

# Service profile of youths with schizophrenia–spectrum diagnoses

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## Abstract

The current study examines targets of treatment and intervention strategies of youths with and without schizophrenia–spectrum diagnoses utilizing services within a state public mental health system of care. Service records of youths with schizophrenia–spectrum diagnoses were compared to all other youths receiving services. Specific treatment targets and techniques were more frequently reported in the spectrum group relative to the non-spectrum group. This research on targets of treatment and specific treatment strategies offers preliminary insight into common goals of treatment and clinical practices employed in this under studied population. © 2007 Elsevier Ltd. All rights reserved.

*Keywords:* Youths; Schizophrenia–spectrum; Treatment

## 1. Introduction

Despite recent interest in youths with schizophrenia–spectrum disorders, the population is still poorly understood and under studied (Asarnow & Asarnow, 2003; Freedman, 2003; Schiffman, 2007). For instance, little is known about psychosocial interventions for this group, with no true evidence-base to guide clinicians providing psychosocial mental health services. Given the paucity of psychosocial treatment research for this population, the practice parameters for the treatment of children and adolescents with schizophrenia provide guidelines for psychosocial treatment based primarily on expert opinion (McClellan et al., 2001). Recommended psychosocial interventions include psychoeducation for both the youths and the family, social skills training, relapse prevention, life skills training, and problem-solving strategies. An additional recommendation of the practice parameters includes an emphasis on understanding the individual rather than solely focusing on the diagnosis (McClellan et al., 2001). Specific needs, areas for relative improvement, strengths, and comorbid conditions may all be considered (Rund et al., 1994). Although these

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recommendations are widely available to providers, actual targets of treatment and strategies employed by providers working with youths in this population have not been articulated (Asarnow, Tompson, & McGrath, 2004).

In a recent study, Schiffman and Daleiden (2006) compared demographic and service utilization characteristics of youths with and without schizophrenia–spectrum (“spectrum”) disorders receiving public mental health services from Hawaii’s Department of Health, Child and Adolescent Mental Health Division (CAMHD). The authors reported that among other differences, compared with the non-spectrum group, youths with schizophrenia–spectrum disorders were more likely to have comorbid diagnoses and receive more restrictive services at a higher average annual cost. Given the lack of information regarding treatment strategies for this population, the authors called for future studies to replicate and extend these findings by exploring actual community approaches to treatment.

Increased knowledge regarding the clinical targets and the specific therapeutic tactics employed with youths with spectrum disorders will likely increase the understanding of clinical needs, as well as provide ideas for interventions. One means of bridging this gap in the literature is through identifying common targets of treatment and intervention strategies reported by therapists working with youths with spectrum disorders. Such an approach identifies targets and practices commonly employed by providers to derive clinical profiles for this poorly understood group. Among other advantages, this approach can be useful in situations where information required for a sound evidence-base is missing in the literature (Chorpita, Daleiden, & Weisz, 2005).

### 1.1. Current study

The current study examines targets of treatment and specific intervention strategies as reported through a standardized monthly reporting form completed by providers employed for youths both with and without a schizophrenia–spectrum diagnosis registered in the Hawaii system of care from 2004–2005 (cf., Chorpita et al., 2005).

## 2. Method

### 2.1. Participants

Participants for this study were all youths 18 years of age and under who were registered with Hawaii’s CAMHD and receiving public mental health services between July 1, 2004 and June 30, 2005. The total sample ( $N=2,462$ ) was divided into two groups, those with and without a schizophrenia–spectrum disorder (65% male; 35% female for both

Table 1  
Diagnosis of participants in the schizophrenia–spectrum group and primary diagnosis of participants in the comparison group

	<i>n</i>	% of group
<i>Schizophrenia–spectrum group</i>		
Psychotic disorder NOS	13	38.2
Schizophrenia	11	32.4
Schizoaffective disorder	9	26.5
Paranoid personality	1	2.9
Group total	34	
<i>Non-spectrum group</i>		
Disruptive behavior	559	23.0
Attentional disorders	545	22.4
Mood disorders	516	21.3
Anxiety disorders	203	8.4
Adjustment disorders	154	6.3
Substance-related disorders	67	2.8
Pervasive developmental disorders	29	1.2
Other disorders	118	4.9
Missing diagnosis	237	9.8
Group total	2428	
Study total	2462	

