
3

Assessing School Risk and Protective Factors

Jean A. Baker

Emelia is a nine-year-old, native Spanish-speaking, Hispanic third-grader who recently transferred into Cedar River Elementary School. She has come to the attention of the school psychologist because of frequent somatic complaints (stomachaches, headaches) occurring late in the morning. Emelia's mother speaks very little English, but the school psychologist discovered that the family has recently become homeless and has temporarily moved in with an aunt following the incarceration of Emelia's stepfather.

Emelia's academic performance is below the class average in all subjects except math, art, and music, for which she has a passion and considerable talent as a vocalist. Her teacher believes that Emelia's English language skills are spotty, and that she could benefit from services for English-language learners. However, those services were reduced in the latest round of budget cuts and it doesn't look promising for Emelia being added to the caseload during this school year.

Emelia has some facial scarring from an accident that occurred when she was a preschooler, and often comes to school appearing

dirty and unkempt. When talking with the school psychologist, Emelia revealed that she feels sad “a lot” and that she is teased in the lunchroom and on the playground because of her appearance and her lack of English-language proficiency.

What is “the problem” in Emelia’s case—a mental health issue such as depression, academic deficits, or homelessness? Where does the problem reside—within the child, within her recently unstable family system, within the school system that lacks sufficient resources and has a social climate that tolerates bullying on the playground, or within the larger social system that permits families to experience the potentially crushing effects of poverty? Or is it some combination of all of these factors? Further, how many children like Emelia, and with comparable levels of need, exist within this school? How can the school allocate resources to fully understand the mental health needs of all of its students, not just serve them on a case-by-case basis? Furthermore, how can this school or classroom environment be shaped to better support the adaptation and well-being of all of its students? Population-based assessment provides a framework for revealing the multiple, complex, and intersecting factors that influence children’s development and can provide a foundation for developing valuable interventions in schools. This chapter highlights some key issues in the assessment of risk and resilience from a population-based perspective, and reviews specific assessment strategies and tools for school-based practice.

Key Issues in Assessing Risk and Resiliency in Populations

Previous chapters have already articulated a rationale for population-based services in schools. In relation to assessment, it is important to note the considerable expertise and experience that school mental health professionals, particularly school psychologists, bring to this new arena. Best practices in school-based assessment highlight the need for sensitivity to measurement issues, issues of bias and culturally appropriate assessments, the ethics governing assessment, and issues of social and ecological validity. These issues are also central to assessment of risk and resilience within school populations.

Population-based assessment of mental health in schools can be conceptualized from a framework of ecological-systems theory (Bronfenbrenner, 1979; Bronfenbrenner & Ceci, 1994). This perspective posits that children are embedded within multiple, mutually influencing systems with which they interact to affect their development.

As children move through time, they become better or less well adapted to the various environmental contexts in which their development unfolds. The developmental competencies and capacities of children, the adequacy of the environmental context and its resources, and the interaction of these dynamic systems together shape adaptation. Assessment within a population-based perspective has three foci: children, the contexts they are in, and the children-within-contexts interactions. In our case example of Emelia, population-based assessments might identify the degree or scope of a social or emotional problem, such as depression-like symptoms or bullying, in the whole school or classroom so that interventions could be targeted effectively. They might include systematic assessments of teachers to identify gaps in services to limited English-language learners or of the community to identify services for homeless or poor families. Within population-based approaches, the traditional focus on individuals broadens to include the contexts within which problems are occurring and to permit interventions at those levels.

In the scope of assessment, population-based approaches may go beyond assessing the need for service so that appropriate interventions can be developed. Whereas the estimated size of the population that will require services defines need, demand is defined by the subset of individuals likely to actually use the services developed (MacMahon & Trichopoulos, 1996). The need for parent training in a school's population may therefore be high, yet the actual number of parents who enroll in school-based parent education classes quite small. Thus, need/demand analysis is the first step in population-based assessments that are linked to service-delivery efforts. Further strategic planning includes assessing the market within which new services will be offered (e.g., does our proposed parent training class replicate services already available in the community), how the school operations would need to change to produce such services (e.g., would the school psychologist's or counselor's work schedule need to be adjusted to accommodate evening programming at the school), and financial analyses (e.g., how can financial resources be shifted to accommodate this new program) (Deprez, 2001). Probes into these areas may thus be included in a comprehensive, data-driven, population-based assessment as part of a program planning initiative.

Models of Population-Based Assessment

Population-based assessments use numerous approaches. Which specific model you select depends on the purposes of the assessment, the

size of the population(s) of interest, the available resources, and ethical determinants, such as the cost/benefit ratio, that are discussed in a later section. It is important to note that schools are familiar with some models of population-based assessments. For example, schools are using large-scale, school-wide evaluations of children's reading or mathematical skills with increasing frequency. A population-based perspective on promoting children's thriving within the mental health arena involves expanding this commitment to assessing other domains of children's functioning.

The model school personnel are most likely to be familiar with is large-scale surveying of variables of child behavior, although this is limited to children's academic competencies. Although about 1 in 10 adolescents experiences a social or emotional problem significant enough to impair functioning (USDHHS, 1999), only 2% of American high schools screen all their students, and only 7% screen most of their students for mental health issues (Romer & McIntosh, 2005). Consequently, many children who need services are not involved in systematic processes to identify their needs and refer them to appropriate services. Furthermore, relatively few teachers are trained to recognize social or emotional problems in children. In the recent nationally stratified Annenberg survey of school-based practices, only 9% of schools reported training all of their teachers, and 12% reported training most of their teachers to recognize such problems (Romer & McIntosh, 2005). Most schools practice the "wait to fail" model of mental health referral, identifying students for mental health services only when problems become significantly impairing. Of course, systematic identification of students evidencing social and emotional problems is only the first step in a clearly defined and coordinated school-based prevention and intervention program. However, school-wide screening is a direct, straightforward method of identifying students at-risk of or already experiencing social and emotional problems.

