuse workers' EBP intentions found evidence for the EBP TPB Survey's scale internal consistencies, with Cronbach's alphas of .73 for the Perceived Behavior Control subscale, .79 for the Subjective Norms subscale, .87 for the Attitude subscale, and .90 for the Intentions subscale. Other aspects of reliability and validity of this measure have not yet been investigated. In the current study, the Cronbach alphas (see Table 3) for the Intentions, Subjective Norms, Attitudes, and Perceived Behavioral Control subscales were .93, .78, .76, and .40, respectively, which are similar to the values that Kelly et al. (2012) obtained, with the exception of the Perceived Behavioral Control subscale, which fell in the unacceptable range. EBP TPB Survey means and standard deviation indices (see Table 2) for the current sample were slightly higher than those reported by Kelly et al. (2012): Attitudes ($M = 5.35$, $SD = 1.03$), Subjective Norms ($M = 5.92$, $SD = 0.91$), Perceived Behavioral Control ($M = 5.53$, $SD = 0.80$), and Intentions ($M = 6.24$, $SD = 0.78$).

Intention Scale for Providers – Direct Items (ISP-D; Burgess et al., 2017 see Appendix E). The ISP-D is a 16-item measure designed to measure the TPB constructs of behavioral intentions (4 items), attitudes (5 items), subjective norms (3 items), and perceived behavioral control (4 items), as they relate to therapists' adoption of youth EBPs. The scoring scheme of the ISP-D varies by TPB-related factor, and ranges from seven- to ten-point Likert-scales (see Appendix E). The five items in the Attitudes scale are scored on a seven-point semantic differential scale with distinct adjectives. For example, "Using EBPs with my clients feels: (*challenging-easy*).” The remaining items of the ISP-D are scored on a seven-point Likert-scale indicating the extent to which the participant agrees or disagrees with a particular statement, from 0 (“strongly disagree”) to 7 (“strongly agree”). One of the behavioral intentions item is scored on a ten-point scale asking participants to indicate the number of clients (1-10)

with whom they intend on using EBPs with, out of the next ten clients that they see, whereas the other three behavioral intentions items are scored on a seven-point Likert-scale. Negative items are reverse scored and overall scores for each subscale are calculated through the mean of the item scores.

Therapist Background Questionnaire (TBQ, unpublished measure; see Appendix F).

The TBQ assesses basic demographic information (e.g., age, gender, ethnicity/race, ethnic identity), training and experience information (e.g., degrees earned, state license, professional specialty, theoretical orientation, years of clinical training, years of clinical experience), and work setting information (e.g., clinical setting, current caseload, hours of supervision per week). The TBQ and variations of it have been utilized in numerous research investigations centered on examining therapist-reported attributes and behaviors (e.g., Higa-McMillan et al, 2014; Izmirian & Nakamura, 2016; Lim, Nakamura, Higa-McMillan, Shimabukuro, & Slavin, 2012; Nakamura, Higa-McMillan, Okamura, & Shimabukuro, 2011).

Procedure

Participant recruitment focused on sampling as many CAMHD and DOE therapists as possible. Data collection took place through a joint effort with another graduate student in clinical psychology at the University of Hawai‘i at Mānoa, whose thesis project also involved administering questionnaires to CAMHD therapists. The principal investigators collectively administered a combined battery of the four measures discussed above (EBPAS, EBP TPB Survey, ISP-D, and TBQ) with the addition of the Therapist Behavior Intention Survey (TBIS; a measure developed and used uniquely with her study) to the CAMHD therapists. Unlike the five-component survey battery administered to CAMHD therapists, the standardized battery for DOE therapists did not include the TBIS. Participants were recruited through numerous outreach

methods including personal introductions as well as capitalizing on connections through the joint University of Hawai‘i and CAMHD Evidence-Based Services (EBS) committee, an interdisciplinary workgroup focused on State of Hawaii youth mental health quality improvement initiatives. Clinical leadership at the various CAMHD-contracted provider agencies were contacted to ask for their therapists’ participation. Likewise, supervisors for statewide SBBH therapists in the State of Hawaii DOE (i.e., District or Complex Psychologists) were contacted through email to inquire about implementing the best strategies for maximizing SBBH therapists’ study participation.

For CAMHD therapists, data was collected in-person for those based on Oahu and over the phone for neighbor island participants (i.e., Maui, Big Island, Kaua‘i), during a time that was convenient to each of the individual provider agencies’ staff and therapists (e.g., during group supervision). The consent forms and the standardized battery of questionnaires were distributed after introducing the study and the parameters of participation. For DOE therapists, coordination with the therapists’ clinical psychologist supervisors allowed for the administration of the questionnaires at a time and place that was convenient to their staff and therapists. The questionnaires for all participants were pre-organized into sealable envelopes, with either the ISP-D or the TBIS appearing first in each packet and the TBQ appearing last. For DOE therapists, the ISP-D always appeared first, followed by the EBPAS, EBP TPB Survey, and the TBQ. For CAMHD therapists, the TBIS always appeared first and the ISP-D second. The order of the EBPAS and the EBP TPB Survey were then randomized before the TBQ. Participant incentives included \$5 gift cards to Starbucks or Jamba Juice for DOE therapists and \$20 cash for CAMHD therapists, to account for the five-measure battery for CAMHD therapists. Survey administration and distribution began as soon as the therapists gave their consent to participate.

All surveys completed by DOE therapists and majority of the CAMHD therapists were collected on the date of administration. For select CAMHD therapists located on the neighboring islands, pre-stamped and addressed envelopes were provided for the therapists to mail their completed packets to the investigators. It was made clear to the participants that their participation was completely voluntary. All procedures and consent forms were approved by the University of Hawai‘i at Mānoa Committee on Human Studies and the DOE Data Governance and Analysis Branch prior to recruitment and data collection.

Data Analytic Strategy

Data preparation. All survey data were double entered into a database by two different research staff to decrease the potential for human data entry errors. Any mismatches across the two data entry research staff were examined and resolved by the principle investigator. Data integrity was examined before the completion of any analyses.

Data integrity. Missing data was handled in a way to balance data integrity while maximizing participant responses and the overall sample size. The minimum and maximum values (i.e., response range) for each item and subscale of each measure were calculated in order to observe any impossible values and to detect potential data entry errors. Distributional properties of the data (i.e., normality, standard deviations, skewness, kurtosis) were examined at all subscale levels of the ISP-D and EBP TPB Survey, as well as the EBPAS Total subscale in order to obtain a preliminary understanding of the data. The distribution of the data was tested using the Shapiro-Wilk’s W statistic, skewness, and kurtosis. The Shapiro-Wilk’s W statistic (Shapiro & Wilk, 1965) indicated non-normally distributed data if its p value was < 0.001 (Tabachnick & Fidell, 2007); the skewness and kurtosis were considered excellent if the statistic was between -1.0 and 1.0, and acceptable if the statistic was between -2.0 and 2.0 (George &

Mallery, 2013). Extreme values were also examined across all subscales of the ISP-D and EBP TPB Survey and the EBPAS Total subscale using the stem-and-leaf plot and box plot functions on the Statistical Package for the Social Sciences (SPSS) software. Participants' data for each subscale were included for analyses in a pairwise fashion and required 100% of the subscale items in order to be included in analyses. In addition to the strategies mentioned above, Cronbach's alpha coefficients were calculated in order to determine internal consistency values for all subscales within each measure in the current study.

Power. There is no clear consensus on the minimum sample size necessary to meet power requirements for running a CFA. However, sample size requirements are often estimated by counting the number of parameters included in the potential CFA model (Bollen & Liang, 1988; Breckler, 1990). When using just the direct measurement items, there are a total of 16 factor loadings, plus 6 factor correlations and 16 error terms, which yields a total of 38 parameters to estimate. Bentler & Chou (1987) recommend using five subjects per model parameter when running a CFA. This suggests that a minimum of 190 participants (38 parameters x 5) would be needed for the factor analysis.

A power analysis was conducted using G*Power (Faul, Erdfelder, Buchner, & Lang, 2009) using a one-way ANOVA for four groups (the maximum number of groups scheduled for planned comparisons). The results indicated that in order to detect a medium effect size ($\eta^2 = 0.06$; Green and Salkind, 2010) at the 95% confidence level ($\alpha = .05$), a total sample size of 175 therapists would be necessary. In summary, across the CFA and the planned ANOVAs, a total sample of 175-190 therapists would be required to run all of the proposed analyses.

Descriptive statistics. Therapists' demographic variables from the TBQ, including age, gender, ethnicity, level of training, and clinical experience were examined and reported to

describe sample characteristics. Additional descriptive statistics (e.g., minimum, maximum, mean, standard deviation, coefficient alphas) for all battery measures were also examined to obtain a preliminary and broad understanding of the data.

Aim 1, construct validity: confirmatory factor analysis to examine factor structure.