Table 2  
Ethnic distribution of youths with and without schizophrenia–spectrum disorders

Ethnicity	Spectrum		Non-spectrum	
	<i>n</i>	% of available	<i>n</i>	% of available
American Indian or Alaska Native	0	0	59	2.4
Asian	6	17.6	412	17.0
Black or African American	2	5.9	34	1.4
Hispanic or Latina/o	5	14.7	220	9.1
Native Hawaiian or Pacific Islander	7	20.6	474	19.5
White	6	17.6	520	21.4
Other race or ethnicity	3	8.8	43	1.8
Multiethnic	10	29.4	585	24.1
Not available	16		1,174	

groups). Schizophrenia–spectrum disorders included schizophrenia ( $n=11$ ), schizoaffective disorder ( $n=9$ ), paranoid personality disorder ( $n=1$ ), and psychotic disorder not otherwise specified ( $n=13$ ), for a total of 34 youths. The grouping of spectrum disorders was determined based on research suggesting genetic links among these diagnoses (Baron et al., 1985; Tienari et al., 2003). The schizophrenia–spectrum group was 17.6% white, 5.9% Black or African American, 17.6% Asian, 20.6% Native Hawaiian and Other Pacific Islander, and 38.2% other or multi-racial. The remaining 2,428 youths registered for services who did not receive a spectrum diagnosis were included as a comparison group (Table 1). Among the comparison group, 21.4% were white, 1.4% Black or African American, 17.0% Asian, 19.5% Native Hawaiian and Other Pacific Islander, and 37.4% other or multi-racial. All participants and their families provided written informed consent prior to their diagnostic evaluation, with Institutional Review Board Approval.

## 2.2. Measures

The primary data source for this report was the Child and Adolescent Mental Health Management Information System (CAMHMIS). Data were gathered and entered through standard procedures of the regional Family Guidance Centers, and included among other variables, age, gender, diagnosis, targets of treatment, and intervention practices.

Table 3  
Targets of treatment of youths with and without schizophrenia–spectrum disorders

Target	Spectrum		Non-spectrum	
	<i>n</i>	% targeted	<i>n</i>	% targeted
Social skills <sup>a</sup>	17	81.0	477	38.7
Activity involvement <sup>a</sup>	15	71.4	464	37.7
Psychosis <sup>a</sup>	14	66.7	11	0.9
Positive thinking/attitude <sup>b</sup>	14	66.7	457	37.1
Anxiety <sup>b</sup>	12	57.1	401	32.5
Medical regimen adherence <sup>a</sup>	12	57.1	179	14.5
Peer involvement <sup>b</sup>	11	52.4	334	27.1
Community involvement <sup>a</sup>	11	52.4	301	24.4
Assertiveness <sup>a</sup>	9	42.9	212	17.2
Cognitive-intellectual functioning <sup>a</sup>	9	42.9	160	13.0
Health management <sup>a</sup>	7	33.3	112	9.1
Eating/feeding problems <sup>a</sup>	5	23.8	68	5.5
<i>Included in &lt;50% of spectrum</i>				
Academic achievement	16	76.2	636	51.6
Positive family functioning	15	71.4	884	71.8
Positive peer interactions	13	61.9	527	42.8
Self-management/self-control	13	61.9	553	44.9
Depressed mood	12	57.1	490	39.8

Note: <sup>a</sup> $p < .01$ , <sup>b</sup> $p < .05$ .

