

Protective Factors as Measured by the DECA

—*Interrelations and Predictability of Co-Occurring Behavior Concerns*

Dylan S. T. Voris¹, Seema Mahdavi¹, Kyle H. Davis¹, Kara L. Constantine¹, Katelin daCruz¹, Taylor B. Hicks¹, Jeffery D. Shahidullah¹, Brittany Mash¹, Nikki Horn¹, Brittany Brewer¹, JoLynn Y. Hawkins¹, Amy Nasamran¹, Angela Finkbeiner¹, Madison Chapman¹ & John S. Carlson¹

¹ Department of Counseling, Educational Psychology & Special Education, Michigan State University, East Lansing, MI, USA

Correspondence: Dylan Voris, 620 Farm Ln, 435 Erickson Hall, East Lansing, MI 48824, USA. Tel: 1-517-432-0843. E-mail: vorisdyl@msu.edu

Received: April 2, 2013

Accepted: May 2, 2013

Online Published: September 23, 2013

doi:10.5539/jedp.v3n2p56

URL: <http://dx.doi.org/10.5539/jedp.v3n2p56>

Abstract

The current study investigates the relationship between the protective factors of initiative, self-control, and attachment and their ability to predict levels of behavioral concern in a Head Start population (N=1885). Considerable research has found strong connections between protective factors and positive outcomes. However, little research has examined the unique contributions of multiple protective factors concurrently. Results of the current study indicate that when children have any one protective factor they are likely to have other protective factors. When considered individually, protective factors are predictive of low levels of behavior concern. Conversely, when all protective factors are considered together, only self-control predicts a lack of behavior concern. This implies that strength-based screeners can inform interventions that improve protective factors and may reduce behavioral problems in at-risk preschool populations.

Keywords: protective factors, Head Start, behavioral concern, screening

1. Introduction

Low socio-economic status (SES) is a significant risk factor for the development of emotional and behavioral problems in preschool populations (Qi & Kaiser, 2003; Webster-Stratton & Hammond, 1998). Approximately one in five children is living in poverty (Macartney, 2011); however, some children thrive despite their families' economic hardships (Werner, 1990). The characteristics that increase a child's positive outcomes despite significant risk are referred to as protective factors. Placing a focus on protective factors is important due to their strength in predicting positive outcomes. For example, in a longitudinal study, Caprara (2000) found that prosocial behavior more significantly predicted later academic outcomes than aggressive behavior.

Despite existing research on the importance of protective factors for predicting later positive outcomes (e.g., Caprara et al. 2000), a paucity of research has examined protective factors within young children from families with low SES. Instead, the emphasis has been on measuring risk factors and behavioral concerns within this population in order to predict later behavior problems (LeBuffe & Naglieri, 1999). Moreover, universal social-emotional health screeners often focus on risk factors, which fail to provide a full scope of a child's development. The Devereux Early Childhood Assessment (LeBuffe & Naglieri, 1999; DECA) uses a dual-factor model to screen for both risk (i.e., behavior concerns) and protective factors (i.e., initiative, self-control, attachment) to capture a dynamic profile of a child and allow for more refined early prevention and intervention efforts. Understanding the connections that exist between protective factors may inform such intervention and prevention efforts, particularly within an at-risk population. Limited research currently exists on the relationship between protective factors (Masten et al., 1999). Information about the relationship between protective factors could be important when planning interventions for young children. Further, determining which protective factors led to beneficial outcomes could help to target interventions especially in settings with limited resources.

1.1 Background

Behavioral concern is a significant risk factor for future maladaptive outcomes (Qi & Kaiser, 2003). These negative outcomes include lower academic achievement (Patterson, DeBaryshe, & Ramsey, 1990), difficulties with social relationships (Barker et al., 2008), and negative behavioral outcomes such as substance abuse, violence, and delinquency (Reid, Webster-Stratton, & Hammond, 2003). These difficulties are especially prevalent amongst preschoolers from families with lower income (Feil, Walker, Severson, & Bail, 2000).