A CFA with Mplus 8 (Muthén & Muthén, 2017) was used to examine the item-to-factor relations of the ISP-D (see Figure 1) in order to confirm the hypothesis that the ISP-D would demonstrate a four-factor TPB structure (attitudes, subjective norms, perceived behavioral control, behavioral intentions). It was determined that a CFA would be appropriate for this aim as the factor structure of the ISP-D is explicitly hypothesized and may be tested for its fit with the observed covariance structure of its items (Floyd & Widaman, 1995). An exploratory factor analysis (EFA) would be more suitable for studies where the investigator has no firm a priori hypotheses or expectations about the composition of the subscales that are supported by theory or prior research (Floyd & Widaman, 1995). Maximum likelihood parameter estimates with robust standard errors were used because they yield standard errors that are robust to non-normal data. Factor loadings were examined to investigate the extent to which items adequately and significantly loaded on their respective factors. Items were considered to load adequately and significantly on their respective factors if their z-score was not between -1.96 to 1.96 as calculated by [Estimate / Standard Error] at the 95% confidence level ($\alpha = .05$). Items with poor factor loadings were removed from the model before rerunning the CFA. Model fit was evaluated via the Comparative Fit Index (CFI; Bentler, 1990), Root Mean Square Error of Approximation (RMSEA; Steiger, 1990), Standardized Root Mean Square Residual (SRMR) and Tucker-Lewis Index (TLI; Tucker & Lewis, 1973). CFI values greater than .90 (Dunn, Everitt, & Pickles, 1993) and greater than .95 (Hu & Bentler, 1999) represent “acceptable” and “good”

model fit, respectively. RMSEA values lower than .08 and lower than .05 were used as cutoffs for “adequate” and “good” fit, respectively (Browne & Cudeck, 1993). SRMR values less than .08 were used as a cutoff for “good” fit (Hu & Bentler, 1999). TLI values greater than .95 were used as a cutoff for “good” fit (Singh, 2009). The correlations between factors were also examined to ensure that the factors have acceptable discriminant validity. Modification indices were examined to consider potentially useful ways to revise the model and added to subsequent models for reanalysis. Given that the χ^2 test is sensitive to model complexity (e.g., χ^2 value decreases when parameters are added to the model) and dependent on sample size (e.g., increased risk of type I errors in smaller samples), Jöreskog and Sörbom (1993) advise against using the χ^2 test as a formal test statistic for evaluating model fit. Thus the χ^2 values are reported but not formally considered for evaluation within the context of model fit.

Aim 2, reliability. The Cronbach’s alpha coefficients were calculated for all ISP-D subscales in order to examine the internal consistencies for this instrument, which serves as an indication of the extent to which the items in the various scales are measuring the same construct. In general, Cronbach’s alpha coefficients of < .50, .50, .60, .70, .80, and .90 are considered unacceptable, poor, questionable, acceptable, good, and excellent, respectively (George & Mallery, 2013).

Aim 3, construct validity: bivariate correlations to examine convergent validity. To further examine the construct validity of the ISP-D, the strength of association between the ISP-D subscales and various therapist-based TPB measures were examined. Zero-order bivariate Pearson product correlations were computed between all subscales of the ISP-D and EBP TPB Survey, as well as the EBPAS Total subscale. Meta-analyses (Ajzen & Cote, 2008) indicate that behavioral intentions tends to be most highly correlated with attitudes, followed by perceived

behavioral control and subjective norms. It was hypothesized that the ISP-D Attitudes, Subjective Norms, and Perceived Behavioral Control subscale scores would all correlate positively with the ISP-D Behavioral Intentions subscale score. In addition to the three independent correlations between behavioral intentions, it was also hypothesized that the three determinant constructs would be positively correlated with each other (i.e., ISP-D Attitudes with ISP-D Subjective Norms, ISP-D Attitudes with ISP-D Perceived Behavioral Control, and ISP-D Subjective Norms with ISP-D Perceived Behavioral Control). Additionally, it was hypothesized that the ISP-D subscale scores would correlate positively and significantly with their counterpart constructs of attitudes, subjective norms, perceived behavioral control, and behavior intentions in the EBP TPB Survey. Regarding ISP-D and EBPAS Total scale correlations, it was hypothesized that the EBPAS Total scale would be positively correlated with all four subscales of the ISP-D, with the two correlations between the EBPAS Total scale and the ISP-D Attitudes and Behavioral Intentions subscales (i.e. EBPAS Total with ISP-D Attitudes and EBPAS Total with ISP-D Behavioral Intentions) being the strongest out of the four possible correlations. Additionally, exploratory correlational subscale analyses between the EBPAS and EBP TPB Survey were conducted to examine for expected patterns (i.e., EBPAS Total score correlated with EBP TPB Survey Attitude scale), potentially indicative of these measures performing in reliable and valid ways within the larger context of the overall study. The strengths of the bivariate correlations were evaluated using the conventions of .10, .30, and .50, which can be interpreted as small, medium and large coefficients, respectively (Green & Salkind, 2005). The correlations were examined and considered significant against alpha levels of .01 and .05 (i.e., $p < .01$ and $p < .05$, respectively).

Aim 4, other exploratory analyses. Finally, exploratory analyses were conducted to evaluate the relationship between the TPB constructs and various demographic variables. The relationship between the ISP-D scale scores and other continuous variables such as age and years of full-time clinical practice were assessed through zero-order bivariate correlations. The relationship between ISP-D scale scores and categorical variables such as highest degree earned and professional specialty were examined through analysis of variance (ANOVA) analyses, with subsequent follow-up pairwise comparisons completed as indicated. As mentioned above, the strengths of bivariate correlations were evaluated using the conventions of .10, .30, and .50, which can be interpreted as small, medium and large coefficients, respectively. The strengths of these initial ANOVAs were evaluated by η^2 for small, medium, and large effect sizes with Green and Salkind's (2010) respective guidelines of .01, .06, and .14. Analyses were performed against an alpha level of .01 (i.e., $p < .01$). When evaluating the pairwise mean differences for statistically significant ANOVAs with three or more groups, Tukey's HSD tests were used if equality of error variances could be assumed (i.e., $p > .05$ for Levene's test of equality of variance). Dunnett's C tests were used for post hoc comparisons when equal variances could not be assumed.

Results

Data Integrity

Scale level means, minimum values, maximum values, standard deviations, Shapiro-Wilk's W statistics, skewness, kurtosis, and statistical outliers for the revised ISP-D (after slight modification via CFA results below), EBP TPB Survey, and EBPAS are presented in Table 2. The Shapiro-Wilk's statistics suggested that all subscales were non-normally distributed ($p < .001$), with the exception of the EBPAS Total subscale ($p = .256$). Visual inspection of the

distributions suggests an overall pattern of negatively skewed data.

Related to the ISP-D, three, seven, and six statistical outliers were identified in the revised Attitudes (after slight modification via CFA results below), Subjective Norms, and Behavioral Intentions scales, respectively. Regarding the EBP TPB Survey, there was one statistical outlier in both the Attitudes and Subjective Norms scales, three statistical outliers in the Perceived Behavioral Control scale, and eight statistical outliers in the Behavioral Intentions scale. After performing logarithmic and square root transformations on all of the non-normally distributed subscales, both with and without the statistical outliers, it was determined that all of the subscales, with the exception of the EBP TPB Perceived Behavioral Control subscale, were still non-normally distributed. Analyses were run with and without the three statistical outliers in the EBP TPB Perceived Behavioral Control scale and the pattern of results was identical. Given that transformations remove original numerical values from the subscales and limit subsequent interpretability of the subscales, the decision was made to use the original values of these subscales. Using the original values allow for comparisons across other studies of therapists' attitudes, subjective norms, perceived behavioral control, and behavioral intentions.

Missing data levels across the ISP-D, EBP TPB Survey, and EBPAS measures were as follows: (a) 195 (92.4%) of the 211 included ISP-D measures had no missing items, 12 (5.7%) had only one missing item, and four (1.9%) had two missing ISP-D items; (b) 204 (96.6%) of the 211 included EBP TPB Survey measures had no missing items, five (2.4%) had only one missing item, and two (1%) had two to three missing items; (c) 210 (99.5%) of the 211 included EBPAS measures had no missing items and one (0.5%) had one missing item. Across all 211 ISP-D measures, eight participants' Subjective Norms scales, two participants' Perceived Behavioral Control scales, and ten participants' Behavioral Intentions scales were excluded from analyses

due to having one or more missing items on these subscales. Across all 211 EBP TPB Survey measures, two participants' Subjective Norms scales and seven participants' Perceived Behavioral Control scales were excluded from analyses due to having one or more missing items on these subscales. Across all 211 EBPAS measures, one participant's EBPAS Total scale was excluded from analyses due to having a missing item on the measure.

Aim 1, Construct Validity: Confirmatory Factor Analysis to Examine Factor Structure

As seen on Table 4, the fit for the original four-factor model (Model 1) of the ISP-D did not meet benchmark for adequate model fit on four out of four fit indices (i.e., $\chi^2(98) = 277.76$, RMSEA = .093, SRMR = .117, CFI = .812, TLI = .771). All of the factor loadings significantly loaded on their respective factors, with the exception of items two and nine, from the Attitudes and Perceived Behavioral Control scales, respectively (see Table 5).²

A four-factor model of the ISP-D, with the poor fitting items (i.e., two and nine) removed was also tested to see if this revised model (Model 2) provided a better model fit than the original model. Model 2 showed an improved fit over Model 1 (i.e., $\chi^2(71) = 169.37$, RMSEA = .081, SRMR = .075, CFI = .885, TLI = .852) but still did not meet benchmark for adequate model fit on three out of four fit indices (see Table 4). All factor loadings in Model 2 loaded significantly on their respective factors (see Table 6).