Table 4  
Practice elements employed for youths with and without schizophrenia–spectrum disorders

Practice	Spectrum		Non-spectrum	
	<i>n</i>	% used	<i>n</i>	% used
Emotional processing <sup>b</sup>	19	90.5	781	63.4
Skill building/behavioral rehearsal <sup>b</sup>	18	85.7	702	57.0
Social skills training <sup>b</sup>	17	81.0	660	53.6
Educational support/tutoring	17	81	690	56.0
Self-monitoring <sup>b</sup>	15	71.4	543	44.1
Self-reward/self-praise <sup>b</sup>	13	61.9	431	35.0
Medication/pharmacotherapy <sup>b</sup>	13	61.9	477	38.7
Assertiveness training <sup>b</sup>	11	52.4	346	28.1
Relaxation <sup>a</sup>	11	52.4	314	25.5
Exposure <sup>a</sup>	9	42.9	124	10.1
<i>Included in &lt;50% of spectrum</i>				
Communication skills	20	95.2	921	74.8
Problem solving	18	85.7	925	75.1
Supportive listening/client-center	18	85.7	1044	84.7
Cognitive/coping	17	81	887	72.0
Family engagement	16	76.2	828	67.2
Insight building	16	76.2	736	59.7
Natural and logical consequences	16	76.2	859	69.7
Commands/limit setting	16	76.2	772	62.7
Modeling	15	71.4	701	56.9
Therapist praise/rewards	15	71.4	802	65.1
Activity scheduling	13	61.9	597	48.5
Psychoeducational-child	14	66.7	599	48.6
Crisis management	14	66.7	553	44.9
Family therapy	13	61.9	799	64.9
Parent coping	13	61.9	640	51.9
Tangible rewards	13	61.9	575	46.7
Relationship/rapport building	12	57.1	893	72.5
Parent praise	12	57.1	652	52.9
Psychoeducational-parent	11	52.4	559	45.4

Note: <sup>a</sup> $p < .01$ , <sup>b</sup> $p < .05$ .

Diagnoses were based on DSM-IV (American Psychiatric Association, 1994) codes. Youths received diagnostic evaluations including a five-axis DSM-IV diagnosis from the Department of Education (DOE), contracted providers, or CAMHD clinical staff. All diagnoses on axes I and II were examined. Practice guidelines state that “clinicians are encouraged to use structured or semi-structured clinical interviews to arrive at a clinical diagnosis” (p. 160), however, guidelines do not mandate a specific interview protocol.

### 2.2.1. Monthly treatment and progress summary

(MTPS; Child and Adolescent Mental Health Division, 2003). The MTPS is a clinician-report form that measures service format and setting, treatment targets, clinical progress, and intervention practices on a monthly basis. This study examined treatment target and intervention practice element information. Regarding treatment targets, clinicians are asked to indicate up to 10 target competencies or concerns that were the focus of treatment during the reporting month. For analysis, if a target was indicated for any month during the year it was considered present. The targets are selected from a list of 48 predefined concerns and two additional open-response fields.

The MTPS also serves as a monthly measure of “practice elements.” Practice elements (Chorpita et al., 2005) are discrete clinical techniques or strategies used alone or as part of a larger intervention plan (e.g., “goal setting,” “relaxation training,” “assertiveness training,” etc.). The MTPS measure allows clinicians to report up to 55 predefined practice elements as well as three additional write-in (i.e., “other”) intervention practice elements per month.

Although not specifically examined in this investigation, the MTPS’ idiographic clinical progress ratings seem to capture valid, sensitive, and nonredundant client specific treatment outcome information that somewhat overlaps with

both the Child and Adolescent Functional Assessment Scale (CAFAS; Hodges, 1998) and Child and Adolescent Level of Care Utilization System (CALOCUS; American Academy of Child and Adolescent Psychiatry, 1999) (Nakamura, Daleiden, & Mueller, 2007). Statewide training was provided for CAMHD clinicians and its private service providers on the completion of the MTPS form and various practice element definitions. This measure and its structured codebook defining intervention practice elements are also available on the CAMHD website. Additional videotaped training is available upon request to CAMHD's Clinical Services Office.

