



Resilience and protective factors in childhood: Understanding the relationship of positive health indicators to home, school, and community environment



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BACKGROUND

Resiliency, optimism, curiosity and engagement in learning are elements of positive health development in children. Positive health indicators were newly included in the 2011/12 National Survey of Children's Health (2011/12), which provides an opportunity to look at associations across demographic subgroups and environments in which children live.

OBJECTIVES

To characterize the positive health experiences of all children and children with special health care needs (CSHCN) by examining positive health indicators and their association with health outcomes vs. the association between the absence of a negative health indicator.

METHODS

Data for this study were drawn from the 2011/12 NSCH public use data files prepared by the Data Resource Center for Child and Adolescent Health. The 2011/22 National Survey of Children's Health (NSCH) was conducted between February 2011 and June 2012 with at least 1800 parents of children 0-17 years old from each state. The NSCH is directed and funded by the Maternal and Child Health Bureau and administered by the National Center for Health Statistics using the State and Local Area Integrated Telephone Survey mechanism. Public use data files are prepared by the Data Resource Center for Child and Adolescent Health, a project of the Child and Adolescent Health Measurement Initiative.

Positive health items, "flourishing items" (also known as thriving), were newly included in the 2011/12 NSCH to provide information on childhood well-being and resilience. Flourishing as a concept contains multiple dimensions of physical health, mental and emotional health, caring, empathy and resilience, therefore items are organized by domains within thriving. Questions were developed based on a systematic review of positive health indicators and iterative assessment by a Technical Expert Panel. This TEP includes a representative group of experts in the fields of survey methodology, children's health, community organizations, and family leaders. Additionally, there was a public comment period which yielded more interesting information on this concept. From the collection of input from the Technical Expert Panel and Public Comment, two sets of flourishing items were developed for children age 6 months-5 years and a separate set for children 6-17 years based on developmentally appropriate experiences for each age group. See table 1 and 2.

Additional positive health indicators included in the 2011/12 NSCH include: overall health status, school engagement (cares about doing well in school and completes all required homework), self-care and healthy decisions (physical activity, adequate sleep), participation in activities (extracurricular activities, volunteering, work for pay outside home), and relationship with family and peers (parent-child relationship, family eats meals together) among others.

Table 1: Survey Items Included in the Flourishing Measure age 6 months – 5 years

Introduction: I am going to read a list of items that sometimes describe children. For each item, please tell me how often this was true for your child during the past month:

During the past month...

- [He/She] is affectionate and tender with you.
- [He/She] bounces back quickly when things don't go [his/her] way.
- [He/She] shows interest and curiosity in learning new things.
- [He/She] smiles and laughs a lot.

Table 2: Survey Items Included in the Flourishing Measure age 6-17 years

- [He/She] finishes the tasks [he/she] starts and follows through with what [he/she] says [he'll/she'll] do.
- [He/She] stays calm and in control when faced with a challenge.
- [He/She] shows interest and curiosity in learning new things.

Scoring: The flourishing measure is met if the child's parent responded "usually" or "always" to all items above (3 or 4 depending on age of child).

PSYCHOMETRICS

Statistical Analysis

National and state-by-state population prevalence for all health and quality of care variables were weighted to represent the population of non-institutionalized children age 0 to 17 years in the United States. Stratification of type of special health care needs was also examined. For bivariate analyses, standard t-tests or chi-square tests of statistical differences were used. Nested t-tests were used to compare each state's prevalence to the nation. Multivariate analyses include type of health insurance in a series of logistic regression analyses, controlling for child's age, sex, race, ethnicity, primary household language, and household income.

Cognitive Interview Findings and Psychometric Properties

The flourishing items underwent cognitive testing conducted by the CDC. Cognitive testing with parents showed final versions of the introduction and questions had face validity, were understood as intended and reliable. Cronbach's Alpha for the flourishing items for the younger ages was 0.41 and 0.56 for the older ages, indicating relatively low internal consistency. This was expected due to the cross-cutting nature of the flourishing scale. Only four of the domains of flourishing were selected for measurement in the NSCH and are not a comprehensive scale for measuring an individual child's flourishing. Each of the items within each flourishing scale were weakly correlated (Pearson's Correlation < 0.4) indicating that each item measures a distinct domain. Cronbach's Alpha was lower if any item was deleted, indicating that none should be removed from the measure.

