Predicting Outcomes Among Adolescents With Disruptive Disorders Being Treated in a System of Care Program

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Abstract

BACKGROUND: "Systems of care" are strengths-based approaches to treating adolescents and others with disruptive disorders. However, little is known about why some adolescents improve and others do not.

OBJECTIVE: To examine changes in personal strengths and family functioning as predictors of behavioral and social functioning among adolescents with disruptive disorders who participated in a system of care program.

DESIGN: Secondary analyses of data from 114 adolescents (12-17 years of age) with disruptive disorders and their caregivers who participated in the Dawn Project Evaluation Study. Caregivers completed in-depth interviews conducted by trained data collectors using standardized questionnaires. Baseline and 12- month data are reported here.

RESULTS: Improvement in personal strengths was a significant predictor of improvement in adolescent behavioral and social functioning, controlling for demographics ($p < .001$).

CONCLUSION: In adolescents with disruptive disorders, psychiatric nurses should focus on enhancing adolescents' personal strengths to improve behavioral and social functioning.

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Disruptive disorders are the most common diagnoses of all serious emotional

disturbances (SED) in youths, with an estimated prevalence rate of 19% in adolescents 13 to 18

years of age (Flory, Milich, Lynam, Leukefeld, & Clayton, 2003; Merikangas et al., 2010).

Disruptive disorders include Oppositional Defiant Disorder and Conduct Disorder (American

Psychiatric Association, 2000), which often co-occur with Attention Deficit Hyperactivity

Disorder. These can have costly and often tragic consequences for adolescents, their families,

and society (Gould, Beals-Erickson, & Roberts, 2012; Huang et al., 2005; Rew, 2007).

Disruptive disorders are the most frequent reason for referral to psychiatric clinics. Compared to

youths with other SED, youths with disruptive disorders have very severe functional

impairments in many life domains that often persist into adulthood (Flory et al., 2003; Osgood,

Foster, & Courtney, 2010). For example, they are more likely than the general population of

youths to drop out of school, use illegal drugs, and be arrested (Armstrong, Dedrick, &

Greenbaum, 2003).

Over the past 40 years, there has been an increase in the adoption of community-based

'system of care' (SOC) programs for youths with SED, including disruptive disorders (Davis-

Brown, Carter, & Miller, 2012; Stroul & Blau, 2010; Stroul & Friedman, 1986). By using

strengths-based, child-centered, family-driven, individualized, and culturally competent care,

SOC programs are designed to integrate and coordinate social services and resources to improve

the behavioral and social functioning (i.e., behavior problems and functional impairment) of

participating youths (Davis-Brown et al., 2012; Stroul & Blau, 2010). Moreover, in recent

studies these strengths-based approaches for delivery of mental health services, such as SOC,

have yielded moderately improved outcomes for children and adolescents (i.e., youths) compared

to traditional mental health programs (Anderson, Wright, Kelley, & Kooreman, 2008; Copp,

Bordnick, Traylor, & Thyer, 2007; Grimes et al., 2011; Manteuffel, Stephens, & Santiago, 2002;

Stambaugh et al., 2007; Walrath, Ybarra, & Holden, 2006; Wright, Russell, Anderson,

Kooreman, & Wright, 2006).

Two factors associated with improved SOC treatment outcomes that deserve further

study include adolescent personal strengths (Harniss & Epstein, 2005) and family functioning

(Friesen, Pullmann, Koroloff, & Rea, 2005). Adolescent personal strengths refer to the positive

emotions, behaviors, and characteristics that create a sense of accomplishment, build satisfying

relationships, and promote achievement of age-appropriate tasks in schoolwork, home, and the

community (Epstein & Sharma, 1998). Family functioning refers to how well families interact,

communicate, and work together (Epstein, Baldwin, & Bishop, 1983).

