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Abstract

Strength-based assessment has been identified as an appropriate approach to use in planning treatment and evaluating outcomes of youth in residential settings. In previous research the *Behavioral and Emotional Rating Scale*-2, a standardized and norm-referenced strength-based measure, has demonstrated adequate reliability and validity with youth served in community and educational settings. The purpose of the present study was to examine the internal reliability and convergent validity of the BERS-2 by comparing the test to the *Child Behavior Checklist* (CBCL) and the *Symptoms and Functioning Severity Scale* (SFSS). The results indicate that the scores from the BERS-2 are internally consistent and converge with other behavioral and emotional measures which, taken together, suggest that the BERS-2 could be acceptable for assessing the emotional and behavioral strengths of youth in residential settings. Study limitations and future research directions are identified.

Keywords

strength-based assessment; psychometrics; out-of-home care; group care; adolescents

Over the past two decades there has been a marked shift in the delivery of mental health services for children and youth with serious emotional disturbance (SED); namely the development and large-scale implementation of systems of care.[1,2] Systems of care emphasize the collaboration of multiple agencies to address the broad needs of children and youth with SED and their families and hold several core principles. These principles include individualized care, interagency collaboration, cultural competence, family and youth driven

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The third author of this manuscript is the author of the BERS-2.

services, community based services, and accountability.[2] These tenets are intended to guide the selection and implementation of services and the actions of the agencies and professionals involved.

The systems of care impact has been felt across the continuum of mental health services provided to children and youth in the United States including the delivery of services in residential programs. The American Association of Children's Residential Centers has published a series of position papers on such topics as the role of the residential center, family values and services, evidence based practices, assessment practices and outcome indicators. In addition, the Building Bridges Initiative, a network of residential providers, federal agencies, parents and youth organized to promote system of care related policy and practice in residential programs, has prepared numerous documents at improving the delivery of mental health services.

A basic principle of systems of care as well as the positions of the American Association of Children's Residential Centers and the Building Bridges Initiative is the effort to focus support and services on the needs and strengths of children and families, which calls for the use of strength-based assessment. Strength-based assessment has been defined as the evaluation of those behavioral and emotional skills, characteristics, and competencies that enhances a person's capacity to deal with stress and adversity; creates a sense of personal accomplishment; and promotes comfortable relationships with peers, family members and other adults.[3–5] Additionally, a strength-based perspective recognizes that (a) youth with challenging behaviors possess strengths, (b) a youth's motivation to change and improve can be increased by how parents, teachers and other adults responds to their strengths, (c) if a youth is not demonstrating a strength, it does not mean a deficit on the part of him or her, and (d) treatment plans based on strengths and assets are more likely to engage youth and families.[6]

Currently there are a number of assessment measures available to conduct strength-based assessments for children and youth enrolled in residential programs. These measures include the *Child and Adolescent Strengths Assessment Scale*,[7] *Devereux Student Strengths Assessment*,[8] *Social Emotional Assets and Resiliency Scales*,[9] *Developmental Assets*,[10] *Strengths and Difficulties Questionnaire*[11] and *Values in Action Inventory of Strengths for Youth*,[12] to name a few. Each of these screening measures has a number of advantages and disadvantages. Perhaps a most significant disadvantage of these tests is that youth receiving services in residential settings were rarely included in the studies assessing their psychometric characteristics.

Well-established test guidelines offered by several professional organizations state that when a test – developed using classical test theory – is used with a population of individuals who were not in the original development and standardization process its psychometric qualities, particularly its structure, reliability, and validity, need to be assessed and re-established.[13] Specifically, measures, including strength-based assessments, need to be evaluated to ensure that the psychometric qualities identified during the development, standardization, and norming of the scale hold true with the children, youth, and families

served in residential settings. A purpose of the present study was to begin the psychometric analysis of a strength-based instrument with youth in a residential setting.

