A PSYCHOMETRIC EVALUATION OF

THE PARENT ENGAGEMENT IN EVIDENCE-BASED SERVICES QUESTIONNAIRE

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By

Jaime P. Chang

Dissertation Committee:

Brad Nakamura, Chairperson
David Cicero
Stephen Haynes
Charles Mueller
Valli Kalei Kanuha

ABSTRACT

Despite years of research supporting the efficacy of certain youth mental health treatments over others, actual use of these interventions in everyday clinical practice continues to be low. Most dissemination and implementation efforts to date have focused on increasing demand for and utilization of evidence-based services (EBS) with actual service providers. However, a promising complementary approach for increasing the uptake of EBS involves targeting intervention consumers, namely youth clients and their caregivers. The current study describes a psychometric evaluation of the Parent Engagement in Evidence-Based Services (PEEBS) questionnaire, a new instrument designed to assess parent consumer intent to engage in EBS for their children. First, an exploratory factor analysis (EFA) with data from 330 participants yielded five factors: (a) Evidence-Informed Action, (b) Barriers to Treatment Engagement, (c) Family Empowerment, (d) Limited Treatment Knowledge, and (e) Openness to Non-EBS. Second, a confirmatory analysis (CFA) with 304 additional participants confirmed the stability of this five-factor structure. Third, with regard to reliability, data across both samples offered evidence of poor to excellent internal consistency (i.e., Cronbach's alphas of .55 to .94). The final 58-item version of the PEEBS yielded 2-week test-retest reliability coefficients of .44 to .76 in a sample of 47 individuals. Finally, participants completed the PEEBS along with two other measures assessing parent empowerment across settings, and general help-seeking attitudes, intentions, and stigmatization in order to assess convergent and discriminant validity. Results generally indicated that the majority of correlations supported convergence between the PEEBS subscales and these related constructs. Limitations and suggestions for future research are discussed.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER 1. INTRODUCTION

Major gains have been made over the past two decades in identifying evidence-based psychosocial interventions for adult and youth populations (Chambless & Hollon, 1998; Lonigan, Elbert, & Johnson, 1998; Ollendick & King, 2000; Silverman & Hinshaw, 2008; Substance Abuse and Mental Health Services Administration, 2008). Many of these efforts stem from the work of the American Psychological Association Task Force on Psychological Intervention Guidelines, originally formed in 1992 to develop the first template for judging the efficacy and effectiveness of psychosocial interventions (APA, 1995). Since then, work from that task force, the APA Division 12 Task Force on Promotion and Dissemination of Psychological Procedures (1995) that followed it, and other similar efforts have laid the foundation for identifying empirically supported treatments (Chorpita & Daleidan, 2009; Chorpita, Daleiden, & Weisz, 2005; Weisz, Hawley, & Doss, 2004).

Despite such progress for evaluating and identifying treatment interventions, evidence-based services (EBS) are not widely used in everyday clinical practice (Reimer, Rosof-Williams, & Bickman, 2005; Stewart & Chambless, 2007). Studies of youth mental health clinicians in community settings have found that interventions employed in actual clinical practice are often not based on empirical evidence (Daleiden, Lee, & Tolman, 2004; Weersing, Weisz, & Donenberg, 2002), or infrequently utilize commonly occurring evidence-based treatment protocols (Borntrager, Chorpita, Higa-McMillan, Daleiden, & Starace, 2013; Garland et al., 2010). Some have therefore argued, that a next step for promoting EBS usage in everyday clinical settings involves moving beyond EBS identification efforts, towards initiatives that stress the dissemination and implementation (DI) of these practices (Becker, Nakamura, Young, & Chorpita, 2009; Chorpita & Regan, 2009).

Compared to the frameworks that have emerged over the past 20 years for evaluating a treatment strategy's efficacy and effectiveness, empirically based DI efforts specific to behavioral health care are still developing. In order to aid in the DI of EBS, significant resources have been allocated to programs developed at the national, state, and subsidiary levels that have typically targeted clinical providers and the larger service systems in which they are embedded (McHugh & Barlow, 2010). Despite these efforts, there continues to be low levels of EBS implementation in both clinical practice settings (e.g., Kazdin & Blase, 2011; Stewart & Chambless, 2007) and clinical training programs (e.g., Weissman et al., 2006), suggesting that additional, complementary approaches for aiding these efforts might be warranted.

Consumer Involvement in the Dissemination and Implementation of EBS

Earlier and traditional EBS DI efforts have focused mainly on practicing mental health clinicians, with the exchange of information traditionally unidirectional in manner, stressing pathways from treatment developers to therapists and their program administrators. However, such an approach by itself may not ultimately result in EBS adoption by therapists and subsequent delivery to consumers (Grimshaw et al., 2001). As such, some investigators have stressed the importance of an interactive dialogue between not only researchers and therapists (and their administrators and organizations), but also between researchers and consumers, for needs, desires, and concerns related to EBS implementation (Rogers, 2003; Sanders, 2008; Boote, Telford, & Cooper, 2002). Furthermore, a bidirectional approach involving a reciprocal exchange of info between treatment developers and consumers or other ground-level stakeholders seems needed to inform researchers about the extent to which EBS are working or accepted in local settings (Stirman, Crits-Cristoph, & DeRubeis, 2004). Along these lines, some studies suggest that patients may benefit from information that enables them to share in decision-

making regarding the service delivery process; thereby helping them to shape the healthcare they receive, and increasing the likelihood of patient adherence to treatment (Buchanan, 1988; Longo et al., 2006; Vick & Scott, 1998). Following this idea, social marketing strategies have also been used to explore consumer needs, ensure that interventions are matched with those needs, and influence the behavior of consumers to improve their welfare (Andreasen, 1995). Targeting consumers in dissemination efforts may help to increase awareness of the existence of effective psychosocial treatments, improve understanding of psychological services resulting in decreased stigma and misperceptions about mental health, and ultimately increase the demand for clinicians that are trained in EBS (Santucci, McHugh & Barlow, 2012).

One noteworthy area of research that continues to grow concerns better understanding consumer attitudes and preferences regarding EBS, and treatment services more generally. For example, given that consumers have cited health care providers as their primary source of information when making treatment decisions (Tanenbaum, 2008a), it is possible that they may share some of the negative concerns about EBS found in past studies of provider attitudes (Addis & Krasnow, 2000; Baumann, Kolko, Collins, & Herschell, 2006; Nelson & Steele, 2008). However, studies investigating consumer mental health treatment preferences found that they prefer interventions supported by research (Tanenbaum, 2008a; Scheyett, McCarthy, & Rausch, 2006; Flynn, 2005), and in some cases may even support the usefulness of EBS treatment guidelines more than providers (Cleary, Hunt, Freeman, & Walter, 2007). When conducting focus groups with severely mentally ill consumers in the public mental health system to investigate their perspectives on EBS, Tanenbaum (2008a) found three major themes: consumers have both positive and negative attitudes towards evidence, consumers seek and receive information from multiple sources, and consumers have competing and complementary

8

principles for decision making. Findings from these types of focus groups, particularly that

consumers want to be better informed about and involved in decisions related to their care, could

potentially be used to effectively tailor DI efforts for consumers.

A small number of studies have targeted the families of adult consumers with mental

health problems in order to investigate their views towards EBS. Scheyett et al. (2006) found that

both consumers and families perceive EBS as predominantly helpful interventions, but are not

aware of any specific information regarding such practices. Their work also suggests that

families and consumers seem to emphasize the equal importance of purported evidence-based

processes (e.g., therapeutic relationships, attending to the consumer voice, promoting messages

of hope and recovery to consumers, services that support autonomy) and environments (e.g.,

communities, systems, and policies that facilitate effective services and maximize recovery)

along with the implementation of the actual EBS. Flynn (2005) suggests that families' EBS

attitudes are influenced by perceptions of high cost and not knowing where to obtain them. Thus

far then, it seems that focusing on unique family perspectives regarding adult mental health EBS

efforts have provided potentially helpful information for supporting DI work.

Consumer Research with Parents of Youth with Mental Health Problems

Research studies on consumer-centric EBS DI efforts for youth mental health needs tend

to be more complicated than investigations only on adult patients. In children's mental health,

the consumer unit includes not only the youth him/herself, but also caregivers and family

members (henceforth referred to as "parents")[1] who are often making treatment related decisions

on behalf of the youth. Unfortunately, studies have found that parents generally lack accurate

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[1] For purposes of this study, the term "parents" will refer to a wide variety of child and adolescent caregivers, including but not limited to, birth parents, adoptive parents, and caretaking family members or friends such as grandparents.

knowledge regarding treatment of children's mental health problems (Lazaratou, Anagnostopoulos, Alevizos, Haviara, & Ploumpidis, 2007; Sonuga-Barke & Balding, 1993), and are often unaware of what mental health professionals actually do (Richardson, 2001). Furthermore, only a small percentage of youth clients and their families seem to receive EBS (Sanders, Markie-Dadds, Rinaldis, Firman, & Baig, 2007) or are aware of the existence of such interventions in the first place (Tanenbaum, 2008b).

Yet there is some evidence to suggest that providing more information to parents regarding available interventions has important benefits, and that parents should be more involved in the design and dissemination of evidence-based treatment services (Flynn, 2005; Hoagwood, 2005). Increased knowledge about what to expect in treatment can (a) foster a sense of empowerment, (b) lead to demands for improved quality of care and accountability, (c) increase transparency, (d) inform decision-making, (e) minimize disagreements, and (f) set realistic expectations for therapy (Gruttadaro, Burns, Duckworth, & Crudo, 2007; Hamilton, 2004). Higher parent knowledge of effective treatments for youth is also associated with greater acceptability (Bennet, Power, Rostain, & Carr, 1996) and higher likelihood of enrolling in EBS (Corkum, Rimer, & Schachar, 1999; Johnston, Seipp, Hommersen, Hoza, & Fine, 2005). Parent consumers can also in turn provide researchers and clinicians with valuable information regarding factors that influence their treatment decisions (e.g., Aarons, Wells, Zaqursky, Fettes, & Palinkas, 2009). This is particularly relevant as parents as consumers strongly prefer research-based programs over programs that are not (Spoth & Redmond, 1993), and value intervention options supported by therapist recommendations (Cunningham et al., 2015). Additionally, research in evidence-based parenting interventions has begun to reflect such benefits of direct collaboration, including improved quality of interventions and enhanced outcomes for consumers

(Metzler, Sanders, Rusby, & Crowley, 2012; Sanders & Kirby, 2012). The consideration of such consumer-centered perspectives into DI efforts might also positively influence parents' demand for EBS, thereby extending their overall reach.

Innovative direct-to-consumer approaches are already underway, including the involvement of consumers in designing psychosocial interventions (e.g., Sanders & Kirby, 2012) and marketing services via mass, buzz, or social media (e.g., websites promoting EBS; Chang & Nakamura, 2013). However, a simultaneous and foundational step seems to be investigating consumer-related experiences and behaviors as they relate to engagement in EBS. Towards supporting this goal, the field would benefit from exploring the mechanisms underlying parent's mental health treatment-related decision-making behaviors in response to consumer support programs like the ones mentioned above.

The Theory of Planned Behavior

There are a number of well-studied theories that have been used to predict or explain consumer health-related behavior including the social cognitive theory (Bandura, 1986), the health belief model (Janz & Becker, 1984), the transtheoretical model (Prochaska & DiClemente, 1983) and the diffusion of innovations theory (Rogers, 1995). Of the available theories, the Theory of Planned Behavior (TPB; Ajzen, 1988, 1991), developed as an extension of the Theory of Reasoned Action (Ajzen & Fishbein, 1980), is considered the most widely researched theory in behavior change. Ajzen (2011) estimated that the TPB has served as the model for more than 1,200 empirical studies of behavior prediction and change. The TPB suggests that *behavioral intentions* capture the motivational factors that influence behavior and can be used as a proximal measure of the behavior itself. Many studies have substantiated the predictive validity of behavioral intentions (e.g., Albarracin, Johnson, Fishbein, & Muellerleile, 2001; Godin & Kok,

1996; Hausenblaus, Carron, & Mack, 1997). For example, Sheeran (2002) reviewed different meta-analyses covering diverse behavioral domains and reported a mean correlation of .53 between intention and behavior. Additionally, Armitage and Conner's (2001) meta-analytic review of 185 independent empirical tests of the TPB found that approximately 27% of the variance in behavior was predicted by behavioral intentions.

The TPB model (Ajzen, 1988, 1991) describes three predictors that interact to influence behavioral intentions: (a) *attitudes* – a person's overall evaluation or beliefs about the outcomes associated with a particular behavior; (b) *subjective norms* – a person's estimate of the social pressure to perform or not perform the target behavior; and (c) *perceived behavioral control* – the extent to which a person feels they have the capability and opportunity to perform the behavior. Each of these predictors in turn is influenced by different beliefs relevant to that specific predictor. Attitudes are assumed to be a function of *behavioral beliefs* – a person's subjective probability regarding consequences of the behavior. These behavioral beliefs are theorized to produce a positive or negative attitude toward the behavior. Subjective norms are influenced by *normative beliefs* – the expectation that a given referent individual or group (e.g., friends, family, coworkers, physicians) would approve or disapprove of performing the behavior under investigation. Perceived behavioral control is assumed to be based on accessible *control beliefs* – a person's perception of the ease or difficulty of performing the behavior of interest. These beliefs can facilitate or impede the performance of the behavior and include such factors as required skills and capabilities; availability or lack of time, money, and other resources; and cooperation by other people. Meta-analyses have demonstrated that intentions can be predicted with considerable accuracy from measures of attitudes toward the behavior (mean correlations ranging from .45 to .60), perceived behavioral control (mean correlations ranging from .35 to

.46), and subjective norms (mean correlations ranging from .32 to .42) (Ajzen & Cote, 2008). Furthermore, studies using the TPB have been effective for positively influencing behavioral intentions related to dieting, physical exercise, cancer self-examinations, sunscreen use, condom use, smoking, binge drinking, and automobile speeding (Godin & Kok, 1996; Armitage & Conner, 2001).