Studies of the effectiveness of strengths-based treatment approaches to date are limited

by the use of descriptive, correlational designs and the failure to include both adolescent personal

strengths and family functioning as potential predictors of adolescent functioning. The extent to

which adolescent personal strengths and family functioning improve adolescent behavioral and

social functioning in SOC programs is unclear. Focusing on personal strengths as a predictor of

outcomes is consistent with the Double ABCX Model (McCubbin & Patterson, 1983). In

addition, personal strengths are considered a resource to be harnessed in addressing behavioral

and social functioning needs (Barksdale, Azur, & Daniels, 2010; Saleebey, 1996). Because

family involvement is pivotal to the effective treatment of adolescents, there is a need to study

changes in both of these adolescent and family variables in relation to changes in adolescent

behavioral and social functioning.

In addition, youth demographics such as age, gender, and race have been implicated in differential response to mental health treatment. For example, adolescents may have greater functional impairments than younger children (Anderson, Effland, Kooreman, & Wright, 2006; Manteuffel et al., 2002), and African American youths may respond to treatment at a slower rate than their Caucasian counterparts (Anderson et al., 2008; Walrath et al., 2006). With respect to gender, males and females tend to respond to treatment at similar rates (Anderson et al., 2008; Walrath, Mandell, & Leaf, 2001). Overall, findings regarding demographics are mixed and no studies were found that investigated differences in change in outcomes over time in relation to race. Moreover, whether caregiver type (e.g., parent, grandparent) influences treatment response is also unknown. The purpose of this secondary analysis study was to examine changes in adolescent personal strengths and family functioning as predictors of changes in adolescent behavioral and social functioning, controlling for relevant adolescent demographics (age, gender, and race) and caregiver type among adolescents with disruptive disorders who participated in an SOC program.

Method

Parent Study Design

This study involved secondary analyses of data from the Dawn Project Evaluation Study (DPES). The DPES used a prospective, longitudinal, non-randomized research design to examine how participation in an SOC program in Indianapolis, IN, called the Dawn Project affected the clinical outcomes of youths with SED, including disruptive disorders, and their families (Anderson, Wright, Kooreman, & Mohr, 2003). Project data were collected between November 1, 2000, and December 30, 2005. All youths in the Dawn Project were referred as potential subjects to the DPES and were eligible for enrollment in the DPES if their caregivers signed

consents to be contacted. Neither Dawn Project staff nor clinicians were involved in the research.

The principal investigator hired research assistants (or interviewers), who received 40 hours of

training before they collected data. The training included 20 hours of computer-aided, classroom

instruction, which was followed by 20 hours of supervised field training. A caregiver was

defined as the person who had primary caretaking responsibility during a given assessment

period. The interviewers informed the caregivers and youths that the purpose of the study was to

examine how participation in the Dawn Project affected the behavioral and social functioning of

youths with SED and their families' lives. Those youths and their caregivers who chose not to

participate continued to receive care and were not affected in any way. If the caregiver and youth

(11 years or older) agreed to participate, the interviewer reviewed and obtained informed consent

and assent and an interview was scheduled. The interviewers met with the caregivers and youths

at a convenient location, **where the caregivers and youths were interviewed separately**. Data

were collected through in-depth, 90-minute interviews. All instruments were read to caregivers

and youths by interviewers to minimize possible error because of differential reading abilities.

A supervisor regularly observed interviews to ensure the quality of data collection and provided

retraining as needed (Anderson et al., 2008). Baseline data were collected within 30 days of

enrollment, and follow-up data were collected at 6-month intervals over a 36-month period.

Of 1,065 youths and families who received services over the five years when the DPES

was active, 354 (33%) volunteered to participate in data collection. The 6-month ($n = 351$) and

12-month ($n = 278$) follow-up time points had the most participants, followed by the 18-month

($n = 167$), 24-month ($n = 127$), 30-month ($n = 75$), and 36-month ($n = 31$) data collections

(Anderson et al., 2008). Incentives were offered to participants for their time and to increase

adherence to the study protocol. A de-identified dataset of baseline and 12-month data from

caregiver reports of adolescents with disruptive disorders ($n = 114$) was used for secondary data analysis in this study.