Within small populations, such as a classroom or a single school, it is possible to survey or screen each individual. For example, children can report on the extent to which bullying is occurring in their school, or teachers can complete behavioral ratings on each child in their class. Reliable, valid paper-and-pencil measures are available commercially and from sources in the public domain. Computerized scoring is available from some publishers or through school-based Scantron-type technology. Surveying can also be done person-to-person, via interviews, with very small populations. Web-based survey software permits delivery and summative scoring of surveys

online at no or relatively low cost. Multiple foci are also appropriate for population-based screening. In addition to individual mental health variables, assessment of environmental factors such as the school's social climate or available resources, can also be conducted.

Survey approaches for mental health assessments are often multigated or multistaged procedures, in which the initial screening of the entire population is followed with more in-depth evaluation of individuals or groups selected by their scores according to some criterion. (See Mazza & Reynolds, this volume, for an example of a multigated screening for depression and suicidal behavior among adolescents.) Results from the population-based assessment are used to develop supportive or preventive programming at the universal level, whereas the next stages of assessment data funnel children into selected or targeted services. This multistaged procedure affords efficiencies when the goals of assessment include identifying children or groups of children manifesting specific types or levels of behavior.

For larger populations, such as a school district, survey methods often require sampling. Stratified random sampling, a procedure familiar to most school mental health practitioners, involves identifying pertinent characteristics within the population (e.g., grade level, gender, race) and sampling at random within those strata until the sample approximates the characteristics of the population. For a school system of 50,000 students, a stratified sampling procedure could identify 1% or 5% of students who mirror the larger population and could be affordably screened by individual measures. Decisions regarding population-based services could then be developed based on these population estimates. Other epidemiologic survey methods can be used in large populations. One example is two-stage cluster surveying, in which subgroups of interest are identified (e.g., third-grade classrooms), at least 30 are selected using probability proportionate to size sampling, and then a constant number within each cluster (e.g., children within classrooms) are selected at random (see MacMahon, & Trichopoulos, 1996). Software to design such data collection is available (e.g., Centers for Disease Control, 2002; UCLA, 2005). However, statistical and epidemiologic consultation is warranted for such large-scale projects. Representational sampling approaches are used for purposes of program development, for example, to understand the need for bully prevention programs or food assistance programs within the population, not to identify individual children in need of targeted services. Additionally, the results of representational sampling can be the springboard for further direct assessment of subgroups. For example, high levels of self-reported

bullying among the representative sample of middle school students in the population may provide sufficient rationale to survey each student at the middle school level.

In contrast to survey assessment models that collect ratings directly from individuals within the population, community collaboration assessment models involve key stakeholders or representatives of the population as participants (Berkowitz, 2000). Frequently, focus group methods (Krueger & Casey, 2000) are used to identify perceived needs, available resources, and preferences for services within the population. Focus groups involve key stakeholders in structured discussions about the topic of interest—in this case, the mental health characteristics or needs of the population. For example, selected school personnel, parents, and students could be invited to separate focus groups to identify the extent of a bullying problem at a school and brainstorm potential solutions to that problem. Decision makers at the school can then synthesize the results of these focus group discussions and plan programs accordingly. This process can enhance trust and activate the commitment of key stakeholders to mutual problem solving or new programs developed by school personnel (Thompson & Kinne, 1990). Key stakeholders are also likely to be aware of local resources and assets that can be used in program development efforts. These stakeholders can serve as members of a planning or implementation team, thus ensuring that programs are reviewed for acceptability by members of the communities for which they are intended.

On the other hand, focus group methods use indirect data in the form of perceptions of the issue by key stakeholders, and so may misrepresent the nature or extent of the identified concern. Furthermore, key stakeholders may be sufficiently different from the population at large to not adequately reflect its needs or desires. Focus group methods are often used in the initial stages of an assessment process, and their data are combined with other sources to inform program development.

An additional strategy is to assess indicators or markers of the variable of interest within the population. Markers include permanent products, such as disciplinary records in the assessment of bullying in a school, and known demographic or base-rate data, such as the proportion of students participating in the free or reduced-cost lunch program as an indicator of poverty in a school. Analysis of the patterns and variability in these existing data can inform the appropriate distribution of further assessment or program development resources. For example, high levels of disciplinary referrals from particular classrooms may indicate the need for individual surveying of bullying from

students in those classrooms and the implementation of more intensive classroom-level programming. Further, such data should encourage the school to examine the ecological context of the problem at that level. For example, spikes in levels of bullying in ninth grade may suggest problems of social integration as children enter high school. This kind of ecological analysis may suggest the need to reform the ninth-grade experience to promote social cohesion (Felner et al., 1993) or implement school-wide programming to prevent bullying.

Each of these methods has strengths and weaknesses. Survey methods provide the most direct assessments, yet require significant commitments of time, personnel, and financial resources. Focus group methods rely on informant perceptions, and thus may not accurately represent the needs or assets in the larger population. Examining existing data is convenient but provides only distal, static information about the dynamic processes of risk and adaptation at work in the population. In actual practice, many methods are needed to form a comprehensive assessment of a population. Appraisal of base-rate data may lead to initial problem formulation or elaboration within the context of a focus group, which then could result in targeted direct assessment via survey methods. Multi-method, multi-rater assessments across methods and informants and triangulation of data are valuable in population-based approaches.