Behavioral and Emotional Rating Scale

Perhaps one of the most widely used strength-based assessment instruments in social services is the *Behavioral and Emotional Rating Scale-2* (BERS-2),[3] which is a standardized, norm-referenced test that measures the strengths of children 5 to 18 years of age. The BERS-2 includes separate rating scales for youth, parent, and teacher respondents [3] The three rating forms are similar but contain minor wording variations in a few items to better reflect either the perspective of the youth, parent, or teacher respondent. The BERS-2 contains 52-items which factor into five subscales of emotional and behavioral strengths and an overall strength index. The Interpersonal Strength subscale (14 items) measures a child's ability to interact with others in social situations (e.g., *Accepts criticism, Considers consequences of behavior*). The Family Involvement subscale (10 items) assesses a child's relationship with their family (e.g., *Participates in family activities, Trusts a significant person in their lives*). The Intrapersonal Strength subscale (11 items) focuses on how a child perceives his or her own functioning (e.g., *Is self-confident, Talks about the positive aspects of life*). The School Functioning subscale (9 items) assesses a child's performance and competence in school (e.g., *Pays attention in class, Completes school tasks on time*). The Affective Strength subscale (7 items) measures a child's ability to give and receive affect from others (e.g., *Acknowledges painful feelings, Expresses affection for others*).[3] The scale can be completed in approximately 10 minutes. Numerous studies have been conducted to demonstrate the factor structure, reliability and validity of the BERS-2.[6,14,15]

Reliability, in general, refers to the consistency of measurement when testing procedures are replicated with the same population. Tests with a higher degree of reliability are less prone to imprecision, and thus less likely to lead to erroneous conclusions. One important aspect of reliability, as it pertains to rating scales, is internal consistency which refers to the degree to which responses for an individual on a test are similar to one another when we would expect the responses to be similar[13](p9) – that is, internal consistency tells us how consistently an individual responds to similar items. Other important aspects of reliability are the stability of measurement over time (test-retest reliability) and the consistency of measurement between different raters (inter-rater reliability). On the other hand, validity refers to the accuracy of conclusions or interpretations that can be made based upon the scores obtained from a test.[16] Convergent validity is one type of validity, which refers to the relationship between measures of the same construct using different assessment measures.[17,18] The most direct approach for determining the convergent validity of a test is to compare it with another assessment that measures similar or related constructs and has previously demonstrated acceptable levels of reliability and validity. The stronger the relationship between the two tests, the more confident we can be of its convergent validity.

Studies of the convergent validity of the BERS-2 with primary grade students,[19] students with special education needs,[20] and kindergarten students[21] as well as Hispanic[22] and African-American youth[23] indicate that the instrument adequately operationalizes the construct of behavioral and emotional strengths. However, there are no known studies of

internal consistency or convergent validity with residential group care populations. Therefore the purposes of this study were to assess the internal reliability and the convergent validity of the scores from the strength-based BERS-2 with a sample of youth receiving services in a residential setting. To this end, we choose two more traditional, symptomology-focused instruments that have achieved acceptable levels of psychometric status for use in residential settings are the *Child Behavior Checklist* (CBCL)[24] and the *Symptom and Functioning Severity Scale*[25] to establish convergent validity.

Method

Setting and Participants

The study was conducted at a residential facility that serves over 500 youth in 70 family-style group homes in a large Midwestern city. The agency uses an adaptation of the Teaching Family Model (TFM)[26,27] that uses a married couple, referred to as family-teachers, as the primary service delivery agents. Up to eight youth live in each family-style group home.

Participants were drawn from a larger, longitudinal study on residential group home implementation fidelity.[28] Youth eligible to participate were: (1) identified with a disruptive behavior diagnosis via a professional diagnosis using the *Diagnostic Interview Schedule for Children* (DISC),[29] or the *Child Behavior Checklist* (CBCL),[24] (2) were at least 10 years old, and (3) were experiencing their first admission to the residential program. Over a two year period, 170 youth were eligible for participation and 145 (85%) had guardian consent and youth assent.

