



## Screening for Behavioral and Emotional Risk: Constructs and Practicalities

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**ABSTRACT:** Two questions are central to screening for behavioral and emotional risk: For what do we screen? How realistic is universal screening for schools? This article defines the construct of behavioral and emotional risk (BER), and differentiates it from psychiatric screening for mental health disorders and pediatric screening for behavioral development. The links between the BER construct and child development and psychopathology research for creating a screening test content blueprint are then considered. Some practical considerations for screening are offered with particular attention given to the personnel resources necessary to mount a universal BER screening program. Finally, the interplay of practice and science necessary to resolve the remaining questions related to BER screening is elucidated.

Although the expansion of universal screening is relatively new in U.S. schools, screening children for behavioral and emotional problems is a decades-old practice. An 11-item teacher-rated screener was developed at the California Department of Education in the 1950s and 1960s as reported in Van Vleet and Kannegieter (1969). This screener was designed to identify children with emotional handicaps, essentially, a child-find measure that was intended to identify children with diagnosable disorders that were not yet detected by other means. Titled as the AML to reflect the names of its three subscales, the measure was adapted slightly and studied extensively by Cowen and colleagues (1973), who described the content:

These 11 items, 5 “aggressive-outgoing” (A), 5 “moody-internalized” (M), and 1 “learning disability” (L), comprise the scale. The teacher’s task is to rate the frequency of occurrence of each of the 11 behaviors on 5-point scales, ranging from “seldom or never” (1) to “all of the time” (5). The measure is brief, objective, and concise, requiring only 30–60 sec. per child. An average-sized class can, thus, be rated in 20–30 min. (p. 14)

The developers of the AML, designed for kindergarten through third grades for early detection of disease purposes, worked out many aspects of school-based mental health screening.

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Toward the end of their seminal work, Cowen et al. (1973) hinted at shifting their screening construct of interest from detection of *disease* to identification of *warning signs* for disorders that might be addressed with preventive interventions. The need for this conceptual shift was reiterated decades later in a special panel report of the National Academies of Sciences, Institute of Medicine, in collaboration with the National Research Council (O'Connell, Boat, & Warner, 2009). The report was dedicated to the issue of preventing mental health disorders in childhood and adolescence. In the chapter on screening, the construct of interest was changed from the assessment of symptoms or markers of disease to the identification of individuals and groups with risk for developing mental health disorders. This change in focus represented a tectonic conceptual shift that leads logically to changes in screener test development practices, including construct definition and creation of an item content blueprint.

The National Academies report has been cited as providing the construct definition necessary for the development and use of behavioral and emotional risk (BER) screeners in schools (see Kamphaus, Reynolds, & Dever, in press). In the words of this influential report, BER is defined as *early symptoms* of disorders that may eventually result in special education placement or mental health classification, diagnosis, or treatment (O'Connell et al., 2009):

For prevention, one of the goals of screening should be to identify communities, groups, or individuals exposed to risks or experiencing early symptoms that increase the potential that they will have negative emotional or behavioral outcomes and take action prior to there being a diagnosable disorder. (p. 223)

Operationalized, BER screener item content might include symptoms of inattention, high activity level, worry, and unhappiness. On the other hand, it may not include frank symptoms of a disorder, wording that reflects a diagnostic category, or behavioral or academic outcomes such as feeling depressed, phobic of attending school or leaving home, hyperactive or overactive, or steals. In addition, BER screener items would be less likely to be drawn from the *Diagnostic and Statistical Manual of Mental Disorders* (4th edition, text revision) diagnostic criteria, and multiple constructs are likely to be part of the item blueprint. Item content from multiple domains is necessary for assessing BER for a range possible of poor behavioral and emotional outcomes, including mental health disorders.

## CONSTRUCTS FROM PSYCHOLOGICAL SCIENCE

In contrast to using mental health diagnostic criteria, BER item content could be taken from the psychological science literature on child psychopathology and its known multidimensional structure. Peterson (1961), for example, identified the two core dimensions of child psychopathology long ago: *under controlled* and *over controlled*. These constructs remain today but have been refined, replicated, and renamed in numerous investigations by Achenbach and Edelbrock (1978) as *externalizing* and *internalizing* problems of childhood, respectively.