Assessing Risk, Resilience, and Protective Factors Within Populations

An important focus for population-based mental health assessment in schools is the degree to which children are thriving in the school environment. Thriving results when individual hardiness and adaptability variables (e.g., psychological characteristics and competencies), combined with protective factors embedded in socializing institutions (e.g., the availability of social supports or creative opportunities in the school environment), are sufficient to overcome the potential harm derived from risk factors in the child's environment (Bonnano, 2004; Luthar, Cicchetti, & Becker, 2000). Comprehensive population-based assessment is the process of understanding how these three vectors of personal resilience, environmental protection, and risk exposure intersect within the school setting. Assessment often includes the level and type of risk that students experience, the individual capacities and competencies they bring to the adaptation process, and the amount and type of resources available in their

environment to support adaptation. The latter two factors are sometimes grouped together in the literature as internal and external components of resilience, and sometimes both are termed protective factors. Here, they will be discussed separately as resilience and protective factors to distinguish between inner resources and external assets, respectively.

This commitment to understanding the ecology within which problems emerge is especially important for school-based service provision efforts. Many schools cannot directly reduce the risk factors to which their students are exposed (e.g., parental psychopathology, poverty). However, they can devote resources to interventions that increase children's adaptive competencies and maximize children's exposure to protective factors.

It is also important to note that risk, resilience, and environmental protection are dynamic processes affecting development. Individual or external assets buffer the effects of risk if they are present in sufficient quantity and are readily accessible when needed. They are also idiosyncratic; assets that may be sufficient to protect one child from the deleterious effects of stress may be inadequate to protect another. Thus, the interplay between the assets and capacities of the child, and the opportunities and constraints of the environment, must be understood as dynamic and contextually sensitive (Bronfenbrenner & Ceci, 1994; Masten & Coatsworth, 1998). Population-based appraisal can give an overall estimate of the strengths, resources, and needs in an extant group, but considerable individual variability exists regarding how those factors interact within the population.

Assessing Risk Factors

Risk factors are the internal and environmental characteristics that place children at risk for poor developmental outcomes (Doll & Lyon, 1998; Rutter, 1979). Numerous factors have been identified in the research literature, and often include factors at the child level, such as a difficult temperament or early antisocial behavior; at the family level, including poor parental bonding, inconsistent discipline, or parental pathology; at the school level, including academic failure, poor bonding to school, or multiple school transitions; and at the community level, such as low socioeconomic status (SES) or high population density. Various risk factors are associated with specific deleterious outcomes. For example, although low SES is associated with poor outcomes for many children, adding easy access to

weapons, witnessing of acts of violence, affiliation with antisocial peers, and community poverty is differentially predictive of increased violence in youth (Cohen & Swift, 1993). Children are placed at risk of poor developmental outcomes when these environmental stressors overwhelm their capacity to cope effectively or the capacity of caretakers to protect them from the effects of these stressors.

One example of population-based risk assessment is a recent survey of students in elementary schools serving children living in poverty (Baker, Kamphaus, Horne, & Winsor, 2006). We conducted a wide-scale behavioral needs assessment by asking teachers to complete a broadband behavior rating scale for each child in their classroom. Children with early behavior problems are at tremendous differential risk for poor school adjustment. They transition poorly to school, and perform less well on academic, social, and interpersonal indicators of school adjustment than peers without behavioral difficulties (Ladd, 1996). Without appropriately targeted and early intervention efforts, these children's poor adjustment to schooling becomes compounded. Therefore, we were interested in screening the behavioral adjustment of all students in the participating schools.

Because we were screening young children, who tend to be unreliable reporters of behavioral problems, we used teacher ratings to assess the behavioral adjustment of this population. Teachers are known to be reliable raters of observable behavior associated with mental health problems and educational maladjustment (Verhulst, Koot, & Van der Ende, 1994). Teachers received release-time from teaching and were compensated for their participation in this project; they reported completing the assessments for the students in their classrooms in the equivalent of up to one work day (approximately 6 to 8 hours). Profiles of the behavioral adjustment within each classroom, including the proportion of students displaying typical, mild, moderate, and severe behavioral problems, were shared with the teachers and school staff. These profiles were then used to design professional development programs for teachers, to redeploy resources toward classrooms with higher levels of need, and to tailor classroom-based interventions according to the type of behavioral needs manifest in specific classrooms. For example, one first-grade classroom teacher with a high percentage of very active, impulsive students adapted a number of cognitive-behavioral intervention strategies into her classroom management system to teach self-control, including the "Turtle Technique" (Robin, Schneider, & Dolnick, 1976). Within several weeks of introducing this strategy into general classroom use, all students, including the typically developing children, were "turtling"

to give themselves time to calm down and think through a problem situation as an alternative to impulsive responding. Students displaying high degrees of behavioral risk were also referred for further assessment to the school's psychologist.

This example illustrates several important points regarding population-based risk assessment and subsequent service delivery. First, "risk" was defined in reference to research-validated factors associated with poor school adaptation. Second, a method (screening using reliable and valid survey measures) and the appropriate informants (teachers) were chosen in light of the characteristics of the population. Third, the cost/benefit ratio was carefully considered, and resources were redirected so that personnel could complete the behavioral screening. Fourth, local data were used as the basis for intervention planning. In this high-risk population, the screening data suggested that 56% of students needed either selected or indicated prevention services. Generic three-tier service models often suggest a much lower need for such services. Our use of local data permitted more sensitive interventions than would be possible from more generic models. Fifth, interventions designed to promote adaptive functioning of all children, such as increased knowledge of cognitive-behavioral coping techniques, were made available to all children by being delivered at the classroom level. Finally, the assessment was linked to an intervention process so that the local data generated within each school led to appropriately tailored interventions.