Building upon the revised model (Model 2) of the ISP-D, two separate modification indices (i.e., ISP-D item five with ISP-D item four and ISP-D item 15 with ISP-D item 13) were included in the model to examine whether these modification indices would lead to a better model fit. Modification indices suggested that the error terms between these items should

² Note that this model was also tested using categorical indicators, however due to the negative variance in the model, it was decided to specify the indicators as continuous.

correlate. As can be seen on Table 4, the fit of the final four-factor model (Model 3) of the ISP-D with two items removed and two modification indices met benchmark for adequate to good model fit on all four fit indices (i.e., $\chi^2(69) = 117.00$, RMSEA = .057, SRMR = .068, CFI = .944, TLI = .926). Likewise, all factor loadings also loaded significantly on their respective factors (see Table 7).

Aim 2, Reliability

Cronbach's alpha coefficients were calculated for the four subscales of the 14-item Revised ISP-D (Model 3), referred to as the ISP-D14 hereinafter. Scores from the ISP-D14 Attitudes subscale ($\alpha = .75$), Subjective Norms subscale ($\alpha = .72$), and Behavioral Intentions subscale ($\alpha = .80$) met benchmark for acceptable reliability ($\alpha \geq .70$). The Perceived Behavioral Control subscale fell in the questionable range for reliability ($\alpha = .63$). ISP-D14 means and standard deviation indices for the current sample were as follows; Behavioral Intentions ($M = 6.57$, $SD = 1.14$), Attitudes ($M = 5.25$, $SD = 0.99$), Subjective Norms ($M = 5.55$, $SD = 1.25$), and Perceived Behavioral Control ($M = 4.81$, $SD = 1.32$). Overall, these mean descriptive statistics suggest that the therapists in this sample had positive attitudes (e.g., positively value the behavior), high levels of subjective norms (e.g., have a great amount of perceived social pressure to perform the behavior), moderate levels of perceived behavioral control (e.g., hold a moderate perception of their ability to perform the behavior) and strong behavioral intentions (e.g., high readiness to perform the behavior) for implementing EBPs. See Table 2 for the means and standard deviation indices for the EBPAS total subscales and the EBP TPB Survey subscales and Table 3 for the alpha coefficients.

Aim 3, Construct Validity: Bivariate Correlations to Examine Convergent Validity

Regarding scale score correlations for factors within the ISP-D14, both the Attitudes and Subjective Norms subscales correlated significantly and positively with the Behavioral Intentions index at $r = .43$ ($p < .01$) and $r = .62$ ($p < .01$), respectively. Inconsistent with the TPB model, the relationship between the ISP-D14 Perceived Behavioral Control scale and the ISP-D14 Behavioral Intentions scale was not significant ($r = .02$, $p = .79$). Also inconsistent with the TPB model, the relationships between the ISP-D14 Attitudes scale and ISP-D14 Subjective Norms scale as well as the ISP-D14 Attitudes scale and ISP-D Perceived Behavioral Control scale were not significant at $r = .13$ ($p = .06$) and $r = .10$ ($p = .13$), respectively. Also contrary to the TPB model, an unexpected small and negative correlation was found between the ISP-D14 Subjective Norms scale and the ISP-D14 Perceived Behavioral Control scale at $r = .14$ ($p < .05$).

Convergent validity of the ISP-D14 was examined through zero-order bivariate Pearson product correlations with the EBP TPB Survey subscales and the EBPAS Total subscale. Convergent validity results appear in Table 3. As predicted, the correlations between the ISP-D14, EBP TPB Survey, and EBPAS scales for similar domains were positive, high, and significant. The convergent validity of the ISP-D14 Attitudes scale was supported by its large and positive correlation ($r = .55$, $p < .01$) with the EBP TPB Survey Attitudes scale and its medium positive correlation ($r = .38$, $p < .01$) with the EBPAS Total scale. Similarly, the EBPAS Total scale and the EBP TPB Survey Attitudes scale exhibited a medium and positive correlation ($r = .37$, $p < .01$), providing evidence of convergent validity for the three Attitudes scales. The ISP-D14 Subjective Norms scale showed a large and positive correlation ($r = .51$, $p < .01$) with the EBP TPB Survey Subjective Norms scale, which provides support for its convergence. The ISP-D14 Behavioral Intentions scale also demonstrated convergence through a large positive correlation ($r = .62$, $p < .01$) with the EBP TPB Survey Behavioral Intentions

scale. Convergence between the ISP-D14 Perceived Behavioral Control scale and the EBP TPB Survey Perceived Behavioral Control scale was also supported with a medium and positive correlation ($r = .35, p < .01$). Also as predicted, there was a small and positive correlation ($r = .19, p < .01$) between the EBPAS Total scale and the ISP-D14 Subjective Norms scale and a medium and positive correlation ($r = .44, p < .01$) between the EBPAS Total scale and the ISP-D14 Behavioral Intentions scale. However, contrary to predictions, the relationship between the EBPAS Total scale and the ISP-D14 Perceived Behavioral Control scale was not significant ($r = .01, p = .84$).

Aim 4, Other Exploratory Analyses

Attitudes. The zero-order bivariate correlations between the ISP-D14 Attitudes scale scores and age, years of training, years of full-time clinical experience, number of hours of supervision per month, typical number of active treatment cases, number of continuing education workshops, trainings or conferences attended each year, and number of conference presentations were statistically non-significant, suggesting no meaningful relationship between therapists' attitudes and these background variables (see Table 8). Additionally, all ANOVAs for highest degree, professional specialty, theoretical orientation, state licensure, and age of population worked with for treatment emerged non-significant. Attitude scores on the ISP-D14 varied as a function of the primary clinical setting in which therapists delivered treatment $F(2, 184) = 3.84, p = .02, \eta^2 = .04$ (see Table 9) however, Dunnett's C post hoc comparisons did not indicate any significant differences between home-based, school-based, and hospital/residential-based therapists.

Subjective norms. The zero-order bivariate correlations between the ISP-D14 Subjective Norms scale scores and age, years of training, years of full-time clinical experience,

number of hours of supervision per month, typical number of active treatment cases, and number of continuing education workshops, trainings or conferences attended each year were statistically non-significant, suggesting no meaningful relationship between therapists' subjective norms and these background variables (see Table 8). There was however, a small and negative correlation ($r = -.24, p < .01$) between the number of conference presentations and therapists' scores on the ISP-D14 Subjective Norms subscale, suggesting therapists with a greater number of conference presentations and peer-reviewed publications feel lower levels of subjective norms to use EBPs with their clients. Additionally, all ANOVAs for highest degree, professional specialty, theoretical orientation, state licensure, and age of population worked with for treatment emerged non-significant. ISP-D14 Subjective Norms scores varied as a function of the primary clinical setting in which the therapists delivered treatment services, $F(2,176) = 5.60, p = .004, \eta^2 = .06$ (see Table 9). Tukey's HSD post hoc comparisons indicated that home-based therapists' and hospital- or residential-based therapists' Subjective Norms scores were both significantly higher than those of school-based therapists, but not significantly different from each other, indicating that home-based and hospital- or residential-based therapists endorsed more favorable subjective norms towards using EBPs with their clients than school-based therapists.

Perceived behavioral control. The zero-order bivariate correlations between the ISP-D14 Perceived Behavioral Control scale scores and age, years of training, years of full-time clinical experience, number of hours of supervision per month, typical number of active treatment cases, number of continuing education workshops, trainings or conferences attended each year, and number of conference presentations were statistically non-significant, suggesting no meaningful relationship between therapists' perceived behavioral control and these background variables (see Table 8). Additionally, all ANOVAs for theoretical orientation, state

licensure, and age of population worked with for treatment emerged non-significant. Higher advanced degree was significantly associated with higher scores on the Perceived Behavioral Control subscale of the ISP-D14, $F(1,194) = 4.13, p = .043, \eta^2 = .02$ (see Table 10). Doctorate level therapists' perceived behavioral control scores were significantly higher than those of Masters level therapists. ISP-D14 perceived behavioral control scores also varied as a function of the primary clinical setting in which the therapists delivered treatment services, $F(2,184) = 3.70, p = .026, \eta^2 = .04$ (see Table 9). Tukey's HSD post hoc tests indicated that school-based therapists had significantly higher perceived behavioral control scores than home-based therapists. Scores on the ISP-D14 Perceived Behavioral Control scale also varied significantly by therapists' professional specialties, $F(3,187) = 4.04, p = .008, \eta^2 = .06$ (see Table 11). Tukey's HSD post hoc comparisons indicated that therapists who endorsed a professional specialty of Clinical Psychology, Psychiatry or School Psychology had significantly greater scores on perceived behavioral control than Marriage and Family Therapists.

Behavioral intentions. The zero-order bivariate correlations between the ISP-D14 Behavioral Intentions scale scores and age, years of training, number of hours of supervision per month, typical number of active treatment cases, number of continuing education workshops, trainings or conferences attended each year, and number of conference presentations were statistically non-significant, suggesting no meaningful relationship between therapists' behavioral intentions and these background variables (see Table 8). There was however, a small and negative correlation ($r = -.21, p < .01$) between years of full-time clinical experience and scores on the ISP-D Behavioral Intentions subscale. Additionally, all ANOVAs for highest degree, professional specialty, theoretical orientation, and age of population worked with for treatment emerged non-significant. ISP-D14 behavioral intentions scores varied as a function of

the primary clinical setting in which the therapists delivered treatment services, $F(2,176) = 13.24, p < .001, \eta^2 = .13$ (see Table 9). Dunnett's C post hoc tests indicated that home-based therapists' and hospital- or residential-based therapists' behavioral intentions scores were both significantly higher than those of school-based therapists, but not significantly different from each other. State licensure was significantly associated with higher scores on the Behavioral Intentions subscale of the ISP-D, $F(1, 198) = 12.77, p < .001, \eta^2 = .06$ (see Table 12). Therapists who were state licensed had higher behavioral intentions scores than therapists who were not state licensed.