### 2.3. Data analysis

Group comparisons were performed using chi-square tests with frequency count variables (e.g., gender, service receipt, etc.) and analysis of variance (ANOVA) with ratio-scaled variables (i.e., age, number of diagnoses, total expenditures). An alpha of .05 was used for all analyses. All tests were two-tailed unless otherwise indicated.

## 3. Results

### 3.1. Population findings

#### 3.1.1. Demographics

The first set of analyses compared groups on age, gender, and ethnicity. The schizophrenia–spectrum and non-spectrum groups did not significantly differ in gender (65% male; 35% female for both groups), but did differ in age and ethnicity. The spectrum youths ( $M=16.2$  years,  $SD=2.3$ , range 9–19) were significantly older than the non-spectrum youths ( $M=14.1$  years,  $SD=3.5$ , range 3–22  $F(1, 2,460)=12.25, p<.01$ ). Small sample size and unavailable data rendered inferential comparisons for ethnicity difficult to interpret. A description of the ethnic breakdown, however, is included in Table 2.

### 3.2. Targets of treatment

Twenty-one youths in the spectrum group and 1232 youths in the non-spectrum group had treatment target data available. Chi-square analyses assessed for differences in targets as a function of group. Targets were considered present if they were indicated by providers as a focus of treatment during at least one month in the year. Targets reported for fewer than five youths were excluded. As summarized in Table 3, targets significantly more common among youths with spectrum disorders relative to non-spectrum youths included 1) social skills, 2) activity involvement, 3) psychosis, 4) positive thinking/attitude, 5) anxiety, 6) medical regimen adherence, 7) peer involvement, community involvement, 8) assertiveness, 9) cognitive-intellectual functioning, 10) health management, and 11) eating and feeding problems. Additionally, targets reported for more than 50% of youths with spectrum disorders, even though they did not differ significantly from non-spectrum youths, were also reported in Table 3.

### 3.3. Practice elements

Twenty-one youths in the spectrum group and 1232 youths in the non-spectrum group had MTPS data on practice elements administered. Two-tailed chi-square analyses assessed for differences in therapist-employed practices between the two groups. Practice elements were considered present if they were indicated as used by providers during at least one month of the year. Practices employed for fewer than five youths were excluded. As summarized in Table 4, practices significantly more commonly employed for youths with spectrum disorders included 1) assertiveness training, 2) social skills training, 3) exposure, 4) relaxation techniques, 5) self-monitoring, 6) skill building/behavioral rehearsal, 7) educational support, 8) self-reward, 9) emotional processing, and medication. Additionally, practice elements reported for more than 50% of youths with schizophrenia–spectrum, even if they did not differ significantly from non-spectrum youths, is also reported in Table 4. Fig. 1 highlights those practices more commonly employed in youths with spectrum disorders relative to non-spectrum youths.

In addition to reporting relative frequency of practices between youths with and without spectrum disorders, we examined practices employed in relation to the American Academy of Child & Adolescent Psychiatry (AACAP)

