

Naturally Occurring Patterns of School Readiness: How the Multiple Dimensions of School Readiness Fit Together

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Presented on April 26, 2003 at the Biennial Meeting of the Society for Research in Child Development (SRCD) in Tampa, Florida. The panel was chaired by J. Lawrence Aber from the National Center for Children in Poverty at Columbia University's Mailman School of Public Health. All of the panel presentations used data from the Early Childhood Longitudinal Study – Kindergarten Class of 1998-99 (ECLS-K). This presentation was given by Elizabeth Hair from Child Trends, who discussed cluster analysis of school readiness variables. The panel also included a presentation by Kristin Denton from the Trust for Early Education, who discussed the health status of kindergartners. C. Cybele Raver from the Harris School of Public Policy Studies at the University of Chicago presented mediating models of poverty, parenting, and school readiness, which varied by race/ethnicity. The fourth presentation was given by Elizabeth Thompson Gershoff from the National Center for Children in Poverty; she discussed income and parenting predictors of change in children's social and cognitive development from kindergarten to first grade. The panel's discussant was John M. Love from Mathematica Policy Research, Inc.

Acknowledgements

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Overview

- Using data from the ECLS-K, we conducted cluster analyses of the dimensions of children's school readiness at kindergarten entry.
- Four distinct clusters emerged.
- The clusters differentially predicted to several outcomes at the end of first grade.

NEGP Dimensions of School Readiness

- Physical well-being and motor development
- Social and emotional development
- Approaches toward learning
- Language development
- Cognition and general knowledge

Prediction of Later Outcomes from School Readiness

- Cognitive, language, and social/emotional development
 - Fairly stable.
 - Predict to academic outcomes such as grade retention.

(Blair, 2001; La Paro & Pianta, 2000; Reynolds & Bezruczko, 1993)

Prediction of Later Outcomes from School Readiness

- Physical health at K entry
 - Influence on later school outcomes has not been well studied.
 - Chronic health conditions in elementary school are associated with poor school achievement and absence.

(e.g., Brown et al., 1985; Wolfe, 1985)

Gaps in the Research

- What are the patterns of co-occurrence of the dimensions of school readiness?
- What is the relative importance of the dimensions of school readiness for later outcomes? What matters most?

Hypotheses

- Distinct clusters or groupings of the school readiness dimensions are present in kindergartners.
- These clusters differentially predict to first grade outcomes such as assessments of math and reading, as well as teacher ratings of children's academic performance and social behavior.

Early Childhood Longitudinal Study – Kindergarten Class of 1998-99 (ECLS-K)

- Nationally representative sample
- Approximately 22,000 kindergartners
- Longitudinal study
 - Kindergarten entry in fall of 1998 through fifth grade
- Information gathered from
 - Parents
 - Teachers
 - School administrators
 - Direct assessments of children

Sample Characteristics (Weighted) (First-Time Kindergartners; n = 17,219)

Mean Assessment Age	5.68
Race/Ethnicity	
Non-Hispanic White	57.7%
Non-Hispanic Black	15.5%
Hispanic	19.2%
Other	7.7%
Mother's Educational Attainment	
Less than High School	14.5%
High School Diploma/GED	31.2%
Vocational Degree	32.1%
College Graduate or Higher	32.1%