Discussion

General Summary

This current study contributed to EBP DIS instrumentation efforts through the psychometric evaluation of the ISP-D in a large sample of youth public sector mental health therapists in the State of Hawaii. The study's first a priori hypothesis that the ISP-D would demonstrate a four-factor structure along the lines of the TPB domains of attitudes, subjective norms, perceived behavioral control, and behavioral intentions was supported through confirmatory factor analysis and scale refinement. Item two from the Attitudes subscale and item nine from the Perceived Behavioral Control subscale were removed due to their poor fit with the model (e.g., poor factor loadings with their respective factors), which provided support for the ISP-D14. It is possible that item two from the Attitudes scale demonstrated a poor fit with the rest of the items in the Attitudes scale because the bipolar adjectives from this item (i.e., Challenging and Easy) are different from the rest of the items in the Attitudes scale. For example, items one, three, four, and five are all evaluative questions about the use of EBPs in general, whereas item two is more personal or specific to the individual and appears to be more related to the individuals' perceived capability of employing EBPs. Similarly, item nine's poor

fit with the Perceived Behavioral Control scale may be an artifact of the wording. For example, items seven, 13, and 15 are all questions related to the individuals' choice or decision to use EBPs whereas item nine is concerned with the individuals' ability to employ EBPs.

Additional aims of this study were to further evaluate the psychometric properties of the ISP-D through examination of internal consistency as well as convergent validity. Regarding the reliability of the ISP-D14, the Attitudes, Subjective Norms, and Behavioral Intentions subscales met benchmark for acceptable reliability, whereas the Perceived Behavioral Control subscale fell in the questionable range for reliability. Given the questionable alpha coefficient of the ISP-D14 Perceived Behavioral Control scale, any results involving this scale should be interpreted with caution.

Related to the TPB model, meta-analyses (Ajzen & Cote, 2008) indicate that behavioral intentions tends to be most highly correlated with attitudes, followed by perceived behavioral control and subjective norms. Conversely, the results of the current study with respect to the TPB constructs as measured by the ISP-D14 suggest that the correlation between subjective norms and behavioral intentions was stronger than the correlation between attitudes and behavioral intentions. Although these results are inconsistent with the research literature, they are not surprising as Ajzen (1991) claims that the degree to which attitudes, subjective norms, and perceived behavioral control contribute to the prediction of behavioral intentions will differ depending on the specific behavior and situation. Similarly, Kelly and colleagues' (2012) TPB study on substance abuse workers' EBP intentions also found the correlation between behavioral intentions and subjective norms to be the strongest across all of the TPB constructs. Ajzen's (1991) statement that the relative strength or impact that attitudes, subjective norms, and perceived behavioral control each hold in the prediction of behavioral intentions will likely vary

across different behaviors or situations, may hold true for the ISP-D14. Although the literature has yet to develop around the area of youth mental health therapists' behavioral intentions of EBP use within the context of the TPB, related research in the area of general health care providers (e.g., physicians, nurses, pharmacists) align with the current findings such that the strength of the correlations between behavioral intentions and the remaining TPB constructs varied across studies and behaviors (Perkins et al., 2007). Another possible explanation for the differences found in the current study may be related to Armitage and Conner's (2001) findings from their meta-analysis study that TPB instruments with multiple-item measures of subjective norms (e.g., ISP-D14 Subjective Norms scale) have significantly stronger correlations with behavioral intentions than instruments with single-item subjective norms measures. In other words, the weaker correlations found between subjective norms and behavioral intentions in many of the previous TPB studies may be an artifact of a weaker measurement system.

Findings from the present study also indicated that the ISP-D14 was related to the counterpart subscales of the EBP TPB Survey and the EBPAS Total subscale, providing initial support for the convergent validity of the ISP-D14. Regarding positive attitudes towards EBPs – the Attitudes subscale of the ISP-D14 had a large positive correlation with the Attitudes subscale of the EBP TPB Survey and a medium positive correlation with the EBPAS Total subscale. The Subjective Norms and Perceived Behavioral Control subscales of the ISP-D14 demonstrated medium positive correlations with their respective counter subscales, (i.e., Subjective Norms and Perceived Behavioral Control respectively) of the EBP TPB Survey. Finally, the Behavioral Intentions subscale of the ISP-D showed a large positive correlation with the Behavioral Intentions subscale of the EBP TPB Survey.

The current study also found that therapists in home-based or hospital-based settings reported higher levels of behavioral intentions and stronger subjective norms for using EBPs than school-based therapists. One possible explanation for these differences may be related to the structure of Hawaii's public sector mental health service delivery system for children. In Hawaii, the majority of school-based mental health services are provided by the DOE's SBBH therapists whereas a majority of the in home, community, and out-of-home services are provided through agencies contracted by the DOH's CAMHD. It is possible that there are organizational and or cultural differences that may be responsible for these differences in therapists' reported levels of behavioral intentions and subjective norms.

Consistent with previous studies, no relationship between therapists' attitudes and years of full-time clinical experience (Nakamura et al., 2011; Nelson and Steel, 2008), professional specialty or theoretical orientation (Aarons, 2004) were found. Consistent with Izmirian and Nakamura (2016) but inconsistent with Nakamura and colleagues (2011), attitudes did not differ based on therapists' state licensure status. Interestingly, however, therapists who were state licensed in the current study endorsed greater behavioral intentions for using EBPs than non-licensed therapists. Doctorate level therapists' perceived behavioral control scores from the current study were significantly higher than those of Masters level therapists, suggesting that Doctorate level therapists hold a stronger perception of their ability to utilize EBPs with their clients than Masters level therapists. Altogether, these results may suggest that therapists who hold a Doctorate degree or are state licensed may have been exposed to more research or EBPs during higher level graduate training and therefore, feel more confident or comfortable with their use of EBPs.

Limitations

Although the results of the current study are promising with regard to initial psychometric support for the ISP-D14, a few caveats are in order. First the use of public sector therapists within the State of Hawaii might limit the generalizability of the results and findings may not apply to other systems of care or the private sector. Further, although there was an exceptionally high participation rate in the current study, it should also be noted that all therapists volunteered to participate in the study and therefore, care should be taken when generalizing the findings of this study to a larger population of treatment providers who may not be interested in participating in research studies. A second potential limitation is that the test-retest reliability of the ISP-D14 was not investigated and therefore, the degree to which the results of the ISP-D14 measure are consistent over time is unknown. A third potential limitation relates to the probable effects associated with giving slightly different batteries to CAMHD and DOE SBBH therapists (e.g., the battery for CAMHD therapists included the TBIS) as well as slightly different sequencing of the measures (e.g., the TBIS appeared first, followed by the ISP-D for CAMHD therapists) in these slightly different batteries. Along these lines, the potential effects of differential batteries and sequencing are unknown. However, it is estimated that such effects are minimal given that there is no discernable fatigue effect in the pattern of missing data across measures. A fourth potential limitation to this study concerns the recommended ratio of indicators (items) per latent construct. For CFA models, Kline (2011) recommends an absolute minimum number of two indicators per factor because CFA models are prone to errors in analyses in smaller samples. Additionally, Kenny (1979) suggests a rule of thumb, which is that “Two might be fine, three is better, four is best, and anything more is gravy” (p. 143). Taken together, it appears that the general consensus suggests two to four indicators per latent construct, but a limitation for having fewer indicators is that it becomes more difficult to

empirically identify the model. Looking at the items of the ISP-D14, the Attitudes, Behavioral Intentions, Perceived Behavior Control, and Subjective Norms scales all fall within the suggested limits (four, four, three, and three items, respectively), but are on the lower end on acceptability with regard to recommended items per scale. The tentative assertion that the number of items for the ISP-D14 falls on the lower end of acceptability comports with a quick comparison of another short therapist-report measure in our field; the EBPAS (Aarons, 2004). The EBPAS (2004) and its updated format (Aarons et al., 2012) comprise the most well-tested and -utilized therapist attitudes measure, and its four unique subscales contain three to four items each, which equals to the ISP-D14 in terms of items per scale.

Implications and Future Studies

Forthcoming research may expand upon this study by investigating whether the same four-factor TPB structure of the ISP-D14 holds true for private sector therapists and those from other systems of care, including those practicing in other regions of the United States outside of Hawaii. It may also be beneficial to explore if there are any similarities or differences between organization membership (e.g., school mental health therapists compared against community mental health therapists, private compared against public sector therapists) with regard to the therapists' responses to the ISP-D14, as this may help tailor future DI initiatives or interventions. Future studies may also investigate the relationship between the different ISP-D14 subscales' abilities to successfully predict therapists' actual EBP behaviors with their clients, and in turn potentially provide informative assessment strategies that may help to guide future DI EBP efforts.