Although studies guided by the TPB have been used predominantly to understand general (non-mental health) health-related behaviors among consumers (Perkins at al., 2007; Limbert & Lamb, 2002), there is growing support for the application of TPB with mental health clinicians (e.g., Klaybor, 1998; Meissen, Mason & Gleason, 1991). For example, a study by Casper (2007) demonstrated that utilizing TPB principles in continuing education classes for mental health clinicians resulted in stronger participant intentions for using a new assessment tool as compared to a standard class format. At three-month follow-up, significantly more participants in the TPB theory driven class as compared to participants in the standard class had also implemented the assessment tool (74% versus 24%). A more recent study by Kelly, Deane, and Lovett (2012) used the TPB to predict clinician intentions to use EBS in the field of substance abuse. The model accounted for 41% of the variance, with attitudes, subjective norms, and perceived behavioral control all significant predictors of substance abuse workers' intentions to use EBS. The TPB has also been supported in studies investigating social workers' utilization of the Diagnostic Statistical Manual of Mental Disorders, Fourth Edition, in client assessment and treatment planning (Klaybor, 1998), and clinical psychology or social work graduate students' intentions to refer patients to self-help groups (Meissen et al., 1991). In sum, research suggests that TPB-grounded strategies may provide a method of modifying practice among mental health practitioners and increasing clinicians' use of EBS.

Given the promising outlook of the application of TPB to clinicians in mental health, and the large body of literature supporting the use of TPB on changing the non-mental health-related behaviors of patients and consumers, it is possible that the TPB may be a helpful model in promoting youth consumer use of EBS. Indeed, Turner (2012) suggests the TPB may be applicable to child mental health utilization based on preliminary findings from studies of help-seeking in parent populations. Somewhat relatedly, findings in the field of men's mental health also suggest that the TPB may have utility in explaining their help-seeking behavior concerning issues with personal-emotional problems and suicidality (Skogstad, Deane, & Spicer, 2006). Additionally, attitudes towards psychological help has been found to predict help-seeking intentions in male prison inmates (Smith, Tran, & Thompson, 2008) and college students (Vogel, Wester, Wei & Boysen, 2005; Deane & Todd, 1996), suggesting that interventions designed to target negative attitudes may increase willingness to obtain mental health services in these populations. When investigating parental consumer preferences in the context of the TPB, it is suggested that a parent-centered construct, intent to engage in EBS, can serve as a proxy for the actual behavior of obtaining EBS for their children (Chang, Orimoto, Selbo-Bruns, Chorpita, & Nakamura, under review). From a theoretical perspective, this intent construct would also be predicted by the three variables of behavioral intention: attitudes (i.e., expectations regarding the benefits of EBS), perceived behavioral control (i.e., obstacles restraining the belief that one could obtain EBS successfully), and/or subjective norms (i.e., the normative influences of family, school staff, and therapist recommendations). Evaluating these factors in parent consumers has the potential for multiple practical implications. For example, clinicians might be able to better understand parent consumers' attitudes towards research-supported treatments and subsequently nuance services to fit better with those attitudes during the course of treatment.

Research on these constructs might also improve the proliferation of EBS by better targeting parents' perceived behavioral control via media campaigns. The next logical step would therefore be to develop a method of validly and reliably assessing parent intent to engage in EBS based on these TPB-related predictors.

Examining Parents' Perspectives and Intentions to Engage in EBS

One measure of general help-seeking that applies the TPB to child mental health utilization in parents is the Parental Attitudes Towards Psychological Services Inventory (PATSPI; Turner, 2012). The PATSPI was adapted from the Attitudes Toward Seeking Professional Psychological Help Scale (ATS-PPHS; Fischer & Turner, 1970), which is considered the "gold standard" for examining general help-seeking attitudes in adult samples. The ATS-PPHS was modified to assess parental attitudes toward mental health services for children, while also considering TPB predictors related to external barriers (perceived behavioral control) and preferences to seek advice from others (subjective norm). The PATSPI is comprised of 21 Likert-scale items assessing the three scales of help-seeking attitudes, help-seeking intentions, and mental health stigma. The PATSPI has demonstrated utility in preliminary studies of the general help-seeking attitudes of parents indicating good internal consistency (Turner & Liew, 2010). However, its psychometrics properties warrant further examination given limitations related to sample characteristics and methodological issues (Turner, 2012). For example, Turner's (2012) instrument development sample was composed of mostly female caregivers from three different research sites and the test-retest reliability was low to moderate across subscales due to variability across retest administrations.

Another instrumentation effort specifically designed for examining consumer attitudes towards EBS has begun fairly recently with the development of the Consumer Attitudes towards

Evidence-Based Services scale (CAEBS; Teh & Mueller, 2011). The CAEBS is a 29-item survey

that assesses general EBS attitudes for consumers hypothetically seeking mental health services

for themselves or a loved one. Participants respond on a 5-point Likert-scale the extent to which

they agree with statements related to five areas: Radical Support of EBS Implementation,

Barriers to Consumer Empowerment, Trust in the Benefits of EBS, Skepticism about Science,

and Cultural Incompatibility Concerns. Although the factor structure of the CAEBS was

explored with an undergraduate student population, the generalizability and psychometric

properties of the measure (i.e., test-retest reliability, content validity) could benefit from further

development and testing efforts[2].

 Despite showing initial evidence of sound factor structure, the CAEBS' content validity,

or the degree to which an assessment is relevant to and representative of a targeted construct,

was not explored during its development. Building upon Teh & Mueller's (2011) investigation,

the Parent Engagement in Evidence-Based Services questionnaire (PEEBS; Chang et al., under

review) was recently developed in order to further refine the CAEBS, with measure development

processes emphasizing content validity and guided by TPB principles, while also focusing on a

target population of parents of youth with mental health concerns. Content validity is important

to ensure that the assessment measure can satisfactorily demonstrate that the construct of interest

explains the variance in obtained scores (Haynes, Richard, & Kubany, 1995). An instrument that

is content invalid may run the risk of overrepresenting, underrepresenting, or omitting important

facets or domains of the construct, and may also include variables that are outside of the

construct domain. The main purpose of the PEEBS measure is to predict parents' behavioral

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[2] Further psychometric support for the CAEBS has been established since the pilot study; however, since the original version was used at the time of the PEEBS development, the Teh & Mueller (2011) study is cited here. Recent CAEBS findings will be referenced in the Discussion section of this manuscript.

intention to engage in EBS; which the TPB suggests can be used to proximally measure the actual behavior of obtaining EBS for their children.

Development of the PEEBS

Given the preliminary data on the usefulness of the CAEBS in measuring consumer attitudes, Chang et al. (under review) selected it as the basic instrument from which to create the PEEBS. Development of the PEEBS utilized a multimethod, quantitative and qualitative process for all elements of measure development using five types of participants that aided in the development, modification and evaluation of measure content: parents, mental health experts (e.g., Child and Adolescent Mental Health Division Mental Health Care Coordinators; youth intensive in-home therapists), education experts (e.g., Behavioral Health Specialists, Student Service Coordinators, School Psychologists), parent organization experts (e.g., staff from the Special Parent Information Network and Hawai'i Families As Allies), and university-based (e.g., graduate and doctoral level Clinical Psychologists from the University of Hawai'i at Mānoa, trained in EBS delivery and research) experts. The overall measurement development process included seven different stages described in the following sections.

Stage 1: EBS definition generation. Prior to data collection, a panel of university-based experts worked to define the construct of EBS. In all, four definitions were considered for adoption including those from: (a) the American Psychological Association's (APA) Presidential Task Force on Evidence-based Practice (APA, 2006), (b) formal criteria for "Defining Empirically Supported Therapies" (Chambless & Hollon, 1998), (c) descriptions of the multiple evidence bases used to support clinical decision making (Daleiden & Chorpita, 2005), and (d) the Teh and Mueller (2011) CAEBS measure. Based on a synthesis of the existing descriptions, the panel collaboratively developed and edited the EBS definition until a consensus was reached on

17

the appropriateness of the construct for use with parents. Balancing the need to acknowledge multiple forms of evidence, while keeping to a strict definition to facilitate measure development, the panel ultimately decided to adhere to a fairly circumscribed definition of EBS in the interest of simplifying the construct. This definition considered for inclusion at the beginning of the measure is more fully discussed in Stage 6: content validation.

Stage 2: item generation. The initial version of this parent consumer measure began with all 29 items of the CAEBS in order to evaluate their content validity. In order to increase the likelihood of obtaining themes representative of and relevant to the construct of parent intent to engage in EBS, semi-structured interviews were conducted with participants from the targeted population (Haynes et al., 1995). The Theme Generation Interview, a semi-structured interview developed for the purpose of this study and guided by a manual developed by Francis et al. (2004) for constructing questionnaires based on the TPB, was used to elicit responses related to attitudes, perceived behavioral control, and subjective norms (i.e., along with their associated beliefs, which collectively are thought to be predictors of behavioral intention within the TPB). The Theme Generation Interview was administered to a sample (n =12) of parents of youth experiencing emotional or behavioral problems (92% female), recruited through the University of Hawaiʻi Center for Cognitive Behavioral Therapy (UH CCBT) and the Honolulu Family Guidance Center (HOFGC) of the Child and Adolescent Mental Health Division (CAMHD). Initially parents were recruited while attempting to balance sample representativeness with youth primary problem area (e.g., disruptive behavior, anxiety, depressive, inattention/hyperactivity diagnoses). However, over time recruitment pace proved more difficult than originally anticipated and parents were selected based on availability and interest in the study. Children represented by this sample were half male ($n = 6$); age ranged from 7 to 17 years ($M = 12.2$); had

primary diagnoses related to internalizing ($n = 4$), externalizing ($n = 6$), or both internalizing and externalizing ($n = 2$) problems; and were either receiving treatment through the DOE ($n = 4$), through CAMHD ($n = 6$), or not receiving services ($n = 3$). All interviews were audiotaped and transcribed with the consent of participants. Interviews were continued until the point of data saturation, when three respondents in a row failed to produce novel themes (Francis et al., 2010).

Parent participant responses were explored using template analysis (King, 1998) in order to identify shared themes among participants. Two independent raters individually reviewed the full set of transcripts, coding all sections of the text for key spoken moments or "utterances" to (a) index them as relating to one of the template themes, (b) establish whether any additional themes could be identified, and (c) generate a preliminary item to facilitate the process of actual item generation. This process resulted in 254 items in addition to the 29 original CAEBS items, for a grand total of 283 items to be included in the following preliminary content validation process.

Stage 3: preliminary content validation. The preliminary content validation process entailed revision of the working thematic template through several meetings with the primary investigator and entire panel of university-based experts. Multiple discussions ensued to clarify superordinate domains (attitudes, perceived behavioral control, subjective norms) and subdomains based on the items listed within each category. Throughout interviews, parents identified themes that did not clearly align with one of the three predictors of the TPB. Thus, a general treatment factors domain was added. This domain describes various aspects of the treatment process that are not specifically related to EBS, but nonetheless influence parents' treatment related decisions (i.e., treatment location, rapport with therapist). Additionally, as suggested by Francis et al.'s (2004) manual, a behavioral intention domain was created and

19

comprised of one item to directly measure generalized intention ("I intend to seek out and obtain EBS for the treatment of my child's problems").

Following the clarification of domains, the university-based panel then worked to generate well-formed items, combine items with similar concepts to reduce redundancy, delete irrelevant or low base-rate items (e.g., case specific issues that would likely not generalize to other parents), create construct definitions for each domain, and ensure all domains were adequately covered. At the end of Stage 3, 76 items generated through interviews with parent participants were added to the original list of 29 CAEBS items, for a combined 105 items brought forward to the next stage.

Stage 4: item and definition modification. Eight expert participants were recruited to adapt and modify all 105 items to be appropriate for use with a parent population. In addition to reviewing the 105 items created in Stage 3, participants also reviewed how EBS was defined for the current study. Each of the 105 items were randomly assigned to three of the eight experts, resulting in each expert receiving an average of 36 items derived from all five superordinate domains (attitudes, perceived behavioral control, subjective norm, general treatment factors, behavioral intention) along with the definition of EBS for modification. Participants were asked to reword each item for parent appropriateness while maintaining the same meaning of the original item. In order to address the representativeness of the item pool, participants were also given the opportunity to suggest additional items if they felt there were topics not included in their item set that might influence parents' intent to seek EBS based on their attitudes, perceived behavioral control, subjective norm, general treatment factors, or any other domain not mentioned. In sum, all 105 items and the EBS definition were each modified by three

participants resulting in up to three variations of each item. Following this procedure, a total of 243 items and seven definitions of EBS were indicated.

Stage 5: item and definition evaluation. Next, eight expert participants were recruited to "judge" all 243 items and seven EBS definitions on two dimensions: content validity (i.e., degree to which the item measures or is relevant to parents' intent to engage in EBS) and language appropriateness (i.e., appropriate for a parent population in wording and clarity). Participants were asked to rate language appropriateness on a scale from 1-4 (1 = inappropriate, 2 = slightly inappropriate, 3 = appropriate, 4 = very appropriate) based on how appropriately worded the item was for a parent population. A definition of each domain was provided to participants in order for them to rate the content validity of statements on a scale from 1-5 (1 = poor, 2 = fair, 3 = average, 4 = good, 5 = excellent). In order to address the representativeness of items, participants were given the opportunity to add items to the pool to capture important ideas not mentioned within a given domain. Similarly, for each EBS definition, participants were asked to provide a content validity rating, or the degree to which the rater felt the statement measured the construct, along with a language appropriateness rating.

Each item received four content validity and four language appropriateness scores by four different experts. Items were then distilled using the following methods. First, within each subset of modified items, including the original item and up to three modified versions provided by experts, the item with the highest language appropriateness score was retained for further evaluation. This resulted in the reduction of items from 243 to 109. Second, the remaining 109 items were rank ordered by their content validity scores within their subdomains and the bottom quartile was eliminated to further reduce the items from 109 to 82. The definition with the

highest mean content validity score and language appropriateness rating was retained to be included in the instrument's instructions for review in Stage 6.

Stage 6: content validation. In this stage, the university-based experts further refined the items to help ensure that all domains and subdomains contained items best matched to their represented constructs. To increase the reliability of the behavioral intention domain, the panel generated two more items measuring behavioral intention. Based on suggestions from Clark and Watson's (1995) steps to objective scale development, the panel also evaluated each item to ensure that items were simple, concise, reflected a single idea, and received adequate readability scores (Flesch-Kincaid Grade Level Test average score across all items = 6.8 grade level).

After a consensus was reached on the appropriateness of the items and domain fit, a final measure was produced containing 66 items within five superordinate domains: 13 attitude, 32 perceived behavioral control, nine subjective norm, nine general treatment factors, and three behavioral intention. The 5-point Likert-scale (i.e., with one indicating "strongly disagree" to five indicating "strongly agree") response format of the CAEBS was retained, and the sequencing of the 66 items was randomized to control for order effects.