Positive child outcomes despite risk factors, conceptualized as resiliency, can be thought of as “a process that interacts with a risk factor reducing the probability of a negative outcome” (Zimmerman & Arunkumar, 1994, p. 6). Protective factors, such as a strong attachment to a caregiver, can interact with a risk factor, such as low SES, to reduce the probability of negative outcomes, such as behavior problems in school. This model of resiliency is unique in that it highlights how protective factors interact with risk factors to alter the influence of the risk factor. Additionally, this resiliency model also predicts that protective factors can interact with one another synergistically to create more of an effect than any one protective factor would have individually (Zimmerman, Ramirez, Washienko, Walter, & Dyer, 1998).

Research indicates that early protective factors have long-term positive outcomes and have an inverse relationship with behavioral problems (Campara et al, 2000; Masten et al., 1999; Radke-Yarrow & Sherman, 1990). In a longitudinal study, Werner (1993) found that around one-third of children at high-risk for social and emotional problems had significant protective factors in the first years of life. Generally, this same third of children at high-risk went on to be healthy and live in stable environments with supportive partners at age thirty-two. Several other longitudinal studies have provided converging evidence to support the positive effect of protective factors on later life outcomes such as high school graduation (Ensminger, Lamkin, & Jacobson, 1996), academic achievement, increased resiliency to adverse situations (Masten & Coatsworth, 1998), and self-worth and social competence (Herrenkohl, Herrenkohl, & Egolf, 1994).

Low levels of protective factors are inversely related to high rates of behavioral problems and negative social-emotional outcomes (Qi & Kaiser, 2003; Webster-Hammond, 1998). Brinkman and colleagues (2007) found that at-risk children attending Head Start preschools were more likely to have higher ratings of behavioral concerns and lower ratings of protective factors on the DECA, as compared with preschool children in general. Thus, research has identified several protective factors associated with later positive social-emotional outcomes and general resiliency. However, the nature by which these protective factors mediate the development of behavioral problems is unclear (Cowen et al., 1997).

Protective factors such as attachment, self-control, and initiative have been shown to influence a child's development, (e.g., Masten and Coatsworth, 1998; Werner 1990). For example, children identified as having high levels of initiative (e.g., began work independently, sought help if needed [Werner, 1990], and were interested in what they were learning [Helm & Katz, 2010]) had better educational outcomes. High levels of initiative can serve as a foundation for later academic and social development (Marcon, 2002). In longitudinal studies, children with high levels of self-control during preschool generally have more positive outcomes such as better finances, fewer health problems, and fewer criminal convictions (Moffitt et al., 2011). Self-control seems to aid in social situations where inhibiting a response may be a social expectation (Hebert-Myers, et al., 2006) and in academic settings where a concerted effort is required (Tangney, Baumeister, & Boone, 2004). A strong level of attachment in early childhood is related to a number of positive social and emotional outcomes. Bohlin Hagekull, and Rydell (2000) found at 15-months-old, children's parental attachment levels predicted social functioning and peer status during middle childhood. Similarly, children with poor parental attachment at 18-months have been found to bully others, or be victims of bullying, at higher rates than securely attached children (Troy & Sroufe, 1987). Preschoolers with secure attachments are more accepted by their peers than those with less secure attachments (Szewczyk-Sokolowski, Bost, & Wainwright, 2005).

As predicted by Zimmerman and Arunkumar (1994), these protective factors can interact with one another to influence behavioral problems and other negative outcomes. While there are many studies of individual protective factors in the extant literature, the relationship between protective factors is poorly established. Bender and Carlson (2013) found emerging evidence for the relationships between protective factors using data from 77 raters to report the correlations between the protective factors as measured by the DECA. Specifically, they found initiative was significantly correlated with self control ($r=.63$) and attachment ($r=.62$) and attachment was significantly correlated with self-control ($.43$). The current study expands such findings by using a large sample to investigate the interaction of protective factors, and their influence on behavioral concerns, as a means of advancing the theoretical implications and practical applications of protective factors in early childhood.