Our field may also benefit from continued research in the form of examining the psychometric properties of the full 70-item ISP measure, which includes both the direct and

indirect measurement items. Ajzen (2002) claims that including the belief-based indirect measurement items may provide a practical utility above and beyond the direct measurement items such that these indirect items may be used to survey attitudinal considerations that guide individuals' decisions to engage in a given behavior as well as explore their beliefs and outcome evaluations of the behavior. Incorporating both direct and indirect measurement items in a TPB measure would provide a basis for conducting additional reliability analyses such that the indirect measurement items for each of the TPB constructs can be tested to see if they correlate with their respective counterpart direct measurement items, which would provide further evidence for the instrument's internal consistency and overall coherence. Moreover, in light of the questionable reliability of the ISP-D14 Perceived Behavioral Control scale, any analyses conducted with the ISP-D14 Perceived Behavioral Control scale should be interpreted with caution until further evidence supporting its reliability can be found.

Despite the noted limitations, the current investigation provides preliminary support for the factor structure, internal consistency and convergent validity of the ISP-D14 in a diverse sample of public sector youth mental health therapists. Given the promising psychometric properties of the ISP-D14, this instrument may be considered for helping to examine the effectiveness of DI interventions that are designed to increase youth mental health therapists' use of EBPs (Burgess et al., 2017). Furthermore, because this measure is brief (i.e., 14 items), the instrument has the potential to be used efficiently for research in real-world practice settings where the gold-standard practice of providing direct observations of behavior change amongst therapists can be expensive and laborious. Furthermore, given that the measure's firm rooting in TPB constructs that transcend typically assessed domains in this type of work, there exists the potential for new and penetrating lines of research with regard to therapist behavior change. For

example, a training intervention might be shown to have a large impact on therapists' subjective norms but have no influence on their perceived behavioral control, thus limiting the overall effect on their behavioral intentions and ultimately their behavior. It is hoped that the regular use of carefully designed and validated instruments with psychometric support such as the ISP-D14 may help to improve the overall quality of services youth receive in the public mental health sector.

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Table 1.

Therapist Background Information

Most Advanced Educational Degree	<i>n</i>	Percentage
Associate's or Bachelor's Degrees	3	1.4
Master's-level Degrees (e.g., M.A., M.S., M.F.T., M.S.W.)	187	89.9
Doctoral Student, Intern, Psy.D., Ph.D., M.D.	20	9.5
Professional Specialty (Primary)		
Counseling (Psychology)	63	29.9
Social Work	46	21.8
Marriage & Family Therapy	43	20.4
Clinical Psychology	20	9.5
Counseling (Education)	12	5.7
School Psychology	6	2.8
Other	6	2.8
Education or Special Education	2	0.9
Substance Abuse Counseling	2	0.9
More than one professional specialty	11	5.2
Theoretical Orientation		
Cognitive or Cognitive-Behavioral	180	86.5
Behavioral	141	67.8
Humanistic or Client Centered	109	51.7
Systems or Family-Systems	100	48.1
Eclectic or Integral	65	31.3
Existential or Gestalt	37	17.8
Psychoanalytic or Psychodynamic	35	16.8
Other	15	7.2
Primary Clinical Setting		
School-based	126	59.7
Home-based	42	19.9
Hospital or Residential	18	8.5
Therapeutic Foster-care	9	4.3
Outpatient Clinic	5	2.4
Other	3	1.4
Missing	7	3.3

Note. Therapists were asked to endorse all theoretical orientations, not just one.

Table 2.

Means and Normality Statistics for Therapist Attitudes, Perceived Behavioral Control, Subjective Norms, and Behavioral Intentions Measures

	# of items	Min	Max	Mean	SD	Shapiro-Wilk's <i>W</i>	Skewness	Kurtosis	Number of Outliers
<u>ISP-D14 (Model 3)</u>									
Attitudes	4	2.00	7.00	5.25	0.99	<.001	-0.768	0.645	3
Perceived Behavioral Control	3	1.67	7.00	4.81	1.32	<.001	-0.232	-0.591	0
Subjective Norms	3	1.00	7.00	5.55	1.25	<.001	-1.320	2.076	7
Behavioral Intentions	4	2.75	7.75	6.57	1.14	<.001	-1.133	0.853	6
<u>EBP TPB Survey</u>									
Attitudes	4	1.50	7.00	5.35	1.03	<.001	-0.600	0.373	1
Perceived Behavioral Control	4	3.00	7.00	5.53	0.80	<.001	-0.620	-0.604	3
Subjective Norms	4	2.25	7.00	5.92	0.91	<.001	-1.040	1.321	1
Behavioral Intentions	3	3.33	7.00	6.24	0.78	<.001	-1.080	1.070	8
<u>EBPAS</u>									
Requirements	3	0.00	4.00	3.01	0.88				
Appeal	4	0.00	4.00	3.20	0.63				
Openness	4	1.00	4.00	2.86	0.73				
Divergence	4	0.00	3.00	1.28	0.75				
Total	15	1.47	4.00	2.94	0.46	.256	-0.180	-0.188	1

Note. ISP-D14 = Intention Scale for Providers- Direct Items (14 Items); four items are scored on a seven-point semantic differential scale with distinct adjectives (e.g., 0 = Challenging...7 = Easy), nine items are scored on a seven-point Likert scale (i.e., 0 = Strongly Disagree...7 = Strongly Agree), and one item is scored on a ten-point scale (i.e., Out of the next 10 clients you see, for how many of them will you use EBPs?). EBP TPB Survey = Evidence-Based Practice Theory of Planned Behavior Survey; seven items are scored on a seven-point Likert scale (0 = Strongly Disagree...7 = Strongly Agree) and eight items were scored on a seven-point semantic differential scale with distinct adjectives (e.g., 0 = Extremely Worthless...7 = Extremely Valuable). EBPAS = Evidence-Based Practice Attitudes Scale; 5-point scale (0 = Not at All...4 = To a Very Great Extent).

Table 3.

Convergent Validity Bivariate Correlations and Internal Consistency Coefficients

	ISP-D ATT	ISP-D SN	ISP-D PBC	ISP-D BI	EBTPB ATT	EBTPB SN	EBTPB PBC	EBTPB BI	EBPAS Total
ISP-D ATT	-								
ISP-D SN	.13	-							
ISP-D PBC	.10	-.14*	-						
ISP-D BI	.43**	.62**	.02	-					
EBTPB ATT	.55**	.33**	.19**	.52**	-				
EBTPB SN	.38**	.51**	-.19**	.48**	.39**	-			
EBTPB PBC	.27**	.10	.35**	.22**	.40**	.13	-		
EBTPB BI	.46**	.31**	-.04	.66**	.52**	.57**	.38**	-	
EBPAS Total	.38**	.19**	.01	.44**	.37**	.39**	.11	.53**	-
Coefficient Alphas	.75	.72	.63	.80	.76	.78	.40	.93	.78

Note. ISP-D = Intention Scale for Providers – Direct Items (Model 3); ATT = Attitudes; SN = Subjective Norms; PBC = Perceived Behavioral Control; BI = Behavioral Intentions.

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

Table 4.

Fit Statistics for the Confirmatory Factor Analytic Models

Model	χ^2	<i>df</i>	<i>p</i>	RMSEA	SRMR	CFI	TLI
ISP-D							
Model 1	277.76*	98	<.00	.093	.117	.812	.771
Model 2	169.37*	71	<.00	.081	.075	.885	.852
Model 3	117.00*	69	<.00	.057	.068	.944	.926

Note. ISP-D = Intention Scale for Providers – Direct Items; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index.

**p* < .01

Table 5.

Factor Loadings for the Confirmatory Factor Analysis for the Original ISP-D Model (Model 1) by Subscale

Item #		Estimate (S.E.)	<i>z</i>
Attitudes			
5	Using EBPs with my clients feels genuine/insincere (for me).	0.76 (0.10)	7.86
1	Using EBPs with my clients feels useful/useless (for me).	0.76 (0.10)	7.84
3	Using EBPs with my clients feels harmful/beneficial (for me).	-0.66 (0.09)	-7.18
4	Using EBPs with my clients feels flexible/rigid (for me).	0.48 (0.12)	3.96
2	Using EBPs with my clients feels challenging/easy (for me).	-0.18 (0.10)	-1.92
Perceived Behavioral Control			
13	I have the power to decide whether or not to use EBPs with my clients.	-0.66 (0.10)	-6.51
15	I have the autonomy to choose the treatment practices I use.	-0.65 (0.09)	-6.97
7	The decision to use EBPs with my clients is out of my control.	0.50 (0.11)	4.55
9	I am confident in my ability to use EBPs with my clients.	-0.20 (0.14)	-1.42
Subjective Norms			
10	I am expected to use EBPs with my clients.	0.89 (0.04)	22.87
6	People in my field who are important to me want me to use EBPs with my clients.	0.75 (0.08)	10.03
12	My profession pressures me to use EBPs with my clients.	0.48 (0.07)	7.11
Behavioral Intentions			
14	I expect to use EBPs with my clients.	0.88 (0.03)	26.09
8	I want to use EBPs with my clients.	0.87 (0.03)	26.51
11	I intend to use EBPs with my clients.	0.87 (0.04)	21.86
16	Out of the next 10 clients you see, for how many of them will you use EBPs?	0.52 (0.09)	5.88

Note. S.E. = Standard Error

Table 6.