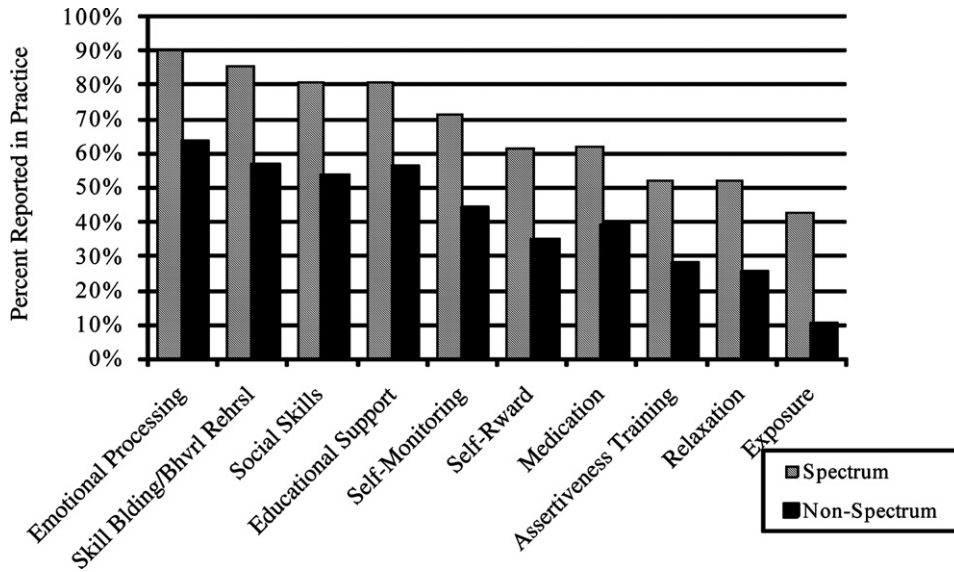


Fig. 1. Practice elements significantly more common among youths with spectrum disorders in relation to the non-spectrum group.

recommended treatment practice parameters. Fig. 2 displays the percent of youths with and without spectrum disorders whose therapists report using the 6 recommended practice parameters for youths with schizophrenia.

4. Discussion

Youths with a schizophrenia–spectrum disorder registered for mental health services with the Hawaii Department of Health in 2004–2005 differ from youths without a spectrum disorder in terms of service variables.

4.1. Targets of treatment and elements of practice

As a result of innovations within CAMHD, information regarding specific foci of treatment and specific strategies employed by providers were available for analysis. The existing literature offers very little in the way of evidence-

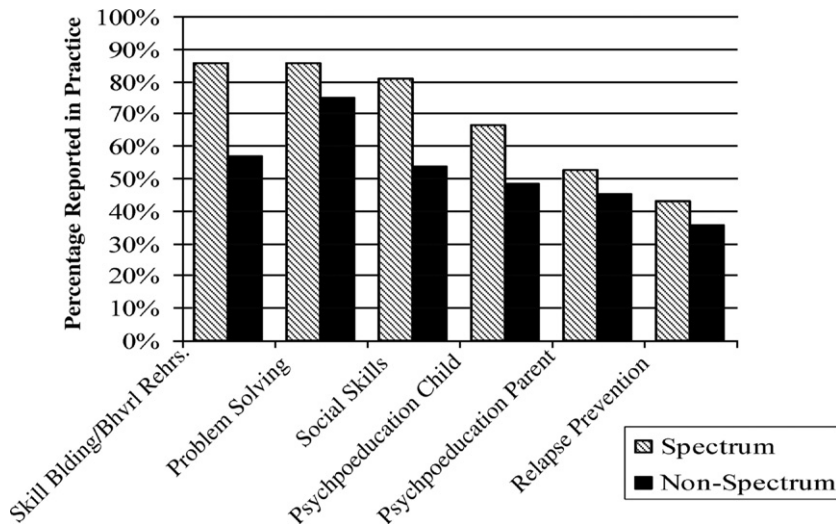


Fig. 2. Practice elements employed in CAMHD relative to recommended practice parameters.

based psychosocial interventions for youths with spectrum disorders (e.g., Asarnow & Asarnow, 2003). The most definitive documents on the subject acknowledge this limitation, suggest a broad-based approach to treatment that is individually tailored, and encourages further study of promising strategies (e.g., McClellan et al., 2001). The current study is unique in its ability to examine clinician level data reporting targets of treatment and treatment strategies employed from a sample of community providers working with youths with spectrum disorders.

#### 4.1.1. *Targets of treatment*

When compared with all non-spectrum youths, several targets were more frequently reported in youths with spectrum disorders. Specifically, targets more frequently addressed in therapy included 1) social skills, 2) activity involvement, 3) psychosis, 4) positive thinking/attitude, 5) anxiety, 6) medical regimen adherence, 7) peer involvement/community involvement, 8) assertiveness, 9) cognitive-intellectual functioning, 10) health management, and 11) eating and feeding problems.

In addition to targets more frequently reported among youths with spectrum disorders, we also reported all targets that were endorsed for more than 50% in this group, even though these targets did not significantly differ from the non-spectrum group. These targets included academic achievement, positive family functioning, positive peer interactions, self-management/self-control, and depressed mood. Although perhaps not specific to spectrum disorders, these targets appear frequently in this group and future consideration of these targets as relevant to youths with schizophrenia–spectrum disorders might be useful.