For this study, we used a subset of 141 youth for whom staff had provided complete data within one month after admission. The sample included 61 girls and 80 boys. Seventeen youth indicated that they were Hispanic, 66 Caucasian, 43 African American, and 15 other. Age at enrollment ranged from 11 to 17 years, with a mean age of 15.7 years (SD = 1.28). The demographics are representative of residential programs in the Midwest, however, the focus on only youth with disruptive behavior disorder excludes other youth that also experience such placements. The majority of staff was younger than 30 years of age (54%), held a bachelor's or associate degree (68.2%) and had been working at the agency for less than 3 years (55.6%).

Measures

Behavior and Emotional Rating Scale (BERS)[3] is a 52 item strength-based assessment used to evaluate the behavioral and emotional strengths of youth. Items are rated on a 4 point scale (0 = *not at all like your child*, 1 = *not much like your child*, 2 = *somewhat like your child*, 3 = *very much like your child*). The BERS consists of the following subscales: (1) Interpersonal Strengths, (2) Intrapersonal Strengths, (3) Affective Strengths, (4) Family Involvement, and (5) School Functioning. These subscales are combined to form the overall Strength Index.

Symptoms and Functioning Severity Scale (SFSS)[25] is a youth behavior rating scale completed by an adult caregiver. The SFSS consists of 24 items that are organized into two

subscales (Externalizing Problems and Internalizing Problems) and a Total Problems score. The SFSS was developed as a concise and psychometrically sound instrument to measure internalizing and externalizing symptoms and severity with youth ages 11–18. We worked with the developers of the SFSS to create a slightly modified version for use in 24/7 residential care settings which uses a 3-point Likert-type scale, instead of the 5-point scale for use in outpatient settings. The psychometric properties of the residential version of the SFSS are similar to the version used in outpatient samples.[28]

The *Child Behavior Checklist* (CBCL)[24] is the most widely used assessment of children's behavior, has sound psychometric properties, and is considered the 'gold standard' for rating-scale assessment of children's behavior problems.[30] The CBCL consists of 113 items that are rated on a 3-point scale (0 = *not true*; 1 = *somewhat true*; 2 = *very true*). The CBCL yields a Total Problems score, two dimension scores (Internalizing Problems and Externalizing Problems) and eight specific syndrome scores.

Procedures

Family-teachers were asked to complete the BERS-2, CBCL, and SFSS as a part of an assessment battery for a study on residential group home implementation fidelity. The three measures were completed about one month after the youth's admission to the group home. The assessments were given individually to family-teachers via a paper-and-pencil or an online survey. All data were entered, verified, and merged into an electronic dataset using unique study identification numbers. All recruitment and consent procedures for youth and staff were approved by the university IRB and the agency IRB.

Results

The sample mean (and standard deviation) for the BERS-2 overall Strength Index standard score was 81.60 (*sd* = 12.02) is slightly lower than the normative mean for the test. The sample means (and standard deviations) for the SFSS Total Problems scale, Externalizing Problems and Internalizing Problems subscales were 39.09 (*sd* = 8.55), 40.89 (*sd* = 10.35), and 33.29 (*sd* = 8.50), respectively. These standard scores indicate that 42.7% of youth were identified with elevated externalizing problem severity and 16% with elevated internalizing problem severity. For the CBCL, sample means were 55.40 (*sd* = 9.27), 57.66 (*sd* = 9.53), and 51.69 (*sd* =10.05) for the Total Problems scale, the Externalizing Problems and Internalizing Problems subscales, respectively. The CBCL scores indicate that 48.3% of the sample had an elevated level of externalizing problem severity and 20% had an elevated level of internalizing problem severity.

Reliability and Validity

To assess the internal consistency of the BERS-2, Cronbach's alphas were calculated for the Strength Index score and the five subscales. Alpha values are presented for the total sample and separately for males, females, African Americans, Hispanics and Caucasians (see Table 1). The alpha coefficients were highly acceptable and ranged between .76 and .96. The reliabilities did not exhibit any meaningful variation by gender or ethnic/racial group.