Although a definition of EBS was created in previous stages to be included in the measure instructions as a reference for parents unfamiliar with the term, the panel determined that parents might still struggle to understand the construct (defined for them at the beginning of the survey) and apply it to the items (i.e., simultaneously remembering the EBS definition while answering all items or going back and forth between reading the definition at the top of the page and answering the items). There were also concerns that the wording of the definition and instructions were constructed in such a way as to bias participant responses positively, towards favoring EBS. Therefore, the definition of EBS was omitted from the instructions, and the term

was removed from all items and systematically replaced with similar terms (e.g., "research-based treatments") based on the definition (e.g., an item such as "I would feel comfortable asking my child's therapist to use evidence-based services" was changed to "I would feel comfortable asking my child's therapist to use treatments based on research").

Stage 7: final content validation. Finally, a small sample ($n = 10$) of parents provided feedback concerning the length, readability, clarity of directions, and overall formatting. Verbal parent feedback at this stage indicated strong and positive support for all aspects of the measure. This preliminary measure of parents' intent to engage in EBS was named the Parent Engagement in Evidence-Based Services questionnaire (PEEBS).

Haynes et al. (1995) suggest that this multimethod approach for generating (e.g., examining the literature, interviewing a sample from the target population, receiving input from experts in the field, utilizing other assessment measures) and reviewing items (e.g., having experts provide both quantitative ratings and qualitative feedback) is essential for establishing an instrument's content validity. As the creation of the PEEBS involved all of these methodological suggestions, it is hoped that the PEEBS will subsequently demonstrate strong psychometric qualities and eventually be used to develop an understanding of why parents may or may not choose EBS for their children's mental health needs.

Current Study

The current study administered the PEEBS to a large sample of undergraduate students at the University of Hawaiʻi at Mānoa in an effort to evaluate its psychometric properties. Specifically, the current study had four overarching aims: (a) explore the validity (in this case factor structure) of the PEEBS, (b) confirm the factor structure of the PEEBS, (c) examine the

convergent validity of the PEEBS, and (d) examine the reliability (i.e., internal reliability, test-retest reliability) of the PEEBS.

With respect to the first two aims, the instrument's content validity was assessed via exploratory and confirmatory factor analysis with an undergraduate convenience sample. It was hypothesized that a five-factor structure solution (i.e., attitudes, perceived behavioral control, subjective norm, general treatment factors and behavioral intention) would be found, based on the measure's content validation development process. With regard to the third aim, it was predicted that the PEEBS would show evidence of convergent and discriminant validity based on correlations of the scale scores with hypothetically related variables. Lastly, with respect to the fourth aim, it was hypothesized that the PEEBS would demonstrate adequate reliability using a two-week test-retest paradigm, and that each of the subscale factors would demonstrate internal consistency. The development and subsequent usage of a valid and reliable measure of parent intent to engage in EBS could aid community- or population-based implementation efforts by allowing for the creation of strategies to alter factors affecting parents' intentions for seeking and using EBS, informing interventions aimed at increasing such intentions for EBS, and tailoring EBS interventions to suit specific consumer needs.

CHAPTER 2. METHODS

Participants

Participants were recruited from the University of Hawaiʻi at Mānoa's Department of Psychology Sona Systems between June 2, 2014 and May 6, 2015. A convenience sample of undergraduate students was utilized due to feasibility issues and the desire to refine the PEEBS as much as possible before administering it to a sample of parent consumers. A total of 688 participants responded to the survey battery inquiry (see "Measures" section below). Data from 54 participants were removed due to complete absence of the PEEBS measure, resulting in a total of 634 participants used for final data analysis. Participants ranged in age from 18 to 67 years ($M = 20.9$, SD = 4.7) and 70% were female ($n = 443$). Participants' self-reported ethnicities were: Asian ($n = 393$, 62%), White ($n = 260$, 41%), Native Hawaiian/Other Pacific Islander ($n = 97$, 15%), Hispanic/Latino ($n = 55$, 8%), Black/African American ($n = 33$, 5%) and Other ($n = 28$, 4%). A majority of the total sample consisted of the following additional demographic characteristics: approximately 91% ($n = 580$) were single and had never been married; all participants were undergraduate students with about 4% ($n = 24$) reporting they received a bachelors, masters or doctoral/professional degree; and 29% ($n = 182$) were unaware of their family income. A large percentage of the sample ($n = 545$, 86%) reported not being familiar with the term "Evidence-Based Services." Majority of participants reported not having any children ($n = 602$; 95%), with 32 participants indicating they had one or more children. Four of the participants with children indicated that their children had received mental health services; two participants indicated they were EBS, and two reported they did not know whether the treatment their child engaged in was evidence-based. 85% ($n = 537$) of the overall participants reported never receiving mental health services for themselves, and of the 10% ($n =$

67) who indicated they had received mental health services in the past, the majority of

participants (n = 46, 68%) reported not knowing whether the treatment they received was EBS.

Aim 1. 330 participants were randomly selected from the total sample (N = 634), to

create a subgroup for exploratory factor analysis (EFA) purposes. Although there is no

consensus for determining adequate sample size when conducting an EFA, a sample size of 300

is generally considered good (Comrey & Lee, 1992; Tabachnick & Fiddell, 2007). Furthermore,

Gorusch (1983) recommends a subject to item ratio of five to one, and never less than 100.

Following these guidelines for the 66 PEEBS items, a sample size of 330 was deemed

appropriate for the current EFA.

Aim 2. The remaining 304 participants from the full sample were included in the

confirmatory factor analysis (CFA) subgroup. Consistent with the guidelines for determining

sample size used in Aim 1 (Comrey & Lee, 1992; Tabachnick & Fiddell, 2007; Gorusch, 1983),

the appropriate number of participants for a CFA would fall into the range of 300 to 330. Given

that this estimate is based on the original 66-item PEEBS (i.e., pre-EFA analysis conducted for

Aim 1), and it was anticipated that the total number of items on the measure would be reduced

following the EFA procedure, the sample size of 304 was deemed adequate. The demographic

characteristics for subgroup and total samples are listed in Table 1. The EFA and CFA samples

did not differ significantly by age (t = .292, p = .772); gender, $\chi^2(1)$ = .350, p = .554; marital

status, $\chi^2(3)$ = 1.933, p = 5.86; level of education, $\chi^2(7)$ = 7.588, p = .370; income, $\chi^2(10)$ =

8.606, p = .570; ethnicity [Asian, $\chi^2(1)$ = 2.990, p = .084; Native Hawaiian/Other Pacific

Islander, $\chi^2(1)$ = 2.751 p = .097; Black/African American, $\chi^2(1)$ = 2.980, p = .084;

Hispanic/Latino, $\chi^2(1)$ = .031, p = .859; White, $\chi^2(1)$ = 1.162, p = .281; Other, $\chi^2(1)$ = 2.933, p

= .087], awareness of the term "Evidence-Based Services," $\chi^2(1)$ = 1.145, p = .285; participation

in mental health services, $\chi^2(1) = 5.106$, $p = .078$; or child participation in mental health services, $\chi^2(1) = 1.537$, $p = .674$.

      Aim 3. Out of the total sample (N = 634), seven participants did not complete at least one of the convergent measures (i.e., the Parental Attitudes Toward Psychological Services Inventory or Family Empowerment Scale; more fully described below in "Measures" section) and were removed from this analysis. Therefore data from a total of 627 participants were used to explore convergent validity of the PEEBS subscales.

      Aim 4. Of the 634 total PEEBS sample participants, 148 participants who completed the assessment battery within a randomly selected month (between March 16, 2015 to April 14, 2015) were invited to participate in Aim 4 of the study, which involved completing the PEEBS approximately two weeks after first completing it. 64 participants from this subgroup ($n = 148$) of the total sample opted to participate in the retest portion of the study (43% participation rate). Data from eight participants was removed from the final analysis due to these participants initiating the study, but not completing their responses. Furthermore, nine participants failed to provide their identification code, making it impossible to match their answers from Time 1 to Time 2 of completing the PEEBS. Hertzog (2008) suggests that 35-40 participants is considered an adequate sample size for test-retest reliability, therefore the 47 participants included in this portion of the study were considered sufficient. The participants who completed the test-retest study did not differ significantly from the participants who chose not to volunteer by any demographic variables, including: age ($t = .847$, $p = .398$); gender, $\chi^2(1) = .260$, $p = .610$; marital status, $\chi^2(2) = 3.264$, $p = .196$; level of education, $\chi^2(4) = 1.660$, $p = .798$; income, $\chi^2(10) = 9.747$, $p = .463$; ethnicity [Asian, $\chi^2(1) = 3.166$, $p = .075$; Native Hawaiian/Other Pacific Islander, $\chi^2(1) = 1.152$ $p = .283$; Black/African American, $\chi^2(1) = 1.029$, $p = .310$;

Hispanic/Latino, $\chi^2(1) = .072$, $p = .788$; White, $\chi^2(1) = .071$, $p = .791$; Other, $\chi^2(1) = 2.185$, $p =$

.139], awareness of the term "Evidence-Based Services," $\chi^2(1) = .240$, $p = .624$; participation in

mental health services, $\chi^2(1) = .065$, $p = .799$; or child participation in mental health services,

$\chi^2(1) = .893$, $p = .640$.

Measures

    Parent Engagement in Evidence-Based Services questionnaire (PEEBS; Chang, et al.,

under review; see Appendix A). For Aim 1, the PEEBS was comprised of 66 items measuring

parent attitudes, perceived behavioral control, subjective norms, general treatment factors and

behavioral intention in relation to their intent to engage in EBS. The PEEBS was developed

following a multimethod approach focused on content validity, while using a sample of parents

from the target population along with experts in varying fields related to children's mental

health. Completion of the PEEBS takes approximately 10-15 minutes, with respondents being

asked to indicate how much they agree with each statement on a 5-point Likert scale (1 =

"Strongly Disagree", 2 = "Disagree", 3 = "Neutral", 4 = "Agree", and 5 = "Strongly Agree").

The instructions were modified for the purposes of the current study, in order to be applicable to

students who may not be parents. Participants were asked to respond to the questions as though

they had a child for whom they were considering mental health services. Before administration,

the instructions were reviewed by a small focus group of undergraduate students to help ensure

that the purpose of the instrument was clear. For Aims 2, 3, and 4, a reduced-item, modified

version of the PEEBS resulting from Aim 1 was used for analysis.

    Family Empowerment Scale (FES, Koren, DeChillo, & Friesen, 1992). The FES was used

in Aim 3 to measure empowerment as experienced by families with youth experiencing

behavioral health care issues. The FES consists of 34 items rated on a 5-point Likert scale from 1

("not true at all") to 5 ("very true") that provide three subscales of empowerment: family (i.e., in the home), service system (i.e., interacting with professionals providing services for their child), and community/political (i.e., advocacy for improved services in general for children). The specific dimensions of empowerment are comprised of items that measure parents' attitudes, knowledge, and behaviors regarding their children's behavioral health. The FES has good internal consistency (alpha coefficients ranging from .87 to .88), test-retest reliability (Pearson correlations from .77 to .85), and an overall kappa coefficient of .77 (Koren at al., 1992). Given that increased empowerment levels in caregivers is associated with increased parent self-efficacy (i.e., confidence in interacting with and obtaining services from mental health providers) and knowledge of mental health systems (Bickman, Heflinger, Northrup, Sonnichsen, & Schilling, 1998), it was hypothesized that the PEEBS may indirectly provide some level of empowerment assessment through items related to perceived behavioral control. Cronbach's alpha coefficients for the current study sample for all measures can be found in Table 6.

Parental Attitudes Toward Psychological Services Inventory (PATSPI; Turner, 2012). The PATSPI was also used in Aim 3 to measure participants' perceptions of help-seeking when considering general mental health services for their child. The PATSPI consists of 21 items assessing help-seeking attitudes, help-seeking intentions, and mental health stigma. In its initial development study, these scales have demonstrated good internal reliabilities, with Cronbach's alpha coefficients ranging from .72 to .92. Items are scored on a 6-point Likert scale from 0 ("strongly disagree") to 5 ("strongly agree"). Studies using the PATSPI with parents have found support for its three-factor structure and adequate internal reliability across ethnicities (Turner, 2012). Given that the PATSPI is the only existing measure available that explores parent attitudes towards mental health services, and construction of the PATSPI also followed the same

theory (TPB) used in the development of the PEEBS, this measure appears suitable for testing convergent validity in Aim 3. Cronbach's alpha coefficients for the current study sample for all measures can be found in Table 6.

Demographic Data Questionnaire. In addition to collecting individual student responses on the PEEBS, PATSPI and FES, demographic data (i.e., sex, ethnicity, age, number of children, previous use of mental health services) was also obtained and used to describe the characteristics of the sample (See Appendix B).

Procedure

Participants were recruited from the University of Hawai'i at Mānoa's Department of Psychology Sona Systems and/or through recruitment emails to course instructors. Interested students were directed to Qualtrics for online administration of the assessment battery via the Sona website or a direct link provided by instructors. Participants were first prompted to read and electronically sign an online consent form (Appendix C) and provide their Sona identification number before they were allowed access to the questionnaires. Subjects were compensated for their participation by earning credit towards course required research hours, or extra credit at a specific level determined by each participating course instructor.

For Aim 4, a subset of students who completed the study within a randomly selected one-month timeslot were contacted via Sona messages to participate in a follow-up study. Participants were given the option to volunteer for the test-retest phase of the study and asked to complete the follow-up within a two-week period. Interested participants were provided with a link to Qualtrics where they signed a separate consent form (Appendix D) and retook the PEEBS. Participants were asked to provide their Sona identification number so that their

responses across the two survey administrations could be matched. All procedures and policies were approved by the University of Hawaiʻi at Mānoa's Institutional Review Board.

CHAPTER 3. DATA ANALYTIC STRATEGY

Descriptive Analyses

Basic descriptive statistics and normality tests (e.g., mean, standard deviation, skewness, kurtosis) were calculated for all PEEBS items. In order to avoid cases of missing data, structural safeguards were built into the administration of the measures via Qualtrics, such that participants were not able to proceed to the completion page if there were any incomplete responses.