Purpose of Secondary Analysis

The purpose of this secondary analysis differed from the purpose of the DPES: (1) by focusing only on adolescents ages 12–17 years with disruptive disorders and their caregivers and (2) by examining the degree to which changes in adolescent personal strengths and family functioning predicted changes in adolescent behavioral and social functioning. On the other hand, the DPES focused on youths ages 5–17 years and examined: (1) the degree to which demographic variables, referral source, Medicaid status, presenting problems, and restrictiveness of living arrangement predicted changes in clinical functioning (Allen et al., 2006); (2) the impact of SOC treatment on changes over time in restrictiveness of living arrangements and on rates of recidivism of program completers (Anderson, McIntyre, & Somers, 2004); (3) the impact of team structure on achieving treatment goals (Wright et al., 2006); and (4) patterns of clinical improvement over time in both children and adolescents (Anderson et al., 2008).

Sample for Secondary Analysis

A total of 114 adolescents, 12–17 years old, who had complete baseline and 12-month caregiver-reported data on selected measures were included. This age group was selected because studies show a doubling of the prevalence of SED, including disruptive disorders, between ages 12 and 13 years (Arnold, Walsh, Oldham, & Rapp, 2007; Costello et al., 1996), with significant functional impairment noted about the age of 12 years (Costello et al., 1996). The average length of involvement in the Dawn Project was 14 months (Anderson et al., 2006). The 12-month end time point was chosen because it was close to the average point at which participants exited treatment and thus provided the best opportunity to examine relationships of

interest. Inclusion criteria for the DPES were broad, which resulted in a heterogeneous sample of adolescents with multiple disorders. The largest group was those with disruptive disorders (82%). This secondary analysis study was limited to disruptive disorders, resulting in a relatively homogeneous sample to allow for a more meaningful interpretation of findings. The Institutional Review Board at Indiana University-Purdue University, Indianapolis, approved all procedures for the Dawn Project evaluation study and for the secondary data analyses.

Measures

The following four measures were completed by caregivers about their adolescents and were included in the secondary data analyses to address the study aims.

Behavioral and social functioning. Two standardized questionnaires were used to assess behavioral and social functioning. First, behavioral **functioning or behavior** problems were assessed using the 113-item Child Behavior Checklist or CBCL (Achenbach, 1991), which yields a total problem score and two broadband syndrome scales—internalizing problems (ICBCL) and externalizing problems (ECBCL). Total scores (TCBCL) of 60 to 63 are considered borderline clinical, and scores above 63 are considered to be in the clinical range; similar scores on the ICBCL and ECBCL indicate clinically significant problems. A common assumption is that a change in scores of five or more points or half a standard deviation in ICBCL, ECBCL, and TCBCL is clinically significant (Norman, Sloan, & Wyrwich, 2003). CBCL psychometrics have been established in community youths and youths with SED, including those in an SOC program. Coefficient alphas ranged from .90 to .92 in previous studies (Carter, Grigorenko, & Pauls, 1995; Greenbaum, Dedrick, Prange, & Friedman, 1994). Test-retest reliability (intraclass correlation) ranged from .89 to .93 (Achenbach, 1991).

Second, social functioning or functional impairment was assessed using the Child

Adolescent and Functional Assessment Scale or CAFAS (Hodges, 1994). The CAFAS has eight

subscales that measure impairment in school/work, home, community, behavior towards others,

moods/emotions, self-harm behavior, substance abuse, and thinking. Total scores range from 0

to 240, with higher scores indicating greater functional impairment. Scores of 50 to 90 indicate

moderate impairment, 100 to 130 marked impairment, and 140 and above severe impairment.