1.2 Research Questions

1.2.1 Research Question 1

Are there significant correlations between the three protective factors self-control, initiative, and attachment, as measured by the DECA in a Head Start preschool population?

1.2.2 Research Question 2

Which of the protective factors measured on the DECA is more predictive of an absence of co-occurring behavioral concerns in a Head Start preschool population?

1.2.3 Research Question 3

For the factor that is most predictive, which items that make up the factor are most highly correlated with co-occurring behavioral concerns?

2. Methods

2.1 Participants

Participants came from two Head Start cohorts, 2010-2011 and 2011-2012, and included a diverse population (see Table 1).

Table 1. Demographic characteristics of local head start

	2010-2011	2011-2012
Total enrollment	1511	1656
Females	51%	52%
Single Parent Homes	71%	74%
American Indian	1%	1%
Asian	2%	2%
Black	25%	25%
White	59%	55%
Multi-racial	13%	17%
Hispanic ethnicity	17%	18%

The data from the 2010-2011 and 2011-2012 administrations of the DECA were combined but only a child's first year in Head Start was included in the analysis to avoid maturation or intervention effects. There were a total of 948 mothers who completed the assessments during the 2010-2011 enrollment year and a total of 937 mothers during the 2011-2012 enrollment year. Overall, a total of 1,885 (out of 3,167) children enrolled in Midwestern Head Start programs were included in this study. These children represent 63% and 57% of the students enrolled in these Head Start programs during the 2010-2011 and 2011-2012 enrollment years, respectively. The children included in the sample were between 33 and 67 months of age ($x = 46.60$ months, $SD = 6.91$).

2.2 Measures

The DECA assesses protective and risk factors in children from the ages 2-5 years. The measure consists of a 37-items designed to generate scales of within-child total protective factors (TPF) and behavioral concerns (BC). The TPF scale is made up of 27 items and is a combination of three subscales for the individual protective factors of attachment, initiative, and self-control. The BC scale is composed of 10 items that assess challenging behaviors exhibited by children. It is a measure designed to be completed by an adult familiar with the child. Raters respond using a Likert rating scale describing the frequency (*Never, Rarely, Occasionally, Frequently, Very Frequently*) of the behavior in the past four weeks.

The DECA was nationally normed in the United States in the fall of 1997 and spring of 1998. The standardization sample for the TPF scale consisted of 2,000 preschool-aged children and the standardization sample for the BC scale consisted of 1,108 preschool-aged children. Both samples were selected to be representative of the population of preschool children in the United States.

According to the technical manual (LeBuffe & Naglieri, 1999), the DECA has been determined to have adequate psychometric properties when completed by parents. The TPF scale's reliability ranges from .71 (test-retest reliability) to .94 (internal reliability) and the BC ranges from .55 (test-retest reliability) to .71 (internal reliability). The DECA is also able to discriminate between preschoolers with and without emotional and behavioral problems. The DECA manual reports cross-sectional research that indicates the DECA sufficiently predicted group membership in terms of emotional and behavioral problems, suggesting the DECA demonstrates criterion-related validity. Studies have replicated the reliability and factor structure of the DECA in diverse samples (Barbu, Levine-Donnerstein, Marx, & Yaden, 2012; Lien & Carlson, 2009). The discriminant validity of the screener has been called into question (Barbu, Levine-Donnerstein, Marx, & Yaden, 2012).

2.3 Procedures

As part of the enrollment package for Head Start for the years 2010-2011 and 2011-2012, caregivers were asked to complete the DECA. Only mother raters were used to control for the variance between types of raters. Only DECA ratings of a child's first year in a Head Start program were included in the sample. Parents were provided assistance if they had difficulty completing the form. School personnel followed up with caregivers who did not initially complete the form. Graduate and undergraduate research assistants entered data from the completed DECA forms into an electronic database through the e-DECA data system. Calculations for the BC scale scores, the TPF scale scores, and the protective factor subscale scores were completed using the e-DECA data system. These scores were converted into T-scores for data analysis.