Aim 1: Exploratory Factor Analysis

An exploratory factor analysis (EFA) was conducted to determine the factorial structure of the PEEBS and bolster its validity. A common factor analysis was selected to explore the underlying structure caused by the latent variables, as opposed to conducting a principal components analysis, which is mainly a data reduction method (Costello & Osborne, 2005). All 66 items from the PEEBS were included in the initial EFA. The factorability of the data was first assessed using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity (Kaiser, 1974; Bartlett, 1954). A KMO value close to 1 indicates that factor analysis should yield distinct and reliable factors, with Hutcheson and Sofroniou (1999) providing the following guidelines for interpreting KMO values: values in the .90s - 'marvelous,' values in the .80s - 'meritorious,' values in the .70s - 'middling,' values in the .60s – 'mediocre,' and values in the .50s – 'miserable,' with values below .50 being unacceptable. Bartlett's test of sphericity tests the null hypothesis that there is no relationship among the items, with significant results indicating the correlation matrix is not an identity matrix and is factorable. Next, factors were extracted based on the criterion of eigenvalues greater than 1.0 and by examining the scree plot and percent of variance explained by each factor (Fabrigar,

Wegener, MacCallum, & Strahan, 1999). Following factor extraction, items underwent oblique

(promax) rotation, which provides a more simple structure solution given that the latent

variables are likely correlated (Fabrigar et al., 1999). Cut off criteria for item loadings was set

at .32 (Comrey & Lee, 1992; Tabachnick & Fidell, 2007), and items were considered for

deletion if they loaded on two or more factors (Costello & Osborne, 2005). Finally, items failing

to load on an independent factor or demonstrating inconsistent factor loadings were individually

evaluated for appropriate placement (e.g., assignment to a related factor or removal from the

item pool).

Aim 2: Confirmatory Factor Analysis

To explore this aim, a confirmatory factor analysis (CFA) to again examine the

underlying factor structure suggested during the EFA was conducted with the data from the

remaining participants ($n = 304$). In addition to exploring whether the suggested factor structure

would provide good fit to the second half of the total sample, CFA was used to test the relative

fit of the proposed factor model when compared with a one-factor general model. The overall

goodness of fit was assessed using the chi-square (χ^2) statistic, which tests the null hypothesis

that samples and covariance matrices do not differ from one another (Hu & Bentler, 1999). A

significant chi-square value indicates that the hypothesized factor model does not fit the sample

data well enough to generalize to the population of interest. A commonly reported limitation to

using this statistic is its sample-size dependency, and tendency to indicate significance in

sample sizes greater than 200 (Hair, Black, Babin & Anderson, 2010); therefore relative chi-

square was used as an alternate goodness of fit index to the chi-square test. Researchers have

suggested that the chi-square value be divided by the degrees of freedom (χ^2/df) to reduce the

sensitivity of the chi-square statistic to sample size, with a relative chi-square ratio of 2:1 considered favorable (Kline, 1998).

To complement the chi-square statistical analyses, the literature recommends using multiple criteria to provide evidence about the overall fit of a model (MacCallum, 1986; Breckler, 1990). Therefore the following goodness-of-fit indices were used to test the hypothesized factor model: Comparative Fit Index (CFI; >.90 acceptable), Tucker Lewis Index (TLI; > .90 acceptable), Root Mean Square Error of Approximation (RMSEA; < .08 acceptable), and Standardized Root Mean Square Residual (SRMR; < .09 acceptable; Hair et al., 2010).

Aim 3: Convergent and Discriminant Validity

The strength of association between the PEEBS subscales and various children's mental health issues for caregivers were examined with 627 participants in order to evaluate convergent and discriminant validity. Pearson product correlations were computed between the PEEBS subscales uncovered in the first two aims, and two other consumer related measures (PATSPI and FES). Cohen's (1988) guidelines were used to interpret small ($r = .10$), medium ($r = .30$), and large ($r = .50$) effect sizes.

Considering the five original subscales comprising the PEEBS (attitudes, subjective norms, perceived behavioral control, general treatment factors, behavioral intention), other measures of similar constructs were chosen as convergent measures. It was predicted that subscales discovered by the EFA and confirmed by the CFA would correlate with measures of general help-seeking attitudes, help-seeking intentions, and mental health stigma in the PATSPI (Turner, 2012). Additionally, given that parents' attitudes, knowledge, and behaviors regarding their children's mental health are measured in the FES (Koren, DeChillo, & Friesen, 1992), it

was hypothesized that scores on the PEEBS may correlate with the construct of empowerment. Since the factor structure of the PEEBS was unknown at the outset of this study, this aim was primarily exploratory in nature.

Aim 4: Reliability

To explore the reliability of the measure, test-retest reliability was evaluated using a two-week test-retest paradigm and Pearson correlation coefficients. An acceptable reliability coefficient is considered to be approximately .80 or higher (Aiken, 1994), although Nunnally (1978) suggests that in the early stages of research on hypothesized measures of a construct, reliabilities of .70 or higher are sufficient. Given that the original 66-item PEEBS was administered prior to uncovering its factor structure (i.e., the reduced-item version following Aims 1 and 2), reliability coefficients for both versions of the measure will be reported. Additionally, internal consistency for each subscale of the reduced-item PEEBS was explored by examining Cronbach's alpha coefficients within Aim 1 and 2. In general, Cronbach's alpha coefficients of .80 are considered desirable (Clark & Watson, 1995), with George & Mallery (2003) providing the following rules of thumb for interpreting alpha values: "$\geq$.9 – Excellent, $\geq$.8 – Good, $\geq$.7 – Acceptable, $\geq$.6 – Questionable, $\geq$.5 – Poor, and <.5 – Unacceptable" (p. 231).

CHAPTER 4: RESULTS

Descriptive Analyses

Prior to conducting any analyses, the distribution of the PEEBS items were examined. Item level means, standard deviations, kurtosis and skewness for the items are presented in Table 2. The Shapiro-Wilk statistic for each item suggested that all items were nonnormally distributed ($p < .05$). According to West, Finch, & Curran (1995), severe nonnormality is indicated by skew values greater than 2 and kurtosis values greater than 7. The skew and kurtosis values for all items fell within these limits suggesting that although the item level data appeared nonnormal, it was not to a severe degree.

Aim 1: EFA

In order to examine the factor structure of the PEEBS, an EFA was first run on all 66 items using IBM SPSS Statistics for Windows (Version 21.0; IBM Corp, 2012). Since descriptive statistics of the data suggested some degree of nonnormality, principal axis factoring was implemented given that it does not entail any distributional assumptions (Fabrigar et al., 1999). The Kaiser-Meyer Olkin measure verified the sampling adequacy for the analysis (KMO = .886; 'meritorious' according to Hutcheson & Sofroniou, 1999), and Bartlett's test of sphericity was significant [$\chi^2 (2145) = 10021.21$, $p < .001$], indicating that a factor analysis was appropriate and could be expected to yield common factors. Seventeen factors were initially extracted using the criterion of eigenvalues greater than 1.0 (13.85, 6.81, 2.65, 2.37, 2.26, 1.67, 1.51, 1.44, 1.34, 1.29, 1.22, 1.16, 1.14, 1.09, 1.08, 1.04, 1.01), explaining 65.0% of the variance. This eigenvalue-one criterion (also known as the Kaiser-Guttman rule) has been criticized due to a tendency to overestimate the number of factors to retain (Nunnally & Bernstein, 1994). According to Stevens (2002), the scree plot provides a fairly reliable criterion for factor

selections with a sample of more than 200 participants, therefore the change in slope observed on the Scree plot indicated that a three, four, or five-factor solution would best fit the data (Hoyle & Duvall, 2004). Several authors (e.g., Gorsuch, 1983; Tabachnick & Fidell, 2001; Fabrigar et al., 1999) suggest that it is helpful to undertake several factor analyses with different numbers of specified factors when the number of factors is unclear, therefore three, four, and five factors were extracted and rotated.

The three, four and five factor solutions were examined using promax rotation. For all models, items did not load as expected based on original item development categories and no particular solution achieved simple structure (Thurstone, 1947). The variance explained did not increase substantially from three (32.3% of total variance explained), to four (35.0% of total variance explained) or five factors (37.7% of total variance explained). Therefore, upon careful examination of the different factor solutions, the five-factor solution was preferred due to making the most theoretical and intuitive sense and providing greater interpretability than the three- and four-factor models (e.g., the addition of two factors that were highly common themes during item generation interviews). Furthermore, it has been suggested that overfactoring is preferred to underfactoring due to less error as a result of too few factors, decreased false loadings and poor estimates of factor loadings (Wood, Tataryn, & Gorsuch, 1996), and the avoidance of solutions with complex patterns that are difficult to interpret (Comrey, 1978).

Items were considered for deletion if they had weak loadings (less than |.32|; Costello & Osborne, 2005) across all factors. For items that loaded on two or more factors, items were placed with the factor that it most closely related to conceptually, or eliminated if their meaning relative to the other items was unclear (Pett, Lackey, & Sullivan, 2003). Of the 66 items included in the analysis, six items (19, 21, 32, 38 55, and 60) did not load on any factor and were deleted.

Item 53 ("Mental health treatments can work for my child") cross-loaded on two factors, and was eliminated since it did not appear to contribute significantly to the overall instrument. Five other cross-loading items (27, 46, 47, 7, and 41) were retained for the final measure and assigned to an appropriate factor based on a qualitative assessment of its content (e.g., item 27: "Treatments supported by research have a history of working well" cross-loaded on factor 1 and factor 2, but was placed in factor 1 due to its similarity to those items).

The seven poorly performing items noted above were removed and a second EFA was conducted. Five factors were extracted and rotated, explaining 38.7% of the variance (eigenvalues = 11.98, 5.88, 1.81, 1.67, 1.51). The primary investigator held several meetings with the panel of university-based experts consulted in the development stages of the PEEBS for interpretation and naming of the factors. The five factors were labeled as follows based on their content: Evidence-Informed Action (29 items explaining 20.31% of the variance), Barriers to Treatment Engagement (13 items explaining 9.96% of the variance), Family Empowerment (10 items explaining 3.07% of the variance), Limited Treatment Knowledge (4 items explaining 2.83% of the variance), and Openness to Non-EBS (4 items explaining 2.57% of the variance).

Items loading on factor 1 (Evidence-Informed Action) included those characterized by a strong preference for research-based treatments (e.g., belief that therapists should implement research-based treatments and communicate the type of treatment they utilize); subjective norms influenced by professionals who are typically guided by science and research (e.g., pediatricians, psychiatrists, psychologists); direct behavioral intention to obtain, use or seek out treatments supported by research; belief in systems supporting the implementation of researched treatments (e.g., schools and therapists should only provide research-based treatments or should be responsible for bad outcomes); and trust in the effectiveness of treatments based on research

(e.g., long lasting effects, history of working well, flexibility).

Items loading on factor 2 (Barriers to Treatment Engagement) included those measuring various treatment characteristics that may influence decisions to engage in EBS such as: fit with culture or family background, indifference to treatment type, location, feasibility (e.g., access to research-based treatments or perceived effort to obtain them), cost and stigma.

Items loading on factor 3 (Family Empowerment) included content focusing on empowerment of the family unit and reliance on community relationships when deciding to engage in EBS such as: family involvement in treatment (e.g., knowing what happens and participating in sessions, knowing what works best for the child), trust in the school providing information and helping to access treatments, rapport between the therapist and the family, and subjective norms influenced by close relationships (e.g., family, school staff, parent advocates).

Items loading on factor 4 (Limited Treatment Knowledge) included items indicating a low level of knowledge regarding types of treatments therapists are using, where to find or how to access EBS, and feeling as though one lacks a basis for forming an opinion about research-based treatments.

Items loading on factor 5 (Openness to Non-EBS) reflected a general willingness to be open to treatments that are not supported by research. These items indicate a belief in the effectiveness of treatments with low levels of research support and therapists who do not follow the research, and the non-necessity of following the research or using data to show improvement from treatment.

The resulting five-factor scale of 59 items was determined to be the most parsimonious solution and was retained for subsequent analyses. All of the examined PEEBS items, as well as removed items, and rotated factor loadings from the EFA appear in Table 3. Significant

correlations between the factors ranged from small to large ($r = .13$ to $r = .59$), suggesting

varying levels of differentiation among the factors. Correlations, means, and standard deviations

for each of the subscales are presented in Table 4.

EFA internal consistency. Cronbach's alpha coefficients were calculated using the

subscales from the final model described above. All of the scores of the scales demonstrated

acceptable internal consistency (α's $= .66$ to $.93$), with the exception of Factor 5 which was

originally (pre-item deletion described below) deemed "poor" ($\alpha = .54$). Individual items from

Factor 5 were examined and it was determined that the removal of item 41 ("During treatment,

my child's therapist should show me data that my child is improving") from this factor would

improve the scale reliability from .54 ("poor") to .63 ("questionable"). Items in the other factors

were reviewed similarly, and it was decided that none of the other scale estimates would improve

with the removal of any further items from the scales (See Table 4 for final alpha coefficients).

Therefore, the resulting 58 items (total $\alpha = .93$) were retained for subsequent analyses.

Aim 2: CFA

The five-factor solution, as suggested by the exploratory factor analysis, was validated

with participant data from the CFA sample using confirmatory factor analysis procedures in

LISREL 8.80 for Windows (Joreskog & Sorbom, 2006) and maximum likelihood estimation. Fit

indices for the five-factor solution suggest moderate model fit: χ^2 (1585) = 3940.66, $\chi^2/df = 2.49$,

CFI = .92, TLI = .91, RMSEA = .07, 90% CI [.07, .08], and SRMR = .10. Factor loadings appear

in Table 5; factor correlations, means and standard deviations appear in Table 4.

A one-factor model in which all 58 items loaded on a single factor was also tested to see

whether a general factor provided better model fit than the five-factor model. The one-factor

model did not fit the data well, χ^2 (1595) = 5081.41, $\chi^2/df = 3.19$, CFI = .88, TLI = .87, RMSEA

= .12, 90% CI [.12, .12], SRMR = .11; and demonstrated worse model fit than the five-factor

model across all fit indices, χ^2 diff (10) = 1140.75, $p < .001$. Therefore, the CFA results from the

second sample (n = 304) confirmed the hypothesized 5-factor model suggested from the EFA

results of the first sample (n = 330), and indicated superior fit over a one-factor general model.

CFA internal consistency. Cronbach's alpha coefficients were calculated for the five

scales of the 58-item PEEBS using the CFA subsample. All of the scales demonstrated

acceptable internal consistency (α's = .65 to .94; see Table 4), with the exception of Factor 5

which was estimated as "poor" (α = .55). Individual items from Factor 5 were examined and the

Cronbach's alpha if item 14 ("Treatments with low levels of support may still be effective for my

child") was deleted indicated only a slight improvement to α = .57 (still in the "poor" range).