#### 4.1.2. *Practice elements employed*

With respect to practice elements, providers of youths with spectrum disorders are more likely to employ the strategies of 1) assertiveness training, 2) social skills training, 3) exposure, 4) relaxation techniques, 5) self-monitoring, 6) skill building/behavioral rehearsal, 7) educational support, 8) self-reward, 9) emotional processing, and 10) medication. The relative frequency of these strategies among youths with spectrum disorders suggests that they may be specific to spectrum disorders among this sample of providers and reasonable elements for further study.

Similar to the reporting of targets of treatment, we also reported all practice elements that were endorsed for more than 50% of youths with spectrum disorders even though these targets did not significantly differ from the non-spectrum group. Although perhaps not specific to spectrum disorders, consideration of these elements in treatment seems warranted given their overall frequency (see Table 4).

#### 4.1.3. *Practice elements in relation to AACAP practice parameters*

It is interesting to note that nearly all psychosocial interventions recommended by the practice parameters for youths with schizophrenia (e.g., psychoeducation, social skills training, relapse prevention, life skills training, problem-solving) (McClellan et al., 2001) were reported as practices employed regularly by providers of these youths. Despite the fact that five of the six recommended psychosocial interventions from the practice parameters were employed in over 50% of the youths with spectrum disorders, however, only two of these recommended practices appeared specific to youths with spectrum disorders. Specifically, of the recommended practice parameters, only life skills (referred to as “skill building/behavioral rehearsal” from this data set) and social skills training were significantly elevated in youths with spectrum disorders in relation to the non-spectrum group. Fig. 1 highlights practices significantly more likely employed for youths with spectrum disorders relative to non-spectrum youths. The other practice elements recommended in the practice parameters (problem solving, psychoeducation for the child, psychoeducation for the parent, and relapse prevention) did not differ significantly between the two groups, although all but one (relapse prevention) was employed in more than 50% of the cases. These results suggest that while these recommendations may be helpful for youths with spectrum disorders, four of the six do not appear specific to the group as reported by providers of care and are employed with comparable frequency for youths without spectrum disorders.

Practices such as educational support, self-monitoring, self-reward, assertiveness training, and relaxation all occur significantly more often among youths with spectrum disorders and are reported in more than 50% of the youths with spectrum disorders, but are not included in the American Academy of Child & Adolescent Psychiatry recommended practice parameters. The specificity as well as the high frequency of these practices in this sample for youths with spectrum disorders suggests their potential importance as intervention strategies for future consideration and study.

#### 4.1.4. Relation to “clinical high risk” literature

Emerging literature on adolescents and young adults at clinical risk for psychosis offers further context for the current investigation. Approximately 1/3 of this sample had a full diagnosis of schizophrenia. The remaining youths without a diagnosis of schizophrenia may be in various phases of a trajectory towards schizophrenia and may be considered at “clinical high risk.” Intervention with youths at clinical high risk has been the subject of recent attention and optimism with respect to prevention of psychosis, or, more conservatively, attenuation of severity of psychosis. For example, in 1992, Falloon published a seminal work on family interventions for individuals identified as in the “schizophrenia prodrome,” providing preliminary evidence that early intervention can prevent the onset of psychosis. More recent efforts include intervention trials using both medication and psychosocial interventions (e.g., McGorry et al., 2002; Morrison et al., 2004). Although these studies include individuals older than those described in the current study, they provide another source of information regarding possibly relevant treatment strategies. A review of psychological treatments for the at-risk state by Bechdolf and colleagues (2006) notes common treatment elements found in cognitive behavior therapy such as agenda setting, homework, Socratic questioning, treatment rationale, psychoeducation, self-monitoring, social-skills, activity scheduling, problem solving, and cognitive restructuring in the treatment of those at clinical high risk. The review also acknowledges the tremendous variability of people in the at-risk state and emphasizes an individualized approach. Many of these practice elements are reported by therapists for youths in the schizophrenia spectrum in the current study, providing a degree of convergent validity on the possible utility of some of these approaches.