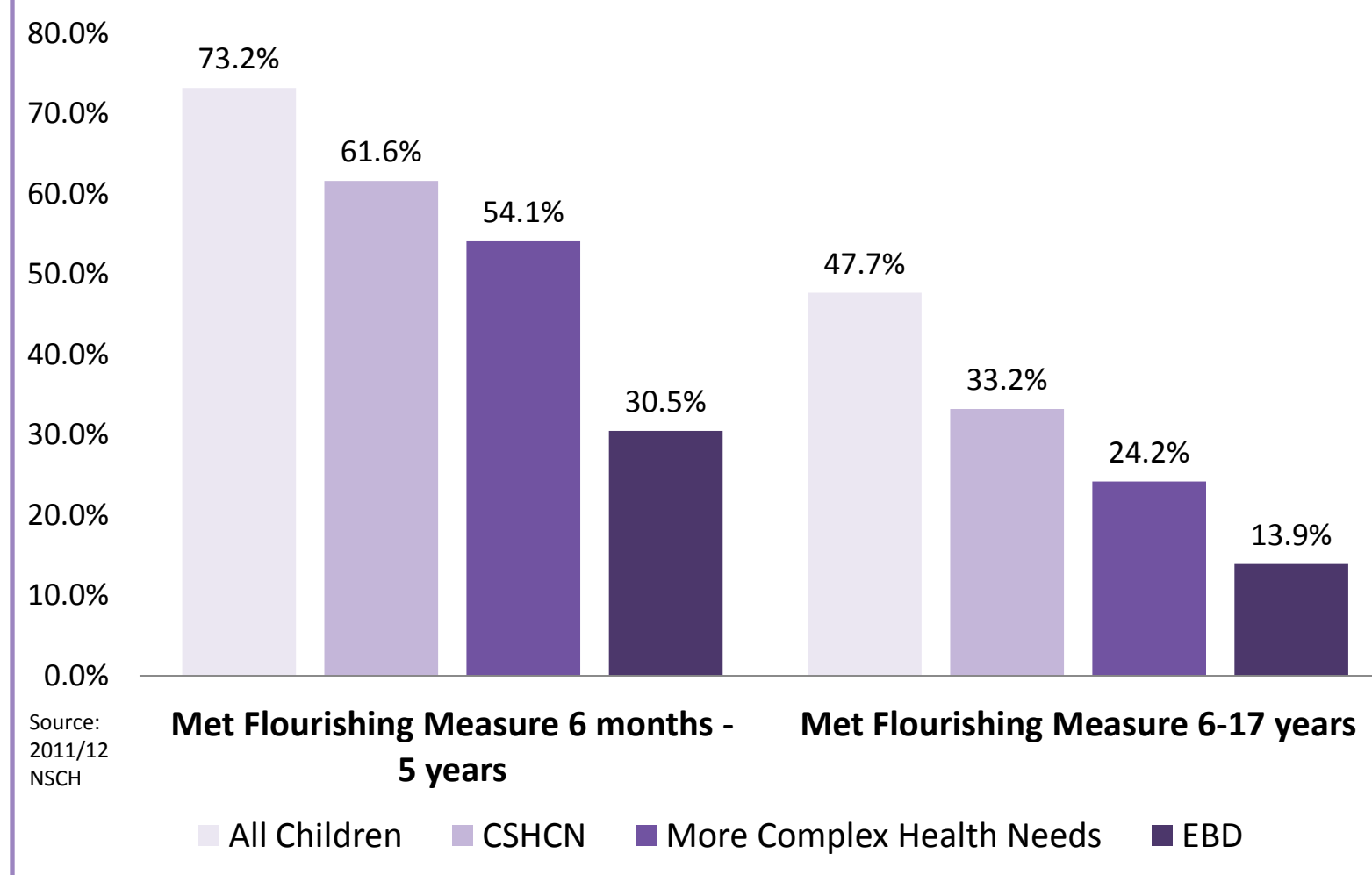
RESULTS

Demographic characteristics of US children who meet overall flourishing measure and subcomponents of measure		Age 6 months – 5 years					Age 6-17 years			
		Flourishing measure	Measures contributing to flourishing measure*				Flourishing measure	Measures contributing to flourishing measure**		
			Child is affectionate and tender with parent	Child bounces back quickly when things don't go his/her way (resilience measure)	Child shows interest and curiosity in learning new things	Child smiles and laughs a lot		Child finishes tasks and follows through with plans	Child stays calm and in control when faced with a challenge (resilience measure)	Child shows interest and curiosity in learning new things
% met all	% Usually/always	% Usually/always	% Usually/always	% Usually/always	% met all	% Usually/always	% Usually/always	% Usually/always		
All children		73.2	93.4	78.7	95.6	97.9	47.7	65.2	64.7	85.0
Subgroups										
Gender	Male	71.3	91.9	77.4	94.9	97.9	44.1	61.5	62.2	82.8
	Female	75.1	94.9	79.9	96.3	97.8	51.4	69.2	67.3	87.3
Race/Ethnicity	White NH	79.3	94.5	83.6	97.3	98.8	50.9	66.4	68.3	87.0
	Hispanic	69.6	93.6	76.4	94.3	96.4	46.8	69.4	61.3	83.4
	Black NH	62.1	90.7	69.6	92.3	97.5	36.5	53.6	55.2	79.8
	Other NH	69.4	91.4	75.0	95.2	97.7	48.8	66.6	65.8	85.7
Income Level (FPL)	0-99%	60.2	89.7	68.4	91.4	96.1	36.9	59.1	52.6	79.5
	100-199%	72.3	93.1	78.2	96.2	97.4	45.6	64.5	61.3	84.6
	200-399%	78.2	94.9	81.9	97.7	98.6	48.2	64.1	67.1	86.1
	400% or higher	82.0	95.7	86.2	97.1	99.3	56.3	71.2	73.4	88.0
Insurance Type	Public	65.9	91.5	72.2	94.0	97.4	39.0	60.1	55.0	81.2
	Private	80.1	95.3	84.2	97.7	98.6	52.9	68.3	70.5	87.4
	Uninsured	68.7	91.6	78.9	98.4	94.7	43.5	63.7	61.6	82.9
CSHCN Status	CSHCN	74.7	89.9	68.2	87.8	95.5	33.2	49.6	49.1	87.1
	Non-CSHCN	61.6	93.8	80.1	96.6	98.2	52.2	70.1	69.6	78.1