Changes in CAFAS scores of 20 or more points are considered clinically significant (Anderson

et al., 2008). The CAFAS has evidence of satisfactory reliability and validity. Cronbach's alpha

ranged from .63 to .78 in past studies of youths with SED (Hodges & Wong, 1996; Rosenblatt &

Rosenblatt, 2002). Test-retest reliability (Pearson product-moment correlation coefficient) for

total score was reported as 0.95 (Bates, 2001).

Adolescent personal strengths. Caregiver reports of adolescent personal strengths were

measured with the Behavioral and Emotional Report Scale or BERS (Epstein & Sharma, 1998).

The youth version of the BERS was under development at the time of the DPES and so the

adolescent report was not gathered for the study. The BERS is a 52-item tool that identifies

behavioral and emotional strengths of adolescents. Higher scores indicate greater strengths.

Scores below 90 indicate below average strength, and 90 to 110 indicate average strength.

Changes in BERS scores of 10 or more points are considered clinically significant. The BERS

has been widely used to measure strengths in community youths and youths with SED

(Friedman, Friedman, & Weaver, 2003). Cronbach's alphas have ranged from .79 to .99

(Epstein, Mooney, Ryser, & Pierce, 2004; Epstein & Sharma, 1998).

Family functioning. Caregiver reports of family functioning were assessed with the

general functioning subscale of the McMaster Family Assessment Device or FAD (Epstein et al.,

1983). Each item is rated on a 4-point scale with responses of *strongly agree*, *agree*, *disagree*,

and *strongly disagree*. Scores above two are considered healthy and reflect more positive family

functioning. The minimally clinically important difference score of the FAD has not been

established. The test-retest reliability and convergent and discriminant validity of the FAD have

been supported in community youths and youths with SED. Cronbach's alpha for the general

functioning scale of the FAD was reported as 0.92 (Epstein et al., 1983).

Demographics and Caregiver Type. Both adolescent and family demographics were

assessed with the Descriptive Information Questionnaire (DIQ). Caregiver type was included as

a covariate in this study; biological parents, adoptive parents, foster parents, or stepparents were

categorized as primary family caregivers, and grandparents, aunts, or uncles were categorized as

other caregivers.

Data Analysis

The power calculation was based on detecting predictive effects for either personal

strengths or family functioning in multivariable models that adjusted for covariates. A

Bonferroni adjustment was made to account for the four outcomes (TCBCL, ICBCL, ECBCL,

CAFAS) examined for each of two predictors (BERS, FAD). Using an alpha of .0125 and power

of 80%, an increase in R^2 for change in adolescent personal strengths or family functioning of

7% or higher could be detected, even if the R^2 attributed to the covariates (adjusted for age,

gender, race, caregiver type) was as low as 25% with the sample of 114.

Descriptive statistics and frequencies were used to evaluate baseline demographics of the

adolescents and their caregivers. Associations between demographics and other variables were

evaluated using Pearson correlations or two-sample *t* tests. Change was defined as 12-month

scores minus baseline scores. Paired *t* tests were used to evaluate whether change scores at 12

months were significantly different from zero. Change scores for key variables were examined

by evaluating range and variability, including classifying the percentage of individuals who

showed improvement, no change, or changed for the worse using common minimally clinically

important difference information as described under each measure. Multiple linear regression

was then used to evaluate whether changes in the two predictor variables were predictive of

changes in the four behavioral and social functioning outcomes. To address multiplicity issues,

alpha was adjusted to 0.0125. Four separate regression models were fit with caregiver-rated

adolescent personal strengths (BERS) and family functioning (FAD) and each of the outcome

variables (TCBCL, ICBCL, ECBCL, CAFAS), controlling for age, race (1=*African American,*

0=*Caucasian*), gender (1=*female*, 0=*male*), and caregiver type (1=*primary caregiver*, 0=*other*

caregiver). Prior to analyzing the regression results, scatterplots of standardized residuals versus

predicted values for each of the outcome variables were examined for multivariate assumptions

of normality, linearity, and homoscedasticity. The assumptions appeared to be met and standard

collinearity indices indicated that there was no multicollinearity problem between BERS and

FAD scores. In addition, results of missing values analysis in the parent study and in secondary

analysis indicated data were missing completely at random (MCAR), which tends not to pose

any analytical difficulties (Tabachnick & Fidell, 2007). When there were missing items in a

scale, DPES used mean substitution to address this type of missing data.