Score reports for individual students were generated via the website and parents were sent a letter outlining the results of the ratings. They were encouraged to contact their child's teacher with any concerns. Head Start classroom consultants were provided individual and classroom summaries and conducted any necessary follow-up assessments.

3. Results

3.1 Question 1

The relationships between the initiative, self-control, and attachment subscales of TPF were investigated using Pearson correlation coefficients (Table 2).

Table 2. Pearson correlations among protective factors

	Initiative	Self-Control	Attachment	TPF
Initiative	---			
Self-Control	.65**	---		
Attachment	.65**	.52**	---	
TPF	.92**	.84**	.79**	---

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

All subscales were positively correlated with each other. The initiative scores were correlated with both self-control ($r = .647$, $p < .01$) and attachment ($r = .652$, $p < .01$). Self-control was also correlated with attachment scores ($r = .522$, $p < .01$). Furthermore, subscales were positively correlated with TPF: initiative ($r = .924$, $p < .01$), self-control ($r = .836$, $p < .01$), and attachment ($r = .794$, $p < .01$).

3.2 Question 2

Three simple linear regressions were calculated to examine which subscales of TPF were predictive of co-occurring BC scores. Each TPF subscale was independently predictive of behavioral concern when it was entered in simple regression analysis: initiative ($\beta = -.319$, $t(1883) = -15.139$, $p < .001$), self-control ($\beta = -.501$, $t(1883) = -26.162$, $p < .001$), and attachment ($\beta = -.228$, $t(1883) = -11.729$, $p < .001$). Each protective factor explained a significant proportion of variance in BC scores: initiative ($R^2 = .109$, $F(1,1883) = 229.188$, $p < .001$), self-control ($R^2 = .267$, $F(1,1883) = 684.441$, $p < .001$), and attachment ($R^2 = .068$, $F(1,1883) = 137.560$, $p < .001$).

Self-control, initiative, and attachment were entered simultaneously in a multiple linear regression analysis and only self-control remained significant ($\beta = -.507$, $t(1883) = -19.905$, $p < .001$). Self-control was the only variable to

contribute unique variance (approximately 27%) to predicting co-occurring behavioral concerns ($R^2_{change} = .267$, $F(1,1883) = 684.441$, $p < .001$).

3.3 Question 3

A correlation analysis was conducted between each item on the self-control subscale and the BC raw score (see Table 3).

Table 3. Pearson correlations between items on self-control and BC

	Item 4	Item 5	Item 13	Item 21	Item 25	Item 30	Item 33	Item 34
BC	-.43**	-.39**	-.38**	-.35**	-.31**	-.31**	-.41**	-.31**

** Correlation is significant at the .01 level (2-tailed)

Each item on the self-control subscale is significantly correlated (i.e., negatively) with the behavioral concern raw score. Items 4 (listen to or respect others), 5 (control his/her anger) and 33 (cooperate with others) on self-control have the largest correlations with the behavioral concern raw score.

4. Discussion

While the child resiliency literature examines protective factors independently, there is a need for empirical research that explores the relationship between protective factors, as well as their influence on behavioral concerns. In particular, these protective factor relationships as measured by the DECA have been under-studied in Head Start populations (Lien & Carlson, 2009). In general, children attending Head Start are more likely to exhibit low protective factors and higher behavioral concerns when compared to peers from higher SES families (Brinkman, Wigent, Tomac, Pham, & Carlson, 2007).

The first finding of this study was that each of the protective factors examined were significantly correlated with one another. This finding is in line with previous research using factor analysis (Ogg, Brinkman, Dedrick, & Carlson, 2010). Tangney, Baumeister, and Boone (2004) note that high self-control has been correlated with secure attachment and generally stable, positive interpersonal relationships in children. This implies that protective factors do not act in isolation. A combination of protective factors has been associated with more optimal social, emotional, and academic outcomes in childhood (Dobbs, Doctoroff, Fisher, & Arnold, 2006). Previous research has indicated that children with multiple protective factors are better able to deal with stressors and the negative consequences associated with risk factors (Blum & Ireland, 2004). Screeners measuring multiple protective factors, such as the DECA, may offer a more complete depiction of a child's current social-emotional characteristics and resiliency to risk.

