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Trauma Translated into Therapeutic Practice: Posttraumatic Stress Disorder and Correspondence with Treatment Target Selection in a Usual Care Setting

A dissertation submitted in partial satisfaction of the requirements for the degree Doctor of Philosophy in Psychology

by

Nicole Katherine Starace

2012

ABSTRACT OF THE DISSERTATION

Trauma Translated into Therapeutic Practice: Posttraumatic Stress Disorder and Correspondence with Treatment Target Selection in a Usual Care Setting

by

Nicole Katherine Starace

Doctor of Philosophy in Psychology

University of California, Los Angeles, 2012

Professor Bruce F. Chorpita, Chair

Although much research has been conducted to identify efficacious psychosocial treatments for children and adolescents, the research findings have not always translated into improved mental health care in real world practice settings. Understanding what clinicians attempt to target in treatment is an essential starting point to bridging the gap between research and practice in youth mental health and improving mental health treatment for youth in real world settings, particularly given research findings that therapists tend to use a broader variety of treatment strategies with less intensity than typically found in evidence-based treatments. It is possible that clinicians in the community target broader areas of functioning than symptoms in treatment or that targets lack the focus on symptom change often seen in research trials. To address this concern, clinician-reported monthly targets of treatment and intake diagnoses for youth in the

Hawaii state mental health system were examined. Given the high rates of trauma exposure among American youth and the broad negative sequelae associated with exposure to trauma, a primary focus on the diagnosis of PTSD and the target of traumatic stress for treatment was selected. Clinician-reported monthly targets of treatment and intake diagnoses for youth in the Hawaii state mental health system were examined. With the exception of the traumatic stress, clinicians addressed similar symptoms and areas of functioning for youth with and without a PTSD diagnosis. Although clinicians did target traumatic stress for treatment significantly more often in youth with a PTSD diagnosis compared with youth without a PTSD diagnosis, the proportion of youth with a PTSD diagnosis and in which traumatic stress was a target of treatment was unexpectedly low (<50%). Furthermore, when exploratory analysis identified natural groups of cases with similar treatment targets in the sample, assignment to Multisystemic Therapy (MST) was a strongly related to grouping. This finding indicates that treatment selection may drive target selection rather than vice versa. When clinicians targeted traumatic stress in youth without a PTSD diagnosis, major depressive disorders were more frequently the primary diagnosis than in the full sample. These findings suggest that diagnosis may not be the only factor to influence clinician selection of what to address in treatment.

The dissertation of Nicole Katherine Starace is approved.

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2012

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Trauma Translated into Therapeutic Practice: Posttraumatic Stress Disorder and Correspondence with Treatment Target Selection in a Usual Care Setting

Many advances have been made in the field of child and adolescent mental health treatment over the past two decades. One important trend has been the increasing number of randomized controlled trials (RCTs) of psychosocial treatments for various disorders. The advances have partly stemmed from increased accountability demands of managed health care in the late 1980s following reports of equivocal results for psychosocial interventions (Beutler, 1979; Eysenck, 1952; Levitt 1957, 1963; Luborsky, Singer, & Luborsky, 1975). In the early 1990's the American Psychological Association, particularly within the Clinical Division (Division 12), began to identify efficacious psychosocial interventions. The APA Task Force for Psychological Intervention Guidelines developed a protocol for ranking and evaluating interventions, which considered both efficacy, whether an intervention worked in clinical trials, and effectiveness, whether an intervention could work in real world settings.

In 1995, the APA's Division 12 Task Force on Promotion and Dissemination of Psychological Procedures published a list of "empirically validated treatments," using the efficacy criteria developed by the earlier APA Task Force (Task Force on the Promotion and Dissemination of Psychological Procedures, 1995). The Division 12 list classified many treatments as "well-established," requiring at least two RCTs or a large series of well-controlled single-case experiments by at least two independent research teams. The list also classified other treatments as "probably efficacious," which required only one RCT and did not require independent replication. "Well-established" or "probably

efficacious," interventions typically included a manual of step-by-step treatment procedures and were time-limited to enhance experimental control in RCTs.

Controversy promptly followed, particularly regarding concerns of generalizability of research findings to clinical practice settings and the use of manualized treatments. One major concern about manualized treatments was the emphasis on symptom reduction (Addis & Krasnow, 2000; Kazdin, 2000). Most RCTs select individuals on the basis of a single clinical focus and then examine change in symptom levels with treatment. However, it is unclear whether this paradigm that emphasizes a single problem area and corresponding symptom reduction translates well into actual practice in community-based settings. It is possible that clinicians do not target symptoms, but instead more broadly target improved functioning. For example, in the case of a child with Oppositional Defiant Disorder, do clinicians target oppositional behavior specifically, or do they more broadly target family functioning? Although the two constructs may overlap, one would expect the clinician targeting family functioning to engage in a much wider array of clinical practices and to find treatments for oppositional behavior to be too specific and limited. Subsequently, treatment strategies may appear to lack the focus often seen in manualized treatment. Understanding the difference between clinical targets for treatment in community settings and RCTs may help psychosocial treatment developers better understand barriers to dissemination and create treatments that are more widely accepted and appear more applicable to the clientele in community settings. However, because there is little information on clinical targets in community-based settings, the differences between what clinicians target in

community settings and in what treatment manuals target in RCTs are largely speculative.

As one strategy to address some of the concerns regarding generalizability of research findings to community-based settings, researchers began to compare interventions to the active treatment a client would typically receive in the community, or usual care (UC) rather than wait list controls or placebo controls. In a meta-analytic study by Weisz, Jensen-Doss, and Hawley (2006), researchers examined RCTs that directly compared evidence-based treatments (EBTs) with UC for child and adolescent populations. After examination of 32 RCTs, Weisz et al. found that EBTs generally outperform UC with small to medium effect size (see Cohen, 1988). However, Weisz et al. encountered difficulty comparing EBTs and UC due to lack of reporting on participants, therapists, interventions, and settings, particularly for UC. In fact, the majority of published studies failed to report format of treatment sessions and therapist degree and professional discipline for the UC condition. A large percentage of studies also failed to report the participant in session (e.g. youth, parent), treatment dose, or therapist vocation (e.g. researcher or clinician) for the UC condition compared with the EBT conditions. The authors were particularly struck by the lack of reporting on what therapeutic procedures were used in UC, and stated that, "an essential starting point is a clear description of what those current practices are and who is delivering them to whom and in what contexts" (Weisz et al., 2006). Lack of reporting regarding UC makes direct comparisons of treatment effectiveness challenging and may shed doubt on findings that EBTs outperform UC due to lack of certainty that comparisons are balanced and fair. For example, one would expect a treatment with fewer and shorter sessions, less family

participation, and less advanced training of therapists to yield less effective results than one with more sessions, more family participation, and more highly trained therapists, and comparisons between treatments would be unfair.

Researchers continued to address concerns about the generalizability of research findings to community settings through increases in effectiveness research, however the number of effectiveness studies has not kept pace with the growing number of efficacy studies. Therefore, investigations by national health organizations found that the gap between research and practice continued to widen (Institute of Medicine, 2001; National Advisory Mental Health Council [NAMHC], 2001; U.S. Public Health Service, 1999). Although effectiveness studies are one avenue to address concerns about generalizability, they can be expensive and time consuming, which hinders the closure of the gap between research and practice. Additional avenues of exploring generalizability barriers, such as studies that examine the current state of UC to directly identify gaps between research and practice, are essential to reducing the aforementioned gap between research and practice.

Current Research on Usual Care

Most research to date on UC involves comparisons of UC populations to research populations, effectiveness of EBTs in UC samples, and general outcome studies of treatment in UC settings (Baker-Ericzén, Hurlburt, Brookman-Frazee, Jenkins, & Hough, 2010). With regard to comparisons between the youth in community mental health settings and the youth in research trials, research has demonstrated that youth in UC settings tend to be more ethnically diverse, come from lower SES backgrounds, have a

wider range of psychosocial stressors, greater symptom severity, and suffer from more comorbidity (Baker-Ericzén et al., 2010; Southam-Gerow, Weisz, & Kendall, 2003).

Several studies directly compare UC populations with RCT youth and family populations. Recent work by Baker-Ericzén et al. (2010) found that youth in UC with disruptive behavior problems were more likely to be older, to be male, and to have more racial/ethnic diversity than those in RCTs. The authors also surprisingly found that those in RCTs had higher symptom severity scores and greater comorbidity, but emphasized caution in interpretation as the authors did not count multiple disruptive behavior disorders (CD, ODD, DBD-NOS, and ADHD) as comorbidity in the UC condition, but RCT researchers may have considered multiple disruptive behavior disorders (e.g. ODD and ADHD) as indicative of comorbidity. The authors also found differences in the families of youth in UC, such that parents had lower education levels, lower SES, and more single-parent homes than families in RCTs. Additionally, the parents may suffer from more depression and greater parental stress in UC compared to RCTs, although the findings remain unclear. Families did not differ significantly on rates of parental psychopathology with the possible exception of depression, levels of social support, or rates of domestic violence (Baker-Ericzén et al., 2010).

Southam-Gerow et al. (2003) compared youth with anxiety disorders in UC and RCTs and found that youth in UC had more comorbid externalizing diagnoses and problems, but that there was no significant difference between youth on internalizing diagnoses and problems. Similar to the findings by Baker-Ericzén et al. (2010), Southam-Gerow et al. (2003) also found significantly higher rates of ethnically diverse, low income, and single-parent families in UC compared with RCTs.

In addition to child and family population differences, research also investigates differences in treatment for youth and families in UC settings such as higher rates of master's level social workers instead of doctoral students in clinical psychology, less supervision, longer duration of treatment, emphasis on systems of care, higher early drop out rates, and blends of multiple theoretical orientations in treatment versus treatments derived from one theoretical orientation (Accurso, Taylor, & Garland, 2011; Brookman-Frazee, Garland, Taylor, & Zoffness, 2009; Brookman-Frazee, Haine, Baker-Ericzén, Zoffness, & Garland, 2010; Kendall & Southam-Gerow, 1995; Southam-Gerow et al., 2003; Weisz, Donenberg, Han, & Weiss, 1995). Although research has emphasized treatments with behavioral and cognitive-behavioral orientations, therapists in UC settings typically self-identify as ascribing to eclectic and family systems approaches (Baumann, Kolko, Collins, & Herschell, 2006; Brookman-Frazee, Haine, & Garland, 2006; Garland, Bickman, & Chorpita, 2010; Warren, Nelson, Mondragon, Baldwin, & Burlingame, 2010).

Furthermore, when evidence based practices (EBPs; i.e. therapeutic techniques commonly found in EBTs) are used in UC, they appear to lack the intensity and depth typically seen in RCTs (Brookman-Frazee et al., 2010; Garland, Bickman, & Chorpita, 2010; Higa-McMillan et al., 2008). The lack of intensity and depth of use of EBPs often found in UC may be related to clinical formulations and targets that are more general and less focused than the emphasis on symptom reduction frequently seen in RCTs, rather than a rejection of EBPs by community practitioners. The possibility that broader clinical formulations and targets contribute to lack of use of EBPs or reduced depth in the application of EBPs underscores the need to examine UC targets of treatment to improve

dissemination efforts. The present study examines what clinicians aim to target in treatment in UC, which is a first step in determining the possible contribution of targets on use of EBPs.

Why Examine Traumatic Stress?

Traumatic stress is an ideal problem area to examine due to the high rates of youth exposure to trauma, the many and varying negative sequelae that result from exposure to trauma, the high rates of comorbidity of PTSD with other diagnoses and problem areas, and the fact that widely disseminated treatments for traumatic stress symptoms exist.

Based on a national survey of more than 1400 youth, 25% of American youth experience a traumatic event by age 16 (Costello, Erkanli, Fairbank, & Angold, 2002). In addition, at least 50% of 12 to 17 year old youth in the US report victimization in at least one form of interpersonal violence (Kilpatrick et al., 2000). A *traumatic event* is defined as one that causes "intense fear, helplessness or horror [in children, this may be expressed instead by disorganized or agitated behavior]" and must involve "actual or threatened death or serious injury, or a threat to…physical integrity" of self or others (American Psychiatric Association [*DSM-IV-TR*], 2000). *Interpersonal violence* is defined as sexual abuse/assault, physical abuse/assault, neglect, and observation of domestic or community violence. For the purposes of this paper *trauma* refers to exposure to a traumatic event and/or interpersonal violence.