Since removal of this item would not significantly improve the scale reliability, and deletion

would bring the number of items within Factor 5 to two items, it was decided that the item would

be retained.

Aim 3: Convergent and Discriminant Validity

Convergent and discriminant validity of the final 58-item version of the PEEBS was

examined through bivariate correlations with the FES and PATSPI subscales. Prior to running

the correlations, hypotheses were made regarding the significance and direction (i.e., positive or

negative) of relationships between the PEEBS subscales with the FES and PATSPI subscales

(see Table 6). Convergent related validity was supported in that the Evidence-Informed Action

subscale of the PEEBS correlated strongly with the FES Family and Service System subscales (r

= .52 to .53, $p < .05$), along with PATSPI Help-seeking Intentions (r = .53, $p < .05$), indicating

that higher levels of commitment to research was related to higher levels of empowerment in the

home and when interacting with professionals. The Barriers to Treatment Engagement subscale

showed strong positive correlations with the PATSPI Stigmatization and Help-seeking Attitudes subscales ($r = .45$ and $.53$, $p < .05$), which showed convergence since higher feelings of stigmatization and lower attitudes towards help-seeking are indicated by Barriers to Treatment Engagement items (e.g., item #3 "Stigma about treatments makes me less likely to seek services" and item #16 "The type of treatment my child's therapist uses does not matter"). An unexpected positive correlation was found between Barriers to Treatment Engagement and the FES Community/Political subscale ($r = .30$, $p < .05$), indicating that higher levels of advocacy for improved services in general were correlated with increased focus on the characteristics of treatment. Convergence between the Family Empowerment subscale and FES Family subscale was moderate ($r = .44$, $p < .05$) and strong with FES Service System ($r = .50$, $p < .05$), providing additional support for convergent validity. Although all small in size, all convergent measure subscales correlated in the direction expected for the Limited Treatment Knowledge subscale. For example, Limited Treatment Knowledge was found to have small negative correlations with all FES scales of empowerment and PATSPI Help-seeking Intentions, and small positive correlations with PATSPI Stigmatization and Help-seeking Attitudes, providing support for convergent and discriminant validity. Finally, the Openness to Non-EBS subscale evidenced nonsignificant or small correlations with all convergent subscales, which could be expected given the unique construct represented by this scale, and providing further evidence for discriminant validity. Correlation and internal consistency coefficients, means and standard deviations of the subscales are presented in Table 7.

Aim 4: Reliability

Reliability of the PEEBS scores was estimated using a two-week test-retest paradigm. Participant responses from Time 1 to Time 2 ranged from a timeframe of 6 to 26 days ($M =$

15.04, SD = 5.36). The reliability coefficient for the overall 66-item PEEBS administered was

.70, which is considered acceptable (Nunnally, 1978). The test-retest reliability for the 58-item

PEEBS measure was also acceptable (r = .69), and the subscale coefficients were r = .67 for

Evidence-Informed Action, r = .76 for Barriers to Treatment Engagement, r = .65 for Family

Empowerment, r = .44 for Limited Treatment Knowledge, and r = .50 for Openness to Non-EBS

(all p's < .001). Means, standard deviations and reliability coefficients of the total and subscale

scores at both time points are presented in Table 8.

CHAPTER 5. DISCUSSION

This investigation examined the preliminary psychometric properties of the PEEBS in a large sample of undergraduate students asked to take the perspective of a parent with a child for whom they were considering mental health services. It was originally predicted that the PEEBS would have a five-factor structure, reflecting the subscales based on the Theory of Planned Behavior upon which the measure was initially developed. This hypothesis was not supported owing to the emergence of a separate five-factor structure in a series of exploratory and confirmatory factor analyses. Confirmatory factor analysis and scale refinement supported that the five factors represented the unique constructs of (a) Evidence-Informed Action, (b) Barriers to Treatment Engagement, (c) Family Empowerment, (d) Limited Treatment Knowledge, and (e) Openness to Non-EBS. As hypothesized, the overall PEEBS was determined to have strong internal consistency reliability, moderate to strong convergent validity, and acceptable test-retest reliability.

In the exploratory factor analysis, contrary to the original hypothesis, the subscale items related to attitudes, perceived behavioral control, subjective norms, general treatment factors and behavioral intentions loaded diversely across a different set of five factors accounting for 39% of the PEEBS' total variance (see Table 3). Upon closer inspection of item content, it appeared that the first factor (containing 29 items) represented a cluster of items that were related to a strong preference for EBS based on general positive attitudes related to research-based treatments, subjective norms influenced by professionals guided by research (e.g., pediatricians, psychologists, psychologists), and trust in the effectiveness of treatments based on research (e.g., long lasting effects, history of working well). Furthermore, all three behavioral intention items (e.g., "I intend to seek out researched treatments for my child's problems") loaded onto this

Evidence-Informed Action factor, indicating a strong desire to participate in EBS. The content of this factor is consistent with other findings suggesting that consumers can indeed possess positive views towards evidence and strong levels of trust in EBS (Teh, Hayashi, Latner, & Mueller, 2016; Tanenbaum, 2008a).

The items that comprised the second factor, Barriers to Treatment Engagement, reflected another deviation from the hypothesized structure. This factor contained 13 items most closely related to the original general treatment factors subscale, indicating various treatment characteristics (e.g., location, access, stigma, cost) that may be more pressing and relevant to individual decisions to engage in EBS for their children. Similarly, when evaluating parent feedback on the design of a parenting program, Cunningham and colleagues (2015) found that most participants valued options supported by either research or therapist recommendations, but felt that other features of the program (e.g., format, flexibility in pace and timing of sessions) were more significant than the quality and source of evidence supporting the program's efficacy. This factor seems to speaks to those features, while also touching upon concerns related to EBS specific components such as potential incompatibility between research and culture or family background.

The third factor, Family Empowerment, included items closely associated with the family unit and relationships within the community as an important influence on EBS related decisions. These items captured family engagement in treatment (e.g., involvement in sessions, knowing what works best for the child); trust in the school (e.g., to provide information and access to EBS) and subjective norms influenced by the school, family, and parent advocates; and rapport between the family and therapist. Schools have become a key context for delivering comprehensive mental health services, by reducing many barriers to parental involvement and

increasing student access to services (Weist, Lever, Bradshaw, & Owens, 2014; Grunbaum et al., 2004). Therefore, it is not surprising that this factor emerged indicating a preference for the school and community's role in advocating for EBS.

Upon deeper exploration of the first three factors, it is suggested that there may be a relationship between perceived behavioral control items within these groups and the diverse approaches parents may have for obtaining information about treatment. For example, Cunningham and colleagues (2008) have identified three unique parent groups (Action, Information, and Overwhelmed) concerning preferences for obtaining information on their children's mental health problems. Action-oriented parents, who may resonate with views in the Evidence-Informed Action factor, prefer evidence-informed strategies, active learning materials, and are solution- and advocacy-focused. The Information parent segment tends to choose materials that help them understand rather than solve their child's problems, and can be sensitive to logistical factors of treatment, much like items related to Barriers to Treatment Engagement. The Overwhelmed parent segment tends to have greater levels of impairment in child and family functioning, and higher personal depression scores than those in the Action or Information segments, and are less willing to change how informed they were, which may account for similar items in Family Empowerment (e.g., "Regardless of what the research says, I know what works best for my child."). It is likely that consumer empowerment and perceived confidence and control in engaging in EBS would most likely vary across these three parent segments and factors, given their preferences and attributes. Although not a perfect overlap, given the similarities between Cunningham et al.'s (2008) three segments and the first three factors, EBS implementation efforts might benefit from developing a wide array of approaches that target

diverse parent information preferences and perceived behavioral control about acting on those preferences.

Furthermore, a content review of the items that did not load during the exploratory factor analysis alluded to an element of feeling overwhelmed by service related decisions (e.g., "I am overwhelmed by treatment options"; "I will utilize whatever treatment services are offered to me"). Although these items were deemed psychometrically poor and deleted from the measure, it may be important to potentially consider these items as representative and evidence of a separate factor construct consisting of prospective scale items that reveal the importance of parent stress on engagement in EBS and treatment in general. Indeed, parent engagement and empowerment or confidence in navigating mental health service needs has been found to correlate with parental levels of stress (Bode at al., 2016), therefore it is possible that the aforementioned items did not fully capture a construct of parental stress, or that these samples did not perceive high levels of parenting stress due to the majority of participants not being parents. Given that higher levels of parental stress may negatively affect parent empowerment or engagement in services, items of this nature may be important to consider for future revisions of the scale.

The fourth factor, Limited Treatment Knowledge, emerged as a result of four items reflecting low levels of knowledge for accessing, identifying, or forming opinions about EBS. This is not surprising given that 86% of the sample indicated they had never heard of the term "Evidence-Based Services", with 68% not knowing whether mental health services they received for themselves in the past were evidence-based. Similarly, recent focus groups with adolescents receiving substance use treatment and their caregivers found that only two of the 53 participants had ever heard the term evidence-based practice, and only one participant could define it correctly (Becker, Spirito, & Vanmali, 2015). This lack of knowledge about EBS suggests that

there is much to be gained with regard to our field's direct-to-consumer efforts for increasing consumer knowledge and help-seeking behaviors (Chamberlain, 2016). Optimistically however, the rise of novel information delivery formats including social media and other internet-related platforms continues to support and improve upon such efforts, with treatment developers and other stakeholders increasingly capitalizing on different tools to better engage the public and explain the pertinence of EBS (Chamberlain, 2016; Nakamura et al., 2011).

The fifth and final factor – Openness to Non-EBS – emerged as a result of three items indicating skepticism about EBS, and support for therapists and treatments that are not evidence-based. Interestingly, the item "During treatment, my child's therapist should show me data that my child is improving" was dropped from this factor due to problems related to crossloading and reduced internal consistency of the scale if the item remained. Despite the demonstrated benefits of utilizing data feedback systems to improve mental health outcomes (Bickman et al., 2011; Lambert et al., 2003), and increased calls for clinicians to collect and use standardized data in real world treatment, progress in this area has been slow (Bickman, 2008). Although this item did not perform well psychometrically, the mean item-endorsement was fairly high ($M = 3.91$; $SD = 0.92$), which is in line with literature suggesting consumers may actually value careful data monitoring when making treatment related decisions (Teh et al., 2016). Despite its failure to load on any of the PEEBS subscales, this item should be retained in the measure due to its relative importance in the field, and continuing efforts should be targeted at youth and their families to increase awareness of the importance of data monitoring in improving treatment outcomes.

Findings from the present study indicated that the PEEBS was related to similar subscales of the FES and PATSPI. Specifically regarding positive attitudes towards engaging in EBS - the Evidence-Informed Action subscale, which contains all three behavioral intention items, had a

significant positive correlation with the PATSPI Help-seeking Intentions subscale. The

Evidence-Informed Action subscale also correlated strongly with the FES Family and Service

System subscales, indicating that higher levels of empowerment in the home and when

interacting with professionals may be associated with a stronger commitment to EBS. These

results suggest that given EBS exist to support parent engagement and empowerment in their

child's mental health services (e.g., Weist & Murray, 2007), mainly with the goal of increasing

attendance and retention, equal emphasis should also be placed on empowering parents to

educate themselves on the evidence base behind the interventions they choose for their child at

the outset of obtaining services. Regarding Barriers to Treatment Engagement, a strong positive

correlation was found with the PATSPI Stigmatization and Help-seeking Attitudes subscales,

which is expected given the focus on practical or feasibility features of treatment as opposed to

whether treatment is EBS. Convergence was also supported by the moderate to strong

association between the Family Empowerment subscale and FES Family and Service System

subscales. Finally, further supporting convergent and discriminant validity, were the small

correlations in the expected direction for the Limited Treatment Knowledge and Openness to

Non-EBS subscales across most FES and PATSPI subscales. Thus, these results support the

notion that when using empowerment and attitudes towards general mental health services as

proxies, the PEEBS is a potentially valid assessment of parent engagement with regard to EBS.

Turning to reliability, the final 58-item version of the PEEBS and its subscales

demonstrated acceptable to excellent internal consistency reliabilities, indicating that the items

were conceptually related but not redundant with one another (Ponterotto & Ruckdeshel, 2007).

Test-retest reliability for the overall PEEBS measure was acceptable, however reliabilities were

questionable for the Limited Treatment Knowledge and Openness to Non-EBS subscales ($r = .44$

and .50, respectively). It is noted that internal consistency for these factors were also poor to questionable (α's = .65 to .66 for Limited Treatment Knowledge and α's = .55 to .63 for Openness to Non-EBS). These lower reliability scores could be attributed to the low number of items on each scale (four items in Limited Treatment Knowledge and three items in Openness to Non-EBS), as the magnitude of coefficient alpha depends on the average inter-item correlation and total number of items in a scale (Anastasi & Urbina, 1997).

Although the current study lends psychometric evidence to the PEEBS, these results should be considered within the context of several limitations. First, the extent to which the large sample of undergraduate participants and their responses were representative of parent consumer populations remains largely unknown. It is possible that this convenience sample was more homogenous than parent consumers on variables of theoretical importance. This may have lead to reduced variance and attenuated correlations among the measured variables, thereby resulting in low estimates of factor loadings and correlations among factors (Fabrigar et al., 1999). Similar investigations utilizing parent samples will be crucial to establishing whether these patterns can be generalized to populations of youth and their families. Second, examining the questionnaire's convergent and discriminant validity was difficult, as instruments that measure parent engagement in EBS do not currently exist. Although the present study intended to investigate convergent relationships by examining PEEBS correlations with the PATSPI and FES subscales, these instruments measure general help-seeking and empowerment of parents (respectively), and are not related specifically to parent perceptions about EBS. Thus, inferences about the convergent validity of the PEEBS based on strong correlations with particular subscales in the FES and PATSPI should be interpreted with caution.

