Journal of Child and Family Studies, Vol. 15, No. 1, February 2006 (© 2006), pp. 27–37
DOI: 10.1007/s10826-005-9000-2

Confirmatory Factor Analysis of the Behavioral and Emotional Rating Scale–2 (BERS-2) Parent and Youth Rating Scales

Jacquelyn A. Buckley, Ph.D.,[1] **Gail Ryser, Ph.D.,**[2] **Robert Reid, Ph.D.,**[3] **and Michael H. Epstein, Ed.D**[4,5]

Published online: 30 December 2005

We confirmed the factor structure of the Behavioral and Emotional Rating Scale – 2nd Edition (BERS-2) with a normative parent and youth sample. The BERS-2, based on the Behavioral and Emotional Rating Scale (BERS), is a standardized instrument that assesses children's emotional and behavioral strengths. The original BERS was renormed to create a separate parent scale (Parent Rating Scale) and a youth self-report scale (Youth Rating Scale). In this study, we investigated whether the five-factor structure of the original BERS (i.e., interpersonal strengths, family involvement, intrapersonal strengths, school functioning, and affective strengths) could be replicated with normative parent and youth respondents. A total of 927 parents of students with and without disabilities and 1301 youth with and without disabilities volunteered to participate in the study. Confirmatory factor analysis was used to determine the extent to which the normative parent and youth data fit the original five-factor BERS structure. Results indicated that the five-factor structure demonstrated an acceptable fit with the normative parent and youth samples. Practical implications and future research ideas are discussed.

KEY WORDS: behavioral and emotional rating scale; confirmatory factor analysis; strength-based assessment.

[1]Research Fellow John Hopkins Bloomberg School of Public Health, Baltimore, MD.
[2]Assistant Director of Research, PRO-ED, Austin, TX.
[3]Associate Professor, Department of Special Education and Communication Disorders, University of Nebraska-Lincoln, Lincoln, NE.
[4]Professor and Co-Director, Center for At-Risk Children's Services, University of Nebraska-Lincoln, Lincoln, NE.
[5]Correspondence should be directed to Michael H. Epstein, University of Nebraska-Lincoln, 202 Barkley Memorial Center, Lincoln, NE 68583; e-mail: mepstein1@unl.edu.

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The development of reliable and valid assessment instruments is an important goal of researchers and direct service providers in the social sciences. Assessment results can have significant implications for children, including identification and placement into mental health, special education services, or other treatment programs. The mental health and educational fields have seen a marked shift in the focus of assessment of children and youth. The emphasis has shifted from identifying deficits to developing effective methods for identifying strengths and competencies of students including students at risk of or with emotional and behavioral disorders (EBD).

Strength-based assessment has received considerable support from educational and mental health professionals, and is a major principle of the systems of care approach (Stroul & Freidman, 1986). Historically, psychoeducational evaluations have focused on documenting pathologies or deficits within a child and family, but it is widely recognized that a deficit-based model of assessment will unduly stress the negative aspects of a child's behavior at the expense of the positive aspects (Barnard, 1994; Epstein, 1999). A strength-based assessment paradigm recognizes that children with even the most challenging behaviors have strengths that can be built on to develop a treatment or intervention approach (Epstein, 1999). Information about strengths can aid in designing interventions that use available strengths and resources (Provence, Erikson, Vater, & Palmeri, 1995). Although documentation of deficits is a necessary component of eligibility into treatment programs, a strength based approach encourages practitioners to include families in a positive way by also including information about what a child can do well and establishing positive expectations for the child (Rudolph & Epstein, 2000).

There are measures currently available that at least partially assess students' strengths. These include the Social Skills Rating Scale (SSRS; Gresham & Elliott, 1990) which includes a scale that measures academic competence, and the Behavioral Assessment System for Children (BASC; Reynolds & Kamphaus, 1992) which seeks information about a child's adaptive, or positive behaviors. However, the development of strength-based assessment tools is still in its infancy. The Behavioral and Emotional Rating Scale (BERS; Epstein & Sharma, 1998) was developed in response to the need for a valid and reliable instrument whose primary purpose is assessing and evaluating strengths (Epstein, 2000). To date the BERS has been used in a variety of clinical and research applications. The 52-item BERS was designed to be completed by adults (e.g., teachers, caregivers) who rate the behaviors of children ages 5–18. Reliability (Epstein, Cullinan, Harniss, & Ryser, 1999) and validity (Epstein, 1999; Epstein, Cullinan, Ryser, & Pearson, 2002) studies have demonstrated that the BERS possesses strong psychometric properties (Epstein & Sharma, 1998).