Other constructs, however, have the potential to be included on BER screeners, including school or academic problems (Cowen et al., 1973; Dever, Mays, Kamphaus, & Dowdy, 2012; Dowdy et al., 2011), and prosocial, adaptive skills, or behavioral competencies. Inclusion of the latter constructs is appealing from a score validity standpoint in that the presence of positively worded items may (a) mitigate a rater's negative response set and (b) make the scale more relatable (Cowen et al., 1973) or acceptable to teachers, parents, and even students themselves, which begs the next topic, behavioral development screening.

The name, behavioral development, communicates the meaning of the construct, and differentiates it from both mental health and BER screening. Taken from the pediatrics literature (Dobrez et al., 2001), screening for behavioral development is concerned with the child's age-appropriate acquisition of

behavioral and emotional competencies that promote resilience and adaptation in the face of stressors. Behavioral development, then, is a protective factor against the development of mental health disorders. Similar to adaptive behavior scales in the psychological assessment literature, this construct, or constructs, could consist of positively worded items such as communicates clearly (language developmental milestone), adapts well to changes in routine (emotional control or regulation), gets along well with others (socialization or social skills), helps others when appropriate (daily living skills or activities of daily living), among other potential constructs from positive psychology, temperament, executive functioning, or other literatures.

Behavioral development screening is, therefore, analogous to the pediatrician's routine practice of screening for growth, speech, or motor milestones. Behavioral development item content is routinely part of numerous screeners, such as the Strengths and Difficulties Questionnaire (Goodman & Scott, 1999), which includes five subscales among its 25 core symptom items, including prosocial behavior (5 items).

Returning to the school or academic problems construct, there are several reasons to include items about study skills, homework completion, attitude toward school or teachers, academic motivation, school connectedness, or similar constructs. First, academics are a core mission of schooling and thus of great concern to society, parents or caregivers, teachers, and school administrators. Second, inclusion of this content allows for the identification of emerging problems such as academic underachievement or even a learning disability, which was the rationale for inclusion of a single item by Cowen et al. (1973). Third, these items may enhance the potential of the screener to predict academic outcomes or future academic achievement as demonstrated by Kamphaus, DiStefano, Dowdy, Eklund, and Dunn (2010). Fourth, attention problem items often do not factor with either externalizing or internalizing factors, loading instead with academic-related items such as study skills (Reynolds & Kamphaus, 2004). Thus, if an academic-related dimension is included, attention problem items may find a home factor as suggested by recent investigations (Dever, Mays, Kamphaus, & Dowdy et al., 2012; Dowdy, Twyford, Chin, Kamphaus, & Mays, 2011).

In light of the available evidence, it is reasonable to conclude that the content blueprint for the modern BER screening scale include items from at least four domains: externalizing, internalizing, inattention/school problems, and adaptive or prosocial constructs. On the other hand, considerably more research is needed to document the importance of including items that assess these four, or other constructs (Kamphaus et al., 2010).

## ITEM CONTENT EFFECTS

The Kamphaus et al. (2010) investigation represents one of the few empirical tests of whether or not differences in screener content blueprint have an impact on criterion-related validity. One teacher-rated screener was developed empirically, without the aim of including items from specific constructs, using principle components analysis and selecting items with the highest unrotated first factor loadings. This process resulted in the selection of 10 externalizing problems items, 8 school problems items, and 7 adaptive skills items, and the exclusion of any internalizing items. The Behavioral and Emotional Screening System (BESS) Teacher Form, by contrast, was developed using a content blueprint that specified selecting items to measure the four factors found in the Behavior Assessment System for Children (2nd edition; BASC-2) teacher rating scales, including internalizing items (Kamphaus & Reynolds, 2007). This procedure resulted in a 25 item scale and a .94 estimate of internal consistency.

The effect of including differing item content, in particular, the addition of internalizing items on the BESS Teacher Form, was not readily apparent in the validity results. Roughly the same number of children were identified as demonstrating BER, and correlations between the two screeners and English and language arts and mathematics scaled scores from the California Standards Test were indistinguishable.