Sequelae of trauma exposure. Exposure to a traumatic event can negatively impact cognitive, emotional, behavioral, and physiological growth (Aldwin & Sutton, 1998; Armsworth & Holaday, 1993; Pynoos, Steinberg, & Wraith, 1995). Conservative

estimates suggest that approximately 30% of children exposed to a traumatic event will develop posttraumatic stress disorder (PTSD), although rates vary by trauma type and diagnostic method (Perry, 1999; Runyon, Deblinger, Behl & Cooper, 2006). However, PTSD is not the only common outcome of exposure to a traumatic event. Depression, substance use, and disruptive behavior disturbances are other problem areas found frequently in children and adolescents exposed to trauma (Kilpatrick et al., 2003; Rivera & Widom, 1990; Simpson & Miller, 2002; Smith & Thornberry, 1995; Spak, Spak & Allebeck, 1997; Spak, Spak & Allebeck, 1998; Turner, Finkelhor & Ormrod, 2006; Widom et al., 1995; Widom et al., 2001). Trauma, particularly child sexual abuse, is associated with future risky sexual behaviors and self-injurious behaviors (Boyer & Fine, 1992; Elze et al., 2001; Morrow & Sorrell, 1989). Although high-risk behaviors may initially result from victimization, the behaviors also serve as risk factors for further victimization (Danielson et al., 2006). Children, adolescents, and young adults with a history of exposure to a traumatic event are at an increased risk for suicide attempts, and this relationship may be partially mediated by substance use (Brent et al., 2002).

PTSD prevalence rates. Data from the National Survey of Adolescents indicates 6-month PTSD prevalence rates of 6.3% for girls and 3.7% for boys ages 12 to 17 (Kilpatrick, et al., 2003). Interpersonal violence increases risk of PTSD compared with other forms of trauma (Brown, Cohen, Johnson, & Smailes, 1999; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995).

PTSD comorbidity. In the National Survey of Adolescents, nearly 75% of those with PTSD had at least one comorbid diagnosis (Kilpatrick et al., 2003). PTSD is commonly comorbid with depression and, to a lesser extent, with substance use disorders

(Breslau, Davis, Andreski, & Peterson, 1991; Breslau, Davis, Peterson, & Schultz, 2000; Breslau, Davis, & Schultz, 2003; Helzer, Robins, & McEvoy, 1987; Kessler et al., 1995; Kilpatrick et al., 2003). In a national sample of adolescents, as many as 70.6% of girls and 47.3% of boys with PTSD had a comorbid Major Depressive Episode (Kilpatrick et al., 2003). In the same study by Kilpatrick and colleagues (2003), 24.2% of girls and 29.7% of boys with PTSD had a comorbid substance abuse or dependence diagnosis. In a hierarchical logistic regression by Kilpatrick et al. (2000), PTSD diagnosis significantly predicted marijuana abuse/dependence (OR = 2.86) and hard drug abuse/dependence (OR = 2.41), over and above the contribution of age, gender, ethnicity, family drug and alcohol problem, physical assault, sexual assault, and witnessing violence in a national sample of adolescents.

Although many studies have reported increased rates of conduct problems in youth exposed to trauma, few have reported comorbidity rates between PTSD and conduct or disruptive behavior disorders (e.g. Kilpatrick, Saunders, & Smith, 2003). However, Saigh, Yasik, Oberfield, Halamandaris, and McHugh (2002) found significantly higher scores on the Child Behavior Checklist (CBCL) Delinquent Behaviors ($p<.05$) and Aggressive Behaviors ($p<.001$) syndrome scales for youth with PTSD compared with youth with no reported trauma history and significantly higher scores on the Aggressive Behaviors ($p<.01$) syndrome scale for youth with PTSD versus youth exposed to trauma without PTSD. Furthermore, Allwood, Dyl, Hunt, and Spirito (2008) found significantly elevated rates of conduct disorder (17.9% vs. 10.0%) in psychiatrically hospitalized adolescents with posttraumatic stress disorder.

PTSD is also commonly comorbid with other anxiety disorders. For example, Giaconia et al. (1995) found elevated rates of specific phobia (29.2%) and social phobia (33.3%) in youth meeting diagnostic criteria for PTSD compared with youth with trauma exposure only (12.1% and 11.3% respectively) and youth with no trauma exposure (8.7% and 14.6% respectively).

Treatment for PTSD. Currently, the treatment of choice for trauma in children is cognitive behavioral therapy (CBT) with a trauma focus (SAMHSA, n.d.). CBT with a trauma focus has been documented as superior to wait list, supportive counseling, client-centered, and community treatment conditions and has demonstrated consistent success in randomized controlled designs (Cohen & Mannarino, 1996, 1998; Cohen, Deblinger, Mannarino, & Steer, 2004; Deblinger, Lippman, & Steer, 1996; Deblinger, Stauffer, & Steer, 2001; King et al., 2000; Kolko, 1996; see also Runyon, et al., 2006). Although CBT with a trauma focus may be recommended as the treatment of choice for children with traumatic stress symptoms, we do not know if clinicians in UC settings apply these practices to the cases they serve. Importantly, we do not even know under what circumstances clinicians in UC settings decide to target traumatic stress. Given the high frequency of trauma exposure, the many possible negative sequelae of exposure to trauma, the importance of treating traumatic stress symptoms early on to prevent increasingly negative sequelae, and the existence of effective treatments for youth suffering from traumatic stress, traumatic stress is an ideal context in which to examine clinician selection of targets for treatment.

Treatment Targets

Although there have been a great strides in the development of efficacious psychosocial treatments for children and adolescents with traumatic stress, little is known about the current state of UC treatment for youth with these problems. Although the prevailing research paradigm for intervention is based on targeting symptoms, it is unclear if clinicians in UC prioritize or even target the symptoms for treatment. Given the degree of comorbidity and complexity of youth with traumatic stress, many of whom are served within a child welfare system, the degree to which traumatic stress symptoms are prioritized or even targeted at all by clinicians in UC settings is unclear.

Although there is some research on therapist treatment orientations and practices in UC settings, there is very little research on what therapists target in treatment (i.e., what therapists prioritize for therapeutic focus). When planning directions to a destination on a map, the first step is to locate the starting position and determine aims for arriving at the destination (e.g. avoid toll roads or highways, fastest route, etc.). Similarly, treatment targets are important to understand because in order to determine how to arrive at improved treatment outcomes for youth in UC settings, one must first understand the current state of treatment for youth and the current aims of clinicians. We currently know very little about what therapists actually do in practice, and even less about what they aim to do. It may be that therapists do not incorporate EBPs as frequently or in as much depth as researchers expect due to different treatment targets and therapeutic goals. Whereas EBTs typically focus on symptom reduction regarding a specific target or treatment focus, clinicians in UC settings may focus on broader targets such as improved familial relationships, school performance, or other functional impairments (Kazdin, 2000;

Landsverk, Garland, Reutz, & Davis, 2010; Weersing & Weisz, 2002). Therefore, before we can interpret the concordance of UC practices and EBPs for youth with traumatic stress, we must first know whether traumatic stress is even a clinical target.

Identifying and selecting treatment targets are crucial to clinical care (Nezu & Nezu, 1993). Haynes (1993) describes the selection of treatment targets as one of the most complex decisions for clinicians yet among the least researched. There continues to be little research on treatment target selection in UC. Only one article by Kelley, Vides de Andrade, Sheffer, and Bickman (2010) examines treatment targets in UC settings for youth with a variety of disorders. Kelley et al. noted that it is of utmost importance to understand treatment context before examining the use of specific techniques, particularly since selection of treatment targets is not influenced by therapeutic orientation. Although the targets examined in the Kelley et al. (2010) study differ from the targets examined in the present study, the Kelley et al. (2010) study highlights the need for greater depth of research in the area of clinician's goals in treatment to better understand clinical decision making and use of specific treatment techniques. In addition, the finding by Kelley et al. that clinician factors contribute more to the variability in selection of targets than client factors highlights the importance of more fully understanding clinical decision making and selection of targets for treatment in UC.

The authors examined clinician-reported topics addressed in UC treatment after each session using the Session Report Form, which is a subsection of the Peabody Treatment Progress and Process Battery (Bickman et al., 2007). Two hundred thirty-five clinicians across the United States completed the Session Report Form following each session for 600 youth ages 11 through 18 receiving primarily home-based counseling

(81%) and therapeutic foster care. Clinicians reported on an average of approximately 12 sessions over an average of approximately four months for each youth. Clinicians reported to address an average of 7.2 (SD = 3.9) topics per session, and reported that an average of 2.1 (SD = 2.5) topics were an important focus per session. The number of topics addressed in session in UC may explain previous research that clinicians tend to use a large variety of therapeutic techniques with little depth in sessions (Kelley et al., 2010). If a clinician addresses approximately 7 topics in a single session, it would be difficult to address them all in great depth, particularly given the report by Kelley et al. that the majority of sessions lasted 31 to 60 minutes. A clinician would only have approximately 8.5 minutes to cover each topic in session if a session lasted 60 minutes.

Therapists reported that more than half of the sessions addressed or focused on client progress (72%), emotional issues (84%), strengths of youth/family (67%), family issues (84%), friends/peer issues (68%), school/work issues (74%), behavioral issues (83%), and client hope for future (61%). The most common important foci of treatment were behavioral issues, family issues, emotional issues, and school/work issues. Therapists addressed or focused on harm to self or others (22%), problems with delinquent behavior (18%), therapeutic relationship with caregiver (16%), and alcohol/substance use (16%) the least. The authors found no correlation between clinician characteristics such as age, gender, years of experience, and educational degree and topics addressed in session. However, the researchers did find that time in treatment and certain session characteristics such as time spent in crisis, session rating, session length, and presence of only the client were significantly correlated with target selection. Specifically, they found that therapists addressed emotional issues and client hope for the

future more frequently as treatment progressed. Time spent in crisis correlated with increasing time spent on treatment process issues (e.g. motivation, therapeutic relationship, etc.), behavioral issues, family issues, harm to self or others, emotional issues, alcohol/substance use, problems with delinquent behavior, and client hope for the future, and less time on school/work issues. Higher session rating was associated with more frequently addressed treatment process, friends/peer issues, emotional issues, alcohol/substance use, strengths of youth/family, and client hope for the future, but less on behavioral issues. Client only presence in session predicted more focus on friends/peer issues and less focus on treatment process, behavioral issues, family issues, strengths of youth/family, and problems with delinquent behavior. Session length of more than an hour predicted more focus on behavioral issues. Problems with delinquent behavior were more frequently addressed early in treatment (Kelley et al., 2010).

Client characteristics such as gender, age, and severity also predicted treatment target selection. Therapists addressed or focused on behavioral issues and problems with delinquent behavior more frequently in males, and addressed emotional issues more commonly with females. Therapists addressed or focused on behavioral issues more with younger clients and addressed/focused more on alcohol/substance use, strengths of the youth/family, problems with delinquent behavior, and client hope for the future more with older clients. For youth with greater symptom severity, therapists more frequently addressed harm to self/others and emotional issues (Kelley et al., 2010).

Kelley et al. (2010) also examined the variability in treatment target selection contributed by both the client and by the clinician. For the majority of targets, clinicians contributed more to the variability, although both clients and clinicians contributed

significantly. Clinician intraclass correlation coefficients (ICCs) were greater for treatment process (34%), behavioral issues (27%), strengths of youth/family (27%), emotional issues (24%), client hope for the future (19%), family issues (17%), and friend/peer issues (16%). Client ICCs were higher for alcohol/substance use (35%), problems with delinquent behavior (24%), and school/work issues (15%). The authors suggest that the results indicate that therapists may have a general approach to treatment, which they then adapt to address certain client needs (Kelley et al., 2010). Such findings indicate that treatment selection may guide the selection of targets rather than targets guiding treatment selection.

While this study is an important step in the examination of what actually happens in UC, it may be helpful to examine some treatment targets at greater depth. The measure addresses symptom targets in a very broad manner, and items such as "emotional problems" could indicate a wide range of internalizing problems including anxiety, depression, grief, or traumatic stress. Given that so many treatment manuals target specific symptom areas, it may be helpful to gather more detailed descriptions of symptom-relevant treatment targets.