Factor analyses indicated that the BERS overall strength quotient consists of five factors: Interpersonal strengths, family involvement, intrapersonal strengths, school functioning, and affective strengths (Epstein, Ryser, & Pearson, 2002). The Interpersonal Strength subscale consists of 15 items that identify a child's ability to interact with others in social situations (e.g., accepts criticism, accepts responsibility for own actions). The Family Involvement subscale contains 10 items that measure a child's relationship with his or her family (e.g., trusts a significant person in his or her life, participates in family activities). The Intrapersonal Strength subscale is composed of 11 items that focus on how a child perceives his or her competence and accomplishment (e.g., identifies personal strengths, talks about the positive aspects of life). The School Functioning scale consists of 9 items that address a child's competence and performance in classroom and school tasks (e.g., completes school tasks on time, attends school regularly). Finally, the Affective Strength subscale is made up of 7 items that measure a child's ability to give and receive affection from others (e.g., shows concern for the feelings of others, expresses affection for others).

If strength-based assessment is to become a viable option for practitioners, formal strength-based assessment instruments must be continually refined. The most current research on the psychometric properties of the BERS indicated that it is a valid and reliable behavioral strength measure, but it also became apparent that the instrument was not comprehensive in two important ways: (1) the original BERS did not differentiate between parent and teacher respondents, so there existed the need to establish separate norms for parent and teacher respondent groups, and (2) the BERS did not allow for a child/adolescent to report on their own perceived strengths and competencies. To address these problems, the original BERS was renormed in 2001–2002 and included a nationally representative sample of 927 parents/caregivers and 1301 children and adolescents. The original BERS items were rewritten to reflect a parent and youth perspective, respectively, and the new versions of the scale were named the BERS-2: Parent Rating Scale and the BERS-2: Youth Rating Scale (Epstein, 2004). A complete description of the new scales is included in the *Instruments* section below.

Although the BERS-2 scales were based on the well researched BERS, using the scale with different populations (e.g., youth) could change the psychometric properties of the instrument. Because the factor structure for the original BERS was based on an adult sample that did not differentiate parent and teacher respondents, the structure of the scale based on responses of parents as a separate and distinct group from teachers and responses of youth may be very different. Therefore, research was needed to determine if the original five factor structure could be replicated with parent and youth respondents. The purpose of this study was to confirm the original five-factor structure with a nationally representative sample of parents and youth.

METHOD

Participants

The BERS-2 Parent Rating Scale was normed on a sample of 927 persons in 34 states and Washington DC; the Youth Rating Scale was normed on a sample of 1301 youth in 30 states and Washington DC. The participants completed the BERS-2 between the fall of 2001 and the spring of 2002. The following variables were considered during the recruitment process to select a nationally representative sample: geographic region (Northeast, Midwest, South, West); Hispanic (Hispanic, non-Hispanic), and Race (White, Black, Other). The sample for the Parent and Youth Rating Scales were weighted during normative development and data analyses. Weighting the sample is an acceptable method to make sure that normative samples conform to population characteristics (Salvia & Ysseldyke, 2001). The normative data were weighted based on three sampling variables: race, geographic region, and Hispanic origin. First, an overall weight was determined for race, geographic region and Hispanic origin by dividing the group's percentage in the U.S. population by the actual percentage in the sample. Next, a weight was obtained for each individual in the sample by multiplying the weight for his or her race by the weight for his or her geographic region by the weight his or her ethnicity (Hispanic Origin). The weighted normative sample was used to derive norms for the BERS-2 and used in this study's data analyses which involved the entire normative sample.

The participants for the Parent Rating Scale rated children ranging in age from 5 to 18. The majority of the youth rated with the Parent Rating scale were male (54%) and Caucasian (74%). In addition, 14% of the sample indicated Hispanic origin. The majority of children rated did not have a disability (83%), with 6% of parents reporting that their child had an attention deficit hyperactivity disorder, 6% with a learning disability, and 5% of the parents marked "other" as their child's disability. The Youth Rating Scale was completed by children and youth ranging in age from 11 to 18. The majority of the youth were female (52%) and Caucasian (76%), with 15% indicating Hispanic origin. Most youth also indicated that they did not have a disability (84%), 9% of the students had a learning disability, 4% had an attention deficit hyperactivity disorder, and 3% indicated "other" as their disability.

Instruments

The BERS-2 scales were modeled after the original BERS scales, and therefore the same 52 items included in the BERS were included in the BERS-2 scales. The BERS-2 Parent Scale is designed to be completed in approximately 10 minutes by parents who read each statement and mark the rating that reflects how much a given characteristic is representative of the child. The instrument is administered

on a 4-point Likert scale that ranges from 0 (not at all like my child) to 3 (very much like my child). The scale also contains eight open-ended questions that are designed to allow parents to note the child's specific academic, social, athletic, family, and community strengths.