The only important difference detected was in terms of the ability of each screener to correctly identify children with problem behavior. As a reminder, sensitivity refers to the proportion of individuals with the disorder who are correctly identified by the instrument as having the disorder, whereas specificity refers to the proportion of individuals without the disorder who are correctly identified as not having the disorder, or the number of true negatives divided by the number of persons who do not have the disorder. Sensitivity indices were virtually identical for the two forms but specificity was better for the BESS (.74) than for the empirical screener (.59), suggesting that the BESS may be better at correctly identifying children who, in fact, do not have BER. The BESS, however, had a higher false positive rate, suggesting that follow-up assessment with an omnibus rating scale, such as those from the Achenbach System of Empirically Based Assessment or BASC-2, would be wise for identifying children who are false positives. Overall, these results do not yet give clear guidance regarding the ideal content blueprint for a teacher-rated school-based screener of BER. More research on this issue is ongoing by our research group.

## **PRACTICALITIES OF SCHOOL-BASED SCREENING**

The impracticality of some screening measures has largely contributed to their lack of adoption for universal screening in both pediatric and school settings (Flanagan, Bierman, & Kam, 2003). Even the popular comprehensive behavior rating scales are not realistic options for widespread screening because of the time and monetary resources needed to assess thousands of children in a given school (Flanagan et al., 2003). Yet comprehensive, or omnibus behavior rating scales, which include 50–100 items or more and take 25–40 minutes to complete, have been used as screeners (Najman et al., 2008; Levitt, Saka, Romanelli, & Hoagwood, 2007). Similarly, multiple gate systems such as the Systematic Screening for Behavior Disorders (SSBD; Walker & Severson, 1990, 1992), which includes teacher training and rankings (i.e., nomination), teacher ratings of child behavior, and classroom observations, are relatively expensive in terms of personnel costs as assessed by time devoted to the screening tasks (Cook, Volpe, & Livanis, 2010). In fact, brevity may not denote inferiority. Lane et al. (2009) found the 7-item Student Risk Rating Scale to perform comparatively to the three-stage SSBD for the identification of children with externalizing problems. It did not do as well at identifying children with internalizing problems.

With regard to practicality of universal screening in schools, Glover and Albers (2007) recommended that screening instruments be evaluated in terms of their cost; feasibility of administration; acceptability to multiple stakeholders; infrastructure for collecting and interpreting screening data; appropriateness of use for the entire school population; and utility of the information obtained to provide improved prevention, intervention, and treatment decisions. In addition, the special needs of the individual school milieu, whether it is primarily urban versus suburban or rural, for example, also need to be taken into account.

The newer BER screeners, such as the SDQ and BESS have made strides toward meeting these six criteria. As Cowen and colleagues (1973) noted long ago “...mass-screening devices are more likely to root if they have simple clear formats, are easy to understand, objective, relatable to educational values, and, above all, minimally time consuming” (p. 32).

In one of the small number of studies concerned with the total financial costs of a school-based mental health screening and intervention program, screenings alone were estimated to cost \$149–\$234 per student (Chatterji, Caffray, Crowe, Freeman, & Jensen, 2004). The aim of this mental health program, conducted in a middle school in a low-income largely Hispanic neighborhood of New York City, was to screen all students in the sixth through eighth grades for anxiety, depression, and substance-use disorders. The screening components included a pencil and paper self-report screen as the first step. Adolescents with positive screens were interviewed and in some cases administered a 90-minute psychiatric diagnostic interview. In light of the high costs that they identified, Chatterji et al. (2004, p. 155) concluded that, “Applying economic cost analysis methods in a real-world school setting is challenging, but the process can generate useful estimates. Cost analyses and cost-effectiveness studies are needed in

this area.” Dobrez et al., (2001) assessed the cost of screening in pediatric settings using the Resource-Based Relative Value Scale. The materials needed to conduct the screenings were not found to be a factor; rather, personnel time constituted the greatest cost of screening. In their own words,

The practice cost of providing developmental and behavioral screening is driven primarily by the time and staff required to conduct and evaluate the screens. Administration costs are lowest for parent-administered developmental screens (\$0 if no assistance is required) and highest (\$67) for lengthy, pediatric provider-administered screens, such as the Neonatal Behavioral Assessment Scale. The estimated per-member per-month cost per 0- to 3-year-old child ranges from \$4 to >\$7 in our three examples. (p. 913)

Therefore, the cost of materials, such as response forms, whether reproduced by a local print shop, photocopied, or purchased from a vendor, may be far less significant than the staff time required to conduct all aspects of the screening program.