A study by Schiffman, Chorpita, Daleiden, Maeda, and Nakamura (2008) examined targets of treatment for youth with schizophrenia-spectrum diagnoses using the Monthly Treatment and Progress Summary (MTPS; Child and Adolescent Mental Health Division, 2003). The authors found that therapists were more likely to target social skills, activity involvement, psychosis, positive thinking/attitude, anxiety, medical regimen adherence, peer involvement and community involvement, assertiveness, cognitive-intellectual functioning, health management, and eating and feeding problems in youth

with schizophrenia-spectrum diagnoses compared with youth with non-spectrum diagnoses. For the schizophrenia-spectrum population, it does appear that therapists select treatment targets consistent with youth diagnosis and typical problems for youth with schizophrenia-spectrum disorders (Schiffman et al., 2008). However, it remains unclear whether clinicians target symptoms consistent with the youth's presenting diagnosis or other diagnoses more commonly found in community mental health settings.

Goals and Hypotheses

The goals of the current study were: (1) to determine if clinicians select different targets of treatment for youth with a PTSD diagnosis compared with youth without a PTSD diagnosis and how the pattern of targets for PTSD compares to the pattern of targets for another diagnosis (i.e. ADHD); (2) to identify the proportion of youth in a UC system with a PTSD diagnosis in which providers target traumatic stress in treatment and to identify potential moderators to the relationship between PTSD diagnosis and selection of traumatic stress as a target for treatment; and (3) to examine what diagnoses other than PTSD may be associated with selection of traumatic stress as a target of treatment.

Goal 1. With regards to the first goal, the hypothesis was that the common treatment targets would be significantly different for youth with PTSD and for those without a PTSD diagnosis. Specifically, traumatic stress was hypothesized to be the most common target followed by avoidance, depressed mood, anxiety, oppositional/non-compliant behavior, substance abuse/substance use, and self-injurious behavior, given the high rates of these problem areas typically found in youth suffering from PTSD. Furthermore, when PTSD was a diagnosis, a lower frequency of treatment targets was

anticipated for symptom areas not as frequently associated with PTSD, such as hyperactivity and attention problems, compared to youth without a PTSD diagnosis.

Comparison of target profiles for PTSD and ADHD. In order to determine whether the results were specific to PTSD or were more generally characteristic of the way clinicians target problems for treatment in UC, the frequency of treatment targets for youth with ADHD was examined. ADHD was selected as a comparison diagnosis due to the high rates of ADHD in the sample and because ADHD is an externalizing disorder as opposed to an internalizing disorder. The hypothesis was that therapists might select targets more consistent with diagnosis for externalizing disorders compared with internalizing disorders given research by Young et al. (2007) that found higher consistency between treatment planning documents for externalizing disorders than for internalizing disorders in the CAMHD system. The ADHD diagnosis was also a good candidate for comparison due to the relatively lower rates of selection of attention problems and hyperactivity as targets for treatment in the sample, which indicated wider specificity of target selection than the targets associated other common externalizing diagnoses (e.g. CD and ODD), such as oppositional or non compliant behavior, a frequently utilized target in the sample. A lower frequency of targets not typically associated with ADHD such as depressed mood, anxiety, phobia or fears, avoidance, traumatic stress, and grief and a higher frequency of targets typically associated with ADHD such as attention problems, hyperactivity, academic achievement, and learning disorder or underachievement was anticipated.

Cluster analysis. Further examination as to whether or not the treatment targets formed into a group of targets frequently associated with PTSD was performed. Cluster

analysis permits the identification of homogeneous subgroups or clusters within the larger sample. Cases that frequently have similar targets for treatment group together into one cluster and cases that have dissimilar targets for treatment separate into other clusters. The hypothesis was that youth with treatment targets of anxiety, avoidance, depressed mood, grief, phobia or fears, self-injurious behavior, and traumatic Stress would form a cluster that represents similar cases, due to the common comorbidity of the previously mentioned problem areas. Oppositional behavior was not included, despite common co-occurrence with traumatic stress, due to the hypothesis that oppositional behavior would form a cluster with other externalizing behavior problems given the high base rates of externalizing behavior problems within the sample.

Goal 2. With respect to the second goal, the hypothesis was that clinicians would target traumatic stress for treatment in the majority of cases when there was a diagnosis of PTSD and that the rate of targeting traumatic stress would be higher when PTSD was the primary diagnosis and highest when PTSD was the only diagnosis. However, the prediction was that the relationship between PTSD and traumatic stress would be moderated by the presence of a comorbid externalizing disorder. In the case of comorbid externalizing disorder, a provider might focus on conduct and oppositional behavior targets to the exclusion of traumatic stress.

Goal 3. With respect to the third goal, the hypothesis was that traumatic stress would appear as a target of treatment for youth with disruptive behavior disorders, depressive disorders, anxiety disorders, and substance use disorders when the youth did not have a diagnosis of PTSD. Given the high rate of disruptive behavior disorders in the

sample, disruptive behavior disorders were expected to be the most common diagnoses, followed by depressive disorders (Daleiden & Higa-McMillan, 2008).

Method

Participants

The sample consisted of 906 youth who received outpatient services through the Hawaii State Department of Health Child and Adolescent Mental Health Division (CAMHD) and had a complete service episode between January 2006 and March 2008. Only youth with at least three completed Monthly Treatment and Progress Summaries (MTPS; see below) during one service episode were selected, and only the first service episode per youth was analyzed if more than one service episode occurred during the reported time frame.

Demographics. The mean age of youth in this dataset was 13.79 (SD = 3.07) years. The majority (63.6%) of youth were male, and 36.4% were female. The reported race distribution in the sample was as follows: Multiethnic (55.7%), Caucasian (11.7%), Pacific Islander (10.3%), Asian (8.6%), American Indian/Alaskan Native (0.6%), and Other (1.2%). Race information was not available for 9.6% of the sample. The average number of completed MTPSs per youth was 7.38 (SD = 5.14), ranging between 3 and 50. The mean length of service episode was 199.4 days (SD = 105.5), with a range from 32 to 790 days. Of the 906 youth in the sample, 83 (9.16%) of youth had a PTSD diagnosis, 53 (5.85%) had a primary diagnosis of PTSD, and 13 (1.43%) had only a PTSD diagnosis. The comparison group (i.e. youth with no PTSD diagnosis) contained 823 (90.84%) youth. For youth with ADHD, 314 (34.66%) had an ADHD diagnosis, 146

(16.11%) had a primary diagnosis of ADHD, and 20 (2.20%) had only an ADHD diagnosis. The comparison group of youth without an ADHD diagnosis included 592 youth (65.34%).

Measures

MTPS. The Monthly Treatment and Progress Summary (MTPS; Child and Adolescent Mental Health Division, 2003) was developed in Hawaii and introduced in June 2003 as a provider-report, standardized measure of service format, service setting, treatment targets, clinical progress, and intervention practices (see Appendix for complete measure). CAMHD provides MTPS training, forms, intervention codebook, and optional videotaped training for clinicians and private service providers throughout Hawaii. Direct service providers for children who receive treatment through CAMHD complete the MTPS each month for each client. Only the MTPS treatment targets were examined in this study. Clinicians identify a maximum of 10 target areas for treatment during the month, which are selected from 48 predefined treatment targets and two additional open-response fields. For the purposes of the present study, the presence or absence of each treatment target over the course of a service episode was examined with specific focus on the treatment target traumatic stress.

Given the large number of treatment targets and, therefore, large number of analyses planned for this study, treatment targets that were selected in less than 5% of the total sample were excluded from the study. Infrequently endorsed treatment targets included: personal hygiene (4.97%), sexual variation or misconduct (4.75%), sleep disturbance or sleep hygiene (4.08%), suicidality (4.08%), eating or feeding problems (3.86%), enuresis or encopresis (3.20%), unclear (2.21%), psychosis (1.88%), shyness

(1.88%), mania (1.77%), gender identity problems (1.44%), information gathering (1.44%), adjustment to change (1.21%), adult intercoordination (1.21%), fire setting (0.99%), parenting skills (0.88%), speech and language (0.88%), occupational functioning 0.55%), housing or living situation (0.44%), caregiver self-management or coping (0.22%), pregnancy education or adjustment (0.22%), treatment planning or framing (0.22%), adaptive behavior or living skills (0.11%), goal setting (0.11%), safe environment (0.11%), compulsive behavior (0.00%), fitness or exercise (0.00%), other (0.00%), pain management (0.00%), and sexual orientation (0.00%). After removal of the infrequent treatment targets, 36 targets remained with frequencies ranging from 5.63% for grief to 76.93% for oppositional or non-compliant behavior.

The 2004 fiscal year CAMHD Annual Evaluation Report noted one-month test retest reliability estimates of .66 (kappa) for the predefined treatment targets, which falls into the "good" range. Three-month retest comparisons of predefined treatment targets yielded moderate reliability estimates of .52 (kappa). However, monthly variability is expected to include both measurement error and actual change in treatment focus (Daleiden, Lee, & Tolman, 2004), so these reports may underestimate the true reliability of the MTPS (i.e., the extent to which the scores are free from random error).

The CAMHD Annual Evaluation Report for the 2004 Fiscal Year also reported indicators of convergent and divergent validity of the MTPS (Daleiden et al., 2004). Treatment targets were compared with primary diagnoses through a series of Multivariate Analysis of Variance (MANOVAs), and treatment targets were generally associated with related primary diagnoses, supportive of convergent validity. Furthermore, unrelated

treatment targets were not significantly associated with primary diagnoses, indicative of divergent validity (Daleiden, et al., 2004).

Diagnosis. The CAMHD state mental health system database may include one primary Axis I diagnosis, up to two additional Axis I diagnoses, and a maximum of two Axis II diagnoses per assessment. The diagnoses from the assessment both closest to and prior to the service episode start date were used for analysis in the present study. Therefore, the diagnoses analyzed in this study represent the youth's official DOH mental health diagnoses at the start of outpatient treatment.

Although evidence-based assessments are encouraged by CAMHD, they were not required during the data collection time frame. Reliability estimates for diagnoses of youth with multiple assessments within 90 days were generally moderate. Results ranged from "Poor" for Bipolar Disorder (kappa = .31) to "Good" for substance-related problems (kappa = .65). However, only youth who received two assessments within 90 days were included in these analyses (Daleiden et al., 2004). The results may not generalize to the entire CAMHD population, as youth who received multiple diagnoses in such a short time frame could represent complex or difficult to diagnose cases. Furthermore, the reliability estimates are comparable to observations of clinical diagnoses in usual care facilities (Daleiden et al., 2004; McConville & Walker, 2000).

Diagnostic Groups. To examine the impact of comorbid diagnoses on the selection of traumatic stress as a target of treatment, data was examined at three levels of refinement. In the first group, Any PTSD, all youth with a diagnosis of PTSD were included and compared with youth with no PTSD diagnosis. Group two, Primary PTSD, consisted of youth with a primary diagnosis of PTSD, and group three, Only PTSD,

contained youth with only an Axis I diagnosis of PTSD, no additional Axis I diagnoses, and no Axis II diagnoses. Youth with ADHD were similarly separated into three groups: Any ADHD, all youth with an ADHD diagnosis, Primary ADHD, youth with a primary diagnosis of ADHD, and Only ADHD, you with a Primary ADHD diagnosis and no additional Axis I or Axis II diagnoses. Both DSM-IV-TR codes 314.00 (Attention-Deficit/Hyperactivity Disorder, Predominantly Inattentive Type) and 314.01 (Attention-Deficit/Hyperactivity Disorder, Predominantly Hyperactive-Impulsive Type and Attention-Deficit/Hyperactivity Disorder, Combined Type) were considered ADHD in this study (American Psychological Association, 2000).

Data Analytic Strategies

With respect to the first goal of determining if therapists target different areas for treatment for youth with PTSD compared with youth without PTSD, chi-square values were calculated for youth in each PTSD diagnostic group and all treatment targets to determine if the treatment targets for youth with PTSD significantly differed from youth without PTSD in the CAMHD system. Due to the large number of analyses, a modified Bonferroni procedure, as described by Holland and Copenhaver (1987), was applied to minimize the risk of Type I error while also considering Type II error rates. Specifically, p values were sorted in ascending order and alpha at each position was calculated by subtracting 1-(1-.05)^(number of tests- the position in the series + 1). Therefore, the adjusted alpha for the treatment target with the smallest p value (i.e., in position 1) would equal 1-.95^(108-1+1), the adjusted alpha for the treatment target in position 2 would equal 1-.95^(108-2+1), etc. As outlined above, the same analyses were run for youth in

each ADHD diagnostic group, to test whether the nature of the association of diagnosis to targets was specific to PTSD or perhaps was more general across other disorders.