The limitations above notwithstanding, it is important to note that despite the paucity of research in the assessment of consumer perspectives on EBS, efforts to explore this poorly understood area appear to have related findings. Circling back to the CAEBS measure, from which the PEEBS was originally developed, a recent factor analysis conducted on a nationwide sample of adults seeking information about mental health services for themselves indicated four factors based on 26 of the original CAEBS items: Beliefs Regarding Therapists' Practices, Attitudes About Mental Health Policy, Negative Personal-Level Attitudes toward EBPs, and Negative Societal-Level Attitudes towards EBPs (Teh et al., 2016). The Beliefs Regarding Therapists' Practices factor bears similarities to the Evidence-Informed Action factor of the PEEBS; in fact, the item "A good therapist will use treatments that have been supported by evidence" was surprisingly retained word-for-word in both measures after considerable rounds of evaluation and psychometric testing. Interestingly, although an item concerning data collection tested as psychometrically poor for the PEEBS, "People benefit when therapists carefully track their treatment progress" was the highest loading item for the Beliefs Regarding Therapists' Practices factor of the CAEBS. As suggested earlier, perhaps this area should be further explored in parent consumer populations given the research on the importance of data tracking on treatment outcomes. The Attitudes About Mental Health Policy factor of the CAEBS contains items that express strong attitudes towards consequences of EBS use or non-use by therapists, however items of this nature were not highly endorsed through development stages of the PEEBS. It seems parent consumers appear to place more emphasis on the responsibility of the school along with the therapist for implementing EBS, but without strong views on policies to legally mandate EBS use. Negative attitudes towards EBS were organized on a personal (e.g., meeting individual needs) and societal-level (e.g., culture) for the CAEBS, whereas the PEEBS

51

categorized negative attitudes as low support for research in general or characteristics of treatment such as cultural incompatibility. The Limited Treatment Knowledge factor in the PEEBS was also supported by the high proportion of individuals who were not aware of whether they had received an EBS in the past in the CAEBS study. Although the CAEBS measure included the term "EBP" in many of their items, the authors note that participant understanding of the term may have been limited. This was the rationale for the removal of the term "EBS" from the original PEEBS measure due to low participant comprehension of the term. Although these measures target different types of consumers (i.e., parents of children with mental health concerns versus individuals making personal treatment decisions), they are the first of their kind examining consumer views on EBS, and the convergence of themes across the measures provide a promising outlook for the refinement of this construct.

Given the budding psychometric support for this measure, the PEEBS could be utilized in a number of ways in order to support increasing consumer-centered DI efforts and build awareness of effective psychosocial interventions in parent populations. Clinically, case managers or therapists might utilize the PEEBS with clients' caregivers to identify parents' perspectives on EBS, in order to best tailor client treatment plans. As an example, responses on the PEEBS could be reviewed to initiate conversations about whether perceived Barriers to Treatment Engagement (e.g., fit with culture, differences in effectiveness of various treatments) or negative attitudes about EBS might affect the efficacy of treatment. At the system of care level, data collected from the measure could be used to improve service delivery through investigating how caregiver scores relate to actual help seeking behaviors or potential behavior moderators (i.e., child diagnosis, age, or service sector), and examining the predictive power between a positive support for research and actual EBS engagement or treatment outcomes.

The PEEBS could also help inform consumer-centered design and consumer demand initiatives for EBS. Very little is known about the actual user experience of EBS, and it will be critical for treatment developers to know how best to redesign, market, and promote already effective treatments to meet the current needs and wants of youth consumers and their families. As one example, CAMHD's Evidence-Based Services Committee developed and continues to maintain a consumer-oriented website (www.helpyourkeiki.com; "keiki" means child in the Hawaiian language) aimed at disseminating information about research-supported treatments to parents and consumers across the state (Chang & Nakamura, 2013). Additionally, Cleary et al. (2007) demonstrated that workshops with consumers could be beneficial in increasing knowledge about the role of research and EBS along with intent to participate in associated programs. Such examples indicate that numerous consumer-centered efforts are already underway. However, as the next generation of EBS and innovative techniques for increasing consumer demand evolve, the PEEBS and other efforts like it can hopefully fill a crucial role in guiding the design and regularly evaluating the effectiveness of these interventions.

The current effort aimed to increase our field's understanding of parents' intentions for engaging in youth EBS for their children. Generally this study's findings suggest that the PEEBS' factor structure may be a valuable tool for assessing parental support for research-based treatments, perceived knowledge in the area of EBS, and issues related to treatment engagement barriers or level of family empowerment as important factors when making treatment-related decisions. Taken together, it is hoped that the PEEBS can serve to deepen our understanding of parents' intentions around EBS, offer a starting point for stimuli in querying and collaborating with parent consumers, and in turn, enhance the quality of mental health interventions provided to youth communities.

Table 1

Demographic Characteristics of Participants

Demographic Characteristics	Total Sample (N = 634) N(%)	EFA Sample (n = 330) n(%)	CFA Sample (n = 304) n(%)
Age			
Mean	20.92	20.97	20.87
Standard Deviation	4.70	4.37	4.95
Median	20	20	19
Minimum	18	18	18
Maximum	67	50	67
Gender			
Male	191 (30)	96 (29)	95 (31)
Female	443 (70)	234 (71)	209 (69)
Marital Status			
Single/Never Married	580 (91)	299 (90)	281 (92)
Married/Domestic Partnership	44 (7)	25 (8)	19 (6)
Separated	3 (<1)	1 (<1)	2 (<1)
Divorced	7 (1)	5 (1)	2 (<1)
Highest Level of Education			
Less than High School	1 (<1)	N/A	1 (<1)
High School/GED	239 (37)	112 (34)	127 (42)
Vocational/Technical	3 (<1)	2 (<1)	1 (<1)
Some College	367 (57)	203 (62)	164 (54)
Bachelor's Degree	18 (2)	10 (3)	8 (2)
Master's Degree	4 (<1)	2 (<1)	2 (<1)
Doctoral/Professional Degree	2 (<1)	1 (<1)	1 (<1)
Family Income			
Less than $5,000	54 (8)	28 (8)	26 (9)
$5,000 to $11,999	36 (6)	14 (4)	22 (7)
$12,000 to $15,999	20 (3)	13 (4)	7 (2)
$16,000 to $24,999	19 (3)	10 (3)	9 (3)
$25,000 to $34,999	38 (6)	16 (5)	22 (7)
$35,000 to $49,999	48 (8)	25 (8)	23 (8)
$50,000 to $74,999	64 (10)	36 (11)	28 (9)
$75,000 to $99,999	41 (6)	23 (7)	18 (6)
$100,000 and greater	90 (14)	53 (16)	37 (12)
Don't know	182 (29)	89 (27)	93 (31)
Prefer not to respond	42 (7)	23 (7)	19 (6)
Ethnicity			
Asian	393 (62)	194 (58)	199 (65)
Native Hawaiian/Other Pacific Islander	97 (15)	58 (17)	39 (13)
Black/African American	33 (5)	22 (6)	11 (3)
Hispanic/Latino	55 (8)	28 (8)	27 (9)

White	260 (41)	142 (43)	118 (38)
Other	28 (4)	19 (5)	9 (3)
Heard of the term "Evidence-Based Services"			
Yes	89 (14)	51 (15)	38 (13)
No	545 (86)	279 (85)	266 (87)
Number of Children			
0	602 (95)	315 (95)	286 (94)
1	21 (3)	10 (3)	11 (3)
2	7 (1)	2 (<1)	5 (2)
4	4 (<1)	2 (<1)	2 (<1)
Children Ever Received Mental Health Services			
Yes	4 (<1)	1 (<1)	3 (1)
Evidence-Based Services?			
Yes	2 (50)	N/A	2 (67)
Don't know	2 (50)	1 (100)	1 (33)
No	169 (26)	85 (25)	84 (27)
Not applicable	457 (72)	242 (73)	215 (71)
Prefer not to respond	4 (<1)	2 (<1)	2 (<1)
Participant Ever Received Mental Health Services			
Yes	67 (10)	41 (13)	26 (9)
Evidence-Based Services?			
Yes	7 (11)	4 (10)	3 (12)
No	14 (21)	10 (25)	4 (15)
Don't know	46 (68)	27 (65)	19 (73)
No	537 (85)	278 (84)	259 (85)
Prefer not to respond	30 (5)	11 (3)	19 (6)

Table 2

Means, Standard Deviations, Skewness and Kurtosis of Parent Engagement in Evidence-Based Services Questionnaire Items (66 items)

Item #	Item	M (SD)	Skewness	Kurtosis
16	The type of treatment my child's therapist uses does not matter.	2.18 (1.04)	0.61	-0.32
23	I am less concerned with the type of treatments being provided when they are free.	2.39 (1.09)	0.42	-0.55
37	Treatments supported by research do not fit my culture.	2.42 (1.04)	0.4	-0.36
64	Mental health treatments work quickly.	2.57 (0.92)	0.09	-0.28
15	I am not able to access treatments supported by research for my child.	2.72 (0.86)	0.03	0.03
43	Children who participated in treatment research studies are not like my child.	2.78 (0.87)	0.03	0.37
59	The location of services is the most important part of treatment.	2.84 (0.97)	0.05	-0.45
3	Stigma about treatments makes me less likely to seek services.	2.93 (0.95)	-0.018	-0.19
13	Treatments suggested online are important to me.	2.96 (0.74)	-0.01	0.06
7	Regardless of what the research says, I know what works best for my child.	2.99 (0.91)	0.18	-0.14
56	A therapist does not need to follow the research to be effective.	3.00 (0.94)	-0.12	-0.29
50	My family background affects how well researched treatments work.	3.01 (0.95)	-0.13	-0.12
65	I do not know what type of treatments therapists are using.	3.03 (0.94)	-0.16	-0.27
54	I do not know where to find therapists who use treatments based on research.	3.05 (0.97)	-0.15	-0.4
52	Research based treatments can feel impersonal.	3.09 (0.88)	-0.02	-0.09
38	I am overwhelmed by treatment options.	3.09 (0.90)	-0.13	0.14
14	Treatments with low levels of support may still be effective for my child.	3.15 (0.91)	-0.14	-0.17
47	My child's therapist should be responsible for bad outcomes when she does not choose researched treatments.	3.15 (0.98)	-0.14	-0.2
63	If a treatment is working for my child, following the research is not necessary.	3.16 (0.98)	-0.1	-0.42
21	I am willing to try any type of treatment for my child.	3.16 (1.01)	-0.14	-0.46
28	It takes a lot of effort to receive treatments based on research.	3.23 (0.84)	-0.05	0.26
4	Treatments based on research cost more than other treatments.	3.24 (0.80)	-0.1	0.3

24	Treatments suggested by school staff are important to me.	3.26 (0.85)	-0.33	0.27
58	I do not know enough about researched treatments to form an opinion about them.	3.28 (0.94)	-0.2	-0.36
57	I know how to access treatments for my child.	3.29 (0.91)	-0.15	-0.29
46	Mental health problems should only be treated by therapists who use researched treatments.	3.31 (0.87)	-0.17	0.09
42	I know if treatments are supported by research.	3.31 (0.88)	-0.08	0.01
17	The most important part of treatment is the bond between my child's therapist and our family.	3.38 (0.93)	-0.37	0.1
49	My child's school should be required to help me access researched treatments.	3.40 (0.94)	-0.38	-0.01
27	Treatments supported by research have a history of working well.	3.41 (0.76)	-0.04	0.16
11	Treatments endorsed by a parent advocate are important to me.	3.45 (0.80)	-0.23	0.1
45	Treatments suggested by my family are important to me.	3.47 (0.82)	-0.58	0.89
19	I would pay for researched treatments even if they were not covered by my insurance.	3.47 (0.91)	-0.33	0.11
60	I feel comfortable making treatment decisions for my child.	3.5 (0.83)	-0.24	0.04
51	Treatments supported by research can be modified for my child.	3.52 (0.78)	-0.06	0.12
32	I will utilize whatever treatment services are offered to me.	3.52 (0.89)	-0.23	-0.22
44	My child's therapist should always use researched treatments before trying other options.	3.53 (0.84)	-0.12	0
30	I would feel fine challenging the treatment decisions of my child's therapist.	3.53 (0.87)	-0.15	-0.34
18	I am sure of my ability to understand the research on child mental health treatments.	3.60 (0.85)	-0.36	-0.12
9	Research demonstrates whether treatments have long lasting effects.	3.61 (0.80)	-0.45	0.31
55	Treatments endorsed by other families with the same problems are important to me.	3.61 (0.80)	-0.59	0.67
39	My child's school should provide me with information about treatments based on research.	3.61 (0.87)	-0.5	0.33
8	Treatments endorsed by a psychologist are important to me.	3.64 (0.60)	-0.52	0.78
61	I expect to obtain treatments supported by research for my child's problems.	3.64 (0.77)	-0.34	0.57
2	My child's school should only provide treatments supported by research.	3.69 (0.88)	-0.15	-0.37
48	I would find out if my child's therapist uses researched treatments before starting services.	3.71 (0.83)	-0.31	0.04

62	Treatments endorsed by a psychiatrist are important to me.	3.73 (0.75)	-0.47	0.71
31	I would consider researched treatment if I knew they were covered by my insurance.	3.73 (0.85)	-0.44	0.32
53	Mental health treatments can work for my child.	3.75 (0.74)	-0.22	0.22
26	It is necessary that I participate in my child's treatment.	3.76 (0.94)	-0.38	-0.34
20	Treatments endorsed by my child's pediatrician are important to me.	3.77 (0.80)	-0.46	0.52
5	I would feel comfortable asking my child's therapist to use treatments based on research.	3.77 (0.81)	-0.48	0.34
36	I need help to choose treatments based on research for my child.	3.82 (0.80)	-0.5	0.52
10	I intend to seek out researched treatments for my child's problems.	3.82 (0.84)	-0.62	0.53
33	I want to use treatments based on research for my child's problems.	3.83 (0.77)	-0.32	0.28
29	A good therapist will use treatments that have been supported by evidence.	3.86 (0.82)	-0.42	0.27
40	I would know what happens in my child's treatment sessions.	3.86 (0.94)	-0.61	0.11
34	Treatments suggested by a therapist are important to me.	3.87 (0.70)	-0.47	0.77
41	During treatment, my child's therapist should show me data that my child is improving.	3.91 (0.92)	-0.67	0.25
1	I would prefer that the treatment my child's therapist uses is based on research.	3.92 (0.92)	-0.74	0.56
25	My child's therapist should tell me if the treatment techniques she is using are based on research.	3.95 (0.82)	-0.6	0.47
6	My family should actively learn about treatments.	3.96 (0.80)	-0.49	0.17
12	My child's therapist should help me decide the most effective treatments to use.	3.97 (0.80)	-0.68	0.69
66	I have the right to decide whether researched treatments are used in my child's sessions.	4.00 (0.83)	-0.66	0.57
35	It is my duty to learn about effective treatments for my child's problems.	4.16 (0.80)	-0.72	0.32
22	My child's therapist should make sure I understand the type of treatment she provides.	4.19 (0.88)	-0.94	0.57