The scale is composed of an overall Strength Index that provides a single summary score of strengths and 5 subscales: Interpersonal strengths, family involvement, intrapersonal strengths, school functioning, and affective strengths. The sum of the subscale standard scores is converted into the Strength Index that has a mean of 100 and standard deviation of 15. The five subscales each have a mean standard score of 10 and a standard deviation of 3.

The BERS-2 Youth Rating Scale, intended for youth age 11–18, is identical to the parent scale except the youth self-report included minor wording changes to reflect a youths perspective. For example, "asks for help" was changed to "I ask for help when I need it." Most youth can complete the 52 items in approximately 10 minutes.

Procedures

Trained educators from around the United States were recruited to coordinate data collection. Specifically, the following individuals were asked to be coordinators: professionals in the field of education, professionals who had used the BERS or similar instruments, and professionals who had collected data in previous test norming projects. Participating coordinators were trained in the administration procedures of the BERS-2 and were asked to collect data from convenient samples of parents and students. Parents provided written consent for their children to participate.

The scaled scores for the subscales were developed using a continuous norming procedure that uses polynomial regression to fit the progression of the means, standard deviations, skewness, and kurtosis for males and females. The shape of the distribution of scores was determined using the fitted values of skewness and kurtosis from the regression. The composite Strength Index was calculated using Guilford and Fruchter's (1978) procedure for pooling variance, which pools the scaled scores of the subscales that make up the composite. Additional details on the BERS-2 norming procedures can be found in the manual.

Design and Data Analysis

Because the Parent and Youth Rating Scales were developed based on the same model as the original BERS, confirmatory factor analyses were conducted on both new scales using individuals in the BERS-2 normative sample. AMOS 4.0 (Arbuckle, 1999) was used to conduct confirmatory factor analyses to compare the extent to which the normative data fit the five-factor BERS structure. The five factor model proved to be robust in previous studies and the exact items

Table I: Zero-Order Correlations of BERS-2 Subscales for Parent and Youth Rating Scales

	Subscales				
	Interpersonal strength	Family involvement	Intrapersonal strength	School functioning	Affective strength
Parent rating scale					
Interpersonal strength	—				
Family involvement	.79	—			
Intrapersonal strength	.74	.77	—		
School functioning	.64	.58	.62	—	
Affective strength	.66	.73	.75	.46	—
Youth rating scale					
Interpersonal strength	—				
Family involvement	.58	—			
Intrapersonal strength	.70	.61	—		
School functioning	.66	.64	.65	—	
Affective strength	.49	.57	.57	.63	—

from the BERS were included in the BERS-2 scales, so no exploratory analyses were conducted. The subjects' standard scores on the subscales were used as indicators. All parameter estimates were performed using covariance matrices and maximum-likelihood estimation to test the fit of the BERS-2 subscale assignment to the BERS-2 Strength composite.

In testing this model, four indexes of model fit were computed: Bentler's (1990) comparative fit index (CFI), Tucker and Lewis's (1973) index of fit (TLI), and Bentler and Bonnett's (1980) normed fit index (NFI) and Browne and Cudek's (1993) root mean square error of approximation (RMSEA). These indices assess different aspects of model fit and have varying criterion for a model demonstrating good fit. Recent methodological research indicated that the CFI, TLI, and NFI values should be at or above .95 to indicate a good fitting model (Hu & Bentler, 1999), with values close to 1 indicating a very good fit on any of these indexes. A RMSEA of less than .11 indicates a reasonable fit, and an RMSEA of about .05 or less indicates a close fit of the model in relationship to the degrees of freedom (Browne & Cudek, 1993).

RESULTS

The zero-order correlations of the BERS-2 subscales for the Parent and Youth Rating Scales are presented in Table I. The results of the confirmatory factor analyses for the proposed model are presented in Figures 1 (Parent Rating Scale) and 2 (Youth Rating Scale). The figures illustrate the factor representing the BERS-2 Strength index as an oval. The values on the arrows between the factor and the subscales, which are represented by rectangles, are factor loadings. The factor loadings are regression coefficients that represent the influence of the factor—the BERS-2 Strength index—on the subscales. The e1 through e5 represent unique