We have begun to estimate the personnel costs of our universal school-based screening research program. For example, according to the U.S. Department of Labor, Bureau of Labor Statistics report of December 7, 2011 ([http://www.bls.gov/news.release/archives/ecec\\_12072011.pdf](http://www.bls.gov/news.release/archives/ecec_12072011.pdf)), the average classroom teacher received \$53.60 per hour in total compensation. We have found that for our typical middle and high school participating, it takes a group of about 30 professionals, regular education and special education teachers, speech pathologists, school psychologists, guidance counselors, paraprofessionals, graduate students, assistant principals, and others, about an hour to administer the student self-report screening (about 30 items) on one occasion per academic year (Kamphaus et al., in press). In this example, if the hourly rate of teachers is used as a modal personnel expense estimate, this aspect of screening alone would cost the school district about \$1,680 to implement, not a trivial expenditure. However, we have found that there are many other personnel costs and staffing implications required to launch and maintain a screening program:

- Professional time devoted to selecting a screener or screeners
- Training of school psychologists, assessment workers, or others to coordinate a screening program
- Training of teachers or other staff members to complete teacher, parent, or student forms
- Printing, photocopying, or purchasing response forms
- Creating, distributing, and collecting passive or active parental consent, and student assent documentation
- Collecting teacher, parent, or student screeners for each child including collation, distribution, pick up, and time allocated to group administration
- Cleaning and entering forms into a software program such as Microsoft Excel or SPSS
- Obtaining archival data and merging screening data files with other data on children, such as child gender, ethnicity, special education status, grades, achievement test scores, and absenteeism, or merging data for the same children across years to assess child BER longitudinally
- Conducting analyses, including identification of outliers or potentially invalid forms, creating total or subscale screener scores, checking for lawful score distributions, creating cut scores using Receiver Operating Characteristic Curve or other analyses if these are not already available for the screener, developing reports that classify child BER risk by classroom, school building, subdistrict, or other units of analysis, and checking local reliability and validity
- Holding meetings to report results out to teachers, administrators, school board members, parent groups, or other stakeholders

This list does not consider any personnel time devoted to follow-up assessment; triaging of false positives out of the system; or individualized, classroom, or school building intervention, prevention, or progress-monitoring programs. While we do not yet have a thorough study of the economics of school-based

screening, it seems that schools have already adapted to these substantial personnel costs by selecting straightforward screening measures that require little or no respondent training, and little personnel time.

Schools may also select screeners with available reliability and validity evidence and cut scores based on careful analyses, and those accompanied by data entry, scoring, and reporting software that perform triage, group, and other analyses. The lower cost brief rating scales also provide an attractive alternative because they are already used widely by schools for the assessment of children presenting with behavioral or emotional problems. Teachers and students have seen many forms like these in the past, thus eliminating the need for specific teacher professional development or lengthy orientation of parents or students to the response requirements. We have found, for example, that students readily complete a self-report screener using scannable forms with little instruction, often commenting that they have seen “testing” forms like these before.

## LESSONS LEARNED

In our experience, school districts are already responding to the 6-point list of practicalities elucidated by Glover and Albers (2007) by selecting brief rating scales (point 1) in order to reduce administration complexity (point 2). These measures have a history of being acceptable to multiple stakeholders (point 3), and allowing them to fit into the existing rating scale infrastructure for collecting and interpreting screening data (point 4). While more evidence is always needed, brief rating scales have been used long term without significant controversy, suggesting their appropriateness of use for the entire school population (point 5), and potential utility for providing for improved prevention, intervention, treatment decisions (point 6). In some cases these forms already have good Spanish translations or other linguistic or cultural adaptations, which allow them to fit the special needs of the individual school or community milieu. However, no one knows whether or not there is a better assessment technology just over the horizon, and the demonstrable benefit of screening for improving children’s lives is still not documented..