Factor Loadings for the Confirmatory Factor Analysis for the ISP-D Model with Items Removed (Model 2) by Subscale

Item #		Estimate (S.E.)	<i>z</i>
Attitudes			
1	Using EBPs with my clients feels useful/useless (for me).	0.77 (0.10)	7.75
5	Using EBPs with my clients feels genuine/insincere (for me).	0.75 (0.10)	7.33
3	Using EBPs with my clients feels harmful/beneficial (for me).	-0.66 (0.09)	-7.31
4	Using EBPs with my clients feels flexible/rigid (for me).	0.47 (0.13)	3.72
Perceived Behavioral Control			
13	I have the power to decide whether or not to use EBPs with my clients.	-0.67 (0.11)	-6.09
15	I have the autonomy to choose the treatment practices I use.	-0.62 (0.09)	-6.78
7	The decision to use EBPs with my clients is out of my control.	0.53 (0.12)	4.49
Subjective Norms			
10	I am expected to use EBPs with my clients.	0.89 (0.04)	23.04
6	People in my field who are important to me want me to use EBPs with my clients.	0.75 (0.07)	10.10
12	My profession pressures me to use EBPs with my clients.	0.48 (0.07)	7.14
Behavioral Intentions			
14	I expect to use EBPs with my clients.	0.88 (0.03)	26.11
8	I want to use EBPs with my clients.	0.87 (0.03)	26.58
11	I intend to use EBPs with my clients.	0.87 (0.04)	21.75
16	Out of the next 10 clients you see, for how many of them will you use EBPs?	0.52 (0.09)	5.92

Note. S.E. = Standard Error

Table 7.

Factor Loadings for the Confirmatory Factor Analysis for the ISP-D Final Model (Model 3) by Subscale

Item #		Estimate (S.E.)	<i>z</i>
Attitudes			
1	Using EBPs with my clients feels useful/useless (for me).	0.84 (0.06)	14.71
3	Using EBPs with my clients feels harmful/beneficial (for me).	-0.70 (0.07)	-10.63
5	Using EBPs with my clients feels genuine/insincere (for me).	0.67 (0.06)	10.56
4	Using EBPs with my clients feels flexible/rigid (for me).	0.33 (0.09)	3.78
Perceived Behavioral Control			
7	The decision to use EBPs with my clients is out of my control.	0.95 (0.21)	4.53
13	I have the power to decide whether or not to use EBPs with my clients.	-0.36 (0.10)	-3.45
15	I have the autonomy to choose the treatment practices I use.	-0.30 (0.10)	-2.94
Subjective Norms			
10	I am expected to use EBPs with my clients.	0.90 (0.03)	27.26
6	People in my field who are important to me want me to use EBPs with my clients.	0.74 (0.07)	10.55
12	My profession pressures me to use EBPs with my clients.	0.49 (0.06)	7.66
Behavioral Intentions			
8	I want to use EBPs with my clients.	0.88 (0.03)	26.99
14	I expect to use EBPs with my clients.	0.88 (0.03)	26.01
11	I intend to use EBPs with my clients.	0.87 (0.04)	21.65
16	Out of the next 10 clients you see, for how many of them will you use EBPs?	0.52 (0.09)	5.98

Note. S.E. = Standard Error

Table 8.

Correlations Between ISP-D Scores and Therapist Demographic Variables

	ISP-D ATT	ISP-D SN	ISP-D PBC	ISP-D BI
Age ($n = 204$)	-.05	-.07	.05	-.14
Training ($n = 191$)	.08	-.15	.08	-.01
Experience ($n = 196$)	.00	-.13	.08	-.21**
Individual Supervision ($n = 195$)	-.04	.04	.01	-.02
Group Supervision ($n = 191$)	.06	.07	-.06	.15
Active Cases ($n = 201$)	.08	-.12	.14	-.08
CE Attendance ($n = 195$)	-.03	-.12	.12	-.02
Conference Publication ($n = 172$)	.12	-.24**	.07	-.11

Note. ISP-D = Intention Scale for Providers – Direct Items (Model 3); ATT = Attitudes; SN = Subjective Norms; PBC = Perceived Behavioral Control; BI = Behavioral Intentions.

** $p < .01$

Table 9.

ISP-D Scale Scores by Primary Clinical Setting

ISP-D Attitudes	<i>n</i>	Mean (<i>SD</i>)
School-based treatment	127	5.09 (1.07) ^a
Home-based treatment	42	5.49 (0.74) ^a
Hospital or residential treatment	18	5.58 (0.88) ^a
ISP-D Subjective Norms		
School-based treatment	120	5.32 (1.34) ^a
Home-based treatment	41	5.89 (1.16) ^b
Hospital or residential treatment	18	6.15 (0.73) ^b
ISP-D Perceived Behavioral Control		
School-based treatment	127	4.96 (1.27) ^{ab}
Home-based treatment	42	4.31 (1.47) ^a
Hospital or residential treatment	18	4.83 (1.47) ^b
ISP-D Behavioral Intentions		
School-based treatment	120	6.23 (1.21) ^a
Home-based treatment	41	7.02 (0.94) ^b
Hospital or residential treatment	18	7.32 (0.55) ^b

Note. ISP-D = Intention Scale for Providers – Direct Items (Model 3).

^{ab} Differing letter superscripts indicate significant pairwise mean differences at 99% confidence interval

Table 10.

ISP-D Scale Scores by Highest Degree Earned

ISP-D Attitudes	<i>n</i>	Mean (<i>SD</i>)
Masters-level Degrees (e.g., M.A., M.S., M.F.T., M.S.W., R.N., L.P.N.)	186	5.19 (1.01) ^a
Doctoral Student, Intern, Psy.D., Ph.D., M.D.	15	5.63 (0.75) ^a
ISP-D Subjective Norms		
Masters-level Degrees (e.g., M.A., M.S., M.F.T., M.S.W., R.N., L.P.N.)	179	5.55 (1.28) ^a
Doctoral Student, Intern, Psy.D., Ph.D., M.D.	14	5.67 (0.92) ^a
ISP-D Perceived Behavioral Control		
Masters-level Degrees (e.g., M.A., M.S., M.F.T., M.S.W., R.N., L.P.N.)	186	4.75 (1.31) ^a
Doctoral Student, Intern, Psy.D., Ph.D., M.D.	15	5.47 (1.37) ^b
ISP-D Behavioral Intentions		
Masters-level Degrees (e.g., M.A., M.S., M.F.T., M.S.W., R.N., L.P.N.)	176	6.50 (1.18) ^a
Doctoral Student, Intern, Psy.D., Ph.D., M.D.	15	7.02 (0.66) ^a

Note. ISP-D = Intention Scale for Providers – Direct Items (Model 3).

^{ab} Differing letter superscripts indicate significant pairwise mean differences at 99% confidence interval

Table 11.

ISP-D Scale Scores by Professional Specialty

ISP-D Attitudes	<i>n</i>	Mean (<i>SD</i>)
Counseling (e.g., Education, Psychology, Substance Abuse)	74	5.19 (1.01) ^a
Marriage and Family Therapy	43	5.23 (0.97) ^a
Social Work	48	5.26 (1.12) ^a
Clinical Psychology, Psychiatry, School Psychology	26	5.54 (0.74) ^a
ISP-D Subjective Norms		
Counseling (e.g., Education, Psychology, Substance Abuse)	71	5.53 (1.18) ^a
Marriage and Family Therapy	42	5.44 (1.40) ^a
Social Work	45	5.64 (1.38) ^a
Clinical Psychology, Psychiatry, School Psychology	25	5.75 (0.99) ^a
ISP-D Perceived Behavioral Control		
Counseling (e.g., Education, Psychology, Substance Abuse)	74	4.78 (1.20) ^a
Marriage and Family Therapy	43	4.35 (1.53) ^b
Social Work	48	4.88 (1.17) ^a
Clinical Psychology, Psychiatry, School Psychology	26	5.45 (1.28) ^{ab}
ISP-D Behavioral Intentions		
Counseling (e.g., Education, Psychology, Substance Abuse)	71	6.37 (1.21) ^a
Marriage and Family Therapy	40	6.61 (1.11) ^a
Social Work	45	6.63 (1.18) ^a
Clinical Psychology, Psychiatry, School Psychology	26	6.91 (0.99) ^a

Note. ISP-D = Intention Scale for Providers – Direct Items (Model 3).

^{ab} Differing letter superscripts indicate significant pairwise mean differences at 99% confidence interval

Table 12.