The second research question addressed the ability of protective factors included on the DECA to predict behavioral concerns. The current study found that when considered in isolation, each protective factor was able to significantly predict levels of behavioral concerns. However, when controlling for the other protective factors, only self-control remained a significant predictor of behavioral concerns. This finding coincides with previous research, in which children with severe externalizing behaviors were found to exhibit low levels of self-control (Barkley, 1997).

The third finding isolated which items of the self-control subscale were most related with behavioral concerns. This analysis revealed that high scores on the items involving relating to, listening to, and cooperating with others, as well as controlling anger were related to low levels of behavioral concern. This is consistent with research that suggests that the ability to relate to and have concern for others reduces externalizing problems (Hastings, Zahn-Waxler, Robinson, Usher, & Bridges, 2000). Further, the ability to manage anger, especially at a young age, is an important part of social-emotional health (Webster-Stratton, Reid, & Hammond, 2004).

While initiative and attachment likely play an important role in childhood development, evidence supporting the unique role of initiative or attachment as protective factors mediating future behavioral problems is not as conclusive as the research support for self-control. For example, Bates, Maslin and Frankel (1985) found that attachment security to mothers at twelve months did not predict future behavioral concerns in children at age three. Whereas, a robust body of research indicates that self-control is related to long term academic gains, positive social and emotional outcomes, and fewer behavioral concerns (e.g., Dobbs, Doctoroff, Fisher, & Arnold, 2006).

Additionally, strength-based models of self-control indicate that similar cognitive resources are implicated for both self-control and initiative; furthermore, these models propose that aspects of initiative, such as motivation and selective interest, are related to self-control (Baumeister, Vohs, & Tice, 2007; Vohs, Baumeister, Schmeichel, Twenge, Nelson, & Tice, 2008). In line with these models, the multiple regression demonstrates that while high rates of summative protective factors are inversely related to behavioral problems, high scores of self-control are more uniquely predictive of low levels of behavioral concerns.

4.1 Limitations

There are several limitations that potentially hinder the ability to generalize the results and how they can be interpreted. Participants were from one geographic location and may not be representative of all Head Start preschool students. Additionally, since the current study used a Head Start sample, future research should focus on extending these findings to samples that are representative of the general preschool population. Second, the inclusion criteria resulted in a significant overrepresentation of females compared to the original population ($\chi^2 = 9.380$ (1), $p = .002$). This may influence the behavioral concerns exhibited in our sample since boys are more likely to exhibit externalizing behaviors (Campbell, 1995), and thus, it may not be reflective of the Head Start population as a whole. Finally, research indicates that parents are less reliable raters than teachers (LeBuffe & Naglieri, 1999). Therefore, it is important to consider the source of the data when interpreting the findings.

4.2 Implications

The current study explores the connections between protective factors in order to gain a more accurate conceptualization of how protective factors influence one another and behavioral concerns. This study provides important information for clinical and other mental-health practices that serve disadvantaged youth through the use of a strength-based behavioral screener. Strength-based assessments, such as the DECA, provide a better understanding of a child's functioning than traditional assessments, which focus primarily on problematic behaviors (LeBuffe & Naglieri, 1999). In particular, the self-control subscale of protective factors on the DECA is the best predictor of behavioral concern. Therefore, strength-based assessments and interventions that target self-control may prove to be the most effective in reducing behavioral concerns among at-risk preschool populations.