In order to identify groups of youth with similar treatment targets and groups of youth with dissimilar treatment targets, a cluster analysis was performed. A cluster analysis is an exploratory tool that identifies natural groups within a sample or "clusters". The cluster analysis identifies homogeneous subgroups within a larger sample through measurements of distances between variables. Given the large number of variables in the sample and the fact that the number of clusters was unknown, a two-step cluster analysis was selected. A two-step cluster analysis first groups similar cases into small subgroups and then separates the subgroups into clusters based on how similar or dissimilar the small subgroups are from one another in terms of distance from the mean of each group. Hierarchical cluster analyses require calculation of the distance from the mean for every pair, which was unfeasible given the large sample. K-means cluster analyses require knowing the number of expected clusters in advance, which was not known for the present study. The two-step cluster analysis allows for identification of variables that frequently occur together within a case in large samples, such as the current sample of 906 youth, with many variables, in this case 36 treatment targets (Norusis, 2011).

To address the second goal of determining the proportion of youth with a PTSD diagnosis for whom traumatic stress is a target of treatment in the CAMHD system, the percentage of youth in all three PTSD diagnostic groups having traumatic stress selected as a treatment target was calculated. Logistic regression was used to identify potential moderators on the relation between PTSD and the traumatic stress treatment target. Potential moderating client characteristic variables examined included age, gender, any

comorbidity (including Axis II), comorbid internalizing disorder, and comorbid externalizing disorder.

In addition to client characteristic variables, the treatment characteristics of length of treatment and length of time between the diagnostic assessment and the start of treatment as potential moderating variables were examined using logistic regression. It is possible that therapists do not target traumatic stress at the beginning of treatment due to engagement and working alliance concerns. Therefore, therapists may not target traumatic stress in treatment for youth with shorter lengths of treatment, particularly given research by Kelley et al. (2010) that emotional issues tend to be addressed later in treatment. Treatment length was measured in days by comparing the date that services began with the date that services ended. Therapists may also be less likely to target traumatic stress in youth with a PTSD diagnosis as the length of time from assessment to treatment start increases since the youth's symptoms may have diminished or other problem areas may have emerged and the PTSD diagnosis may not be as relevant to the youth's current problem areas. The length of time between assessment and treatment start was measured in total number of days.

To address the question of whether the results are specific to PTSD diagnosis, treatment targets in the context of another disorder were examined. ADHD was selected as a comparison diagnosis due to the high rates of ADHD in the sample and because ADHD is an externalizing disorder as opposed to an internalizing disorder. It may be that therapists select targets more consistent with diagnosis for externalizing disorders more than internalizing disorders, given the aforementioned research by Young et al. (2007),

which found higher consistency between treatment planning documents for externalizing disorders than for internalizing disorders in the CAMHD system.

To address the third goal of determining what disorders were most associated with the targeting of traumatic stress in the absence of a PTSD diagnosis, a descriptive count of all disorders diagnosed when traumatic stress was endorsed as a treatment target in the absence of a PTSD diagnosis was performed. Depressive disorders were operationally defined as any unipolar mood disorder (i.e. Major Depressive Disorder, Dysthymic Disorder, and Depressive Disorder NOS). Disruptive behavior disorders were defined as Conduct Disorder, Oppositional Defiant Disorder, and Disruptive Behavior Disorder NOS. Diagnostic groups most frequently associated with selection of traumatic stress as a target of treatment in the absence of a PTSD diagnosis (n=70) were examined. Chi-square analyses were run for disorders that were more frequent in youth with traumatic stress selected as a target in the absence of a PTSD diagnosis than the frequencies found in the full sample to determine if the disorder was significantly associated with selection of traumatic stress as a target.

Results

Treatment Target Profiles

With respect to the first goal, chi-square values were calculated for youth in each PTSD diagnostic group and all treatment targets to determine if the profile of treatment targets for youth with PTSD significantly differed from youth without PTSD in the CAMHD system. As illustrated above, a modified Bonferroni procedure, as described by Holland and Copenhaver (1987), was applied to maximize power and minimize the risk

of Type I error. Chi-square values for youth in all ADHD diagnostic groups and all frequently endorsed treatment targets were also calculated. Treatment targets endorsed in less than 5% of the sample were not included.

Chi-square analyses were found to be statistically significant for the relationship between selection of the traumatic stress treatment target and a PTSD diagnosis for all three PTSD diagnostic groups, after adjustment of alpha levels using the above described modified Bonferroni procedure. For the Any PTSD diagnostic group, the results were statistically significant with a chi-square value of 33.77 ($p < 0.000475$). The chi-square value for the Primary PTSD diagnostic group was 30.93 ($p < 0.000479$). In the Only PTSD diagnostic group, the chi-square value was 21.95 ($p < 0.000484$). Thus, when PTSD was the primary diagnosis, any of the diagnoses, or the only diagnosis, providers were significantly more likely to report targeting traumatic stress somewhere in the treatment episode, relative to the comparison groups.

No additional treatment targets were found to have a statistically significant chi-square value in the Any PTSD or the Primary PTSD groups. A statistically significant relationship between the treatment target anxiety and PTSD diagnosis was found in the Only PTSD group (chi-square = 16.29, $p < 0.00488$). Therefore, with the exception of traumatic stress in all three PTSD diagnostic groups and anxiety in the Only PTSD group, the treatment target profile of youth with a PTSD diagnosis was not significantly different from youth in the No PTSD diagnostic group. Overall, the profile of treatment targets was not very different for youth with PTSD or youth without PTSD, except that traumatic stress was targeted significantly more in youth with PTSD compared to those without PTSD.

Although traumatic stress was more likely to be endorsed as a target when PTSD was part of the diagnostic profile, further examination of the frequency with which each treatment target was selected at least once over the course of a service episode revealed that traumatic stress was not one of the most commonly selected treatment target for youth in any of the three PTSD diagnostic groups. For example, when treatment targets were ranked by frequency, traumatic stress was tied for seventeenth place (28.91%) in for youth in the Any PTSD group. Traumatic stress was tied at fifteenth (32.08%) most frequently selected treatment target for youth with primary PTSD and was tied at ninth place (46.15%) for youth with only PTSD. The most commonly selected treatment targets for youth with any PTSD were positive peer interaction (79.52%), oppositional or non-compliant behavior (63.86%), anger (63.86%), activity involvement (62.65%), treatment engagement (55.42%), and academic achievement (54.22%). For youth with primary PTSD, the most common treatment targets were positive peer interaction (79.25%), oppositional or non-complaint behavior (60.38%), activity involvement (58.49%), anger (58.49%), and treatment engagement (52.83%). In youth with only PTSD, the most frequently selected treatment targets were positive peer interaction (84.62%), anger (76.92%), anxiety (76.92), depressed mood (61.54%), positive thinking or attitude (61.54%), oppositional or non-compliant behavior (53.85%), academic achievement (53.85%), and self-esteem (53.85%). The treatment target profiles for youth with any PTSD, primary PTSD, and only PTSD are presented in Figures 1, 2, and 3 respectively. Therefore, although traumatic stress was targeted statistically more often for youth with PTSD compared to those without PTSD, traumatic stress was still not one of the most commonly selected targets, even for youth with only a PTSD diagnosis.

Chi-square analyses were found to be statistically significant for the relationship between selection of the attention problems and the hyperactivity treatment target and an ADHD diagnosis for all three ADHD diagnostic groups, after adjustment of alpha levels using the above described modified Bonferroni procedure. For the Any ADHD diagnostic group, the results were statistically significant with a chi-square value of 70.71 ($p < 0.000475$) for attention problems and 37.05 ($p < 0.000493$) for hyperactivity. The chi-square value for the Primary ADHD diagnostic group was 87.51 ($p < 0.000475$) for attention problems and 37.76 ($p < 0.000488$) for hyperactivity. In the Only ADHD diagnostic group, the chi-square value was 43.73 ($p < 0.000484$) for attention problems and 25.60 ($p < 0.000503$) for hyperactivity. Clinicians were much more likely to target both attention problems and hyperactivity in treatment for youth with ADHD compared to youth without ADHD.

Additional treatment targets were found to have a statistically significant chi-square value in the Any ADHD group, including aggression ($\chi^2 = 32.77$, $p < 0.00498$), depressed mood ($\chi^2 = 21.01$, $p < 0.000513$), substance use ($\chi^2 = 18.93$, $p < 0.000518$), oppositional or non-compliant behavior ($\chi^2 = 16.40$, $p < 0.000523$), and runaway ($\chi^2 = 12.83$, $p < 0.000540$). Additional treatment targets found to have a statistically significant chi-square value in the Primary ADHD group included aggression ($\chi^2 = 22.72$, $p < 0.000508$), oppositional or non-compliant behavior ($\chi^2 = 15.48$, $p < 0.000529$), and school attendance or truancy ($\chi^2 = 14.28$, $p < 0.000534$). No additional treatment targets were found to differ significantly for youth in the Only ADHD group compared with youth without ADHD. In sum, the treatment target profile for youth with any ADHD and primary ADHD differed significantly from youth without ADHD on several domains in

addition to attention problems and hyperactivity, but the treatment target profile for youth with only ADHD only differed from youth without ADHD in terms of attention problems and hyperactivity.

When treatment targets were ranked by frequency, attention problems was ranked ninth (36.31%) and hyperactivity was ranked twenty-ninth (16.24%) for youth in the Any ADHD group. The most commonly selected treatment targets for youth with any ADHD were oppositional or non-compliant behavior (84.71%), positive peer interaction (77.71%), activity involvement (64.65%), aggression (63.06%), and treatment engagement (54.78%). For youth with a primary diagnosis of ADHD, the attention problems treatment target was ranked seventh (46.58%) and the hyperactivity treatment target was ranked twenty-fifth (19.18%). The most commonly selected treatment targets for youth with primary ADHD were oppositional or non-compliant behavior (88.36%), positive peer interaction (73.29%), activity involvement (65.75%), aggression (65.07%), and anger (56.85%). For youth with only an ADHD diagnosis, attention problems ranked fourth (65.00%) and hyperactivity ranked tenth (30.00%). Other common targets for treatment, in addition to attention problems, were oppositional or non-compliant behavior (85.00%), positive peer interaction (75.00%), activity involvement (75.00%), anger (60.00%), and aggression (60.00%). The treatment target profiles for youth with any ADHD, primary ADHD, and only ADHD are presented in Figures 4, 5, and 6 respectively. For youth with ADHD, attention problems increasingly became a top target for treatment for youth with a primary diagnosis and for youth with any diagnosis of PTSD.

The two-step cluster analysis was performed and yielded two clusters. Cluster 1 contained higher percentages of the majority of targets compared with cluster 2. Cluster 2 contained higher percentages of the treatment targets substance use, school attendance or truancy, willful misconduct or delinquency, runaway, oppositional or non-compliant behavior, treatment engagement, and positive peer interaction. Results are presented in order of the size of the percentage discrepancy between clusters 1 and 2 in Figure 7. A post-hoc chi-square analysis was completed to examine the relationship between cluster and whether or not a youth was assigned to Multisystemic Therapy (MST), given the hypothesis that Cluster 2 reflected targets frequently addressed in MST. The results of the analysis supported the hypothesis with a significant chi-square value of 198.18 ($p < 0.001$). Of the youth receiving MST, only 26 youth (9.19%) fell into cluster 1, and 257 youth (90.81%) fell into cluster 2. Of the youth not receiving MST, 369 (59.23%) fell into cluster 1 and 254 (40.77%) fell into cluster 2. Therefore, cluster 2 appears to be largely defined by youth who were assigned to MST for treatment.

Traumatic Stress Target for Youth with PTSD

To address the second goal, the percentage of youth in all three PTSD diagnostic groups who had traumatic stress selected as a treatment target was calculated. Logistic regression was used to identify the effect of potential moderators on the relation between PTSD and the traumatic stress treatment target. Potential moderating variables examined included age, gender, any comorbidity (including Axis II), comorbid internalizing disorder, comorbid externalizing disorder, length of treatment, and length of time between assessment and treatment start.

Providers reported targeting traumatic stress in treatment at least once over the course of a service episode in 28.92% of the Any PTSD group in 32.08% of the Primary PTSD group, and in 46.15% of the Only PTSD group (see Table 1). Chi-square analyses yielded statistically significant relationships between a traumatic stress treatment target and PTSD diagnosis at all three levels of PTSD. Age, gender, any comorbidity (including Axis II), comorbid internalizing disorder, comorbid externalizing disorder, length of treatment, and length of time between assessment and treatment start were not found to be significant moderators of the relationship between endorsement of a traumatic stress treatment target and a PTSD diagnosis.