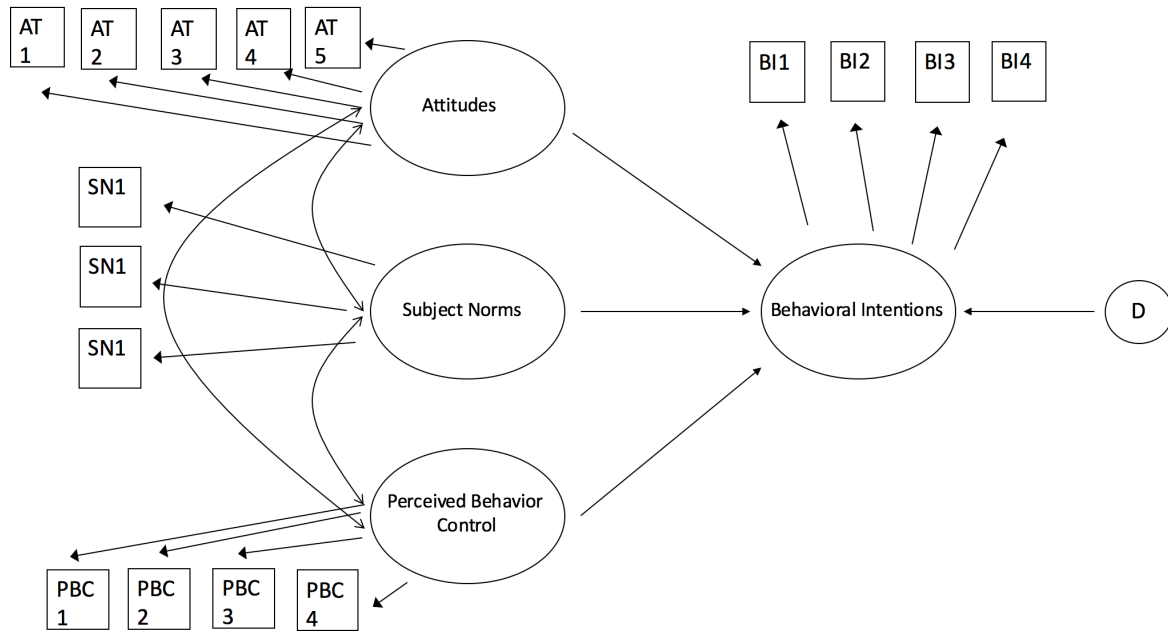
ISP-D Scale Scores by State Licensure

	<i>n</i>	Mean (<i>SD</i>)
ISP-D Attitudes		
Licensed Provider	85	5.40 (0.99) ^a
Non-Licensed Provider	125	5.17 (0.97) ^a
ISP-D Subjective Norms		
Licensed Provider	83	5.74 (1.16) ^a
Non-Licensed Provider	120	5.42 (1.30) ^a
ISP-D Perceived Behavioral Control		
Licensed Provider	85	4.94 (1.24) ^a
Non-Licensed Provider	125	4.72 (1.37) ^a
ISP-D Behavioral Intentions		
Licensed Provider	81	6.91 (0.93) ^a
Non-Licensed Provider	119	6.34 (1.22) ^b

Note. ISP-D = Intention Scale for Providers – Direct Items (Model 3).

^{ab} Differing letter superscripts indicate significant pairwise mean differences at 99% confidence interval

Figure 1. Hypothesized Four-Factor Model of the ISP-D



Note. AT = Attitudes; SN=Subjective Norms; PBC=Perceived Behavioral Control; BI=Behavioral Intentions.

Appendix A: *Consent Form for CAMHD Participants*

Consent to Participate in Study

An Examination of Therapists' Intentions for Treating Youth in Community-based Mental Health Settings

This survey battery includes measures contributing to two separate research projects conducted by graduate students, Albert Mah and Kaitlin Hill, at the University of Hawai'i at Mānoa in the Department of Psychology. We are doing these studies as a requirement for earning our graduate degrees. The purpose of both Ms. Hill's and Mr. Mah's projects is to learn more about therapists' intentions for treating youth in community-based mental health settings, and the factors related to therapists' intended practices. Your participation is requested because of your experience as a direct service provider in the community. Complete participation in the project consists of filling out questionnaires today. A copy of this consent form is provided for you to keep in your personal records.

What activities will you do in the study and how long will the activities last?

You will be asked to fill out one demographic questionnaire, read and respond to two clinical vignettes, and then complete three other surveys assessing your thoughts on the provision of mental health services. The questionnaires may take approximately 30-45 minutes to complete. In addition, we are asking for your NPI# (i.e., National Provider Identifier) so we can connect your confidential survey data with routine CAMHD monitoring strategies for your clients (i.e., Monthly Treatment Progress Summary without protected health information). No personal identifying information (i.e., name, NPI#, agency, etc.) will be included with the research results nor will any of this information be shared with your agency/organization at the individual level.

Benefits and Risks: There are no risks related to participation in this study other than the sacrifice of 30-45 minutes of your time. Participating in this research may be of no direct benefit to you, but it is believed that the results from this project will help CAMHD learn more about therapists' decision-making, intended practices with clients, and factors related to the use of different intervention strategies. Participating in the study also carries the benefit of contributing meaningfully to scientific research. Ultimately, research advancements in this area may serve to increase the overall quality of care for individuals with mental health difficulties.

Confidentiality and Privacy: No personal identifying information (i.e., your name, CAMHD Provider ID#) will be included with the study results nor will the information gathered about you be shared with your agency/organization. The results will be reported in aggregate form only.

Research data will be confidential to the extent allowable by law. Agencies with research oversight, such as the UH Committee on Human Studies, have the authority to review research data. All research records will be stored in a locked file in the primary investigators' office for the duration of the research project. A redacted version of the data (i.e., without any identifying information) may be handled by other researchers in the future to answer important questions in the field. All other research records will be destroyed upon completion of the project.

Voluntary Participation: Participation in this research project is completely voluntary. You are free to withdraw from participation at any time during the duration of the project with no penalty, or loss of benefit to which you would otherwise be entitled. You will be compensated with \$20.00 cash for your time.

Questions: If you have any questions regarding this research project, please contact the researchers, Albert Mah B.A. and/or Kaitlin Hill, B.A., at (808) 956-9559 or their research supervisor, Dr. Brad Nakamura, at bradn@hawaii.edu. If you have any questions regarding your rights as a research participant, please contact the UH Human Studies Program at (808) 956-5007, or uhirb@hawaii.edu.

Participant: I have read and understand the above information, and agree to participate in this research project. I understand that I can change my mind about participating in this project, at any time, by notifying the researchers.

Name (printed)

NPI#

Signature

Date

Appendix B: *Consent Form for DOE Participants*

Consent to Participate in Study

A Psychometric Evaluation of the Intention Scale for Providers – Direct Items

This survey battery includes measures contributing to a research project conducted by Albert Mah B.A., a graduate student at the University of Hawai‘i at Mānoa Department of Psychology. The purpose of this study is to learn more about the factors related to therapists’ intended practices. Your participation is requested because of your experience as a direct service provider in the community. Complete participation in the project consists of filling out questionnaires today.

What activities will you do in the study and how long will the activities last?

You will be asked to fill out one demographic questionnaire and then complete three other surveys assessing your thoughts on the provision of mental health services. The questionnaires may take approximately 15-20 minutes to complete. No personal identifying information will be included with the research results nor will any of this information be shared with your agency/organization at the individual level. All participants will be given a copy of the consent form for his or her future reference.

Benefits and Risks: There are no risks related to participation in this study other than the sacrifice of 15-20 minutes of your time. Participating in this research may be of no direct benefit to you. However, participating in the study carries the benefit of contributing meaningfully to scientific research. Ultimately, research advancements in this area may serve to increase the overall quality of care for individuals with mental health difficulties.

Confidentiality and Privacy: Research data will be confidential to the extent allowable by law. Agencies with research oversight, such as the UH Committee on Human Studies, have the authority to review research data. All research records will be stored in a locked file in the primary investigator’s office for the duration of the research project. A redacted version of the data (i.e., without any identifying information) may be handled by other researchers in the future to answer important questions in the field. All other research records will be destroyed upon completion of the project.

Voluntary Participation: Participation in this research project is completely voluntary. You are free to withdraw from participation at any time during the duration of the project with no penalty, or loss of benefit to which you would otherwise be entitled. You will be compensated with a \$5 gift card for your time.

Questions: If you have any questions regarding this research project, please contact the researcher, Albert Mah B.A. at (808) 956-9559 or the research supervisor, Dr. Brad Nakamura Ph.D, at bradn@hawaii.edu. If you have any questions regarding your rights as a research participant, please contact the UH Committee on Human Studies at (808) 956-5007, or uhirb@hawaii.edu.

Participant: I have read and understand the above information, and agree to participate in this research project. I understand that I can change my mind about participating in this project, at any time, by notifying the researchers.

Name (Printed)

Signature

Date

Appendix C: Evidence-Based Practice Attitude Scale

EBPAS (©Gregory A. Aarons, Ph.D.)
Evidence-Based Practice Attitude Scale

The following questions ask about your feelings about using new types of therapy, interventions, or treatments. Manualized therapy refers to any intervention that has specific guidelines and/or components that are outlined in a manual and/or that are to be followed in a structured/predetermined way.