Note. Items are rated on a Likert scale where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly Agree

Table 3

Factor Loadings for the Exploratory Factor Analysis of the 5-factor model

Item #		TPB Domain	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
	Evidence-Informed Action						
1	I would prefer that the treatment my child's therapist uses is based on research.	ATT	**0.77**	-0.09	-0.21	0.01	0.08
2	My child's school should only provide treatments supported by research.	PBC	**0.72**	0.10	-0.27	0.06	-0.06
31	I would consider researched treatment if I knew they were covered by my insurance.	PBC	**0.71**	-0.03	-0.15	-0.01	0.20
33	I want to use treatments based on research for my child's problems.	BI	**0.70**	-0.07	-0.02	-0.04	-0.02
5	I would feel comfortable asking my child's therapist to use treatments based on research.	PBC	**0.69**	0.04	-0.06	-0.10	0.03
61	I expect to obtain treatments supported by research for my child's problems.	BI	**0.68**	0.08	-0.01	0.07	-0.14
10	I intend to seek out researched treatments for my child's problems.	BI	**0.65**	-0.12	0.08	-0.10	0.06
29	A good therapist will use treatments that have been supported by evidence.	ATT	**0.64**	-0.06	-0.01	-0.02	-0.04
44	My child's therapist should always use researched treatments before trying other options.	PBC	**0.61**	0.19	-0.07	0.02	-0.13
25	My child's therapist should tell me if the treatment techniques she is using are based on research.	PBC	**0.61**	-0.20	0.21	-0.01	-0.09
62	Treatments endorsed by a psychiatrist are important to me.	SN	**0.58**	-0.02	-0.08	0.12	0.08

#	Item						
48	I would find out if my child's therapist uses researched treatments before starting services.	PBC	**0.57**	0.11	0.07	-0.05	-0.03
34	Treatments suggested by a therapist are important to me.	SN	**0.56**	-0.08	0.14	-0.01	0.09
20	Treatments endorsed by my child's pediatrician are important to me.	SN	**0.54**	-0.05	0.08	0.11	0.19
9	Research demonstrates whether treatments have long lasting effects.	ATT	**0.53**	0.04	0.01	-0.07	0.13
36	I need help to choose treatments based on research for my child.	PBC	**0.52**	-0.11	0.19	0.14	0.12
22	My child's therapist should make sure I understand the type of treatment she provides.	PBC	**0.52**	-0.31	0.21	0.09	.011
35	It is my duty to learn about effective treatments for my child's problems.	PBC	**0.52**	-0.31	0.29	0.13	0.01
6	My family should actively learn about treatments.	PBC	**0.49**	-0.05	0.17	-0.13	0.10
12	My child's therapist should help me decide the most effective treatments to use.	PBC	**0.49**	-0.21	0.20	-0.03	0.13
8	Treatments endorsed by a psychologist are important to me.	SN	**0.45**	0.07	0.10	-0.10	0.14
46	Mental health problems should only be treated by therapists who use researched treatments.	PBC	**0.39**	<u>0.38</u>	0.01	0.03	<u>-0.36</u>
30	I would feel fine challenging the treatment decisions of my child's therapist.	PBC	**0.39**	0.90	0.14	-0.06	0.10
66	I have the right to decide whether researched treatments are used in my child's sessions.	PBC	**0.38**	-0.12	0.26	0.22	0.01
27	Treatments supported by research have a history of working well.	ATT	**0.36**	<u>0.33</u>	0.07	-0.13	-0.04
51	Treatments supported by research can be modified for my child.	ATT	**0.35**	0.13	0.19	-0.07	0.28
42	I know if treatments are supported by research.	PBC	**0.34**	0.30	0.16	-0.19	-0.09
47	My child's therapist should be responsible for bad outcomes when she does not choose researched treatments.	PBC	**0.33**	<u>0.48</u>	-0.13	0.06	-0.22

Barriers to Treatment Engagement

23	I am less concerned with the type of treatments being provided when they are free.	GTF	-0.08	**0.68**	-0.01	0.01	0.09
16	The type of treatment my child's therapist uses does not matter.	GTF	-0.24	**0.64**	-0.03	0.01	0.09
37	Treatments supported by research do not fit my culture.	ATT	-0.22	**0.63**	0.11	0.01	0.07
64	Mental health treatments work quickly.	GTF	-0.07	**0.60**	0.09	0.03	0.05
59	The location of services is the most important part of treatment.	GTF	-0.08	**0.59**	0.29	-0.13	-0.07
43	Children who participated in treatment research studies are not like my child.	ATT	-0.21	**0.55**	0.29	-0.13	-0.07
13	Treatments suggested online are important to me.	SN	0.07	**0.48**	0.05	-0.01	0.27
15	I am not able to access treatments supported by research for my child.	PBC	-0.11	**0.48**	0.01	0.15	0.17
28	It takes a lot of effort to receive treatments based on research.	PBC	0.22	**0.45**	0.01	0.26	0.04
52	Research based treatments can feel impersonal.	ATT	-0.10	**0.40**	0.28	0.08	0.13
50	My family background affects how well researched treatments work.	ATT	0.07	**0.38**	0.18	-0.00	0.13
3	Stigma about treatments makes me less likely to seek services.	GTF	0.09	**0.36**	-0.09	0.25	0.08
4	Treatments based on research cost more than other treatments.	PBC	0.19	**0.35**	0.01	0.23	0.00

Family Empowerment

40	I would know what happens in my child's treatment sessions.	PBC	0.19	-0.05	**0.62**	-0.03	-0.12
39	My child's school should provide me with information about treatments based on research.	PBC	0.07	0.09	**0.61**	0.05	-0.23
45	Treatments suggested by my family are important to me.	SN	-0.07	0.25	**0.53**	0.11	0.00
49	My child's school should be required to help me access researched treatments.	PBC	0.07	0.22	**0.48**	0.04	-0.18
24	Treatments suggested by school staff are important to me.	SN	-0.06	<u>0.32</u>	**0.45**	-0.04	0.13
26	It is necessary that I participate in my child's treatment.	GTF	-0.20	0.02	**0.43**	-0.12	-0.16

18	I am sure of my ability to understand the research on child mental health treatments.	PBC	0.27	0.10	**0.43**	-0.22	-0.09
17	The most important part of treatment is the bond between my child's therapist and our family.	GTF	-0.01	0.19	**0.41**	-0.09	0.04
11	Treatments endorsed by a parent advocate are important to me.	SN	0.11	0.21	**0.33**	0.01	0.19
7	Regardless of what the research says, I know what works best for my child.	ATT	-0.05	<u>0.45</u>	**0.33**	-0.01	0.06

Limited Treatment Knowledge

54	I do not know where to find therapists who use treatments based on research.	PBC	-0.01	0.21	0.03	**0.60**	0.02
65	I do not know what type of treatments therapists are using.	PBC	0.10	0.21	-0.16	**0.58**	0.14
58	I do not know enough about researched treatments to form an opinion about them.	PBC	-0.05	0.19	0.19	**0.57**	0.07
57	I know how to access treatments for my child.	GTF	<u>0.32</u>	0.19	-0.01	**-0.48**	0.26

Openness to Non-EBS

14	Treatments with low levels of support may still be effective for my child.	ATT	0.22	0.16	-0.09	-0.03	**0.58**
56	A therapist does not need to follow the research to be effective.	ATT	0.03	0.26	-0.08	0.12	**0.56**
63	If a treatment is working for my child, following the research is not necessary.	ATT	0.18	0.13	-0.19	0.04	**0.50**
41	During treatment, my child's therapist should show me data that my child is improving.	PBC	0.26	-0.02	<u>0.47</u>	0.13	**-0.32**

Removed Items

53	Mental health treatments can work for my child.	GTF	0.64	-0.07	-0.15	0.42	-0.11
32	I will utilize whatever treatment services are offered to me.	PBC	0.31	0.11	0.14	0.19	0.12
19	I would pay for researched treatments even if they were not covered by my insurance.	PBC	0.29	0.04	0.17	0.22	-0.01

60	I feel comfortable making treatment decisions for my child.	PBC	0.28	0.18	0.24	0.07	-.026
21	I am willing to try any type of treatment for my child.	PBC	0.10	0.27	0.08	0.18	-0.02
38	I am overwhelmed by treatment options.	PBC	-0.10	0.29	0.30	0.08	0.28
55	Treatments endorsed by other families with the same problems are important to me.	SN	0.24	0.06	0.24	0.27	0.09

Note. ATT = Attitudes; PBC = Perceived Behavioral Control; SN = Subjective Norms; BI = Behavioral Intention; GTF = General Treatment Factors. Underlined values indicate a double loading on two or more factors. Loadings highlighted in bold indicate the factor on which the item was placed.

Table 4

Factor Correlations, Reliability Coefficient Alphas, Means and Standard Deviations for the 5-Factors and Total PEEBS Scale

PEEBS	EFA Factors					Total Scale	CFA Factors					Total Scale
	1	2	3	4	5		1	2	3	4	5	
Factor 1	-						-					
Factor 2	.09	-					-.01	-				
Factor 3	.59*	.37*	-				.73*	.26*	-			
Factor 4	.01	.35*	.09	-			-.12*	.42*	.02	-		
Factor 5	.15*	.33*	.13*	.08	-		.08	.36*	.12*	.21*	-	
Coefficient Alphas:	.93	.84	.80	.66	.63	.93	.94	.84	.76	.65	.55	.93
Item Means:	3.6	2.8	3.5	3.0	3.0		3.6	2.8	3.5	3.0	3.1	
Standard Deviations:	13.7	7.2	5.4	2.6	2.2		13.7	7.0	4.8	2.6	2.0	

Note. Factor 1 = Evidence-Informed Action; Factor 2 = Barriers to Treatment Engagement; Factor 3 = Family Empowerment; Factor 4 = Limited Treatment Knowledge; Factor 5 = Openness to Non-EBS. *$p < .05$

Table 5

Factor Loadings for the Confirmatory Factor Analysis for the 5-factor, 58-item PEEBS by Subscale

Item #		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
	Evidence-Informed Action					
25	My child's therapist should tell me if the treatment techniques she is using are based on research.	0.63				
22	My child's therapist should make sure I understand the type of treatment she provides.	0.62				
1	I would prefer that the treatment my child's therapist uses is based on research.	0.60				
12	My child's therapist should help me decide the most effective treatments to use.	0.58				
33	I want to use treatments based on research for my child's problems.	0.58				
35	It is my duty to learn about effective treatments for my child's problems.	0.58				
66	I have the right to decide whether researched treatments are used in my child's sessions.	0.54				
5	I would feel comfortable asking my child's therapist to use treatments based on research.	0.53				
6	My family should actively learn about treatments.	0.53				
20	Treatments endorsed by my child's pediatrician are important to me.	0.52				
29	A good therapist will use treatments that have been supported by evidence.	0.52				
48	I would find out if my child's therapist uses researched treatments before starting services.	0.52				
10	I intend to seek out researched treatments for my child's problems.	0.51				
31	I would consider researched treatment if I knew they were covered by my insurance.	0.51				
34	Treatments suggested by a therapist are important to me.	0.49				
36	I need help to choose treatments based on research for my child.	0.48				

8	Treatments endorsed by a psychologist are important to me.	0.46	
2	My child's school should only provide treatments supported by research.	0.45	
61	I expect to obtain treatments supported by research for my child's problems.	0.44	
9	Research demonstrates whether treatments have long lasting effects.	0.43	
44	My child's therapist should always use researched treatments before trying other options.	0.42	
62	Treatments endorsed by a psychiatrist are important to me.	0.39	
30	I would feel fine challenging the treatment decisions of my child's therapist.	0.37	
51	Treatments supported by research can be modified for my child.	0.36	
42	I know if treatments are supported by research.	0.34	
46	Mental health problems should only be treated by therapists who use researched treatments.	0.30	
27	Treatments supported by research have a history of working well.	0.27	
47	My child's therapist should be responsible for bad outcomes when she does not choose researched treatments.	0.20	
	Barriers to Treatment Engagement		
16	The type of treatment my child's therapist uses does not matter.		0.75
37	Treatments supported by research do not fit my culture.		0.70
23	I am less concerned with the type of treatments being provided when they are free.		0.67
64	Mental health treatments work quickly.		0.57
59	The location of services is the most important part of treatment.		0.56
43	Children who participated in treatment research studies are not like my child.		0.55

15	I am not able to access treatments supported by research for my child.	0.52	
52	Research based treatments can feel impersonal.	0.41	
50	My family background affects how well researched treatments work.	0.38	
3	Stigma about treatments makes me less likely to seek services.	0.37	
13	Treatments suggested online are important to me.	0.37	
28	It takes a lot of effort to receive treatments based on research.	0.29	
4	Treatments based on research cost more than other treatments.	0.27	
	Family Empowerment		
40	I would know what happens in my child's treatment sessions.		0.51
26	It is necessary that I participate in my child's treatment.		0.48
17	The most important part of treatment is the bond between my child's therapist and our family.		0.46
39	My child's school should provide me with information about treatments based on research.		0.46
49	My child's school should be required to help me access researched treatments.		0.46
18	I am sure of my ability to understand the research on child mental health treatments.		0.45
11	Treatments endorsed by a parent advocate are important to me.		0.39
24	Treatments suggested by school staff are important to me.		0.38
45	Treatments suggested by my family are important to me.		0.37
7	Regardless of what the research says, I know what works best for my child.		0.28
	Limited Treatment Knowledge		
54	I do not know where to find therapists who use treatments based on research.		0.70

65	I do not know what type of treatments therapists are using.	0.60	
58	I do not know enough about researched treatments to form an opinion about them.	0.58	
57	I know how to access treatments for my child.	-0.20	
	Openness to Non-EBS		
56	A therapist does not need to follow the research to be effective.		0.63
63	If a treatment is working for my child, following the research is not necessary.		0.53
14	Treatments with low levels of support may still be effective for my child.		0.36

Table 6.