Traumatic Stress Target for Youth without PTSD

To address the third goal, a descriptive count of all disorders diagnosed when traumatic stress was endorsed as a treatment target in the absence of a PTSD diagnosis was performed. The diagnoses most frequently associated with selection of traumatic stress as a target of treatment in the absence of a PTSD diagnosis (n=70) were examined. Results are displayed in Table 2. Disruptive behavior disorders were the most common diagnoses (n=25) followed by depressive disorders (n=19). Other anxiety disorders were infrequent (n=3), and substance use disorders were not found in the sample.

The high frequency of disruptive behavior disorders associated with traumatic stress appears to reflect the base rates within the sample, and the percentage of disruptive behavior disorders present in youth without PTSD with traumatic stress targeted was not significantly different from the percentage of disruptive behavior disorders for the whole sample. However, the percentage of youth with a major depressive disorder was significantly higher in youth without PTSD for whom traumatic stress was targeted in

treatment than the rates of major depressive disorder in the whole sample. In addition, anxiety disorder not otherwise specified, selective mutism, and bulimia were the primary disorders significantly more frequently for youth without PTSD and a target of traumatic stress compared to the full sample. However, given the low rates of anxiety disorder NOS, selective mutism, and bulimia in the full sample, the results should be interpreted with caution.

Discussion

This study is the one of the first to examine therapist-reported mental health treatment targets in a usual care setting or large public mental health system to date, and it is the first to specifically focus on traumatic stress (Bickman et al., 2007; Schiffman et al., 2008). The frequency of selected treatment targets for the sample was examined, followed by specific emphasis on treatment targets and diagnoses associated with a PTSD diagnosis and on the traumatic stress treatment target. The findings are discussed in the context of study limitations.

Although the results suggest that providers more frequently target traumatic stress when a youth had a PTSD diagnosis compared with youth with no PTSD diagnosis, it was expected that providers would target traumatic stress much more frequently than occurred in the sample. Even when the only diagnosis was PTSD, providers targeted traumatic stress at any time during the course of a service episode in fewer than half of the youth. Although this is initially surprising given the availability of empirically supported treatments for youth PTSD that target traumatic stress (Foa, Keane, Friedman, & Cohen, 2009), there are several possible explanations for this finding. First, the

assessment to determine the official diagnoses may not be completed by the same person or even agency that provides treatment in the CAMHD system. The discrepancy between treatment targets and diagnosis may be more related to assessment limitations and quality than to a failure on the part of the clinician to select the treatment target most closely associated with the youth's diagnosis. Therefore, it may be that clinicians do not use assessment results to inform treatment, particularly when the assessor is not the person performing treatment. This hypothesis is supported by the previously mentioned study by Young and colleagues (2007) which found that treatment targets for internalizing problems had the lowest retention rates across treatment planning documents (e.g. from assessment recommendations to treatment plan) in the CAMHD system of care. In light of such findings, the results of the present study are not as surprising as they may initially appear.

Support for the notion that the results may be related to problems with the consistency across assessment and treatment planning documents is found when looking at the results of the treatment targets most associated with ADHD. Attention problems in particular, were targeted quite frequently for youth with ADHD. The more frequent targeting of attention problems for youth with ADHD compared with the less frequent targeting of traumatic stress for youth with PTSD reflects the discrepancy between internalizing and externalizing disorders noted by Young et al. However, attention problems were never the most commonly selected treatment target, and hyperactivity was targeted much less frequently than attention problems, possibly due to the inclusion of youth with ADHD-PI in the sample of youth with ADHD. Additional problems not specifically related to ADHD were targeted quite frequently. In the cases of any and

primary ADHD, it may be that the additional targets such as aggression and oppositional or non-compliant behavior were selected due to comorbid ODD or CD diagnoses, which are frequently comorbid with ADHD. As expected, non-related targets such as depressed mood, runaway, substance use, and truancy were targeted significantly less frequently in youth with ADHD. However, it was surprising that a greater number of internalizing problems were not targeted significantly less frequently for youth with ADHD, which may be again related to the poorer retention rates across planning documents for internalizing problems.

Additionally, there were some treatment targets that were frequently selected for youth with both PTSD and ADHD diagnoses. The commonly selected treatment targets across both disorders included: oppositional or non-compliant behavior, activity involvement, positive peer interaction, treatment engagement, aggression, anger, and academic achievement. Although it is understandable why treatment engagement would be a common target across diagnoses, it is not as clear why the other targets were selected with such high frequency. One hypothesis is that clinicians may be targeting broader areas of functioning rather than disorder-specific symptoms for targets such as activity involvement, positive peer interaction, and academic achievement.

Another explanation for this finding is that the diagnosis may not represent the primary reasons for treatment referral. For example, in the case where the referring agency or funding agency is the Department of Education, targets associated more directly with academic improvement may be selected, which could explain the frequent selection of academic achievement as a target for treatment. It is also possible that service agencies may have specific treatment protocols that employed clinicians are expected to

follow, which may not map specifically onto the official diagnosis. Furthermore, clinically significant problem areas and symptoms that did not match diagnostic criteria may have been deemed more important or urgent for treatment target than the diagnosis-related symptoms. Treating clinicians may receive additional case information over the course of therapy as a client becomes more comfortable and discloses more information that impacts the clinical conceptualization and selection of treatment targets that was not available or revealed at the time of assessment. Another possible explanation is that clinicians may not be trained in treating traumatic stress, and therefore, focus intervention on areas in which they have training. Of course, the alternate situation is possible in which therapists have training on traumatic stress intervention and use it even when it is not the primary problem area. Additional research is necessary to clarify the reasoning behind clinician selection of certain targets to the exclusion of others.

One limitation of this study is lack of reliable therapist and agency variables to examine the role of the treating therapist and agencies in the selection of treatment targets. Future study should include therapist and agency data and should also examine the correlation between parent and child reported primary problem areas and assessor determined diagnoses. It may be that clinicians focus treatment on problem areas of greatest concern to the child and family and that these problem areas are not adequately captured by the current (i.e. DSM-IV-TR) diagnostic paradigm.

Support for the possibility that agencies have specific treatment protocols related to agency-specific standards comes from the finding that, with the exception of traumatic stress, treatment targets for youth with PTSD and youth without PTSD did not differ significantly. Even in the case of ADHD, certain targets were commonly selected for

both youth with an ADHD diagnosis and for youth without an ADHD diagnosis. Therefore, clinicians tend to focus on similar treatment targets whether or not PTSD was diagnosed. In addition, funding agencies such as the DOE may have similar treatment outcome goals (e.g. improved academic performance) for all youth that is not diagnostically driven. Given lack of data on funding source and agency data, further examination of these hypotheses was not feasible in this study. Future research regarding external factors and constraints on clinician treatment target selection is needed to illuminate this finding.

The results of the two-step cluster analysis may provide additional support for the possibility that agencies may have agency specific protocols for treatment of all youth. For example, an agency may have a certain EBT that all clinicians are trained in or expected to use with their clients. Agencies may also have specific treatment modalities that they emphasize for all clients. The treatment targets clustered into only two groups, with one group, cluster 2, containing a higher percentage of the targets substance use, school attendance or truancy, willful misconduct or delinquency, runaway, oppositional or non-compliant behavior, treatment engagement, and positive peer interaction. The other cluster, cluster 1, contained higher percentages of all other targets, with the greatest difference between clusters one and two found for treatment targets most associated with internalizing disorders such as contentment or enjoyment or happiness, anxiety, self-esteem, self-injurious behavior, and depressed mood. However, the targets did not separate into straightforward internalizing versus externalizing clusters, with targets most associated with externalizing disorders such as anger, peer or sibling conflict, empathy, hyperactivity, and aggression falling into cluster 1. The targets more common in cluster 2

reflect problems related to substance use and Conduct Disorder. Given that youth receiving multisystemic therapy (MST), which is frequently recommended for Conduct Disorder and substance use problems in the CAMHD system, were included in the study sample, it may be that the treatment targets clustered into groups of targets frequently addressed in MST compared with non-MST treatment. In fact, a post-hoc analysis to examine the correlation between cluster and whether or not a youth was receiving MST yielded a statistically significant relationship, with a large percentage of the youth receiving MST falling into cluster 2. Therefore, selection of a specific treatment (i.e. MST) prior to the start of therapy was a greater predictor of future target selection than diagnosis. Such results indicate that treatment selection guides the selection of targets rather than the reverse. Furthermore, the results are consistent with the Kelley et al. (2010) research that clinician factors generally contribute more to the variability of target selection than client factors.

The finding that depressive disorders and disruptive behavior disorders were most commonly associated with a treatment target of traumatic stress in the absence of a PTSD diagnosis was not surprising given the existing literature on the sequelae of exposure to traumatic events and comorbidity epidemiology and the base rates present in the CAMHD population (Daleiden & Higa-McMillan, 2008). More surprising was the lack of substance abuse and other anxiety disorders. The reasons for this finding are unclear. It may be that other treatment targets (e.g., substance use) trumped treatment for traumatic stress, given their greater severity or clinical primacy. Additionally, youth with substance use disorders may receive treatment from structured substance abuse focused centers with a standardized protocol. In relation to anxiety disorders, it may be that clinicians target

anxiety more generally than traumatic stress specifically, even if exposure to a traumatic event contributes to current anxiety or traumatic stress symptoms are present. Future research into the manner in which clinicians select treatment targets and the reasons for their selection decisions is needed.

The generalizability of youth and clinicians in Hawaii to the larger US population represents another study limitation. The current dataset, and the population of Hawaii more generally, has a high proportion of Multiethnic, Asian American, and Pacific Islander ethnicities compared with US mainland population, and the ethnic distribution differs significantly from most parts of the country. Furthermore, Hawaii's relative isolation from the mainland US and the rest of the world may make Hawaii a unique case. It is possible that treatment targets vary by youth ethnicity or that the Hawaii CAMHD system of care differs significantly from other systems of care throughout the country. Examination of treatment target selection in other systems of care is needed to examine the generalizability of the current findings.

Conclusions

Although there is some evidence that the intake diagnosis corresponds with treatment target selection, the correspondence is not as strong as expected. Additionally, symptom-related targets tended to be targeted less frequently than broader areas of functioning for youth with PTSD. In fact, positive peer interaction was the most frequent target for youth with PTSD at all three levels. Particularly surprising was the generally low frequency with which traumatic stress was targeted for youth with PTSD. Even for youth with only a PTSD diagnosis, traumatic stress was never targeted over the course of treatment for more than half of youth. Such findings lend support to the hypothesis that

clinicians may not prioritize treating symptoms, and instead tend to prioritize general areas of functioning, especially for youth with PTSD. Clinicians did tend to prioritize symptoms to a greater extent for youth with ADHD, although they most frequently targeted oppositional and non-compliant behavior rather than attention problems or hyperactivity. Clinicians also were more likely to target general functioning in terms of positive peer interaction and activity involvement for youth with ADHD than attention problems or hyperactivity.

The cluster analysis also yielded surprising results in that assignment to MST prior to the start of treatment was such a strong predictor of into which cluster a youth would fall and better predicted targets than either ADHD or PTSD diagnosis. Such results suggest that treatment drives target selection rather than targets driving treatment selection, given that MST is selected prior to the start of treatment. The results are consistent with the findings from the Kelley et al. (2010) study that clinician factors contributed more to the variability in treatment target selection than client factors.

Although this study sheds light on treatment target selection in a usual care setting and, more specifically, for youth with PTSD, future research is needed. The process of treatment target selection needs to be examined more closely to better understand how and why clinicians select treatment targets. Specifically, external factors (e.g. funding sources, agency protocols) that may influence the selection of treatment targets need to be examined more closely. Youth and parent report of primary problem areas need to be examined to see if they differ from diagnosis and to see the extent that these reports influence treatment target selection. Clarification of the extent to which clinicians use

diagnosis to guide treatment planning and additional factors beyond diagnosis that contribute to the treatment target selection decision is needed.

The current study only examined presence or absence of a treatment target during an entire episode of care. Future study may examine dosage or the frequency with which targets are addressed in treatment. Additionally, the timeline of when traumatic stress is targeted over the course of treatment is of interest, such as whether traumatic stress tends to be targeted earlier or later in the course of treatment. There may be certain treatment targets that "trump" traumatic stress. For example, clinicians may frequently target high-risk behaviors such as runaway or self-injurious behavior before targeting traumatic stress. Finally, although this paper addressed the question of if traumatic stress is targeted in treatment, the question regarding how traumatic stress is targeted remains. Future research should examine which treatment strategies clinicians use when traumatic stress is a treatment target.