Results

Baseline demographic characteristics of the adolescents and their caregivers are presented

in Table 1. Adolescents were diverse in terms of race, gender, and their referral source.

Caregivers were diverse in age, but were mainly female, had high school diplomas or greater

education, and had incomes at or below poverty level. Table 2 shows relationships between

demographics and other study variables at baseline. At baseline, younger adolescents had greater

functional impairment compared to their older counterparts. African American adolescents had

better personal strength scores, fewer behavior problems, and less severe functional impairments

than Caucasian adolescents, and males had significantly better strengths scores than females. In

addition, primary family caregivers were more likely to report that their adolescents had better

strengths scores, worse behavior problems, and worse functional impairments compared to other

family caregivers.

Table 3 shows the distribution of change scores from baseline to 12 months. There were

statistically significant improvements over time in all four measures of behavioral and social

functioning. Although there were increases in BERS and FAD scores from baseline to 12

months, these were not statistically significant. The majority of the adolescents showed

improvements or no changes in all variables between baseline and 12 months. For example, 52%

of the adolescents crossed a significant important threshold of 20 points or more and thus

showed improvement in CAFAS scores at 12 months (Anderson et al., 2008).

Table 4 shows results of regression models with change in personal strengths, or BERS

scores, as the only significant predictor of change in all outcomes. The models explained 17.9%

of the variance in Internalizing CBCL, 40.6% of the change in Externalizing CBCL, 33.9% of

the change in Total CBCL, and 34.8% of the change in CAFAS. Age, race, gender, caregiver

type, and change in FAD were not significant predictors of behavioral and social functioning.

Discussion

The central purpose of this study was to examine whether caregiver-rated change in

adolescent personal strengths and change in family functioning over 12 months predicted change

in adolescent behavioral and social functioning. This predictive study adds to the existing

research that has predominately been descriptive (Anderson et al., 2008; Walrath, Mandell,

Holden, & Santiago, 2004). The finding that adolescents who were younger had more functional

impairments than older adolescents was consistent with findings from a previous study of the

Dawn Project (Anderson et al., 2008). This finding contrasted with other studies finding that

functional impairment increased with age (Manteuffel et al., 2002; Nguyen, Huang, Arganza, &

Liao, 2007). However, both Anderson et al. (2008) and Manteuffel et al. (2002) studied youths

from a wider age range (i.e., 5–17 years old) than in this study. Despite these variations, our

study finding might provide evidence that the Dawn Project was successful in reaching the

intended population of youths, those with the most severe behavior problems and functional

impairments (i.e., SED), and early in their illness trajectory. Although race was not a significant

predictor of outcomes, similar to other investigations (Anderson et al., 2008; Mandell, Walrath,

& Goldston, 2006), African American adolescents entered treatment with fewer behavior

problems, lower levels of functional impairment, and greater strength scores compared to

Caucasian adolescents. **Reasons for such racial differences in behavioral and social**

functioning need to be explored in future studies.

The major finding was that an increase in caregiver reports of adolescent personal

strengths during the first 12 months was significantly associated with an improvement in

caregiver reports of adolescent behavioral and social functioning. This finding was consistent

with other studies seeking to demonstrate that youths with higher levels of strengths scores were

more likely to have lower levels of functional impairment (Lyons, Uziel-Miller, Reyes, & Sokol,

2000; Oswald, Cohen, Best, Jenson, & Lyons, 2001). In a cross-sectional study, Barksdale et al.

(2010) found that youths with average to above average strengths were less likely to have higher

levels of functional impairment compared to youths with below average strength scores.