To determine the convergent validity of the BERS-2 with residential youth, Pearson product-moment correlations were calculated for each of the BERS-2 subscales and the Strength Index and Total Problem, Externalizing Problems and Internalizing Problems scales of the CBCL and SFSS (see Table 2). All but two of the correlations were statistically significant ($p < .05$). Cohen[31] and Hopkins[32] have provided general guidelines for determining the magnitude of correlations where between .10 and .29 are considered small, between .30 and .49 are moderate, between .50 and .69 are large, and between .70 and .90 are very large. In addition, it has been suggested that in order for a correlation coefficient to be cited as evidence of convergent validity it should meet or exceed |.35| in magnitude.[33] Based on these criteria, 11 of 18 correlations between the BERS-2 and the SFSS were moderate to large with the largest correlation between the BERS Interpersonal and the SFSS Externalizing Problems (−.65) and the smallest between the BERS Affective and School Functioning subscales and the SFSS Internalizing subscale (−.17). For the BERS-2 and CBCL, 12 of 18 correlations were moderate to large in magnitude with the largest between the BERS Strength Index and Total CBCL (.57) score and the smallest between the BERS School Functioning and CBCL Internalizing (−.13).

Discussion

The internal consistencies were well above the .80 level which is considered adequate[34] with the two exceptions involving the Affective Strength subscale (female = .77; African-American = .76). The Affective Strength subscale typically has a slightly lower Cronbach's alpha, given that the Affective Strength subscale consists of the fewest items, so these slightly lower ratings perhaps are reflective of this trend. Overall, the acceptable alphas indicate that the BERS-2 is an internally consistent test for the total sample and for all of the subgroups studied.

As the pattern of correlations indicates, the BERS-2 scores are convergent with scores from the CBCL and SFSS with almost two-thirds of the correlations being over |.35| and in most cases much higher. In general, the correlations were highest between subscales that purport to assess similar large-band constructs. For example, the BERS subscale of Interpersonal Strengths, which measures social interaction skills, correlated highest with the Externalizing Problem subscale of both the SFSS (−.65) and CBCL (−.57). On the other hand, most subscales of the BERS did not correlate highly with the Internalizing Problem subscale of the SFSS or the CBCL. In fact all of the correlations with the Internalizing Problem subscales were below −.32 with the exception of the Intrapersonal Strength subscale which assesses areas such as self-confidence and sense of humor. The overall low correlations between the internalizing SFSS and CBCL subscales and the BERS-2 suggests that the strength items are primarily related to externalizing types of behavior. A different interpretation of these findings might be that residential staff have difficulty in using rating scales to assess an internal state.[20] Further, all of the youth were identified with a disruptive behavior issue, so perhaps it is more difficult for providers to rate internal states with youth with significant externalizing behaviors. Nonetheless future researchers need to investigate how well the BERS measures strengths related to internalizing type behaviors with youth in residential care by including a more diverse sample.

Findings are similar to previous convergent validity research of the BERS-2 (e.g., [20,35]) with students in general educational settings. In these previous studies, the overall majority of correlations were significant and moderate to large in magnitude, particularly those measuring the relationship between the BERS and externalizing type behavior problems. The small and non-significant findings were between the BERS and the internalizing problems. The present study in conjunction with prior research lends support to the notion that the scores from the BERS-2 constitute a valid measure of emotional and behavioral strengths of youth as reported by service providers in residential settings.