The previous example used a commercially available behavior rating scale. Assessment tools are available commercially or in the public domain for a variety of individual risk factors, such as drug/alcohol use, specific forms of social or emotional problems such as aggression or depression, or deficient social processes such as poor bonding to the school environment. The latter example, poor school bonding, is associated with deleterious outcomes for students including delinquency, drug and alcohol use, and poor school adjustment. An eight-item self-report measure of school attachment and commitment for children, developed for use in the Seattle Social Development Project, has adequate psychometric characteristics for elementary and secondary students, and good predictive validity (Hawkins, Guo, Hill, & Battin-Pearson, 2001). Such brief measures can be incorporated into school-wide screenings of students' adjustment. (See Wolfe, 2006, for a variety of publicly available measures.)

Risk not only resides within children, but may also be a characteristic of the social environment. Comprehensive screening should include aspects of the social or physical environment that place children at risk.

These include characteristics of relationships such as poor social support, the lack of caring or mentoring relationships with adults, negative peer relationships, hostile school or family climate, and exposure to violence at school or in the community. One such example is screening for bullying and victimization at school. For example, the *Bully Buster's* program (Horne, Bartolomucci, & Newman-Carlson, 2000) provides self-report inventories for children to report their exposure to or participation in bullying behavior in schools. These assessment measures are linked to a classroom-level intervention in the form of teacher-directed lessons for elementary and middle school students regarding the nature of bullying, alternatives to aggression, victimization response strategies, and strategies for observers of peer-directed violence within schools. This program is a research-based example of survey assessment of a specific environmental risk (e.g., exposure to violence in the school setting) and a targeted, population-based prevention program delivered at the classroom level. The program targets the social climate because it includes strategies for *all* students in the school: those bullying others, those who are the targets of such aggression, and the majority of students who witness such events.

Lack of access to physical resources such as food, clothing, or safety may also be included in comprehensive assessments of environmental risk. For example, many urban schools uncover subpopulations of homeless children when screenings include questions regarding housing and predictable access to food. Knowledge of this population-based need may lead to better coordination between schools and community-based providers of services for homeless families, school-linked shelters, and food distribution programs.

Risk factors are often presented as static variables, such as poverty or homelessness in Emilia's case example. Therefore, it is tempting to use summary statistics such as the number of children living in poverty within a school as a measure of risk within the building. Children's responses to risk are highly individualistic, however, and are negotiated in reference to their own strengths and the supports available to them within the environment. In Emilia's case, the disruption of her social network or effective parenting processes, or the lack of adequate basic resources such as shelter and food, rather than the homelessness per se, place her at increased risk of dysfunction. Further, the effects of exposure to risk differ depending on in what developmental stage they occur and in which social context they are manifest. Consequently, although summary or base-rate statistics can be used as a proxy for risk, the actual response to risk within a population should be assessed directly.

Assessing Resilience Factors

Resilience refers to the process of positive adaptation in the face of significant stress or adversity (Luthar et al., 2000). Resilience research focuses on predictable and alterable characteristics, mechanisms, and interactive processes that enable some high-risk students to succeed despite unfavorable circumstances (Doll & Lyon, 1998). In the literature, a distinction is often made between internal competencies of the child and supports in the external environment. For this discussion, these are termed resilience and environmental protection, respectively. Both factors buffer children from the adverse effects of risk or stress in the environment if they are of sufficient magnitude and duration or timed appropriately so that children can access them when needed (Masten & Coatsworth, 1998).

Numerous dispositional characteristics and skills have been associated with resilience. These include intelligence, psychological hardiness, an easy temperament, and skills that predispose children toward adaptive coping, such as good social and problem-solving skills (Bernard, 1991; Luthar et al., 2000; Masten, Best, & Garmezy, 1990). Several taxonomies have been developed to characterize these resilience factors (Table 3.1). However, none of them has widespread acceptance or empirical justification as the definitive classification of human assets. Within the positive psychology literature, a classification of human strengths and virtues has been developed to parallel the diagnostic taxonomies of mental health problems so well known to psychologists (Seligman, 2002). This work clusters 24 internal assets that promote positive adaptation under 6 main virtues. The Collaborative for Academic, Social, and Emotional Learning (CASEL, 2006) has defined a set of 6 overarching competencies, consisting of 14 adaptive skills that contribute to positive school adjustment and well-being. This taxonomy has strengths in that it is research based and has been developed specifically for child- and school-based applications (Zins, Weissberg, Wang, & Walberg, 2004). The Character Education movement identifies core ethical values and further defines specific character traits associated with each virtue. Although diversity exists within this educational initiative, the Aspen Declaration on Character Education attempted to achieve consensus on 6 core values common to democratic societies (Josephson Institute on Ethics, 2006). However, these lists are derived from ethics as a branch of philosophy rather than from the scientific research literature. Finally, the Search Institute's Developmental Assets model (Scales & Leffert, 1999) defines 20 internal and 20 external assets associated with positive child adaptation. This model is discussed more