With the current emphasis on the use of empirically-based assessment within school-based early prevention programs, early education professionals with an understanding of these assessments are well positioned to lead prevention efforts. Teachers rate behavioral concerns as one of the most prevalent mental health issues among students; however, they report feeling insufficiently trained to handle these behaviors within the classroom (Reinke, Stormont, Herman, Puri & Goel, 2011). Using dual-factor screeners, such as the DECA, is critical in coordinating early intervention supports and services to address these behavioral concerns. School psychologists and other mental health professionals can assist teachers and parents in supporting the child's social-emotional, behavioral, and academic success by identifying strengths and weakness, such as levels of self-control and behavioral concern.

References

- Barbu, C. O., Levine-Donnerstein, D., Marx, R. W., & Yaden, D. B. (2012). Reliability and validity of the Devereux Early Childhood Assessment (DECA) as a function of parent and teacher ratings. *Journal of Psychoeducational Assessment*, 30, 1-13.
- Barkley, R. A. (1997). Behavioral inhibition, sustained attention, and executive functions: Constructing a unifying theory of ADHD. *Psychological Bulletin*, 121, 65-94. <http://dx.doi.org/10.1037/0033-2909.121.1.65>
- Barker, E. D., Boivin, M., Brendgen, M., Fontaine, N., Arseneault, L., Vitaro, F., ... Tremblay, R. E. (2008). Predictive validity and early predictors of peer-victimization trajectories in preschool. *Archives of General Psychiatry*, 65, 1185-1192. <http://dx.doi.org/10.1001/archpsyc.65.10.1185>
- Bates, J. E., Maslin, C. A., & Frankel, K. A. (1985). Attachment security, mother-child interaction, and temperament as predictors of behavior-problem ratings at age three years. *Monographs of the Society for Research in Child Development*, 50, 167-193. <http://dx.doi.org/10.2307/3333832>
- Baumeister, R. F., Vohs, K. D., & Tice, D. M. (2007). The strength model of self-control. *Current Directions in Psychological Science*, 16, 351-355. <http://dx.doi.org/10.1111/j.1467-8721.2007.00534.x>
- Bender, S. L., & Carlson, J. S. (2013). An Initial Investigation of Parenting Stress, Social-Emotional Protective Factors, and Behavior Concerns within a Head Start Population. *Journal of Educational and Developmental Psychology*, 3(1). <http://dx.doi.org/10.5539/jedp.v3n1p113>