Fill in the box indicating the extent to which you agree with each item using the following scale:

0	1	2	3	4
Not at All	To a Slight Extent	To a Moderate Extent	To a Great Extent	To a Very Great Extent

1	I like to use new types of therapy/interventions to help my clients	0	1	2	3	4
2	I am willing to try new types of therapy/interventions even if I have to follow a treatment manual.	0	1	2	3	4
3	I know better than academic researchers how to care for my clients.	0	1	2	3	4
4	I am willing to use new and different types of therapy/interventions developed by researchers.	0	1	2	3	4
5	Research based treatments/interventions are not clinically useful.	0	1	2	3	4
6	Clinical experience is more important than using manualized therapy/treatment.	0	1	2	3	4
7	I would not use manualized therapy/interventions.	0	1	2	3	4
8	I would try a new therapy/intervention even if it were very different from what I am used to doing.	0	1	2	3	4

For questions 9-15: If you received training in a therapy or intervention that was new to you, how likely would you be to adopt it if:

9	it was intuitively appeal?	0	1	2	3	4
10	it “made sense” to you?	0	1	2	3	4
11	it was required by your supervisor?	0	1	2	3	4
12	it was required by your agency?	0	1	2	3	4
13	it was required by your state?	0	1	2	3	4
14	it was being used by colleagues who were happy with it?	0	1	2	3	4
15	you felt you had enough training to use it correctly?	0	1	2	3	4

Appendix D: Evidence-Based Practice Theory of Planned Behavior Survey

Evidence-Based Practice Theory of Planned Behavior Survey

1. Most people who are important to me would think I should employ evidence-based practices into my treatment of clients.	1. Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
2. People in my life whose opinions I value would approve of me employing evidence-based practices into my treatment practices for clients.	2. Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
3. I intend to employ evidence-based practices into my treatment practices for clients	3. Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
4. I am confident that if I wanted to, I could employ evidence-based practices into my treatment practices for clients.	4. Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
5. My coworkers/boss/important people whose opinions I value employ evidence-based practices into their treatment practices for clients.	5. Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
6. It is mostly up to me whether I employ evidence-based practices into my treatment of clients.	6. Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
7. It is expected of me to employ evidence-based practices into my treatment practices for clients.	7. Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
8. I plan to employ evidence-based practices into my treatment practices for clients.	8. Extremely Unlikely	1	2	3	4	5	6	7	Extremely Likely
9. I will make an effort to employ evidence-based practices into my treatment practices for clients.	9. Definitely Will Not	1	2	3	4	5	6	7	Definitely
10-11. For me to employ evidence-based practices into my treatment practices for clients is:	10. Impossible	1	2	3	4	5	6	7	Possible
	11. Extremely Difficult	1	2	3	4	5	6	7	Extremely Easy
12-15. For me to employ evidence- based practice in my treatment practice with clients would be:	12. Extremely Worthless	1	2	3	4	5	6	7	Extremely Valuable
	13. Extremely Good	1	2	3	4	5	6	7	Extremely Bad
	14. Extremely Pleasant	1	2	3	4	5	6	7	Extremely Unpleasant
	15. Extremely Unenjoyable	1	2	3	4	5	6	7	Extremely Enjoyable

Appendix E: *Intention Scale for Providers-Direct Items*

Intention Scale for Providers-Direct Items

Measure Instructions: Please answer the following questions about your experience providing psychosocial treatments. Please consider the following definition of evidence-based practices (EBPs): Evidence-based practices are defined as psychosocial therapeutic methods that have been shown to work for particular populations through clinical research. Although there are a variety of EBPs, please respond to the questions below by reflecting on your general knowledge and ability to use practices applicable to your setting.

1-5. Using EBPs with my clients feels...(for me):

Useful	1	2	3	4	5	6	7	Useless
Challenging	1	2	3	4	5	6	7	Easy
Harmful	1	2	3	4	5	6	7	Beneficial
Flexible	1	2	3	4	5	6	7	Rigid
Genuine	1	2	3	4	5	6	7	Insincere

	Strongly Disagree			Neutral		Strongly Agree	
6. People in my field who are important to me want me to use EBPs with my clients.	1	2	3	4	5	6	7
7. The decision to use EBPs with my clients is out of my control.	1	2	3	4	5	6	7
8. I want to use EBPs with my clients.	1	2	3	4	5	6	7
9. I am confident in my ability to use EBPs with my clients	1	2	3	4	5	6	7
10. I am expected to use EBPs with my clients.	1	2	3	4	5	6	7
11. I intend to use EBPs with my clients.	1	2	3	4	5	6	7
12. My profession pressures me to use EBPs with my clients.	1	2	3	4	5	6	7
13. I have the power to decide whether or not to use EBPs with my clients	1	2	3	4	5	6	7
14. I expect to use EBPs with my clients.	1	2	3	4	5	6	7
15. I have the autonomy to choose the treatment practices I use.	1	2	3	4	5	6	7

16. Out of the next 10 clients you see, for how many of them will you use EBPs? 1 2 3 4 5 6 7 8 9 10

Appendix F: *Therapist Background Questionnaire*

THERAPIST BACKGROUND QUESTIONNAIRE					
1. Today's Date: / /	2. Age:	3. Gender:	4. Agency & Level(s) of Care:	5. Credentials (e.g., MHP)	6. NPI Number:
7. Race (Check ALL that apply): <input type="checkbox"/> Alaska Native or American Indian <input type="checkbox"/> Asian <input type="checkbox"/> Black or African American <input type="checkbox"/> Hispanic or Latino <input type="checkbox"/> Native Hawaiian or Pacific Islander <input type="checkbox"/> White or Caucasian <input type="checkbox"/> Other (specify: _____) <input type="checkbox"/> Race Unknown			8. Highest Degree Earned (Check ONLY one): <input type="checkbox"/> A.A./Voc./Non-Degree Cert. <input type="checkbox"/> B.A./B.S. <input type="checkbox"/> M.Ed. <input type="checkbox"/> MSW, LCSW, etc. <input type="checkbox"/> M.A./M.S. Counseling <input type="checkbox"/> M.A./M.S. Other (specify: _____) <input type="checkbox"/> R.N., L.P.N., etc. <input type="checkbox"/> Doctoral Student/Intern <input type="checkbox"/> Other (specify: _____)		
9. Date of Most Advanced Degree: (Year) _____ 10. Are you State Licensed? Yes No 11. Type of Licensure: _____	12. Professional Specialty: (Check ONLY one - if you have multiple, check the one you identify with most) <input type="checkbox"/> Clinical Psychology <input type="checkbox"/> Counseling (Education) <input type="checkbox"/> Counseling (Psychology) <input type="checkbox"/> Education/Special Education <input type="checkbox"/> Marriage & Family Therapy <input type="checkbox"/> Psychiatry <input type="checkbox"/> School Psychology <input type="checkbox"/> Social Work <input type="checkbox"/> Substance Abuse Counseling <input type="checkbox"/> Other (specify: _____)		13. Current Primary Clinical Setting (where you provide services; select ONLY one; If you work in multiple settings, select the setting where you spend most time) <input type="checkbox"/> Group Home/Shelter <input type="checkbox"/> Home-Based Treatment (e.g., IIH, MST, FFT) <input type="checkbox"/> Hospital or Residential Treatment <input type="checkbox"/> Outpatient Clinic <input type="checkbox"/> School-Based Treatment <input type="checkbox"/> Therapeutic Foster Care <input type="checkbox"/> Other Setting (specify: _____)		
14. When did you last work as an intensive in-home therapist (or equivalent)? (Month/Year) _____ (OR circle) <u>Never worked IIH</u> 15. If yes, how many years did you work in an IIH setting? _____	16. Theoretical Orientation (Check all that you commonly use/those that you identify with): <input type="checkbox"/> Behavioral <input type="checkbox"/> Cognitive or Cognitive-Behavioral <input type="checkbox"/> Eclectic or Integrative <input type="checkbox"/> Existential or Gestalt <input type="checkbox"/> Humanistic or Client Centered <input type="checkbox"/> Psychoanalytic or Psychodynamic or Object Relations <input type="checkbox"/> Systems or Family-Systems <input type="checkbox"/> Other (specify: _____)		17. Supervisor's Theoretical Orientation (Which would you identify as your supervisor's orientation? Check all that apply): <input type="checkbox"/> Behavioral <input type="checkbox"/> Cognitive or Cognitive-Behavioral <input type="checkbox"/> Eclectic or Integrative <input type="checkbox"/> Existential or Gestalt <input type="checkbox"/> Humanistic or Client Centered <input type="checkbox"/> Psychoanalytic or Psychodynamic or Object Relations <input type="checkbox"/> Systems or Family-Systems <input type="checkbox"/> Other (specify: _____)		
18. Years of FORMAL clinical training (beyond undergraduate degree, does NOT include workshops or CEUs): _____ 19. Years full time clinical experience (since earning terminal degree): _____			22. Age of Population Worked With for Treatment: (Which would you identify as the population you have had the most experience with? Please only select one.) <input type="checkbox"/> 0-2 years <input type="checkbox"/> 3-5 years <input type="checkbox"/> 6-12 years <input type="checkbox"/> 13-17 years <input type="checkbox"/> 18-64 years <input type="checkbox"/> 65+ years		
20 - 21. How many hours per week do you receive of supervision (individual and group)? _____ Individual _____ Group			26. Diagnoses of Population Worked With for Treatment: (Which would you identify as the population you have had the most experience with? Please only select one.) <input type="checkbox"/> Attention Deficit/Hyperactivity Disorder <input type="checkbox"/> Depressive Disorders <input type="checkbox"/> Anxiety, OCD, and Trauma Disorders <input type="checkbox"/> Disruptive, Impulse-Control, and Conduct Disorders <input type="checkbox"/> Substance-Related and Addictive Disorder <input type="checkbox"/> Other (specify: _____)		
23. Approximately how many active cases do you typically carry at one time at your current agency? _____ 24. What is the average number of hours of continuing education workshops/trainings/conferences you attend each year? _____ 25. Total number of conference presentations and peer-reviewed publications to date (can be approximate): _____					