Table 3.1 Taxonomies of Resilience Factors

<i>Source</i>	<i>Resilience Dimension</i>	<i>Sample Characteristics</i>
Seligman (2002)	6 main virtues Wisdom/knowledge Courage Humanity/love Justice Temperance Transcendence	24 internal assets Curiosity, love of learning, critical thinking Bravery, perseverance, integrity Kindness, generosity Citizenship, fairness, leadership Self-control, discretion, humility Appreciation of beauty, hope, spirituality
CASEL (2006)	6 composite skills Self-awareness Social awareness Self-management Responsible decision making Relationship skills	14 skill clusters Identifying emotions, recognizing strengths Perspective-taking, appreciating diversity Managing emotions, goal setting, Analyzing situations, assuming personal responsibility, respecting others, problem solving Communication, relationship building, negotiation, refusal
Character Education (Josephson Institute, 2006)	6 core ethical values Responsibility Trustworthiness Justice and fairness Caring Civic virtue and citizenship	Example values Perseverance, self-control, accountability Honesty, reliability, loyalty Open-mindedness, equity Kindness, compassion Cooperation, civic involvement, environmental protection
Developmental Assets (Scales & Leffert, 1999; Search Institute, 2005a)	4 overarching themes: internal assets Commitment to learning Positive values Social competencies Positive identity 4 overarching themes: external assets Support Empowerment Clear boundaries and expectations Constructive use of time	20 internal assets Achievement motivation, bonding to adults at school Caring, equality, integrity Planning and decision making, cultural competence Self-esteem, positive view of the future 20 external assets Positive family communication, caring neighborhood Safety, community values children Adult role models, family boundaries, positive peer influence Creative activities, community programs

fully in a later section. In sum, several research or educational traditions provide guidance regarding aspects of resilience that could be assessed as part of a population-based evaluation (see Baker, Dilly, Aupperlee, & Patil, 2003, for further discussion).

Many tools are readily available to assess the assets and strengths of a population. Both broadband measures, such as behavior rating scales that include positive markers of development, and narrow-band measures, such as inventories for social skills or self-esteem, are familiar to and readily available to school mental health professionals. These tools are available from commercial publishers or Web-based sources (see Wolfe, 2006) or are available within the public domain (see Lopez & Snyder, 2003). Three approaches are described in more detail in this section.

The school-wide screening example discussed in the previous section included assessment of students' competencies, since aspects of positive behavior were included on the broadband behavior rating scale completed by teachers (see Baker et al., 2006). Measures of student's social skills, leadership skills, adaptability, and study skills were included on the measure we used. Again, this model is most appropriate for small populations, because it required extensive time commitments from teachers. However, data were available at the individual level and could be used to tailor individual in addition to class- or school-wide programs.

The most popular large-scale screening of strengths and competencies is the developmental assets approach. Scales & Leffert (1999) describe developmental assets as "positive relationships, opportunities, competencies, values and self-perceptions that children need to succeed" (p. vii). This model identifies 40 assets that fall into the two broad categories of internal and external resources (see Table 3.1). Scales and Leffert's concept of internal resources is consistent with the resiliency framework. These lists are tailored for various age groups. Self-report surveys are available for children across the entire age range of schooling. Additionally, there is a school climate survey for both students and staff. Computerized scoring of the surveys permits rapid turnaround of the data that can be used for school-wide planning because it's aggregated at the school level. Training material to introduce the survey model and its content, and to help parents and teachers understand the findings, are also available to download from the publisher's website (see Search Institute, 2005b). Despite the popularity of this model, there is little research to substantiate the importance of each of the 40 assets, or to help schools prioritize which assets to emphasize in school-based programming.

Doll and her colleagues (2004) have developed a classwide screening model of three individual assets critical to resilience within academic settings. Their ClassMaps survey assesses academic efficacy, behavioral self-control, and academic self-determination among elementary and middle school children. Children complete reliable, short self-report surveys of these constructs associated with successful school functioning. The data are aggregated at the class level. Their model includes an intervention component in which the data are reported back to students within the context of a class meeting. Students and teachers then collaborate to effect change within the classroom to promote resilience. Although this model also requires considerable investment of resources, its reliance on local data, its focus on the classroom as the unit of change, and its empowerment of students to learn about and contribute to effecting change provide a good practical example of linkages between assessment and intervention at the population level. The ClassMaps model also includes three protective factors in the classroom environment that are discussed in the next section.

Assessing Protective Factors

Protective factors are the aspects of social and physical environment that promote children's positive development. Many such factors have been identified, including caring relationships with others, family support, family engagement with schooling, the availability of prosocial role models, safe neighborhoods, clear and high expectations within the community, and school environments characterized by coherence, warmth, instructional excellence, and academic rigor (Luthar et al., 2000). Children's well-being is promoted when these protective factors become embedded in socializing institutions such as schools, making them readily available resources with which children can interact (Baker et al., 2003; Bonnano, 2004; Park & Peterson, 2003).

The potentially protective effects of positive school environments are illustrated by several examples. Structural aspects such as school or class size have direct effects on children's achievement outcomes. Reducing elementary class size to 15 to 20 students is directly related to academic gains, especially for younger students and those in urban schools (Slavin, 1989). In all probability, this effect occurs because of the increased opportunities in smaller classes for personalized instruction, monitoring of student progress, and time on task. Related to attitudinal outcomes of schooling, significant gains in children's intrinsic motivation, prosocial attitudes, and altruistic behavior are

associated with the development of an intentional classroom community characterized by warmth and cooperation, developmentally appropriate student autonomy, instructional approaches that emphasize authentic and active learning, and an explicit focus on prosocial values (Battistich, Schaps, Watson, & Solomon, 1996). The degree to which the environment is tailored to support the development of children's competencies is a critical variable in population-based service provision and should be routinely measured in comprehensive assessments.