- Blum, R. W., & Ireland, M. (2004). Reducing risk, increasing protective factors: Findings from the Caribbean Youth Health Survey. *Journal of Adolescent Health, 35*, 493-500. <http://dx.doi.org/10.1016/j.jadohealth.2004.01.009>
- Bohlin, G., Hagekull, B., & Rydell, A. (2000). Attachment and social functioning: A longitudinal study from infancy to middle childhood. *Social Development, 9*, 24-39. <http://dx.doi.org/10.1111/1467-9507.00109>
- Brinkman, T. M., Wigent, C. A., Tomac, R. A., Pham, A.V., & Carlson, J. S. (2007). Using the Devereux Early Childhood Assessment to identify behavioral risk and protective factors within a Head Start population. *Canadian Journal of School Psychology, 22*, 136-151. <http://dx.doi.org/10.1177/0829573507307612>
- Campbell, S. B. (1995). Behavior problems in preschool children: A review of recent research. *Journal of Child Psychology and Psychiatry, 36*, 113-149. <http://dx.doi.org/10.1111/j.1469-7610.1995.tb01657.x>
- Caprara, G. V., Barbaranelli, C., Pastorelli, C., Bandura, A., & Zimbardo, P. G. (2000). Prosocial foundations of children's academic achievement. *Psychological Science, 11*, 302-306. <http://dx.doi.org/10.1111/1467-9280.00260>
- Cowen, E. L., Wyman, P. A., Work, W. C., Kim, J. Y., Fagen, D. B., & Magnus, K. B. (1997). Follow-up study of young stress-affected and stress-resilient urban children. *Development and Psychopathology, 9*, 565-577. <http://dx.doi.org/10.1017/S0954579497001326>
- Diamond, A., Barnett, W. S., Thomas, J., & Munro, S. (2007). Preschool program improves cognitive control. *Science, 318*, 1387-1388. <http://dx.doi.org/10.1126/science.1151148>
- Dobbs, J., Doctoroff, G. L., Fisher, P. H., & Arnold, D. H. (2006). The association between preschool children's socio-emotional functioning and their mathematical skills. *Journal of Applied Developmental Psychology, 27*, 97-108. <http://dx.doi.org/10.1016/j.appdev.2005.12.008>
- Ensminger, M. E., Lamkin, R. P., & Jacobson, N. (1996). School leaving: A longitudinal perspective including neighborhood effects. *Child Development, 67*, 2400-2416. <http://dx.doi.org/10.2307/1131630>
- Feil, E. G., Walker, H., Severson, H., & Ball, A. (2000). Proactive screening for emotional/behavioral concerns in head start preschools: Promising practices and challenges in applied research. *Behavioral Disorders, 26*, 13-25.
- Hastings, P. D., Zahn-Waxler, C., Robinson, J. A., Usher, B., & Bridges, D. (2000). The development of concern for others in children with behavior problems. *Developmental Psychology, 36*, 531-546. <http://dx.doi.org/10.1037/0012-1649.36.5.531>
- Hebert-Myers, H., Guttentag, C. L., Swank, P. R., Smith, K. E., & Landry, S. H. (2006). The importance of language, social, and behavioral skills across early and later childhood as predictors of social competence with peers. *Applied Developmental Science, 10*, 174-187. http://dx.doi.org/10.1207/s1532480xads1004_2
- Helm, J. H., & Katz, L. G. (2010). *Young investigators: The Project Approach in the Early Years*. New York: Teachers College Press.
- Herrenkohl, F. C., Herrenkohl, R. C., & Egolf, B. (1994). Resilient early school-age children from maltreating homes: Outcomes in late adolescence. *American Journal of Orthopsychiatry, 64*, 301-309. <http://dx.doi.org/10.1037/h0079517>
- LeBuffe, P. A., & Naglieri, J. A. (1999). *Devereux Early Childhood Assessment technical manual*. Lewisville, NC: Kaplan Press.
- Lien, M. T., & Carlson, J. S. (2009). Psychometric properties of the Devereux Early Childhood Assessment in a Head Start sample. *Journal of Psychoeducational Assessment, 27*, 386-396. <http://dx.doi.org/10.1177/0734282909331754>
- Macartney, S. (2011). *Child poverty in the United States 2009 and 2010: Selected race groups and Hispanic origin*. American Community Survey Briefs, U.S. Census.
- Marcon, R. A. (2002). Moving up the grades: Relationship between preschool model and later school success. *Early Childhood Research and Practice, 4*, 1-20.
- Masten, A. S., & Coatsworth, J. D. (1998). The Development of Competence in Favorable and Unfavorable Environments. *American Psychologist, 53*, 205-222. <http://dx.doi.org/10.1037/0003-066X.53.2.205>
- Masten, A. S., Hubbard, J. J., Gest, S. D., Tellegen, A., Garmezy, N., & Ramirez, M. (1999). Competence in the context of adversity: Pathways to resilience and maladaptation from childhood to late adolescence.