Table 1

Number and Percentage of Youth with Traumatic Stress Targeted During Treatment

Traumatic Stress	No PTSD	Any PTSD	Primary PTSD	Only PTSD
No	753 (91.49%)	59 (71.08%)	36 (67.92%)	7 (53.85%)
Yes	70 (8.51%)	24 (28.92%)	17 (32.08%)	6 (46.15%)
Total	823 (100%)	83 (100%)	53 (100%)	13 (100%)

Note. Percentage of youth for whom traumatic stress was selected as a target on the MTPS at least once over the course of treatment.

Table 2

Frequency across Primary Diagnoses When Traumatic Stress was Targeted in the Absence of any PTSD

Category	Primary Diagnosis	Number of Youth with TS and No PTSD (%)	Number of Youth in Total Sample (%)
Disruptive Behavior Disorders			
	Conduct Disorder	10 (14.29%)	154 (17.00%)
	Oppositional Defiant Disorder	9 (12.86%)	114 (12.58%)
	Disruptive Behavior Disorder NOS	6 (8.57%)	64 (7.06%)
	Total	25 (35.71%)	332 (36.64%)
Depressive Disorders			
	Major Depressive Disorder*	11 (15.71%)	59 (6.51%)
	Dysthymic Disorder	4 (5.71%)	54 (5.96%)
	Depressive Disorder NOS	4 (5.71%)	39 (4.30%)
	Total	19 (27.14%)	152 (16.78%)
Anxiety Disorders			
	Generalized Anxiety Disorder	1 (1.43%)	6 (0.66%)
	Anxiety Disorder NOS*	2 (2.86%)	7 (0.77%)
	Total	3 (4.29%)	13 (1.43%)
Other Disorders			
	ADHD	12 (17.14%)	146 (16.11%)
	Adjustment Disorders	4 (5.71%)	51 (5.63%)
	Bipolar Disorder NOS	1 (1.43%)	30 (3.31%)
	Bulimia*	1 (1.43%)	1 (0.11%)
	Substance Induced Mood Disorder	1 (1.43%)	2 (0.22%)
	Reactive Attachment Disorder	2 (1.43%)	9 (0.99%)
	Selective Mutism*	1 (1.43%)	1 (0.11%)
	Schizophrenia	1 (1.43%)	4 (0.44%)
Total		70 (100%)	906 (100%)

Note. Count of the primary diagnoses of youth with no PTSD diagnosis for whom the therapist selected "Traumatic Stress" as a treatment target at least once on the MTPS over the course of treatment. * $p < 0.05$

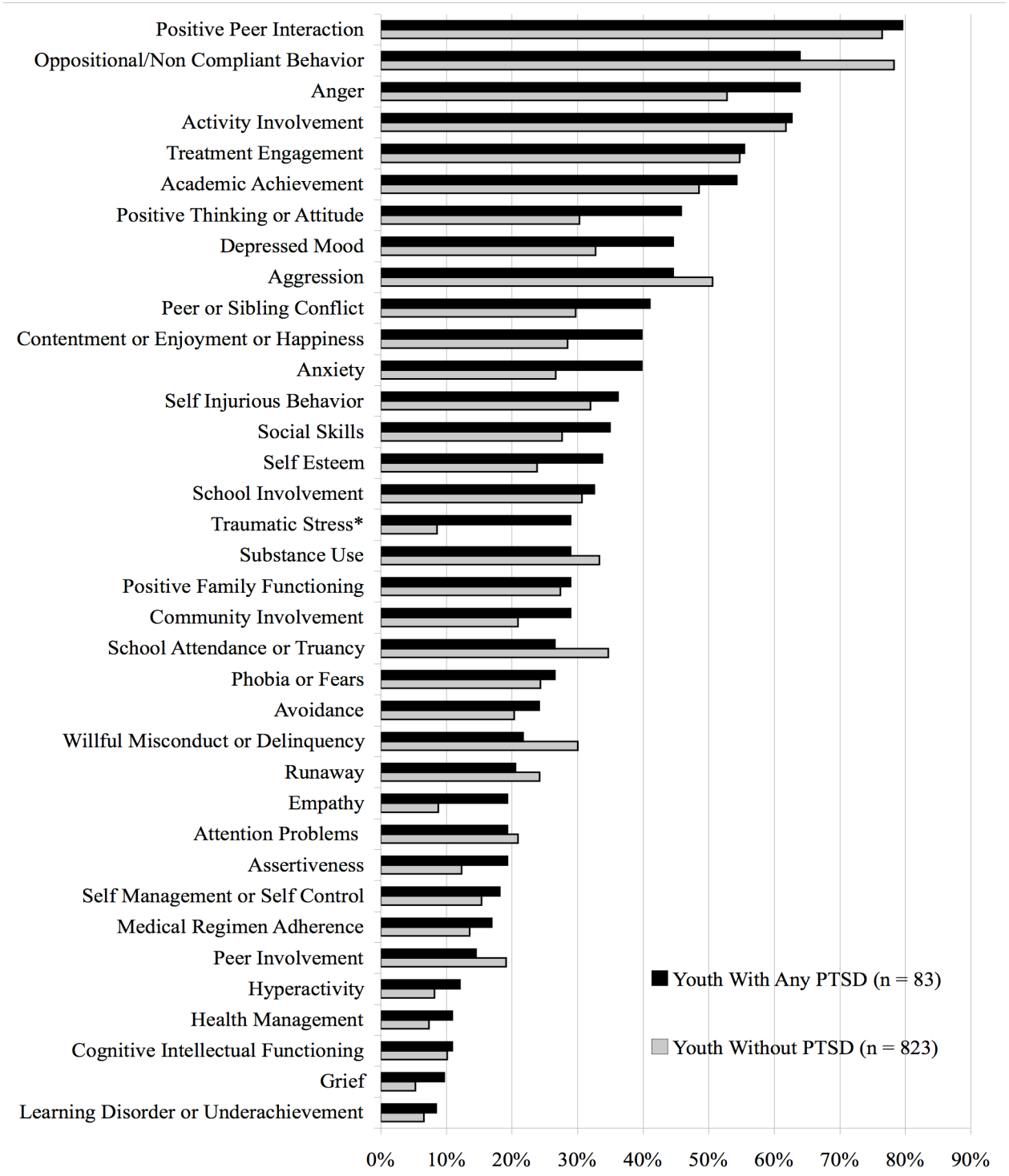


Figure 1. Percentage of times each treatment target was selected at least once during the course of treatment for youth with any diagnosis of PTSD and for youth with no PTSD diagnosis. Targets ranked by frequency of selection for youth with PTSD. *Statistically significant following Bonferroni correction at alpha = .05

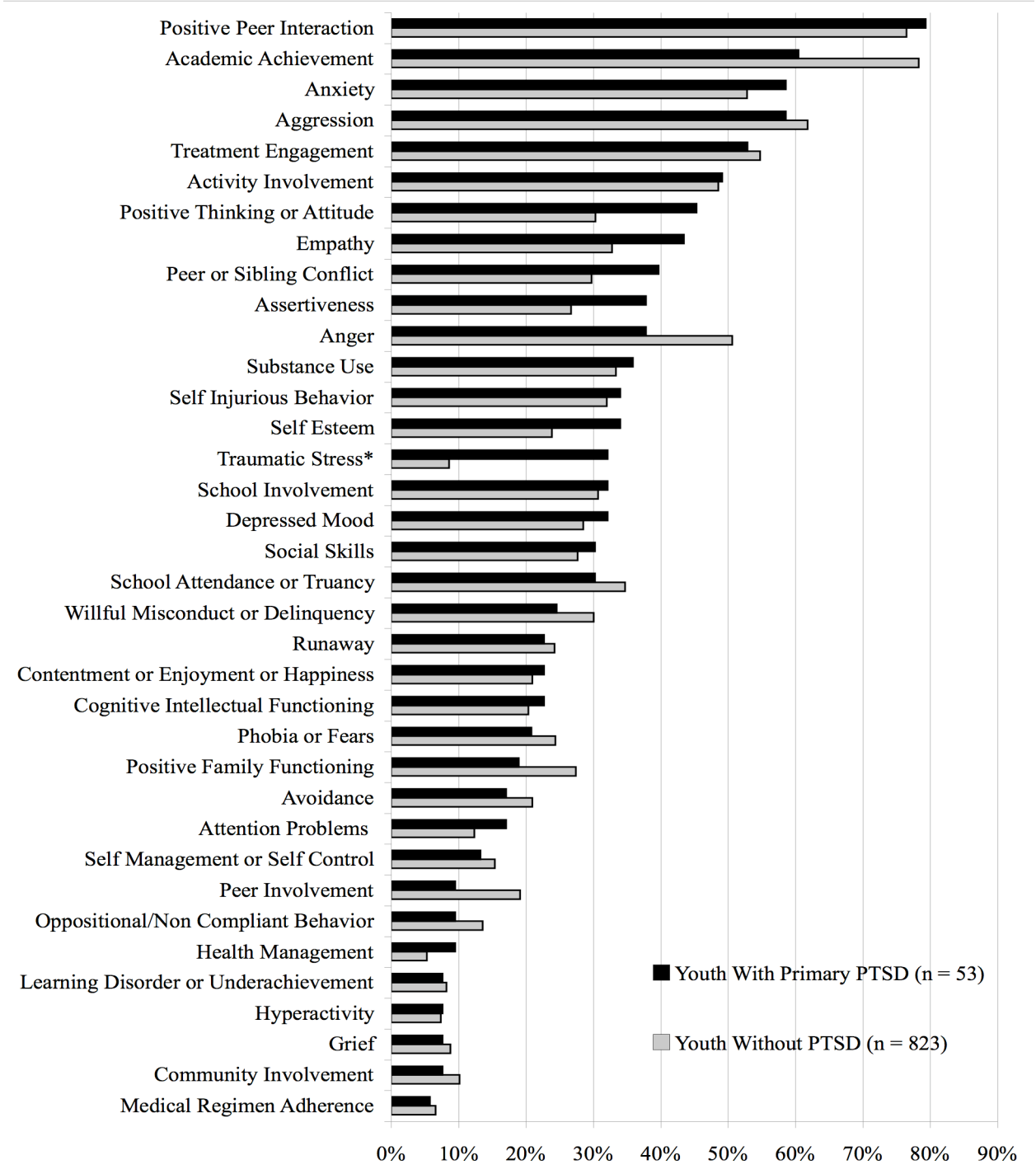


Figure 2. Percentage of times each treatment target was selected at least once during the course of treatment for youth with a primary diagnosis of PTSD and for youth with no PTSD diagnosis. Targets ranked by frequency of selection for youth with PTSD. *Statistically significant following Bonferroni correction at alpha = .05