The World Health Organization (WHO, 2003) defined a healthy school environment as one that emphasizes active learning in a climate characterized by interpersonal warmth, equity, cooperation, and open communication. Healthy school environments permit creativity among learners and are free of violence at all levels. They bridge to students' home communities by involving parents and permitting authentic participation in democratic or decision-making processes by stakeholders. The WHO's (2003) *Psycho-Social Profile (PSE) Profile Questionnaire* assesses these areas of effective school environments. The measure consists of 114 Likert-type items drawn from an international review of the literature on components of health-promoting schools. It was piloted in 20 countries, and is intended to provide a descriptive starting point for school improvement initiatives. It is completed by adults (staff, parents) and scored by calculating the average scores for each of the seven quality areas. The measure was developed as part of the WHO's global school health initiative and can be used in concert with other assessments and advocacy tools available from their website (2006).

Adelman and Taylor (2006; and see chapter 11, this volume) have conceptualized a set of six interacting characteristics of a school environment that enable students to benefit maximally from good quality instruction. Termed "learning supports," these include classroom and curricular adaptations and modifications, a prevention orientation that promotes healthy development and early intervention in crisis situations, a welcoming and caring school community that provides continuity and support for students and families across school transitions, family involvement, community outreach and engagement, and systems to provide specific interventions to students and families. Associated with each of these learning supports is an assessment tool that can be used as part of a school self-study or improvement process. For example, the Classroom-Based Approaches Survey covers six areas of classroom functioning, with items ranging from

instructional strategies (e.g., “Is instruction personalized?”) to teacher professional development (e.g., “Are teachers clustered for support and staff development?”) to classroom climate (e.g., “Are there classroom approaches for supporting high standards of positive behavior?”). A 4-point Likert-type response format permits staff members to rate the degree to which each item is occurring or is desired for the school. In addition to the six learning supports surveys, self-study tools are available to assess how resource staff, including the school psychologist, are deployed and the administrative structures needed to promote and sustain the enabling factors. Adelman and Taylor (2006) provide strategies for mapping, analyzing, and enhancing school resources, and additional strategies are available online at the Center for Mental Health in Schools website (UCLA School Mental Health Project, 2006).

The *ClassMaps* surveys (Doll et al., 2004) described in a previous section include three scales that permit children to rate the relational characteristics of their school environments. Social support and caring relationships are consistently associated with positive outcomes for children in resiliency studies. Children rate the quality of their relationships with their teachers and with their peers, and the degree to which parents support and are involved with their child’s schooling on brief (7 or 8 items), self-report surveys. Doll and her colleagues report adequate internal consistency reliabilities for the three scales in an elementary sample (all Cronbach’s alpha reliabilities above .70) and for two of the subscales in a middle school sample. In that study, the internal consistency reliability for the peer relationships scale was .56 (Doll et al., 2004). As mentioned previously, the *ClassMaps* strategy involves an intervention component in which data aggregated at the classroom level is shared with students within the context of a class meeting. The classroom community then sets goals to improve aspects of the classroom environment that receive low ratings. Thus, these assessment results can be used to reinforce children’s sense of personal agency and autonomy as they take responsibility for shaping their learning environment.

School-wide screening of protective factors is included with the Search Institute’s Developmental Assets surveys (Scales & Leffert, 1999; Search Institute, 2005b). Twenty of the 40 resources identified as important to positive development are categorized as protective factors or “external assets” (see Table 3.1). As discussed in the previous section, these surveys are designed for large-scale administrations, are available commercially, and are computer scored by the publisher.

Ethical Issues in Population-Based Assessment

All of the familiar ethical issues related to individual appraisals apply to population-based assessments. Assessment practices must be fair, culturally appropriate, of clear benefit to the population, and conducted with appropriate protections for the confidentiality of individual respondents (Jacob & Hartshorne, 2002). This is especially pertinent in population-based screening in the arena of mental health, because of the stigma associated with psychiatric problems (Penn et al., 2005; Sudhir, Fabienne, & Amartya, 2004). Similarly, ethical issues pertaining to assessment methods, including the dependence on reliable, valid, and culturally appropriate measures, are familiar to school psychologists.

Population-based assessment and services foreground several ethical challenges for schools moving toward prevention models of practice (Anand, Peter, & Sen, 2004). First, there are moral aspects to decisions regarding how to allocate finite resources within institutions. Deciding whom to help, or whom to assess, involves careful consideration of cost/benefit and cost/effectiveness analyses. These decisions are always value-laden. For example, school-wide screening redirects the time of counselors, school psychologists, and social workers engaged in school-based counseling from individuals to the whole group of students, many of whom may not need services. Given psychology's historical allegiance to the individual (Prilleltensky, 1994), personnel may be uncomfortable with this shift because it requires some reappraisal of the value of these two activities.

Furthermore, population-based practices pull at our notions of distributive justice. If we truly value each child equally, and treat all equitably, then each child deserves resources appropriate to his or her needs. And, if we believe that schools are the only equitable and accessible site for all children to receive mental health attention, then prevention-oriented, population-based approaches should be welcomed as consistent with the mission of schooling. However, our "wait-to-fail, refer, test, place" paradigm in schools suggests another prevailing notion—serving the most needy children with high-intensity services. In an era of shrinking resources, this model may be insufficient. For example, in the urban study previously mentioned (Baker et al., 2006), 17% of the children in the first through fifth grades had pervasive, severe externalizing behavior problems, coupled with significant learning problems and poor prosocial competencies. Yet, only a third of these children were being served through the special education system. Another 10% of the students showed at-risk profiles

for significant academic problems, but only 35% of them were receiving individualized educational services. This degree of behavioral and academic variability and demand far exceeds the capacity of refer-test-place practice models.