- Development and Psychopathology*, 11, 143–169. <http://dx.doi.org/10.1017/S0954579499001996>
- Moffitt, T. E., Arseneault, L., Belsky, D., Dickson, N., Hancox, R. J., Harrington, H. L., ... Houts, R., Poulton, R., Roberts, B. W., Ross, S., Sears, M. R., Thomson, W. M., & Caspi, A. (2011). A gradient of childhood self-control predicts health, wealth, and public safety. *Proceedings of the National Academy of Sciences*, 108, 2693–2698. <http://dx.doi.org/10.1073/pnas.1010076108>
- Ogg, J. A., Brinkman, T. M., Dedrick, R. F., & Carlson, J. S. (2010). Factor structure and invariance across gender of the Devereux Early Childhood Assessment protective factor scale. *School Psychology Quarterly*, 25, 107. <http://dx.doi.org/10.1037/a0020251>
- Patterson, G. R., DeBaryshe, B., & Ramsey, E. (1990). A developmental perspective on antisocial behavior. *American Psychologist*, 44, 329–335. <http://dx.doi.org/10.1037/0003-066X.44.2.329>
- Qi, C., & Kaiser, A. P. (2003). Behavior problems of preschool children from low-income families. *Topics in Early Childhood Special Education*, 23, 188. <http://dx.doi.org/10.1177/02711214030230040201>
- Radke-Yarrow, M., & Sherman, T. (1990). Hard growing: Children who survive. In J. Rolf, A. Masten, D. Cicchetti, K. Nuechterlein, & S. Weintraub (Eds.), *Risk and Protective Factors in the Development of Psychopathology* (pp. 97–119). New York: Cambridge University Press. <http://dx.doi.org/10.1017/CBO9780511752872.008>
- Reid, M. J., Webster-Stratton, C., & Hammond, M. (2003). Follow-up of children who received the Incredible Years intervention for oppositional-defiant disorder: Maintenance and prediction of 2-year outcome. *Behavior Therapy*, 34, 471–491. [http://dx.doi.org/10.1016/S0005-7894\(03\)80031-X](http://dx.doi.org/10.1016/S0005-7894(03)80031-X)
- Reinke, W. M., Stormont, M., Herman, K. C., Puri, R., & Goel, N. (2011). Supporting children's mental health in schools: Teacher perceptions of needs, roles, and barriers. *School Psychology Quarterly*, 26, 1–13. <http://dx.doi.org/10.1037/a0022714>
- Szewczyk-Sokolowski, M., Bost, K. K., & Wainwright, A. B. (2005). Attachment, temperament, and preschool children's peer acceptance. *Social Development*, 14, 379–397. <http://dx.doi.org/10.1111/j.1467-9507.2005.00307.x>
- Tangney, J. P., Baumeister, R. F., & Boone, A. L. (2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality*, 72, 271–324. <http://dx.doi.org/10.1111/j.0022-3506.2004.00263.x>
- Troy, M., & Sroufe, L. A. (1987). Victimization among preschoolers: Role of attachment relationship history. *Journal of the American Academy of Child & Adolescent Psychiatry*, 26, 166–172. <http://dx.doi.org/10.1097/00004583-198703000-00007>
- Webster-Stratton, C., & Hammond, M. (1998). Conduct problems and level of social competence in Head Start children: Prevalence, pervasiveness, and associated risk factors. *Clinical Child and Family Psychology Review*, 1, 101–124. <http://dx.doi.org/10.1023/A:1021835728803>
- Webster-Stratton, C., & Reid, M. J. (2004). Strengthening social and emotional competence in young children-The foundation for early school readiness and success: Incredible Years classroom social skills and problem-solving curriculum. *Infants & Young Children*, 17, 96–113. <http://dx.doi.org/10.1097/00001163-200404000-00002>
- Werner, E. E. (1990). Protective factors and individual resilience. *Handbook of Early Childhood Intervention*, 2, 115–132. <http://dx.doi.org/10.1017/CBO9780511529320.008>
- Werner, E. E. (1993). Risk, resilience, and recovery: Perspectives from the Kauai longitudinal study. *Development and Psychopathology*, 5, 503–515. <http://dx.doi.org/10.1017/S095457940000612X>
- Zimmerman, M. A., & Arunkumar, R. (1994). Resiliency research: Implications for schools and policy. *Social Policy Report*, 8, 1–17.
- Zimmerman, M. A., Ramirez, J., Washienko, K. M., Walter, B., & Dyer, S. (1998). Enculturation hypothesis: Exploring direct and protective effects among Native American youth. In H. I. McCubbin, E. A. Thompson, A. I. Thompson, & J. E. Fromer (Eds.), *Resiliency in Native American and Immigrant Families*. Resiliency in Families Series. Thousand Oaks, CA: Sage Publications Inc.

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/3.0/>).