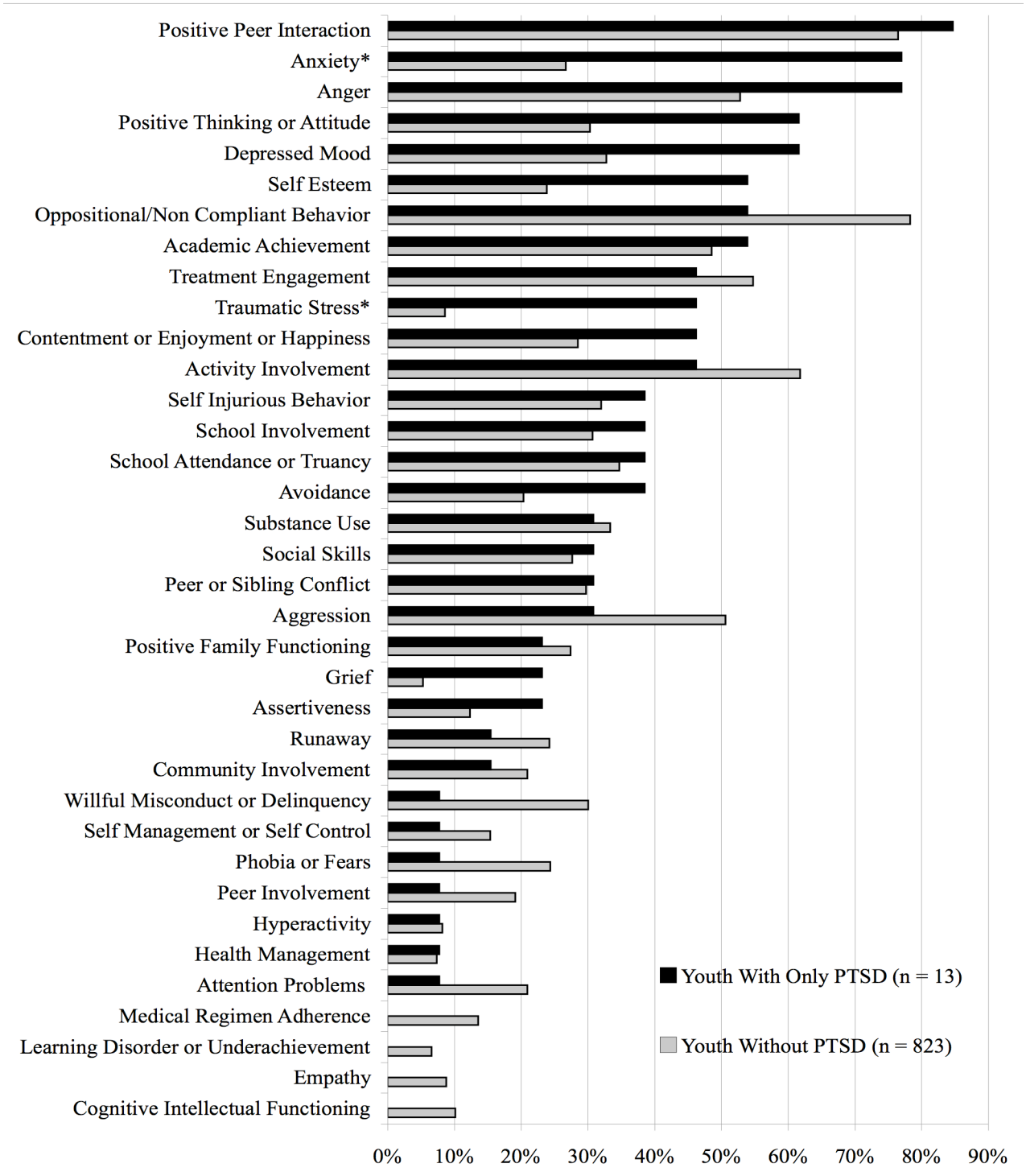


Figure 3. Percentage of times each treatment target was selected at least once during the course of treatment for youth with only a diagnosis of PTSD and for youth with no PTSD diagnosis. Targets ranked by frequency of selection for youth with PTSD. *Statistically significant following Bonferroni correction at alpha = .05

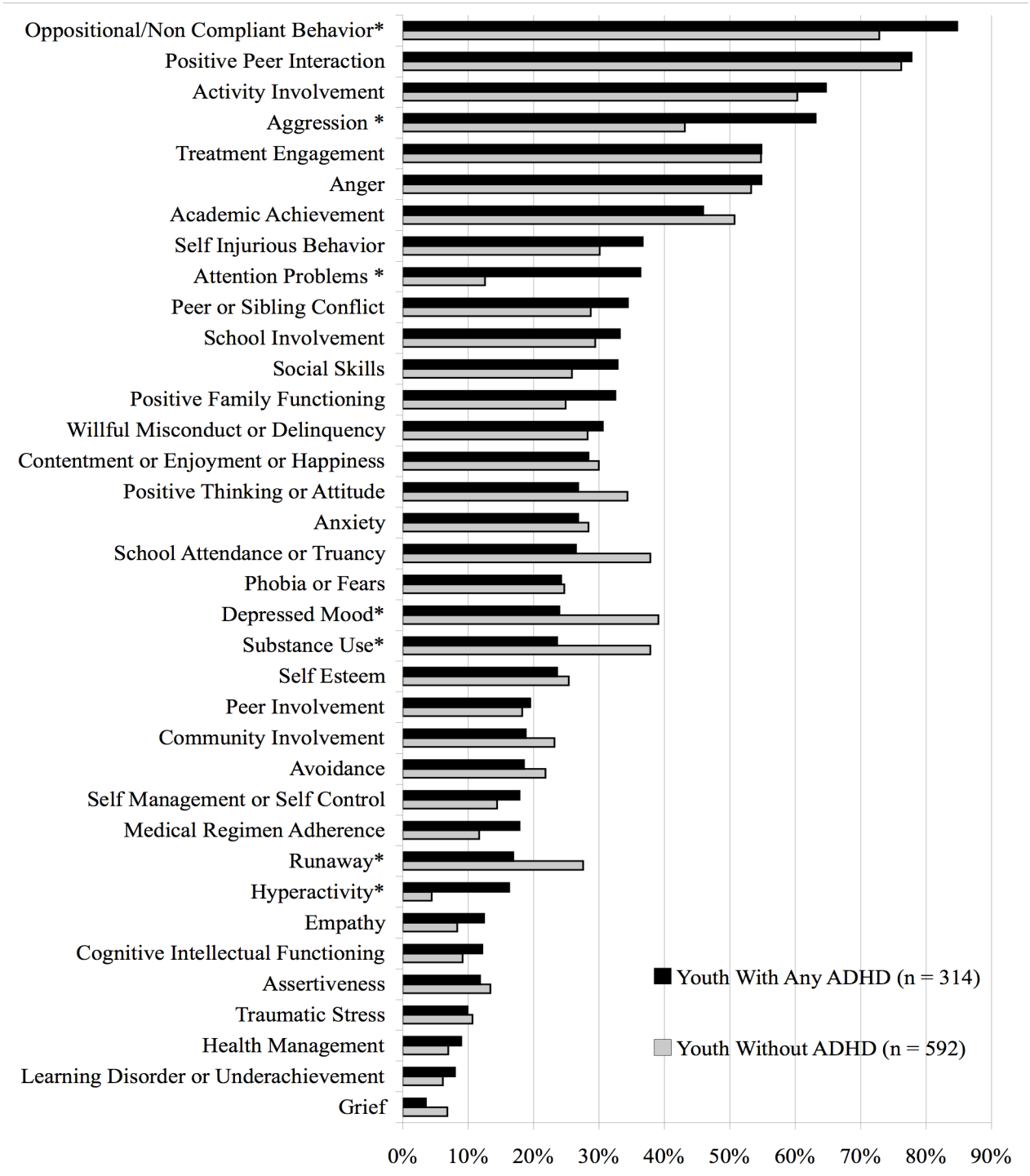


Figure 4. Percentage of times each treatment target was selected at least once during the course of treatment for youth with any diagnosis of ADHD and for youth with no ADHD diagnosis. Targets ranked by frequency of selection for youth with ADHD. *Statistically significant following Bonferroni correction at alpha = .05

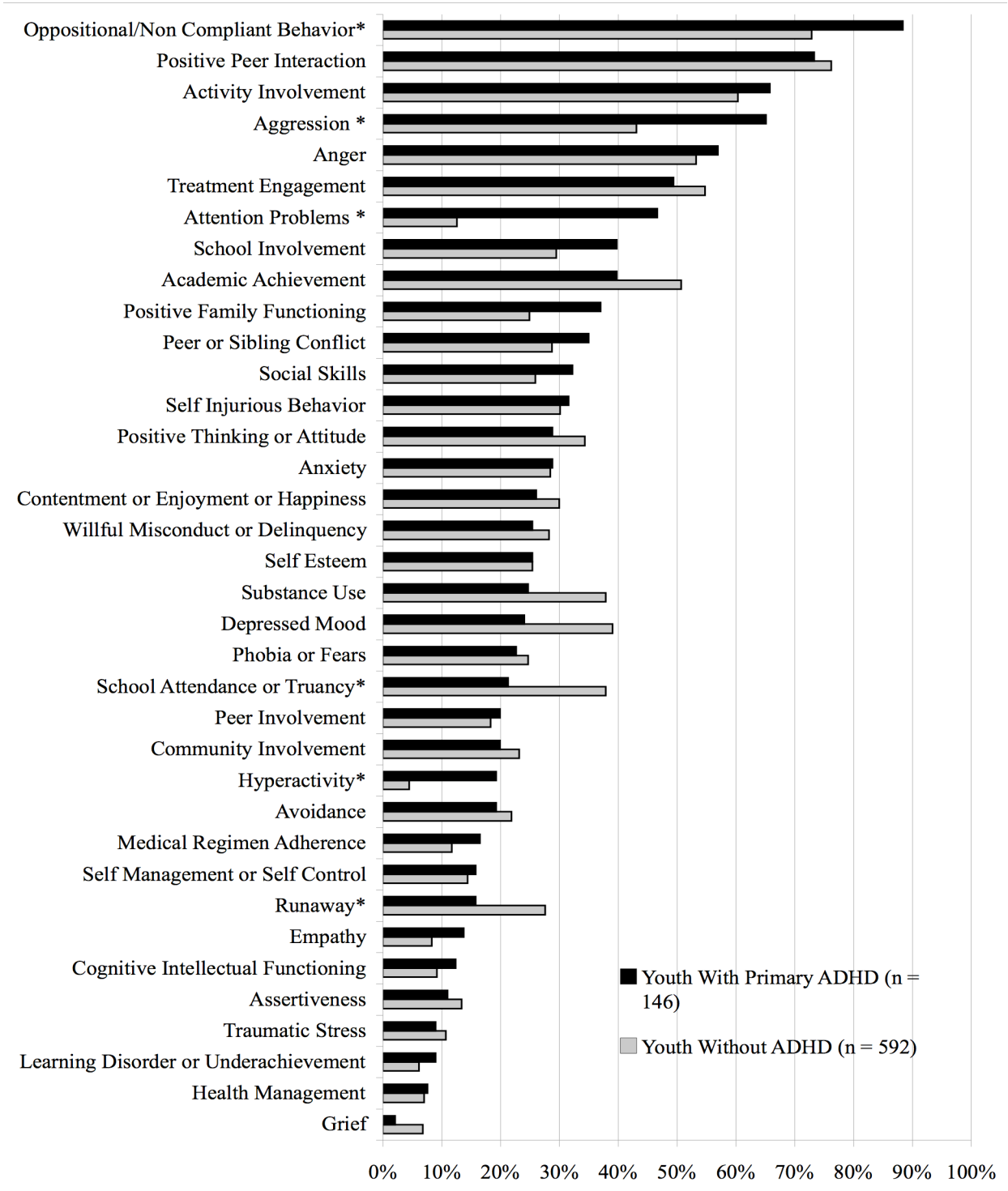


Figure 5. Percentage of times each treatment target was selected at least one time during the course of treatment for youth with a primary diagnosis of ADHD and for youth with no ADHD diagnosis. Targets ranked by frequency of selection for youth with ADHD. *Statistically significant following Bonferroni correction at alpha = .05