Limitations and Future Research

There are several limitations that must be noted. First, the study was conducted within a single residential agency. It is possible that the findings may not generalize to other residential agencies in other geographical regions. Future investigators need to examine the psychometric properties of the BERS in broad national studies of residential youth to substantiate its use in other settings. Second, the convergent validity of the BERS was assessed with only two instruments, the *Child Behavior Checklist* and the *Symptoms and Functioning Severity Scale*, and the discriminant validity was not evaluated. Future researchers should continue to investigate the convergent and discriminant validity of the BERS with other behavior rating scales and observation forms. More importantly, the convergent validity of the BERS should be studied with other strength based measures with this population such as *Devereux Student Strengths Assessment*,[8] *Social Emotional Assets and Resiliency Scales*,[9] *Developmental Assets*,[10] and *Strengths and Difficulties Questionnaire*[11] The third limitation worthy of discussion relates to the modification of the SFSS, namely the use of a three point rating scale. Although this decision was made by the assessment developers, this modification may lead to unique findings compared to other studies. Additional information on the psychometric properties of the three-point SFSS are provided in previous studies.[28] The last significant limitation was that the study included youth in residential care with predominantly externalizing behavior issues. While the psychometric findings are acceptable, future research would benefit from also including youth with primarily internalizing issues.

Other directions for future research include a more in-depth evaluation of the psychometric properties of the BERS-2 with youth in residential settings and other out-of-home treatment settings. Specifically, researchers need to assess the inter-rater reliability of the BERS-2 by having the youth and providers complete the BERS-2. If the correlations are moderate to large in magnitude the BERS-2 could be completed by multiple respondents to provide a comprehensive, holistic view of the youth for treatment planning. Researchers should also examine the short-term test-retest reliability, discriminant validity and predictive validity of the BERS-2 with respect to behavioral and placement outcomes. Finally, researchers may look within the residential group of youth for profiles of strengths that might differentiate those who successfully reintegrate into home, community and school settings from those who do not successfully reintegrate into these settings.

Implications for Behavioral Health

Despite the limitations and need for further research, the findings reported here afford initial evidence in support of the internal reliability and convergent validity of the BERS-2 for youth in residential settings. Given the overall acceptable psychometric data, the BERS-2 is recommended for the following uses: to document the emotional and behavioral strengths of youth in residential settings; to target goals for a youth's individual treatment plan; and to use as a progress monitoring tool and to document outcomes in a strength area resulting from the implementation of an individualized treatment plan. Residential placement is typically a last-resort option for youth with significant difficulties, but adopting a strength-based assessment is an approach to help service providers see the skills, assets, and competencies of these high-risk youth and to begin to build upon these strengths through individualized treatment planning.

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Table 1

Cronbach's Alphas of the BERS-2 Strength Index and BERS-2 Subscales

	n	SI	IS	IaS	FI	SF	AS
Overall	141	.94	.89	.84	.84	.90	.81
Male	80	.95	.89	.86	.84	.90	.82
Female	61	.93	.88	.82	.84	.89	.77
African American	43	.90	.85	.86	.80	.88	.76
Hispanic	17	.96	.94	.82	.83	.87	.83
Caucasian	66	.96	.89	.85	.87	.92	.84

SI = Strength Index. IS = Interpersonal Strengths. IaS = Intrapersonal Strengths.

FI = Family Involvement. SF = School Functioning. AS = Affective Strengths

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Table 2

Correlations Coefficients Between the BERS and the SFSS and CBCL

	SFSS (n = 141)			CBCL (n = 141)		
	Total	**Ext**	**Int**	**Total**	**Ext**	**Int**
Strength Index	−.60	−.51	−.42	−.57	−.45	−.39
Interpersonal	−.60	−.65	−.21	−.56	−.57	−.21
Intrapersonal	−.44	−.23	−.52	−.46	−.23	−.52
Affective	−.19	−.18	−.17*	−.21	−.19	−.20
Family Involvement	−.47	−.42	−.29	−.45	−.40	−.32
School Functioning	−.45	−.51	−.17	−.45	−.37	−.13*

Note. All correlations are statistically significant at the .05 alpha except the correlations marked with an asterisk. Ext = externalizing problems subscale. Int = internalizing problems subscale.