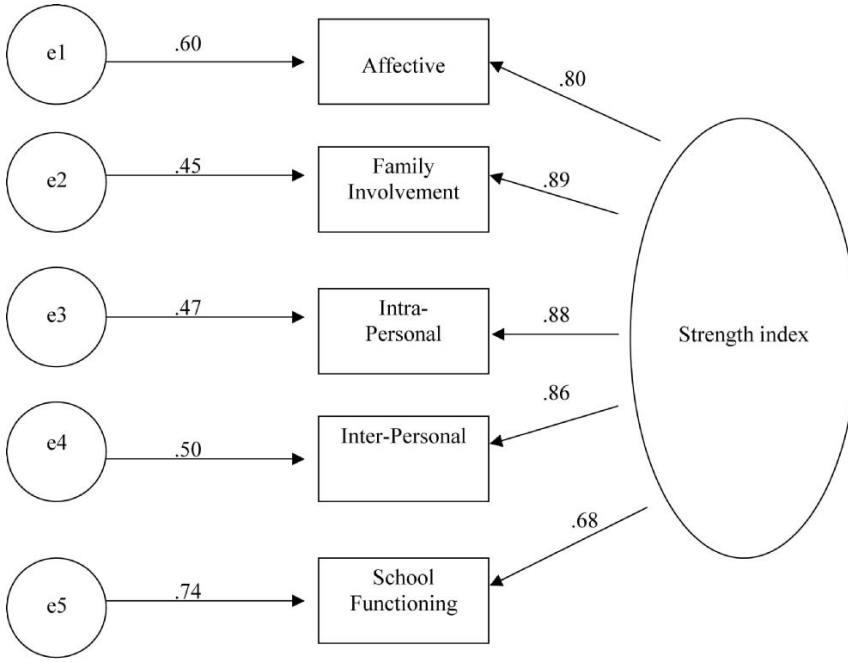

Fig. 1. BERS-2 parent rating scale factor loadings and CFA results.

variance and systematic variance of each subscale that is unrelated to the variances of the other subscales.

Parent Rating Scale

Applying Hopkins' (2002) criteria, the size of the factor loadings associated with all subscales for the Parent Rating Scale are very large (>.80), with the exception of School Functioning which is in the large range (>.60). Three of the four indices supported the fit of the model to the data, with the CFI equal to .993, the TLI equal to .979, and the NFI equal to .993, and the RMSEA equal to .148. Also, all of the subscale factor loadings were fairly large and significantly different from zero.

Youth Rating Scale

Applying Hopkins' (2002) criteria again, the size of the factor loadings associated with all subscales for the Youth Rating Scale are very large. Three of

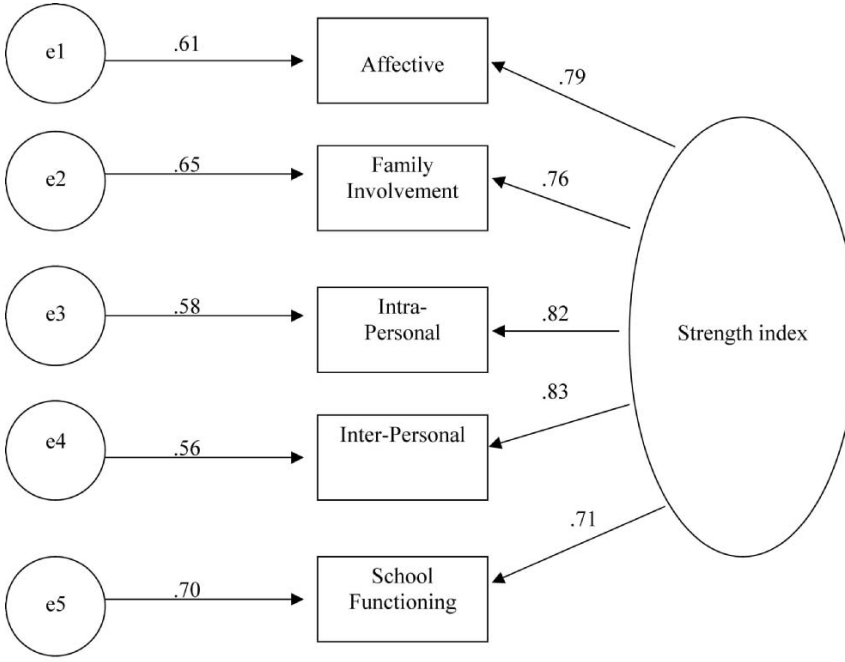

Fig. 2. BERS-2 Youth rating scale factor loadings and CFA results.

the four indices, CFI equal to .995, the TLI equal to .986, and the NFI equal to .995, support the idea that the data are a good fit to the five factor model. The RMSEA fit index was equal to .120. Additionally, all of the subscale factor loadings were fairly large and significantly different from zero.