Population-based approaches seem a viable alternative to this individually oriented model. However, shifting our model of practice requires careful attention to the values and ethical underpinnings of the work. Making these subtle moral, value-laden, and ethical aspects of practice explicit is likely to assist staff as they transform their school cultures to support new population-based models of practice (Sarason, 1996).

Summary

In an era of increasing complexity in society, how do we appropriately respond to the Emelias who walk through our schoolhouse doors? One strategy is to recognize that schools have a fundamental role to play in promoting the adaptation and well-being of all children. They may be the only societal institution in which mental health services can be equitably distributed. Systematic, population-based assessment of those children's mental health needs, assets, and resources is an integral aspect of schooling to promote children's mental health. When these assessments are linked to appropriate services delivered at the classroom or school level, schools help all children, including those like Emelia, to thrive.

Discussion Questions

1. What assessment tools and strategies do you already know that would be useful for the assessment of students' risk and protective factors? What information does your school district already collect that could be useful in a population-based assessment?
2. If you were placed in charge of a population-based assessment in your school, what aspect of this task would be most challenging and unfamiliar for you?
3. How would the current roles of school psychologists in your district change if they were to assess risk and protective factors in the district's students?

4. What benefit might accrue to your school if population-based data were available when key decisions were being made about the school's services? Are there any disadvantages to your school having this kind of data about its students?
5. How could a school balance the allocation of finite resources between the population-based assessments described in this chapter and the conventional assessments that are already conducted in the district?

References

- Adelman, H. S., & Taylor, L. (2006). *Student learning supports: New directions for addressing barriers to learning*. Thousand Oaks, CA: Corwin Press.
- Anand, S., Peter, F., & Sen, A. (2004). *Public health, ethics, and equity*. Oxford, UK: Oxford University Press.
- Baker, J. A., Dilly, L., Aupperlee, J., & Patil, S. (2003). The developmental context of school satisfaction: Schools as psychologically healthy environments. *School Psychology Quarterly*, *18*, 206–222.
- Baker, J. A., Kamphaus, R. W., Horne, A. M., & Winsor, A. (2006). Evidence for population-based perspectives on children's behavioral adjustment and needs for service delivery in schools. *School Psychology Review*, *35*, 31–46.
- Battistich, V., Schaps, E., Watson, M., & Solomon, D. (1996). Prevention effects of the Child Development Project: Early findings from an ongoing multisite demonstration trial. *Journal of Adolescent Research*, *11*, 12–35.
- Berkowitz, B. (2000). Collaboration for health improvement: Models for state, community, and academic partnerships. *Journal of Public Health Management Practice*, *6*, 67–72.
- Bernard, B. (1991). *Fostering resiliency in kids: Protective factors in the family, school and community*. San Francisco: Far West Laboratory.
- Bonnano, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist*, *59*, 20–28.
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.
- Bronfenbrenner, U., & Ceci, S. J. (1994). Nature-nurture reconceptualized: A bio-ecological model. *Psychological Review*, *101*, 568–586.
- Centers for Disease Control. (2002). *Epidemiology Program Office: Software*. Retrieved March 6, 2006, from http://www.cdc.gov/epo/pub_sw.htm
- Cohen, L., & Swift, S. (1993). A public health approach to the violence epidemic in the United States. *Environment and Urbanization*, *5*, 50–66.
- Collaborative for Academic, Social, and Emotional Learning (CASEL). (2006). *Introduction to SEL: SEL competencies*. Retrieved March 6, 2006, from http://www.casel.org/about_sel/SELskills.php
- Deprez, R. (2001). *Population-based assessment as the backbone of healthcare services planning*. Portland, ME: Public Health Resources Group. Retrieved February 2, 2006, from http://www.phrg.com/planning_article.php

- Doll, B., & Lyon, M. A. (1998). Risk and resilience: Implications for the delivery of educational and mental health services in schools. *School Psychology Review, 27*, 348–363.
- Doll, B., Zucker, S., & Brehm, K. (2004). *Resilient classrooms: Creating healthy environments for learning*. New York: Guilford.
- Felner, R. D., Brand, S., Adan, A. M., Mulhall, P. F., Flowers, N., Sartain, B., et al. (1993). Restructuring the ecology of the school as an approach to prevention during school transitions: Longitudinal follow-ups and extensions of the School Transition Environment Project (STEP). *Prevention in Human Services, 10*, 103–136.
- Hawkins, J. D., Guo, J., Hill, K. G., & Battin-Pearson, S. (2001). Long term effects of the Seattle Social Development Intervention on school bonding trajectories. *Applied Developmental Science, 5*, 225–236.
- Horne, A. M., Bartolomucci, C. L., & Newman-Carlson, D. (2000). *Bully busters: A teacher's manual for helping bullies, victims, and bystanders*. Champaign, IL: Research Press.
- Jacob, S., & Hartshorne, T. S. (2002). *Ethics and law for school psychologists* (4th ed.). New York: John Wiley & Sons.
- Josephson Institute on Ethics. (2006). The Aspen Declaration on Character Education. Retrieved March 3, 2006, from <http://www.charactercounts.org/aspen.htm>
- Krueger, R. A., & Casey, M. A. (2000). *Focus groups: A practical guide for applied research* (3rd ed.). Thousand Oaks, CA: Sage.
- Ladd, G. W. (1996). Shifting ecologies during the 5 to 7 year period: Children's adjustment during the transition to grade school. In A. J. Sameroff & M. M. Haith (Eds.), *The five to seven year shift* (pp. 363–386). Chicago: University of Chicago Press.
- Lopez, S. J., & Snyder, C. R. (2003). *Positive psychological assessment: A handbook of models and measures*. Washington, DC: American Psychological Association.
- Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development, 71*, 543–562.
- MacMahon, B., & Trichopoulos, D. (1996). *Epidemiology: Principles and methods*. Boston: Little, Brown.
- Masten, A. S., Best, K. M., & Garmezy, N. (1990). Resilience and development: Contributions for the study of children who overcome adversity. *Development and Psychopathology, 2*, 425–444.
- Masten, A. S., & Coatsworth, J. D. (1998). The development of competence in favorable and unfavorable environments: Lessons from research on successful children. *American Psychologist, 53*, 205–220.
- Park, N., & Peterson, C. (2003). Virtues and organizations. In K. S. Cameron, J. E. Dutton, & R. E. Quinn (Eds.), *Positive organizational scholarship: Foundations of a new discipline* (pp. 33–47). San Francisco: Berrett-Koehler.
- Penn, D. L., Judge, A., Jamieson, P., Garczynski, J., Hennessy, M., & Romer, D. (2005). Stigma. In D. L. Evans, E. B. Foa, R. E. Gur, H. Hendin, C. P. O'Brien, M. E. P. Seligman, et al. (Eds.), *Treating and preventing adolescent mental health disorders: What we know and what we don't know, A research agenda for improving the mental health of our youth* (pp. 532–543). Oxford, UK: Oxford University Press.

