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ABSTRACT

This paper offers a method for evaluating protective factors in young children at risk for emotional and/or behavioral disorders. It reviews the development, standardization, validation, and use of a new, nationally standardized measure of within child protective factors, the Devereux Early Childhood Assessment (DECA). The DECA evaluates the frequency of 30 positive behaviors and is completed by parents, preschool teachers, and child care providers. Psychometric data are provided on the standardization sample (more than 2,000 children in 27 states), scale development (resulting in establishing the four factors of efficacy, sociability, emotional regulation, and attachment), reliability (total scale reliability, internal reliability, test-retest reliability, and inter-rater reliability), and validity (criterion validity and construct validity). The paper finds that the DECA could be critically important to the primary prevention efforts within the preschool system of care. (DB)

The Measurement of Within-Child Protective Factors in Preschool Children

Introduction

The 1980s witnessed a burgeoning interest in the delineation and investigation of "protective factors" in children which has persisted in the current decade. Protective factors are individual and environmental characteristics that are thought to moderate or buffer the negative effects of stress and result in more positive behavioral and psychological outcomes in at-risk children than would have been possible in their absence (Masten & Garmezy, 1985). Children whose behavior reflects these protective factors tend to have positive outcomes despite stress and are often characterized as "resilient." Children lacking, or with underdeveloped protective factors, are more likely to develop emotional and behavioral problems under similar risk conditions and are described as "vulnerable."

The interest in protective factors and their role in preventing or diminishing emotional and behavioral disorders in children arose, in part, from findings that child and adolescent mental health services were: (1) very costly, (2) of only assumed efficacy, and (3) disproportionately allocated to a small percentage of youth with severe disorders (e.g., Knitzer, 1982).

Interventions premised on strengthening protective factors in young children have shown promise in reducing the subsequent occurrence of severe emotional and behavioral disorders. Typical interventions include providing preschoolers with the opportunity to establish relationships with supportive, caring adults who serve as positive role models or mentors, developing parent training programs that offer family-centered support and strategies to promote resilience, and teaching caregivers to encourage the development of independence, self-esteem and self-efficacy in preschoolers.

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The development, refinement and replication of effective interventions for enhancing protective factors, as well as the expansion of the knowledge base related to the interaction of risk and resiliency in developmental psychopathology, has been limited by the lack of well-developed, empirically sound and widely available measures of protective factors in preschoolers. Garmezy (1985) suggested that protective factors could be divided into three categories: (1) dispositional attributes of the child, (2) supportive family environment, and (3) external support systems. Although reliable measures of Garmezy's second and third categories exist, to date no adequate measure of child behaviors related to resiliency (i.e., "within child" protective factors) has been developed. In addition to hindering program development, the lack of such an instrument has also made it difficult to reliably identify individual children who may have "low" protective factors and therefore are at increased risk of developing emotional and behavioral disorders. Identifying these children is particularly important in that they might benefit most from resiliency enhancing interventions.

This summary reviews the development, standardization, validation and use of a new, nationally standardized measure of within-child protective factors, the *Devereux Early Childhood Assessment* (DECA) that has been developed as part of a national initiative, sponsored by the Devereux Foundation, to foster the healthy emotional growth of preschool children.

The Devereux Early Childhood Assessment

Developed over a two-year period in 1996-98, the DECA is a nationally normed behavior rating scale evaluating within-child protective factors in preschool children aged two to five. Completed by parents and early childhood professionals (preschool teachers and child care providers), the DECA evaluates the frequency of 30 positive behaviors (i.e., strengths) exhibited by preschoolers. Typical items include "have confidence in his/her abilities," "act good-natured or easygoing," and "ask adults to play with or read to her/him." These items were derived from the childhood resiliency literature and through focus groups conducted with early childhood professionals. The DECA also contains a 10-item problem behavior screener.

The three primary purposes of the DECA are to: (1) identify children who are "low" on the protective factors so that targeted curricular interventions can occur leading to the strengthening of these abilities, (2) to screen for children who may be exhibiting emotional/behavioral problems leading to a referral to a mental health professional, and (3) to generate classroom profiles indicating the relative strengths of all children so that classroom design and instructional strategies can build upon these strengths to facilitate the healthy social and emotional growth of all children.

Standardization Sample. The DECA was standardized on a sample of more than 2,000 preschool children who resided in 27 states. Half of the children in the sample were rated by a parent, and half by a preschool teacher or day care center staff. The sample was stratified on the following variables: sex, race, ethnicity (Hispanic or not), region of residence, socioeconomic status, and size of community of residence. The most recent data available from the United States Department of the Census were used to identify appropriate percentages by variable. The standardization sample is still being adjusted to maximally represent the United States population, but even the preliminary obtained demographics were very close to the census estimates.