Similarly, Walrath et al. (2004) examined the association between functional impairment and personal strengths in another cross-sectional study of 5 to 17.5-year-old youths ($N = 1,838$) from the National Evaluation Study, and they found a moderate, negative association between overall functional impairment and strengths scores.

The finding that changes in adolescent personal strengths explained more variability in changes in externalizing behavior problems than in other outcomes may be explained by the nature of the diagnosis in this sample. Similar to findings in this study, adolescents with disruptive disorders tend to have more caregiver-reported externalizing than internalizing or social functioning problems in general (Rosenblatt & Rosenblatt, 2002); thus, it might be expected that a stronger relationship between adolescent personal strengths and externalizing problems would be found because these problems would be more easily recognized by the caregiver.

Despite the positive association between personal strengths and outcomes, there was not a statistically significant difference in mean adolescent personal strengths scores between baseline and 12 months. This was in contrast to the results of another analysis that used longitudinal data of 5–17 year-old youths who participated in the Dawn Project. In that analysis, youths showed improvement in their personal strengths from below average to average in approximately a 12-month period of time (Anderson et al., 2008). The difference in findings might be related to the narrower age range and older age of the adolescents in our study, as well as the inclusion of only adolescents with a predominant diagnosis of disruptive disorders. For example, it could be that 12 months duration of treatment was not long enough to demonstrate change in adolescent personal strengths scores for youths with disruptive disorders, given that the average age of the adolescents in this study was 14 years at baseline, and 66% of them had

been referred to the Dawn Project from the juvenile justice system. With the majority of these adolescents being referred from the juvenile justice system, it may be that their mental health issues were very serious, as indicated by the clinically significant behavior problems and marked functional impairment at the time they were enrolled into the study.

Almost 30% of the adolescents had significantly fewer strengths after 12 months of participation in the Dawn Project. A limitation of parent reports is that it is difficult to know why the parents' ratings differed over time. One possibility might be that being in therapy led to the parents realizing that their child was not as strong in particular areas as they had previously thought. It could also be that involvement of a large percentage of adolescents in the juvenile justice system indicated that these adolescents might have been in the traditional mental health system for a significant amount of time and had had poor responses to treatment. Previous studies suggest that exposure to a deficit-based treatment approach requires a considerable amount of time to undo psychological damage (or hardening) from previous unsuccessful approaches and to allow the adolescents and their families to trust the strengths-based system and have hope that the system can help them succeed (Anderson et al., 2006).

In this study, adolescents presented with reports of relatively healthy family functioning. This finding might reinforce the strengths-based belief of the SOC that families have existing strengths and patterns of functioning that help them survive and carry on in the face of the stress of having adolescents with disruptive disorders (Epstein et al., 1983). On the other hand, this finding might reflect social desirability. For example, the caregivers may have over-reported how well their families communicated, worked, and solved problems together to fit societal expectations or avoid embarrassment. It could also be that the families agreeing to participate in the DPES were those who believed that they already had healthy family functioning, which

might help explain why the large majority of families did not show change in family functioning and why it was not a significant predictor of adolescent behavioral and social functioning in this study. Previous analysis using data from the Dawn Project with a more heterogeneous sample of youths, 5–17 years of age with a range of diagnoses, found that improvement in family functioning was associated with youth behavioral outcomes as measured with the CAFAS and CBCL (Wright, Anderson, Kelly, & Kooreman, 2007).

Implications for Practice

These findings, **if** replicated in future studies, have a number of implications for psychiatric-mental health nurses who provide services to adolescents with disruptive disorders and their families. First, nurses need to be aware that it might be beneficial to focus on adolescent personal strengths when addressing challenges associated with having a disruptive disorder. It is not sufficient to carry out strengths-based assessments (Cox, 2006); nurses **should** use assessment data for treatment planning, implementation, and evaluation in order to effect change and improve adolescent outcomes (Bruns, Suter, & Leverentz-Brady, 2006; Cox, 2006). Second, nurses tend to begin clinical encounters with questions such as "What is the problem?" Because adolescents with disruptive disorders and their families may have become used to this problem-based approach, nurses as well as adolescents with disruptive disorders and their families all need to be educated regarding how to use strengths-based language (Kelly & Gates, 2010). Key phrases might include "Tell me what is going well for you" or "What helps you to cope?" Third, strengths-based treatment approaches encompass addressing the adolescents' needs while supporting positive change within the family.