We chose to conduct our BER screening research in the Los Angeles Unified School District because of its scale and complexity, such as 667,000 students, 550 plus school psychologists, and 181,000 English language learners. (<http://search.lausd.k12.ca.us/cgi-bin/fccgi.exe?w3exec=profile0>). We learned several additional lessons about the practicalities of screening in the second largest school district in the United States, but only three will be provided here.

First, teacher screening became unrealistic once we began screening in the sixth grade, that is, middle school. The selection of the child’s “best” teacher to complete the form became a continuing topic of debate at each school, one which was never resolved to the satisfaction of everyone. Student self-report screening proved quite acceptable, and we have continued this practice. Parent screening was similarly ineffective if screening was to be truly universal. We simply encountered too many difficulties communicating with and collecting forms from parents.

Second, use of a scannable screener form was increasingly required because 30 schools were participating by the third year. Although the scanner could enter and score hundreds of forms in minutes, data entry and cleaning still took more time than anticipated due to smudges, inaccurate or incomplete demographic information on forms, and even completion of the wrong form (e.g., preschool form was completed for a fifth grader).

Third, school psychologists had the most affinity for the screening work, undoubtedly due to their assessment background and their experience with behavior rating scales in particular. While other professionals collaborated and sometimes coordinated the work, school psychologists clearly became the preferred building level coordinators for the screening program.

The school staffing premise underlying BER screening is that staff workload will be reduced by effective prevention and intervention practices that, in turn, reduce the need for comprehensive assessment, more invasive prereferral intervention, special education placement, and other existing practices. This premise is based upon the highly successful public health model, which has been translated into education in the form of the response-to-intervention (RTI) model. If this presumption is supported by data-based research, then universal screening practices will not add to the workload of school psychologists and should, in fact, simply change the current workload by reallocating time to the promotion of behavioral and emotional well-being and the prevention of behavioral and emotional disorders. There is an existing financial incentive for school districts to test this premise.

A local education agency may direct up to 15% of Individuals with Disabilities Education Improvement Act funds to implement early intervention services, which includes screening (<http://idea.ed.gov/explore/view/p/,root,dynamic,QaCorner,8>). The circumstances under which a school district is mandated to spend funds in this manner is discussed in the article by Dever, Raines, and Barclay (this issue; 2012).

The option to use some of this funding for BER screening is captured in the following quote from this same ed.gov website (<http://idea.ed.gov/explore/view/p/,root,dynamic,QaCorner,8>):

While the department does not subscribe to a particular RTI model, the core characteristics that underpin all RTI models are: (1) students receive high quality research-based instruction in their general education setting; (2) continuous monitoring of student performance; (3) all students are screened for academic and behavioral problems; and (4) multiple levels (tiers) of instruction that are progressively more intense, based on the student's response to instruction. (response to question F-5)

A more immediate way to realize the potential to transition to prevention-oriented practice in a personnel-cost efficient way is to use the pilot study approach, whereby one or a few schools simply agree to change their referral practices from teacher based to screener based. Depending on the length of the moratorium on teacher-based referrals, the school psychologist would have more time to devote to coordinating the universal screening program during the fall semester (see Greer, Wilson, DiStefano, & Liu, 2012, for promoting teacher buy-in for a screening program).

## CONCLUSION

Practitioners must be patient while waiting for evidence of BER screening effectiveness, but they need not be inactive. They will have to take reasonable actions based upon the information at hand, all the while knowing that it is incomplete. They will also have to be willing to change in the face of evidence that challenges their practice.

Considerable practice guidance is, however, available as the expansion of BER screening practice is mirrored by a growth in publications of all types devoted to screening theory, empirical evaluation, and practice. A sample of additional readings of potential interest include Glover and Albers (2007); Cook et al. (2010); Kamphaus, Reynolds, and Dever (in press); Levitt et al. (2007); and Feeney-Kettler, Kratochwill, Kaiser, Hemmeter, and Kettler (2010). Given these information resources, the school practitioner seeking to deploy a universal BER screening program is not adrift.

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