Scale Development. Exploratory factor analysis of the standardization items yielded a comprehensible series of scales that were consistent with published descriptive longitudinal research of protective factors (e.g., Werner and Smith, 1982). A four-factor solution fit the data best. Based on an

inspection of the item content of the four factors, the scales were labeled, "Efficacy," "Sociability," "Emotional Regulation" and "Attachment."

Reliability of the DECA. A total scale reliability (coefficient alpha) of .96 was established with the standardization sample. Internal reliability estimates for each of the four scales are presented in Table 1. Each of these coefficients well exceeds the .80 "desirable standard" established by Bracken (1987) and indicates that the DECA is a highly reliable instrument.

Test-Retest reliabilities over a 24-hour period were calculated for both parents and teachers and are presented in Table 2. At the scale level, the reliabilities for the protective factors ranged from .77 to .82 for parents and .87 to .94 for teachers. All correlations were significant at the .01 level.

Inter-rater reliabilities for the DECA, which are presented in Table 3, varied depending on the similarity of the contexts in which the ratings occurred. Scale level correlations between teachers and teachers aides, who see the children during the same time period and in the same context ranged from .67 to .77. Again, all correlations were significant at the .01 level. Correlations between parents or between parents and teachers who see the children in different contexts were lower ranging from non-significance to .41 ($p \leq .05$). These low correlations indicate that the DECA is sensitive to contextual differences in children's behavior.

Validity. Validity studies are ongoing and scheduled for completion by July 1, 1998. However, the criterion validity of a preliminary pilot version was established by examining the DECA's ability to correctly predict whether an individual child was part of a clinical (n = 129) or non-referred (n =467) sample. Any child who had been given a psychiatric diagnosis, was being seen by a mental health professional for emotional or behavioral problems, had been asked to leave a child care program due to his/her behavior, or had an individualized behavior management plan in place was considered to be part of the clinical sample. Discriminant analysis using the jackknife procedure and the total raw score on the pilot version of the DECA as the predictor variable was able to correctly classify 75% of the children. This figure compares favorably with the classification accuracy of well-established scales of symptomatic behavior such as the Child Behavior Checklist and the Devereux Scales of Mental Disorders (Naglieri, LeBuffe & Pfeiffer, 1995).

Construct validity was explored by correlating total raw scores on the protective factor items with raw scores on a set of problem behaviors in preschool children. Children with low protective factor scores had significantly higher means scores on the problem items when compared to children with high protective factor scores. This relationship was more pronounced in children receiving public assistance which is consistent with the

Table 1
DECA Internal Reliability Estimates (Alpha Coefficients) by Scale

Scale Name	Alpha
Efficacy	.87
Emotional Regulation	.89
Attachment	.86
Sociability	.86

Table 2
DECA Test-Retest Reliability Estimates by Scale

Scale Name	Parent	Teacher
Efficacy	.77**[1]	.93**[2]
Emotional Regulation	.82**	.94**
Attachment	.80**	.87**
Sociability	.79**	.93**

* Correlation is significant at the 0.05 level (2 tailed
** Correlation is significant at the 0.01 level (2 tailed)

[1] n=37
[2] n=45

conceptualization of protective factors mediating the impact of risk factors, in this case poverty.

Implications and Importance

Since the seminal studies of Emily Werner, professionals have recognized that protective factors in early childhood have a crucial role in determining subsequent adjustment or maladjustment to life stresses. Werner's recommendation that both assessment and diagnosis in early intervention should focus on protective factors as well as risks (Werner, 1990) has been hampered by the lack of an economical, psychometrically sound, and clinically useful measure of within-child protective factors. The DECA has been developed to fill this gap and thereby provide early childhood professionals with an empirically sound tool for assessing the strength of protective factors in preschoolers.

The DECA could be critically important to primary prevention efforts within the preschool system of care. The DECA could be used to screen populations of preschoolers to find those individuals whose protective factors are comparatively weak indicating their increased vulnerability to stress and increased likelihood of developing emotional and behavioral problems. The DECA could inform efforts to foster resiliency in preschoolers by identifying key dimensions of protective factors such as efficacy, sociability, emotional regulation and attachment around which interventions could be structured. The DECA will advance the knowledge base in preschool mental health by providing a well-developed assessment instrument to be used in research studies. Finally, the DECA, by focusing attention on child strengths and the importance of protective factors will support the shift in child and adolescent mental health services from a pathology-orientation to a strength or competency-based paradigm.

Table 3
DECA Inter-Rater Reliability Estimates

Scale Name	Parent-Parent	Teacher-Teacher	Parent-Teacher
Efficacy	NS[1]	.77**[2]	NS[3]
Emotional Regulation	.41*	.75**	NS
Attachment	NS	.67**	.37**
Sociability	NS	.72**	NS

* Correlation is significant at the 0.05 level (2 tailed)
** Correlation is significant at the 0.01 level (2 tailed)

[1] n=34,
[2] n=39,
[3] n=53

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