Recommendations for Future Research

Evaluative studies of SOC have focused largely on youth outcomes, even though family involvement is a core value in strengths-based treatment (Cox, 2006; Wright et al., 2007). There is need for more research to better understand how family variables are associated with youth outcomes (Rots-de Vries, van de Goor, Stronks, & Garretsen, 2011; Wright et al., 2007). Future studies need to compare adolescent perceptions of their own strengths with their caregivers' perceptions. There is also a need for further investigation of the effect of race on treatment referral and response. For example, future studies might investigate factors that lead to Caucasian youth being referred later for treatment than African American youth.

Limitations

A limitation of this secondary data analysis was that the subjects were non-randomly selected, and there may have been some self-selection bias. Furthermore, findings cannot be generalized beyond adolescents with disruptive disorders in urban, Midwestern SOC programs. The longitudinal design presented a number of threats to internal validity, including history, maturation, testing, and attrition (Shadish, Cook, & Campbell, 2002). Another potential limitation is that both the predictors and outcomes were caregiver-reported. This could have resulted in a shared variance that artificially inflate or deflate the strength of the relationship between changes in predictors and outcomes. The strength of the relationship could further have been affected by biases due to cultural differences and in reporting change over time. For example, repeated administration of the CBCL and BERS could have resulted in biases in reporting over time because of the sensitization of the caregiver to the items.

Conclusion

In conclusion, change in adolescent personal strengths emerged as a significant predictor of change in behavioral and social functioning. Strengths-based treatment approaches are quickly gaining wider recognition and acceptance among mental health professionals, both in research and practice. Psychiatric-mental health nurses can enhance the personal strengths of adolescents with disruptive disorders to improve their behavioral and social functioning.

Table 1

Baseline Demographic Characteristics of Adolescents and their Caregivers

	Adolescents (*n* = 114) *M* (*SD*), Range	Caregivers (*n* = 114) *M* (*SD*), Range
Age	14.03 (1.43), 12 to 17	42.52 (11), 22 to 73
	n (%)	*n* (%)
Race		
Caucasian	57 (50)	57 (50)
African American	57 (50)	57 (50)
Gender		
Male	81 (71)	14 (12)
Female	33 (29)	100 (88)
Referral Source		
Juvenile Justice	66 (58)	
Child Welfare	24 (21)	
Education	14 (12)	
Mental Health	9 (8)	
Highest grade achieved		
High school diploma or less		81 (71)
Some college or college degree		33(29)
Gross household income		
$19,999 or less		64 (57)
$20,000 to **$99,999**		50 (43)

Table 2

Relationships between Adolescents' Demographics and Baseline Caregivers' Report of Study Variables

	n	BERS[a]	FAD[b]	ICBCL[c]	ECBCL[d]	TCBCL[e]	CAFAS[f]
Age (r)	114	-.096	-.094	.094	-.137	-.048	-.203*
Race (*M* [*SD*])							
Caucasian	57	85 (17)	2.9 (.5)	65 (12)	73 (11)	73 (11)	139 (48)
African American	57	91 (18)*	2.9 (.5)	60 (12)*	68 (12)*	67 (11)**	119 (48)*
Gender (*M* [(*SD*])							
Male	81	90 (16)*	2.9 (.4)	63 (12)	70 (12)	70 (11)	132 (48)
Female	33	82 (20)	2.9 (.5)	63 (12)	71 (11)	70 (11)	121 (51)
Caregiver (*M* [*SD*])							
Primary	83	85 (17)	2.9 (.4)	64 (11)	72 (10)	72 (10)	137 (48)
Other	31	94 (19)*	2.9 (.5)	60 (14)	65 (12)**	66 (13)*	108 (49)**

[a]BERS = Behavioral and Emotional Rating Scale. [b]FAD = Family Assessment Device. [c]ICBCL = Internalizing problems - Child Behavior Checklist. [d]ECBCL = Externalizing problems - Child Behavior Checklist. [e]TCBCL = Total problems - Child Behavior Checklist. [f]CAFAS = Child and Adolescent Functional Assessment Scale.