Hypothesized Correlations Between the PEEBS and Convergent Measures: FES and PATSPI

	PEEBS Evidence-Informed Action	PEEBS Barriers to Treatment Engagement	PEEBS Family Empowerment	PEEBS Limited Treatment Knowledge	PEEBS Openness to Non-EBS
FES Family	+		+	-	
FES Service System	+	-	+	-	
FES Commun/Pol			+	-	
PATSPI HS intentions	+	-	+	-	
PATSPI Stigma	-	+	-	+	+
PATSPI HS attitudes	-	+	+	+	+

Note. PEEBS = Parent Engagement in Evidence-Based Services questionnaire; FES = Family Empowerment Scale; Commun/Pol = Community/Political; HS = Help-seeking; PATSPI = Parental Attitudes Toward Psychological Services Inventory. "+" = expected positive correlation, "-" = expected negative correlation, a blank cell indicates no predicted correlation.

Table 7.

Convergent Validity Bivariate Correlations, Internal Consistency Coefficients, Means and Standard Deviations

	1	2	3	4	5	6	7	8	9	10	11
1. PEEBS Evidence-Informed Action	-										
2. PEEBS Barriers to Treatment Engagement	.04	-									
3. PEEBS Family Empowerment	.65*	.32*	-								
4. PEEBS Limited Treatment Knowledge	-.04	.39*	.07	-							
5. PEEBS Openness to Non-EBS	-.13*	.35*	.13*	.14*	-						
6. FES Family	**.52***	-.08*	**.44***	**-.20***	.11*	-					
7. FES Service System	**.53***	-.02	**.50***	**-.19***	.10*	.89*	-				
8. FES Community/Political	.21*	.30*	**.34***	**-.15***	.14*	.59*	.68*	-			
9. PATSPI Help-seeking intentions	**.53***	**-.13***	**.37***	**-.17***	**.07**	.52*	.49*	.23*	-		
10. PATSPI Stigmatization	**-.19***	**.45***	**-.11***	**.21***	**.18***	-.34*	-.29*	-.03	-.24*	-	
11. PATSPI Help-seeking attitudes	**-.13***	**.53***	.07	**.22***	**.17***	-.15*	.12*	.14*	.14*	.69*	-
Coefficient alpha	.93	.84	.78	.65	.59	.93	.91	.89	.77	.89	.82
Mean	104.4	36.4	34.8	12.1	9.3	46.5	45.4	31.9	22.4	21.0	23.1
Standard Deviation	13.7	7.1	5.1	2.6	2.1	7.8	7.9	7.5	4.1	7.7	6.7

Note. PEEBS = Parent Engagement in Evidence-Based Services questionnaire; FES = Family Empowerment Scale; PATSPI = Parental Attitudes Toward Psychological Services Inventory.

*$p < .05$; correlations highlighted in bold aligned with hypothesized significance and directionality

Table 8.

Test-Retest Reliability Coefficients, Means, and Standard Deviations for the Total
PEEBS and Subscale Scores

Scale	Time 1 Mean (SD)	Time 2 Mean (SD)	r
Total PEEBS	193.81 (26.23)	197.96 (26.95)	.69*
Evidence-Informed Action	103.38 (17.10)	104.87 (16.79)	.67*
Barriers to Treatment Engagement	35.21 (6.57)	36.30 (7.81)	.76*
Family Empowerment	34.57 (5.74)	35.06 (5.78)	.65*
Limited Treatment Knowledge	11.81 (2.26)	12.13 (2.21)	.44*
Openness to Non-EBS	8.83 (2.18)	9.60 (2.19)	.50*

*$p < .001$

APPENDIX A. PARENT ENGAGEMENT IN EVIDENCE-BASED SERVICES QUESTIONNAIRE

PEEBS

Directions: These questions are about children's mental health treatments. Please respond based on how much you agree with each sentence. If you are not a parent, please imagine that you have a child for whom you are considering mental health services.

Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5				
1. I would prefer that the treatment my child's therapist uses is based on research.				1	2	3	4	5
2. My child's school should only provide treatments supported by research.				1	2	3	4	5
3. Stigma about treatments makes me less likely to seek services.				1	2	3	4	5
4. Treatments based on research cost more than other treatments.				1	2	3	4	5
5. I would feel comfortable asking my child's therapist to use treatments based on research.				1	2	3	4	5
6. My family should actively learn about treatments.				1	2	3	4	5
7. Regardless of what the research says, I know what works best for my child.				1	2	3	4	5
8. Treatments endorsed by a psychologist are important to me.				1	2	3	4	5
9. Research demonstrates whether treatments have long lasting effects.				1	2	3	4	5
10. I intend to seek out researched treatments for my child's problems.				1	2	3	4	5
11. Treatments endorsed by a parent advocate are important to me.				1	2	3	4	5
12. My child's therapist should help me decide the most effective treatments to use.				1	2	3	4	5
13. Treatments suggested online are important to me.				1	2	3	4	5
14. Treatments with low levels of support may still be effective for my child.				1	2	3	4	5
15. I am not able to access treatments supported by research for my child.				1	2	3	4	5
16. The type of treatment my child's therapist uses does not matter.				1	2	3	4	5
17. The most important part of treatment is the bond between my child's therapist and our family.				1	2	3	4	5
18. I am sure of my ability to understand the research on child mental health treatments.				1	2	3	4	5
19. I would pay for researched treatments even if they were not covered by my insurance.				1	2	3	4	5
20. Treatments endorsed by my child's pediatrician are important to me.				1	2	3	4	5
21. I am willing to try any type of treatment for my child.				1	2	3	4	5
22. My child's therapist should make sure I understand the type of treatment she provides.				1	2	3	4	5
23. I am less concerned with the type of treatments being provided when the treatments are free.				1	2	3	4	5
24. Treatments suggested by school staff are important to me.				1	2	3	4	5
25. My child's therapist should tell me if the treatment techniques she is using are based on research.				1	2	3	4	5
26. It is necessary that I participate in my child's treatment.				1	2	3	4	5
27. Treatments supported by research have a history of working well.				1	2	3	4	5

Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5				

28. It takes a lot of effort to receive treatments based on research.				1	2	3	4	5
29. A good therapist will use treatments that have been supported by evidence.				1	2	3	4	5
30. I would feel fine challenging the treatment decisions of my child's therapist.				1	2	3	4	5
31. I would consider researched treatment if I knew they were covered by my insurance.				1	2	3	4	5
32. I will utilize whatever treatment services are offered to me.				1	2	3	4	5
33. I want to use treatments based on research for my child's problems.				1	2	3	4	5
34. Treatments suggested by a therapist are important to me.				1	2	3	4	5
35. It is my duty to learn about effective treatments for my child's problems.				1	2	3	4	5
36. I need help to choose treatments based on research for my child.				1	2	3	4	5
37. Treatments supported by research do not fit my culture.				1	2	3	4	5
38. I am overwhelmed by treatment options.				1	2	3	4	5
39. My child's school should provide me with information about treatments based on research.				1	2	3	4	5
40. I would know what happens in my child's treatment sessions.				1	2	3	4	5
41. During treatment, my child's therapist should show me data that my child is improving.				1	2	3	4	5
42. I know if treatments are supported by research.				1	2	3	4	5
43. Children who participated in treatment research studies are not like my child.				1	2	3	4	5
44. My child's therapist should always use researched treatments before trying other options.				1	2	3	4	5
45. Treatments suggested by my family are important to me.				1	2	3	4	5
46. Mental health problems should only be treated by therapists who use researched treatments.				1	2	3	4	5
47. My child's therapist should be responsible for bad outcomes when she does not choose researched treatments.				1	2	3	4	5
48. I would find out if my child's therapist uses researched treatments before starting services.				1	2	3	4	5
49. My child's school should be required to help me access researched treatments.				1	2	3	4	5
50. My family background affects how well researched treatments work.				1	2	3	4	5
51. Treatments supported by research can be modified for my child.				1	2	3	4	5
52. Research based treatments can feel impersonal.				1	2	3	4	5
53. Mental health treatments can work for my child.				1	2	3	4	5
54. I do not know where to find therapists who use treatments based on research.				1	2	3	4	5
55. Treatments endorsed by other families with the same problems are important to me.				1	2	3	4	5
56. A therapist does not need to follow the research to be effective.				1	2	3	4	5
57. I know how to access treatments for my child.				1	2	3	4	5
58. I do not know enough about researched treatments to form an opinion about them.				1	2	3	4	5
59. The location of services is the most important part of treatment.				1	2	3	4	5
60. I feel comfortable making treatment decisions for my child.				1	2	3	4	5

Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5

61. I expect to obtain treatments supported by research for my child's problems.	1	2	3	4 5
62. Treatments endorsed by a psychiatrist are important to me.	1	2	3	4 5
63. If a treatment is working for my child, following the research is not necessary.	1	2	3	4 5
64. Mental health treatments work quickly.	1	2	3	4 5
65. I do not know what type of treatments therapists are using.	1	2	3	4 5
66. I have the right to decide whether researched treatments are used in my child's sessions.	1	2	3	4 5

APPENDIX B. DEMOGRAPHICS

Demographic Data

Age: _____

Sex: ☐ **Male** ☐ **Female**

Marital Status:
☐ Single, never married
☐ Married or domestic partnership
☐ Separated
☐ Divorced
☐ Widowed

Highest level of education completed:
☐ Less than High School
☐ High School/GED
☐ Vocational/technical
☐ Some College
☐ Bachelor's degree
☐ Master's degree
☐ Doctoral degree
☐ Professional degree (MD, JD, etc.)

Which of these categories best describes you total combined family income for the past 12 months?
☐ Less than $5,000
☐ $5,000 to $11,999
☐ $12,000 to $15,999
☐ $16,000 to $24,999
☐ $25,000 to $34,999
☐ $35,000 to $49,999
☐ $50,000 to $74,999
☐ $75,000 to $99,999
☐ $100,000 and greater
☐ Don't know
☐ Prefer not to respond

Ethnicity (please check all that apply):
☐ **Asian**
☐ **Native Hawaiian or Other Pacific Islander**
☐ **Black or African American**
☐ **Hispanic or Latino**
☐ **White**
☐ **Other (Please specify: _____)**

Have you ever heard of the term "Evidence-Based Services"?
☐ Yes ☐ No

How many children do you have? _____

Have your children ever received mental health services?
  ☐ Yes _____years ☐ No ☐ N/A ☐ Prefer not to respond
    If yes, were they evidence-based services?
      ☐ Yes ☐ No ☐ Don't know

Have you ever received mental health services?
  ☐ Yes _____years ☐ No ☐ Prefer not to respond
    If yes, were they evidence-based services?
      ☐ Yes ☐ No ☐ Don't know

APPENDIX C. CONSENT FORM

University of Hawai'i
Consent to Participate in Research
Consumer Engagement in Evidence-Based Services

My name is Jaime Pua Chang. I am a graduate student at the University of Hawaii (UH). As part of my degree program, I am conducting a research project. The purpose of my project is to learn more about consumer engagement in evidence-based services. I am asking you to participate in this project because you are at least 18 years old and you are enrolled as a student at UH Manoa.

Project Description – Activities and Time Commitment: If you decide to take part in this project, you will be asked to fill out online questionnaires regarding parent perceptions of youth mental health treatments. **If you are not a parent, please imagine that you have a child for whom you are considering mental health services.** There are 121 total items across three surveys asking how much you agree with each statement (i.e., "Treatments supported by research have a history of working well;" "Psychological problems tend to work out by themselves") and you will also be asked to provide demographic information (i.e., age, sex, marital status, etc.) prior to completing the surveys. The survey is accessed on a website which I will provide you with a link to. Completing the survey will take approximately 30 minutes. I expect around 330 people will take part in this project.

Benefits and Risks: There will be no direct benefit to you for taking part in this project. The findings from this project may help improve mental health services provided to children. There is little risk to you in participating in this project.

Confidentiality and Privacy: Research data will be confidential to the extent allowed by law. All electronic data is transported in encrypted format and is stored in password protected format. To help protect your confidentiality, the surveys will not contain information that will personally identify you and originating IP addresses are masked. All research records will be stored in a locked file in the primary investigator's lab for the duration of the research project. All other research records will be destroyed upon completion of the project. Agencies with research oversight, such as the UH Human Studies Program, have the authority to review research data.

Voluntary Participation: As a volunteer participant you may withdraw your participation at any time and for any reason without penalty or loss of benefit to which you would otherwise be entitled.

Questions: If you have any questions concerning your participation, please contact the researcher, Jaime Pua Chang, at jpchang@hawaii.edu or the research project supervisor, Dr. Brad Nakamura, at bradn@hawaii.edu. If you have questions about your rights as a research participant, you may contact the UH Human Studies Program at 808.956.5007 or uhirb@hawaii.edu.

I have read and understand the above information, and agree to participate in this research project.

Name:
Course:
4 digit SONA ID (if applicable):

APPENDIX D. RETEST CONSENT FORM

University of Hawai'i
Consent to Participate in Research
Consumer Engagement in Evidence-Based Services - Reliability Study

My name is Jaime Pua Chang. I am a graduate student at the University of Hawaii (UH). As part of my degree program, I am conducting a research project. The purpose of my project is to learn more about consumer engagement in evidence-based services. I am asking you to participate in this project as a follow up to the first Consumer Engagement in Evidence-Based Services study you participated in.

Project Description – Activities and Time Commitment: If you decide to take part in this project, you will be asked to fill out an online questionnaires regarding parent perceptions of youth mental health treatments that you filled out in the previous study. **If you are not a parent, please imagine that you have a child for whom you are considering mental health services.** There is one survey with 66 items that should take approximately 5-10 minutes to complete. I expect around 40 people will take part in this follow up study.

Benefits and Risks: There will be no direct benefit to you for taking part in this project. The findings from this project may help improve mental health services provided to children. There is little risk to you in participating in this project.

Confidentiality and Privacy: Research data will be confidential to the extent allowed by law. All electronic data is transported in encrypted format and is stored in password protected format. To help protect your confidentiality, the surveys will not contain information that will personally identify you and originating IP addresses are masked. All research records will be stored in a locked file in the primary investigator's lab for the duration of the research project. All other research records will be destroyed upon completion of the project. Agencies with research oversight, such as the UH Human Studies Program, have the authority to review research data.

Voluntary Participation: As a volunteer participant you may withdraw your participation at any time and for any reason without penalty or loss of benefit to which you would otherwise be entitled.

Questions: If you have any questions concerning your participation, please contact the researcher, Jaime Pua Chang, at jpchang@hawaii.edu or the research project supervisor, Dr. Brad Nakamura, at bradn@hawaii.edu. If you have questions about your rights as a research participant, you may contact the UH Human Studies Program at 808.956.5007 or uhirb@hawaii.edu.

I have read and understand the above information, and agree to participate in this research project.
Name:
Course:
4 digit SONA ID (if applicable):

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