Variables for Analysis

■ Health

- Overall health
- Body Mass Index
- Fine motor skills
- Gross motor skills

■ Social/Emotional

- Self-control
- Social interaction
- Externalizing
- Internalizing

Variables for Analysis

■ Early Literacy

- Emergent reading skills
- Emergent writing skills

■ Cognitive

- Sorting, classifying
- Problem solving
- Observes and forms explanations

Example of Cut-Point Creation

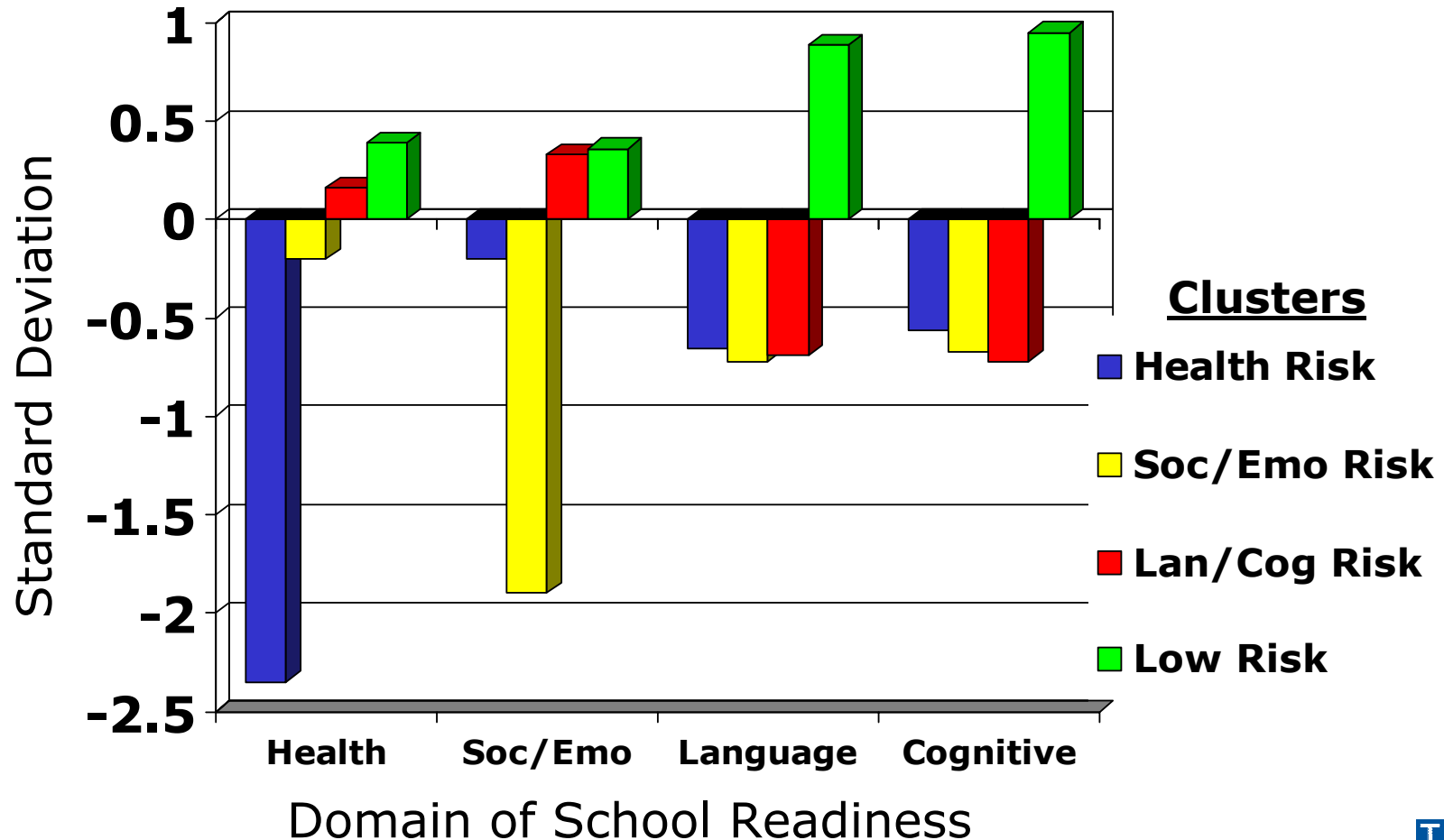
Liberal Cut-Point



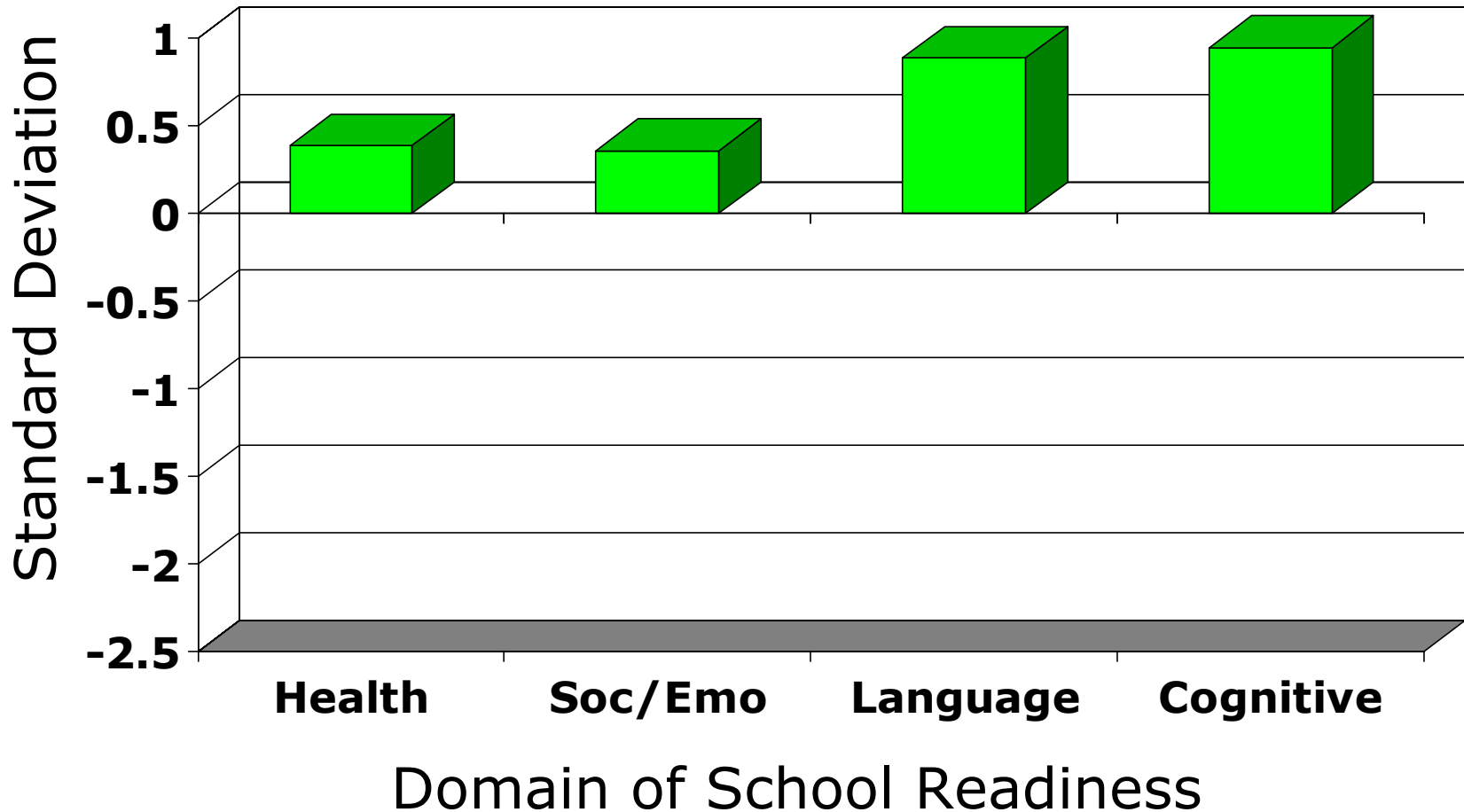
Conservative Cut-Point



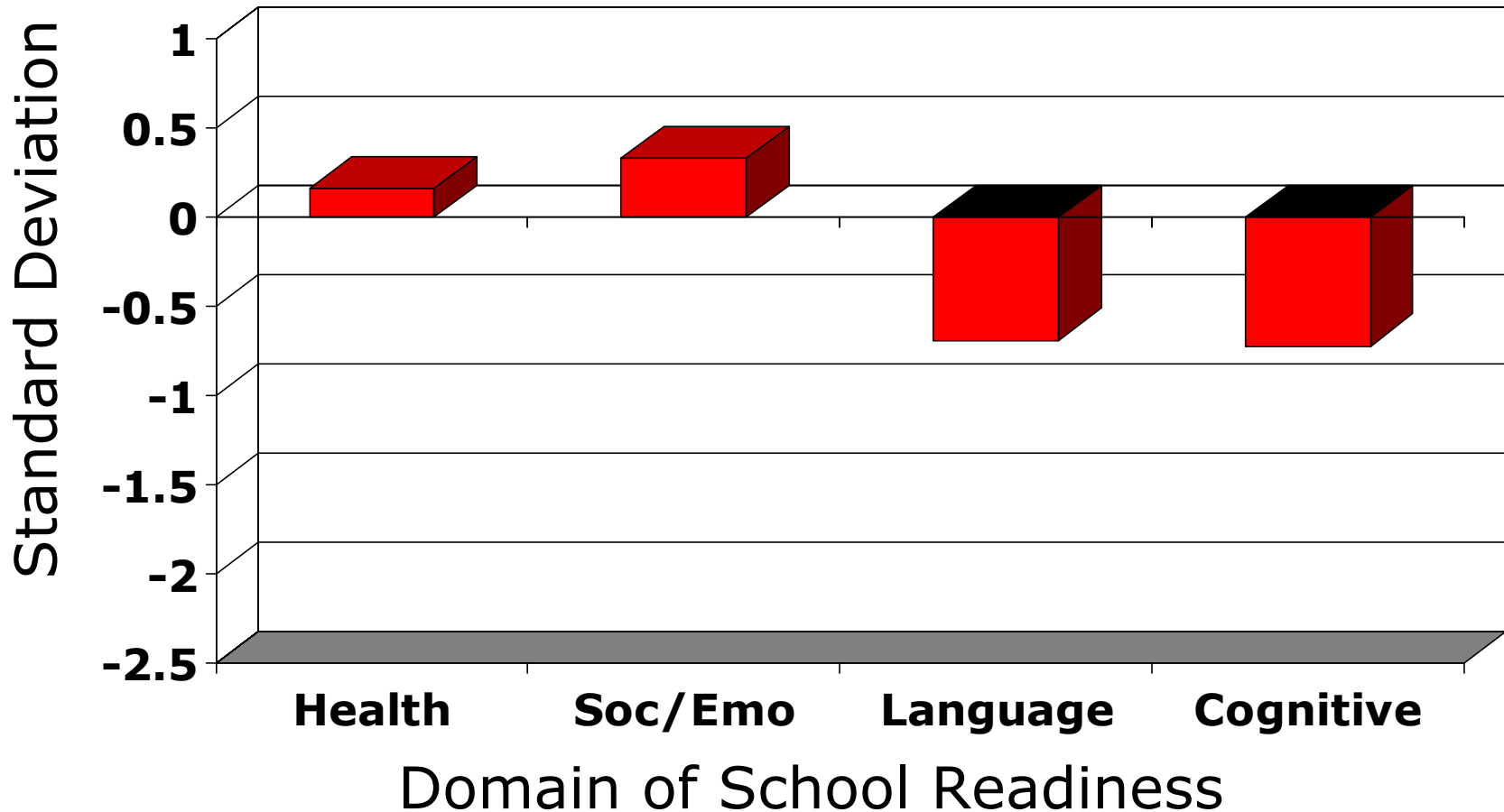
Standardized Means of the Four Clusters