*$p \leq .05$. **$p \leq .01$. Significant differences are noted next to the group with better scores.

Table 3

Distribution of Change Scores from Baseline to 12 Months on Study Variables

	Δ BERS[a]	Δ FAD[b]	Δ ICBCL[c]	Δ ECBCL[d]	Δ TCBCL[e]	Δ CAFAS[f]
N	111	114	114	114	111	114
Score Change (*M* (*SD*))	1.58(19)	0.12(.5)	-3.43(10)**	-3.39(10)**	-3.96(9)**	-16.05(59)**
Range	-49.00 to 57	-1 to 1.2	-34 to 24	-37 to 27	-31 to 31	-180 to 130
25th %ile	-12.0	-0.2	-9.0	-9.2	-9.0	-60.0
50th %ile	0.0	010	-3.0	-3.0	-4.0	-20.0
75th %ile	12	0.40	3.0	3.0	2.0	20
MCID[g]	N/A	N/A	5	5	5	20
Improvement	29.7%	1.8%	42.1%	41.2%	46.8%	51.8%
No change	39.6%	97.3%	40.3%	42.1%	38.8%	28.9%
Worsening	29.7%	0%	16.7%	16.7%	14.4%	19.3%

Note. Δ or Change = 12-month scores – Baseline scores. %ile = percentile.
[a]BERS = Behavioral and Emotional Rating Scale. [b]FAD = Change in Family Assessment Device. [c]ICBCL = Change in Internalizing problems - Child Behavior Checklist. [d]ECBCL = Change in Externalizing problems - Child Behavior Checklist. [e]TCBCL = Change in Total problems - Child Behavior Checklist. [f]CAFAS = Change in Child and Adolescent Functional Assessment Scale. [g]MCID = Minimally Clinically Important Difference.
*p ≤ .05. **p ≤ .01. Significant differences are noted next to the group with better scores.

Table 4

Multiple Linear Regressions with Key Independent Variables and Changes in Outcome Variables

	Δ ICBCL[a]		Δ ECBCL[b]		Δ TCBCL[c]		Δ CAFAS[d]	
	β	r^2	β	r^2	β	r^2	β	r^2
Δ BERS[e]	-.38*	.11	-.60*	.27	-.56*	.24	-.57*	.25
Δ FAD[f]	-.05	.00	-.00	.00	-.05	.00	-.01	.00
Age	-.19	.03	.09	.01	.00	.00	.10	.01
Race	-.09	.01	.06	.00	.03	.00	-.04	.00
Gender	-.15	.02	.00	.00	-.06	.00	-.05	.00
Caregiver	-.10	.01	.02	.00	.00	.00	.12	.01
Model								
F	3.77**		11.83**		8.63**		9.27**	
df	6, 104		6, 104		6, 101		6, 104	
R^2	17.9		40.6		33.9		34.8	

Note. Δ or Change = 12-month scores – Baseline scores.
[a]ICBCL = Change in Internalizing problems - Child Behavior Checklist. [b]ECBCL = Change in Externalizing problems - Child Behavior Checklist. [c]TCBCL = Change in Total problems - Child Behavior Checklist. [d]CAFAS = Change in Child and Adolescent Functional Assessment Scale. [e]BERS = Behavioral and Emotional Rating Scale. [f]FAD = Change in Family Assessment Device.
*$p \le .05$, **$p \le .01$. *p* adjusted to 0.0125 to address multiplicity.

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