- Prilleltensky, I. (1994). *The morals and politics of psychology: Psychological discourse and the status quo*. Albany: State University of New York Press.
- Robin, A., Schneider, M., & Dolnick, M. (1976). The turtle technique: An extended case study of self-control in the classroom. *Psychology in the Schools, 13*, 449–453.
- Romer, D., & McIntosh, M. (2005). The roles and perspectives of school mental health professionals in promoting adolescent mental health. In D. L. Evans, E. B. Foa, R. E. Gur, H. Hendin, C. P. O'Brien, M. E. P. Seligman, & B. T. Walsh (Eds.), *Treating and preventing adolescent mental health disorders: What we know and what we don't know, A research agenda for improving the mental health of our youth* (pp. 597–616). Oxford: Oxford University Press.
- Rutter, M. (1979). Protective factors in children's responses to stress and disadvantage. In M. W. Kent & J. E. Rolf (Eds.), *Primary prevention of psychopathology. Social competence in children* (Vol. 3, pp. 49–74). Hanover, NH: University Press of New England.
- Sarason, S. B. (1996). *Revisiting "The culture of the school and the problem of change."* New York: Teachers College Press.
- Scales, P. C., & Leffert, N. (1999). *Developmental assets*. Minneapolis: Search Institute.
- Search Institute. (2005a). *40 developmental assets for middle childhood*. Retrieved March 3, 2006, from <http://www.search-institute.org/assets/MiddleChildhood.html>
- Search Institute. (2005b). *Search Institute survey services*. Retrieved March 3, 2006, from <http://www.search-institute.org/surveys/>
- Seligman, M. E. P. (2002). *Authentic happiness*. New York: Free Press.
- Slavin, R. E. (Ed.). (1989). *School and classroom organization*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Sudhir, A., Fabienne, P., & Amartya, S. (2004). *Public health, ethics, and equity*. Oxford, UK: Oxford University Press.
- Thompson, B., & Kinne, S. (1990). Social change theory: Applications to community health. In N. B. Bracht (Ed.), *Health promotion at the community level* (pp. 45–65). Newbury Park, CA: Sage.
- UCLA. (2005). *Epidemiology software*. Department of Epidemiology, School of Public Health. Retrieved March 6, 2006, from <http://www.ph.ucla.edu/epi/software.html>
- UCLA School Mental Health Project. (2006). *Center for Mental Health in the Schools*. Retrieved September 6, 2006, from <http://smhp.psych.ucla.edu/>
- U.S. Department of Health and Human Services. (1999). *Mental health: A report of the Surgeon General—Executive summary*. Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institutes of Health, National Institute of Mental Health. Retrieved September 15, 2003, from <http://www.surgeon-general.gov/library/mentalhealth/summary.html>
- Verhulst, F. C., Koot, H. M., & Van der Ende, J. (1994). Differential predictive value of parents' and teachers' reports of children's problem behaviors: A longitudinal study. *Journal of Abnormal Child Psychology, 22*, 531–546.

- Wolfe, C. (2006). *Finding psychological measures*. Retrieved March 3, 2006, from <http://www.muhlenberg.edu/depts/psychology/Measures.html>
- World Health Organization. (2003). *Creating an environment for emotional and social well-being: An important responsibility of a health promoting and child-friendly school. Information Series on School Health, Document 10*. Geneva, Switzerland: Author. Retrieved September 6, 2006, from http://www.who.int/school_youth_health/media/en/sch_childfriendly_03_v2.pdf
- World Health Organization. (2006). *Resources and tools for advocacy*. Retrieved September 6, 2006, from http://www.who.int/school_youth_health/resources/en/
- Zins, J. E., Weissberg, R. P., Wang, M. C., & Walberg, H. J. (Eds.). (2004). *Building academic success on social and emotional learning: What does the research say?* New York: Teachers College Press.

About the Author

Jean A. Baker is Associate Professor of Counseling, Educational Psychology and Special Education and Co-Director of the School Psychology program at Michigan State University. Her research focuses on the social-ecological context of schooling and its effects on children's mental health outcomes and on community and relational aspects of schooling, with an emphasis on student-teacher relationships and classrooms as caring communities.