DISCUSSION

The goal of our study was to determine whether the five factor structure of the BERS-2 (i.e., interpersonal strength, family involvement, intrapersonal strength, school functioning, and affective strength) could be demonstrated with youth respondents and with a sample of parent respondents. The five-factor structure demonstrated acceptable fit with a sample of parents and youth; the Strength index can be considered a valid underlying influence on the five subscales.

Several limitations should be noted. First, although the sample was large and nationally representative, it was a convenience sample of volunteers and the nature of the sample may have influenced results. Replication would be required to determine that the results are not unique to the current sample. Moreover, large

samples of parents of children with disabilities, namely those with learning disabilities (LD) and emotional disturbance (ED) were not included in the present study. Children with LD and ED may present very different behavioral strengths than the general population which could influence the factor structure of the scale. Results should be replicated with a sample of parents of children with LD and ED to determine if a different factor structure emerges. The study's results should be replicated with other youth to determine that the results are not unique to this study's sample. Furthermore, children with disabilities comprised only 16% of the sample. Although this is representative of children with disabilities nationally, children with disabilities (e.g., LD, ED) may present very different behavioral strengths than is represented with the current, primarily general education, population. Results should therefore be replicated with greater numbers of children with disabilities to determine if a different factor structure appears.

Second, there are limitations of the confirmatory factor analysis. For example, factor invariance was not examined for subsamples such as gender or ethnicity. Further research evaluating demographic variables that may influence the factor structure underlying BERS-2 Parent and Youth Ratings Scale scores is warranted. In addition, no CFA was conducted to test for second order factors underlying the five factor structure. It is important to conduct a CFA that tests for second order factors to confirm the utility of the strength index. Further exploration of the multidimensionality of behavioral and emotional strengths in children and adolescents is warranted. Although three of the fit estimates suggested that the five-factor model was a good fit for the data, the RMSEA did not reflect this. One possible explanation for this is that the RMSEA reflects cumulative error. Further studies are necessary to replicate these findings.

Additionally, as with all new and updated assessment instruments, further research needs to be conducted on the psychometric properties of the instrument. For example, criterion validity research should be done with other parent-reported instruments of child and family functioning as well as other youth self-report instruments of behavioral functioning. The BERS-2 Rating Scales could also be used in longitudinal studies to understand the stability of parent and youth ratings over time. Furthermore, the reliability of ratings across youth, parents, and teachers would be important to research to determine whether and how differently adults and youth rate behavioral and emotional strengths.

The creation of the BERS-2 Rating Scales is an important advancement in strength-based assessment and intervention. Although further research is needed with the BERS-2 Parent and Youth Rating Scales, the scales possess a logical factor structure and nationally representative norms. The updated norms and inclusion of separate parent and youth normative data is useful for differentiating parent perceptions from teacher perceptions of behavioral and emotional strengths of children and adolescents, as well as allowing for the collection of youth self-report information.

The ultimate goal of assessment is to gain a clear and accurate picture of a child's behaviors to determine the interventions necessary to help the child succeed. A strength-based paradigm encourages professionals to focus on the enhancement of child functioning, not just the eradication of deficits. Strength-based self-report results can be used for treatment planning by identifying behavioral and emotional strengths the child identifies as already possessing, and using those strengths to develop or enhance less well-developed skills.

Furthermore, best practices in behavioral evaluation dictates that multiple perspectives (e.g., teacher, parent) of a child's behavior are needed to gather a complete picture of the child. Inclusion of a separate parental perspective of behavioral and emotional strengths is essential to achieve this goal. Separate teacher and parent norms for the BERS-2 scales emphasize the need for multiple perspectives and provide professionals with a sound instrument to gather strength information from parents as well as teachers. Understanding the child's perspective on his or her own strengths, not solely the adult perspective, will further increase an evaluator's ability to effectively use information about strengths to inform intervention development. The creation of the BERS-2 Youth Rating Scale represents an improvement in strength-based assessment measures because youths can now report on their own perceived behavioral strengths and competencies.

The development of the BERS-2 rating scales and the confirmation of the five factor structure with a sample of parent and youth represent important advancements in strength-based instruments. As the mental health field embraces a strength-based paradigm, psychologists and other professionals can now advocate for comprehensive strength-based assessments, including a child self-report of competencies. By focusing on what children do well, professionals can promote positive behavioral and emotional youth development with youth, families, and other professionals.

ACKNOWLEDGMENTS

This research was supported in part by grants from the Center for Mental Health Services and U.S. Department of Education, Office of Special Education Programs. Opinions expressed do not necessarily reflect the position of the funding agencies and no endorsement should be inferred.

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