#### 4.2. Limitations

Clinical standards require DSM diagnoses and practice guidelines recommend use of structured interviews, but it is not clear which diagnostic data resulted from structured versus unstructured approaches. Some providers use structured interviews, whereas others do not, which might potentially decrease confidence in the reliability of diagnoses. Additionally, this sample was clinic referred and representative of a particular system of care, but not necessarily representative of the general population, nor of youths seeking mental health services in general, as many youths with less intensive mental health needs receive mental health services through other systems. It is believed, however, that due to the seriousness of a spectrum disorder in youths, most children and adolescents with these conditions would receive CAMHD services. Furthermore, the assessment of targets of treatment and practice elements was through the MTPS, a measure whose psychometric properties have only partially been examined (e.g., Daleiden, Lee, & Tolman, 2004; Nakamura et al., 2007). Confidence regarding targets and elements findings will be impacted by future results exploring the psychometrics of this measure, although preliminary studies suggest that the MTPS is a valid measure of treatment targets and interventions strategies. Among other issues, the verification that providers are actually intervening on listed targets and employing the practices they indicate warrants further attention, although as mentioned above, training on the instrument was thorough and definitions for each element and target are readily provided.

#### 4.3. Clinical implications

The treatment targets more common among youths with spectrum disorders are consistent with research suggesting a wide array of challenges for youths with spectrum disorders. Symptoms and correlates of schizophrenia–spectrum disorders might lead to providers addressing particular targets more often among youths with spectrum disorders relative to other youths. Obviously targeting psychosis (generally defined as hallucinations and delusions) is relevant for youths in the spectrum, and is very commonly targeted by therapists of this group, while almost never targeted in the comparison group. Cognitive deficits associated with youths in the spectrum might account for providers targeting cognitive–intellectual functioning. Additionally, symptoms associated with spectrum disorders such as disorganization, negative symptoms (e.g., anhedonia, apathy, alogia) and/or social withdrawal might contribute to the need to target social skills, peer involvement, activity involvement, community involvement, and assertiveness more frequently in this group. Conceivably, the importance of antipsychotic medication in treatment, as well as their side effects (e.g., weight gain, dry mouth, hypertension), contribute to an increase in the targets of medication management, health management, and eating problems. Additionally, anxiety has long been considered a key feature of psychosis, in many cases interacting with the hallmark psychotic symptoms of hallucinations and delusions. All of these targets are consistent with the psychopathology seen in youths with spectrum disorders (Schiffman & Daleiden, 2006). It seems reasonable for a therapist beginning work with a



youth with a spectrum disorder to be weary of the possibility of these targets as presenting problems. Additionally, targets more common among youths with spectrum disorders might provide opportunities for trainings and treatment planning.

In terms of specific practice elements employed, the majority of strategies specific to youths with spectrum disorders prescriptively match the above identified targets more common in the spectrum group. For instance, social skills, skill building/ behavioral rehearsal, and assertiveness training might be useful when working on the targets community involvement, peer involvement, assertiveness, activity involvement, and social skills. Educational support is a relevant practice strategy when targeting cognitive-intellectual functioning. Likewise, exposure would be expected given the relative frequency of anxiety as a target, and medication as a practice would be expected given the target of medical regimen adherence. Relaxation might also be important given the known role of stress in relation to psychosis. The majority of relatively commonly employed strategies seems intuitively relevant to the treatment of psychosis, and seems specifically relevant to the treatment targets reported in this sample. One curious result, however, was that of emotional processing used in over 90% of youths with a spectrum disorder. The theoretical link is not clear.

#### 4.4. Future directions

Although treatment targets and strategies as employed by community providers working with youths with spectrum disorders have been identified in the current project, little is known about the relative impact of these strategies in alleviating identified targets. Future work might explore clinical outcomes of these youths with respect to specific strategies employed.

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