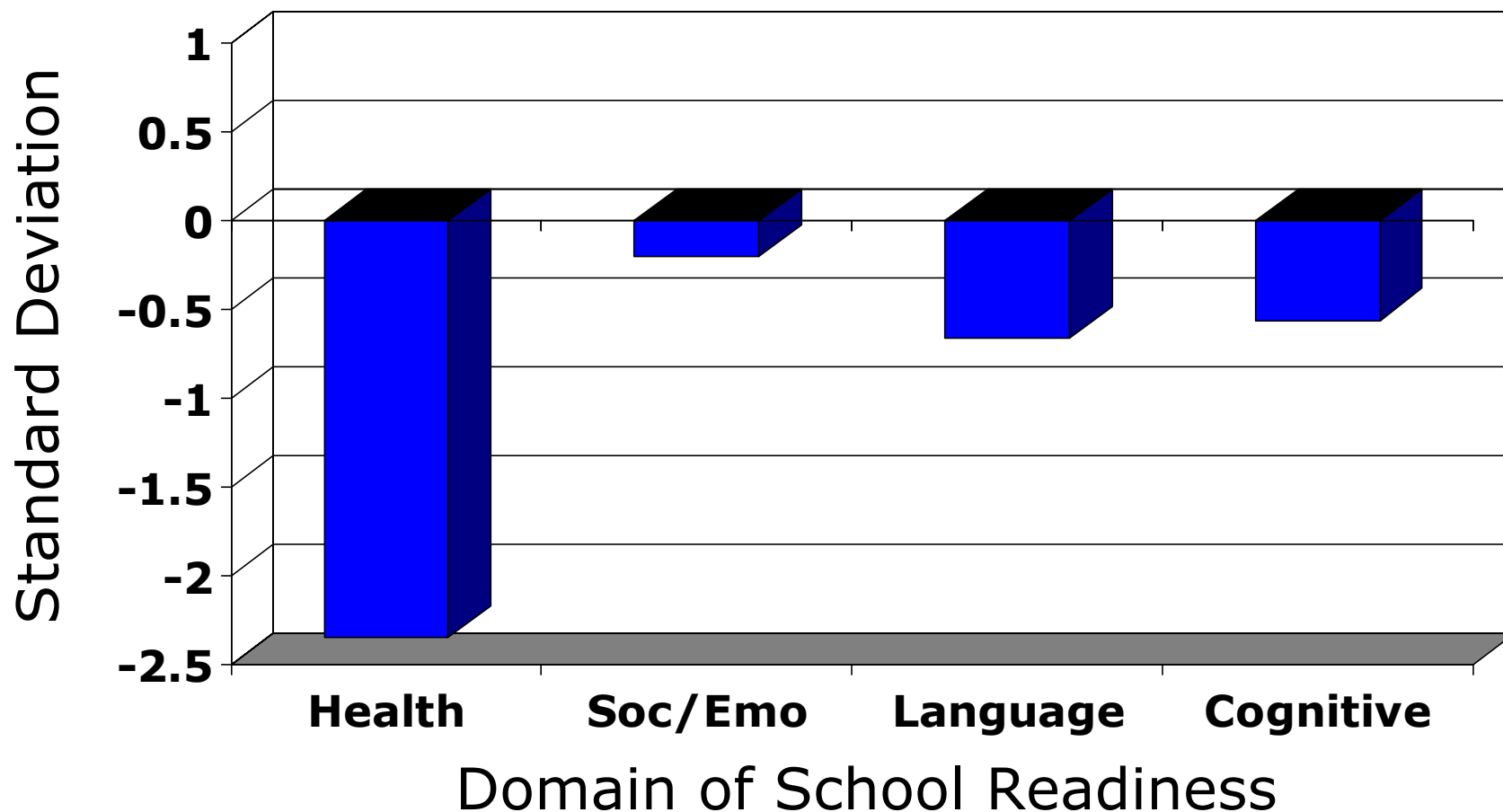
Standardized Means of the Low Risk Cluster



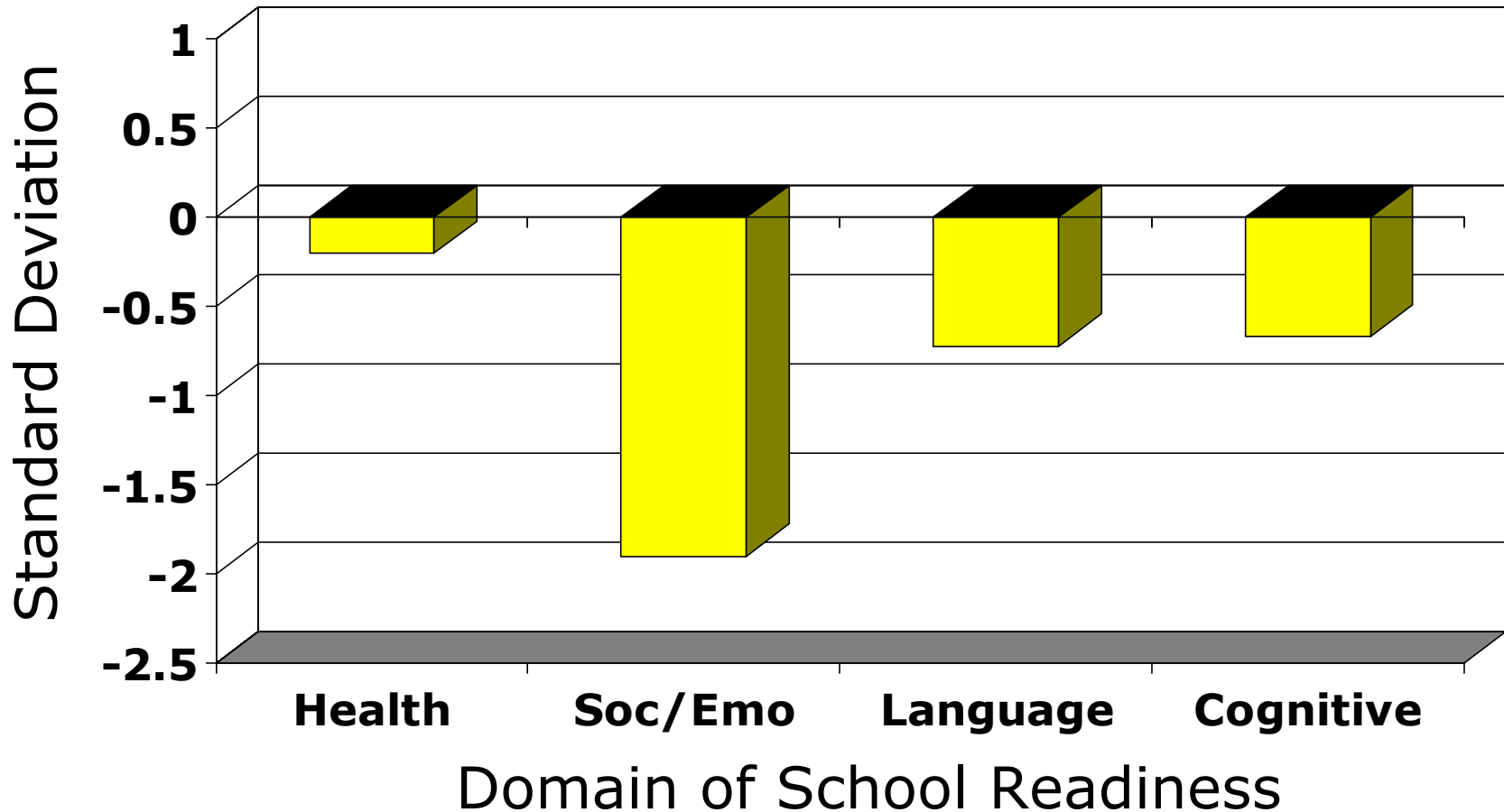
Standardized Means of the Language/Cognitive Risk Cluster