*All flourishing indicators were skewed towards always with the exception of resilience which was roughly equally distributed between usually/always
 **All flourishing indicators were roughly equally distributed between usually/always with the exception of curiosity which was skewed towards always

Children who meet the flourishing measure are more likely to be White, Non-Hispanic, from families with a combined income of 400% of the federal poverty level or greater, are privately insured, and are non-CSHCN. Children in the younger age group met the flourishing measure more often than children in the older age group even though the younger age group contains four subcomponents. From the younger age group, nearly all parents responded that their child usually/always smiles and laughs a lot, making this the most prevalent of the subcomponents. Exhibiting resilience was the least prevalent subcomponent of the flourishing measure for both age groups.

Associations between Flourishing and CSHCN, Emotional, Behavioral or Developmental Conditions (EBD), and Complexity of CSHCN



Children who have emotional, behavioral, or developmental conditions (EBD) are known to be less likely than children without EBD to experience positive health outcomes. This was true for the flourishing measures as well. We found that children with EBD are less likely than children with special health care needs (CSHCN) or CSHCN with complex needs (needs beyond prescription medications only) to meet the flourishing measure for either age group.

EFFECT OF FLOURISHING ON HEALTH INDICATORS

A child who meets the overall flourishing measure is more likely to experience positive health outcomes and less likely to experience negative health outcomes. Meeting the measure is an important predictor of experiencing positive health indicators. When CSHCN and children with EBD are examined separately, the effect can be greater, particularly with the school success index. For example, among all children, those who meet the flourishing measure have 2.8 times greater odds of meeting the school success index after adjusting for age, race, sex, insurance type, poverty level and CSHCN status. The effect is greater among CSHCN and EBD who have 3.9 and 4.0 times greater odds of meeting the school success index if they also met the flourishing measure after adjusting for covariates listed above (with the exception of CSHCN status). See table below for additional indicators and greater detail.

Odds of positive and negative health outcomes by presence of flourishing measure among all children, CSHCN, and CSHCN with Emotional, Behavioral or Developmental Conditions (EBD)

Positive Health Indicators	Age group	*Adjusted Odds Ratio (odds of outcome when flourishing measure is met vs odds of outcome when flourishing measure is not met) (95% Confidence Interval)		
		All Children	CSHCN**	EBD**
Protective Home Environment Index (no smoking; share meals; limit TV...)	6 months-5 years	1.47 (1.27-1.71)	1.37 (0.96-1.95)	1.87 (1.05-3.35)
	6-17 years	1.67 (1.53-1.84)	1.91 (1.58-2.31)	1.61 (0.99-2.62)
School Success Index (engaged in school, participate in extracurricular activities, feels safe at school)	6-17 years only	2.79 (2.56-3.03)	3.94 (3.32-4.69)	4.01 (2.72-5.92)
Mother's health excellent or very good	6 months-5 years	1.55 (1.35-1.78)	1.72 (1.23-2.40)	1.96 (1.02-3.73)
	6-17 years	1.61 (1.49-1.75)	1.55 (1.31-1.83)	1.26 (0.86-1.85)
Safety context (safe and supportive neighborhood, neighborhood has amenities...)	6 months-5 years	1.48 (1.29-1.68)	1.21 (0.87-1.67)	1.17 (0.63-2.16)
	6-17 years	1.53 (1.42-1.65)	1.38 (1.18-1.62)	1.45 (1.01-2.09)
High levels of Parenting Stress/Aggravated by child	6 months-5 years	0.47 (0.38-0.59)	0.22 (0.15-0.33)	0.27 (0.15-0.49)
	6-17 years	0.36 (0.31-0.42)	0.23 (0.17-0.30)	0.32 (0.19-0.52)
11+ Missed School Days	6-17 years only	0.70 (0.59-0.84)	0.88 (0.69-1.13)	0.82 (0.53-1.25)

*After adjusting for age, sex, race, poverty level, insurance type, and CSHCN status

**CSHCN and EBD are adjusted for all above except CSHCN status

DISCUSSION

Protective factors such as positive health development have been shown to correlate with school performance, social integration and overall mental/emotional health throughout a child's life. Understanding the relationship between protective factors and healthy development is essential to improving and constructing programs that promote the well-being of all children. The disparities between demographic subgroups and associations with home, school and neighborhood environments inform efforts to improve policy and program management to help children achieve healthy development across the lifespan. While these results are important, further research into building a child's resilience and other positive health indicators is warranted to increase probability of positive health outcomes.

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