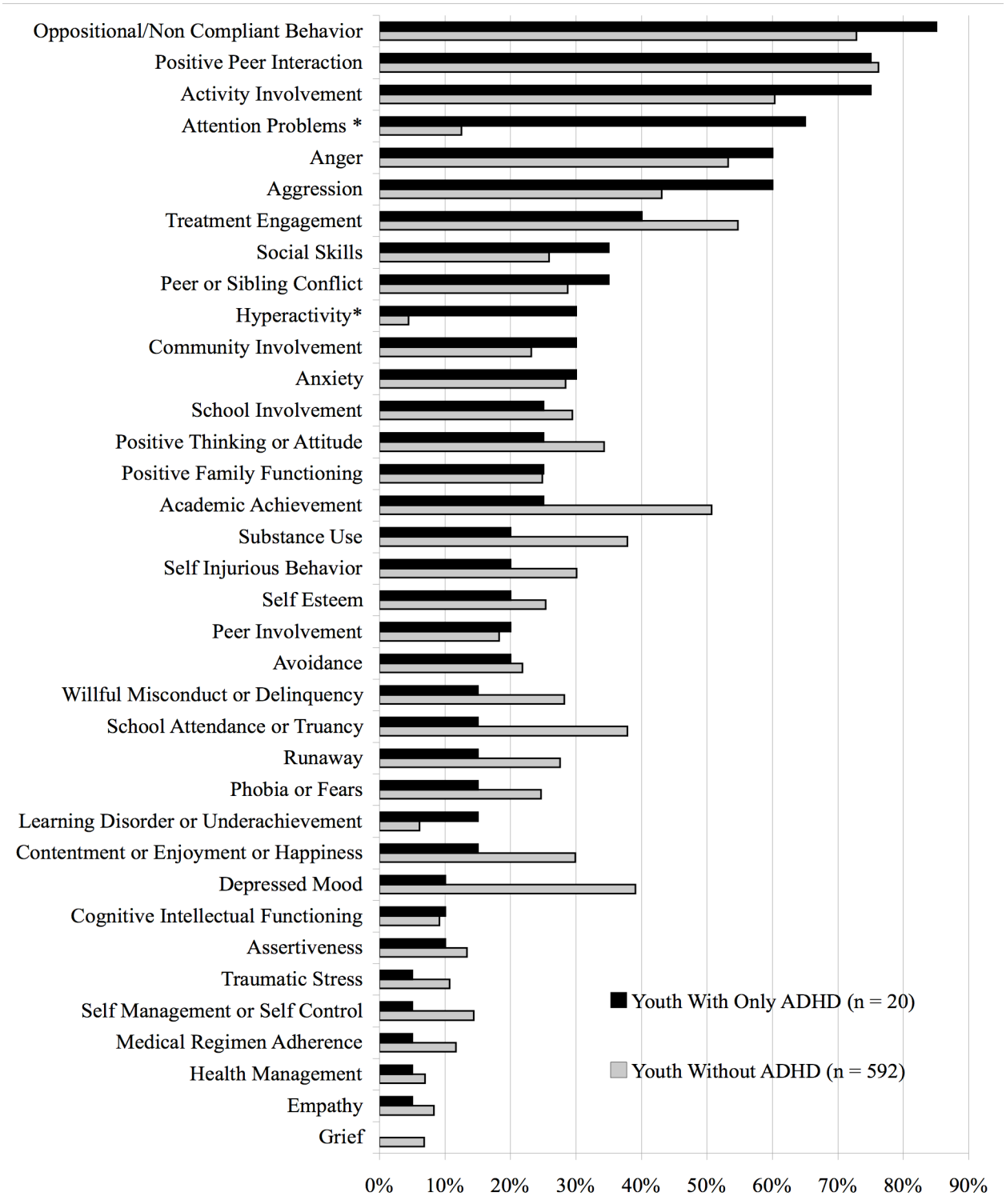


Figure 6. Percentage of times each treatment target was selected at least one time during the course of treatment for youth with only a diagnosis of ADHD and for youth with no ADHD diagnosis. Targets ranked by frequency of selection for youth with ADHD. *Statistically significant following Bonferroni correction at alpha = .05

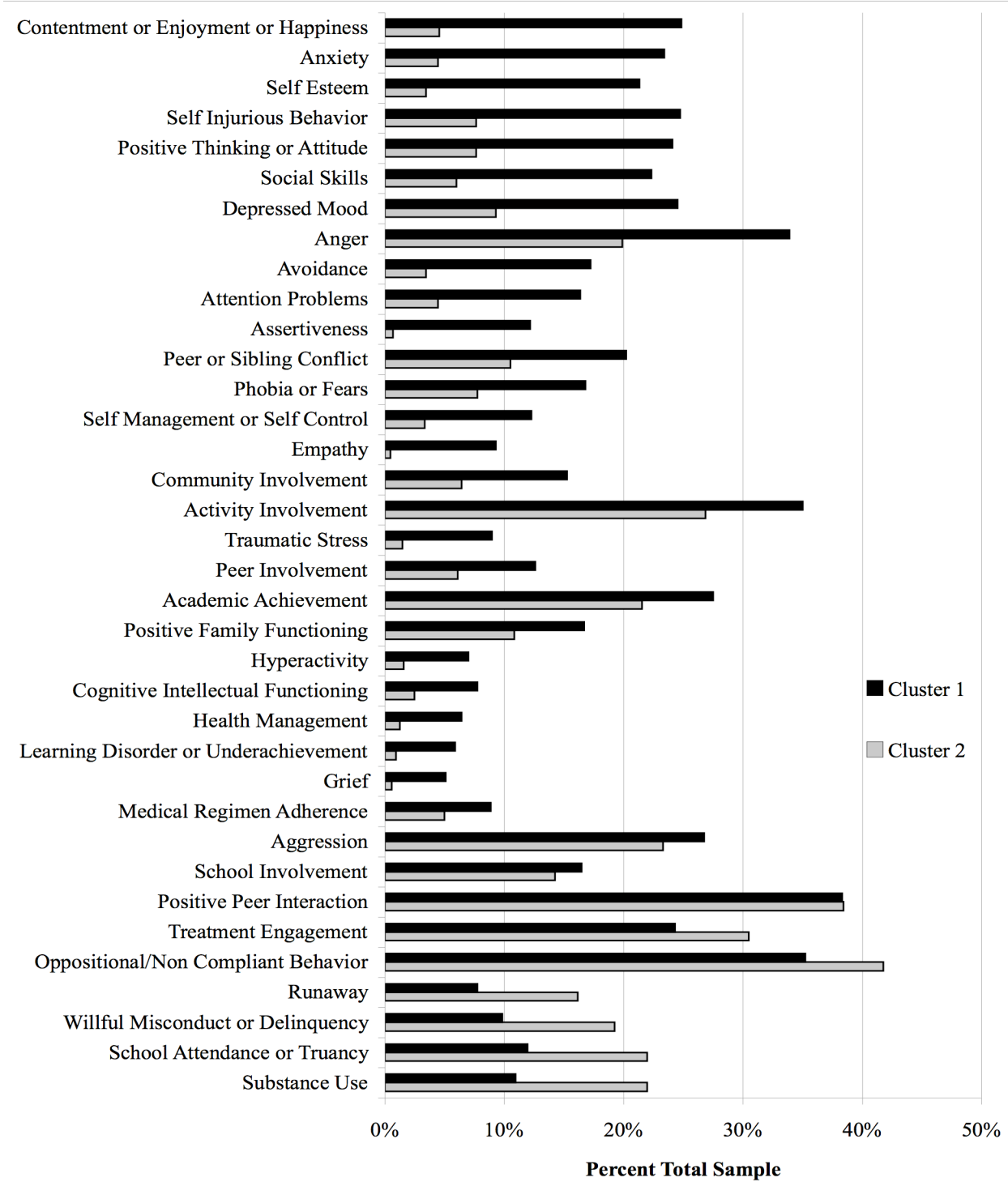


Figure 7. Cluster analysis results ordered by total percent difference between cluster 1 and cluster 2. The bars represent the percent of the total sample with each treatment target endorsed at least once over the course of treatment in cluster 1 and in cluster 2.

Appendix

Monthly Treatment and Progress Summary

SERVICE PROVIDER MONTHLY TREATMENT & PROGRESS SUMMARY
Child and Adolescent Mental Health Division (CAMHD)

Instructions: Please complete and electronically submit this form to CAMHD by the 5th working day of each month (summarizing the time period of 1st to the last day of the previous month). The information will be used in service review, monitoring, planning and coordination in accordance with CAMHD policies and standards. Mahalo!

Client Name:	CR #:	DOB:
Month/Year of Services:	Primary Diagnosis:	Eligibility Status:
Level of Care (one per form):		

Service Format (circle all that apply):
Individual Group Parent Family Teacher Other: _____

Service Setting (circle all that apply):
Home School Community Out of Home Clinic/Office Other: _____

Service Dates:																

Targets Addressed This Month (*number* up to 10):

	Activity Involvement		Contentment, Enjoyment, Happiness		Learning Disorder, Underachievement		Phobia/Fears		Sleep Disturbance
	Academic Achievement		Depressed Mood		Low Self-Esteem		Positive Thinking/ Attitude		Social Skills
	Aggression		Eating, Feeding Problems		Mania		Psychosis		Speech and Language Problems
	Anger		Empathy		Medical Regimen Adherence		Runaway		Substance Use
	Anxiety		Enuresis, Encopresis		Oppositional/ Non-Compliant Behavior		School Involvement		Suicidality
	Assertiveness		Fire Setting		Peer Involvement		School Refusal/Truancy		Traumatic Stress
	Attention Problems		Gender Identity Problems		Peer/Sibling Conflict		Self-Control		Treatment Engagement
	Avoidance		Grief		Personal Hygiene		Self-Injurious Behavior		Willful Misconduct, Delinquency
	Cognitive-Intellectual Functioning		Health Management		Positive Family Functioning		Sexual Misconduct		Other:
	Community Involvement		Hyperactivity		Positive Peer Interaction		Shyness		Other:

Progress Ratings This Month (check appropriate rating for any target numbers endorsed above):

#	Deterioration < 0%	No Significant Changes 0%-10%	Minimal Improvement 11%-30%	Some Improvement 31%-50%	Moderate Improvement 51%-70%	Significant Improvement 71%-90%	Complete Improvement 91%-100%	Date (If Complete)
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

CR # _____ (please repeat the number here)

Intervention Strategies Used This Month (check all that apply):

☐	Activity Scheduling	☐	Eye Movement, Tapping	☐	Marital Therapy	☐	Play Therapy	☐	Stimulus or Antecedent Control
☐	Assertiveness Training	☐	Family Engagement	☐	Medication/Pharm-acotherapy	☐	Problem Solving	☐	Supportive Listening
☐	Biofeedback, Neurofeedback	☐	Family Therapy	☐	Mentoring	☐	Psychoeducation, Child	☐	Tangible Rewards
☐	Catharsis	☐	Free Association	☐	Milieu Therapy	☐	Psychoeducation, Parent	☐	Therapist Praise/Rewards
☐	Cognitive/Coping	☐	Functional Analysis	☐	Mindfulness	☐	Relationship or Rapport Building	☐	Thought Field Therapy
☐	Commands/ Limit Setting	☐	Guided Imagery	☐	Modeling	☐	Relaxation	☐	Time Out
☐	Communication Skills	☐	Hypnosis	☐	Motivational Interviewing	☐	Response Cost	☐	Twelve-step Programming
☐	Crisis Management	☐	Ignoring or DRO	☐	Natural and Logical Consequences	☐	Response Prevention	☐	Other:
☐	Directed Play	☐	Insight Building	☐	Parent Coping	☐	Self-Monitoring	☐	Other:
☐	Educational Support	☐	Interpretation	☐	Parent-Monitoring	☐	Self-Reward/ Self-Praise	☐	Other:
☐	Emotional Processing	☐	Line of Sight Supervision	☐	Parent Praise	☐	Skill Building		
☐	Exposure	☐	Maintenance or Relapse Prevention	☐	Peer Modeling or Pairing	☐	Social Skills Training		

Psychiatric Medications (List All)	Total Daily Dose	Dose Schedule	Check if Change	Description of Change
_____	_____	_____	☐	_____
_____	_____	_____	☐	_____
_____	_____	_____	☐	_____
_____	_____	_____	☐	_____
_____	_____	_____	☐	_____

Projected Discharge Date: _____ ☐ Check if Discharged During Current Month

IF YOUTH WAS DISCHARGED THIS MONTH, PLEASE COMPLETE ITEMS A & B:

A. Discharge Living Situation (check one):

☐ Home ☐ Foster Home ☐ Group Care ☐ Residential Treatment
☐ Institution/Hospital ☐ Jail/Correctional Facility ☐ Homeless/Shelter ☐ Other:_____

B. Reason(s) for Discharge (check all that apply):

☐ Success/Goals Met ☐ Insufficient Progress ☐ Family Relocation
☐ Runaway/Elopement ☐ Refuse/Withdraw ☐ Eligibility Change ☐ Other:_____

CR # _____ (please repeat the number here)

Outcome Measures: Optional. If you have any of the following data, please report the most recent scores:

CAFAS (8 Scales): (1-School:) (2-Home:) (3-Community:) (4-Behavior Toward Others:) (5-Moods/Emotions:) (6-Self-Harm:) (7-Substance:) (8-Thinking:) (Total:)			Date:
CASII/CALOCUS (Total):	CASII/CALOCUS (Level of Care):		Date:
CBCL (Total Problems T):	CBCL (Internalizing T):	CBCL (Externalizing T):	Date:
YSR (Total Problems T):	YSR (Internalizing T):	YSR (Externalizing T):	Date:
TRF (Total Problems T):	TRF (Internalizing T):	TRF (Externalizing T):	Date:
Arrested During Month? (Y/N):	School attendance (% of days):		

Comments/Suggestions (*attach additional sheets if necessary*):

Provider Agency & Island: _____	Clinician Name and ID#: _____
Provider Supervisor Signature: _____	Clinician Signature: _____
Submitted to CAMHD (date): _____	Care Coordinator: _____

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