Standardized Means of the Health Risk Cluster



Standardized Means of the Social/Emotional Risk Cluster



Percent in Each Cluster (Weighted with Unweighted n)

Health Risk	9.0% (1,482)
Social/Emotional Risk	14.4% (2,353)
Language/ Cognitive Risk	37.2% (6,398)
Low Risk	39.4% (6,986)

Likely Characteristics of Each Cluster

■ Health Risk

- Low birth weight
- Disability
- Low parent education
- Teen mother

■ Soc/Emo Risk

- Low birth weight
- Not in two bio parent home
- Low parent education
- Teen mother

■ Lang/Cog Risk

- Low parent education
- Teen mother
- Parents very often speak non-English

■ Low Risk

- Two bio parent home
- Well educated parents
- Mother married at first birth
- English spoken at home

Linking to First Grade Outcomes: Reading

Cluster	Mean (SD)	Effect Size
Health Risk	47.3 (15.5) ***	-0.41
Soc/Emo Risk	48.4 (14.0) ***	-0.32
Low Risk	62.9 (11.5) ***	0.84
Lang/Cog Risk	52.4 (12.5) ref.	---

Range = 0 to 92

Linking to First Grade Outcomes: Math

Cluster	Mean (SD)	Effect Size
Health Risk	36.5 (11.1) ***	-0.58
Soc/Emo Risk	39.0 (9.8) ***	-0.29
Low Risk	48.1 (6.9) ***	0.77
Lang/Cog Risk	41.5 (8.6) ref.	---

Range = 0 to 64

Linking to First Grade

Outcomes: Works to Best Ability

Cluster	Mean (SD)	Effect Size
Soc/Emo Risk	2.8 (0.67) ***	-0.49
Health Risk	2.9 (0.66) ***	-0.33
Low Risk	3.4 (0.57) ***	0.49
Lang/Cog Risk	3.1 (0.61) ref.	---

Range = 1 to 4

Linking to First Grade Outcomes: Self-Control

Cluster	Mean (SD)	Effect Size
Soc/Emo Risk	2.8 (0.69) ***	-0.69
Health Risk	3.0 (0.65) ***	-0.34
Low Risk	3.3 (0.54) ***	0.17
Lang/Cog Risk	3.2 (0.58) ref.	---

Range = 1 to 4

Conclusions

- Children entering kindergarten have a wide range of skills and deficits.
- Four clusters emerged from our analyses.
- It is best to have strong skills across the board at kindergarten entry.
- Strong physical health and social/emotional skills are key to later development.

Implications

- Language and cognitive skills are important components of school readiness, but are not alone in predicting later achievement.
- Results suggest further focus on early health and early social-emotional development of children.
- We will track how the clusters function over time.



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