

# What does the Early Development Instrument tell us about academic achievement and socio-emotional development in Grade 3?

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## Background

The Early Development Instrument (EDI) is a population measure of children's physical, cognitive, social, emotional and language development in Kindergarten. It is designed to assess children's readiness to learn at school entry (Janus et al., 2007). It is important to understand how well the EDI can predict children's school success because it can help create strategies that ensure children have the best possible outcomes.



## Research Questions:

1. Is the group of children EDI identifies as "vulnerable" more likely than the "not vulnerable" children to have lower academic achievement and social-emotional development scores in Grade 3?
2. What factors are associated with Grade 3 outcomes in the vulnerable and not vulnerable groups of children?



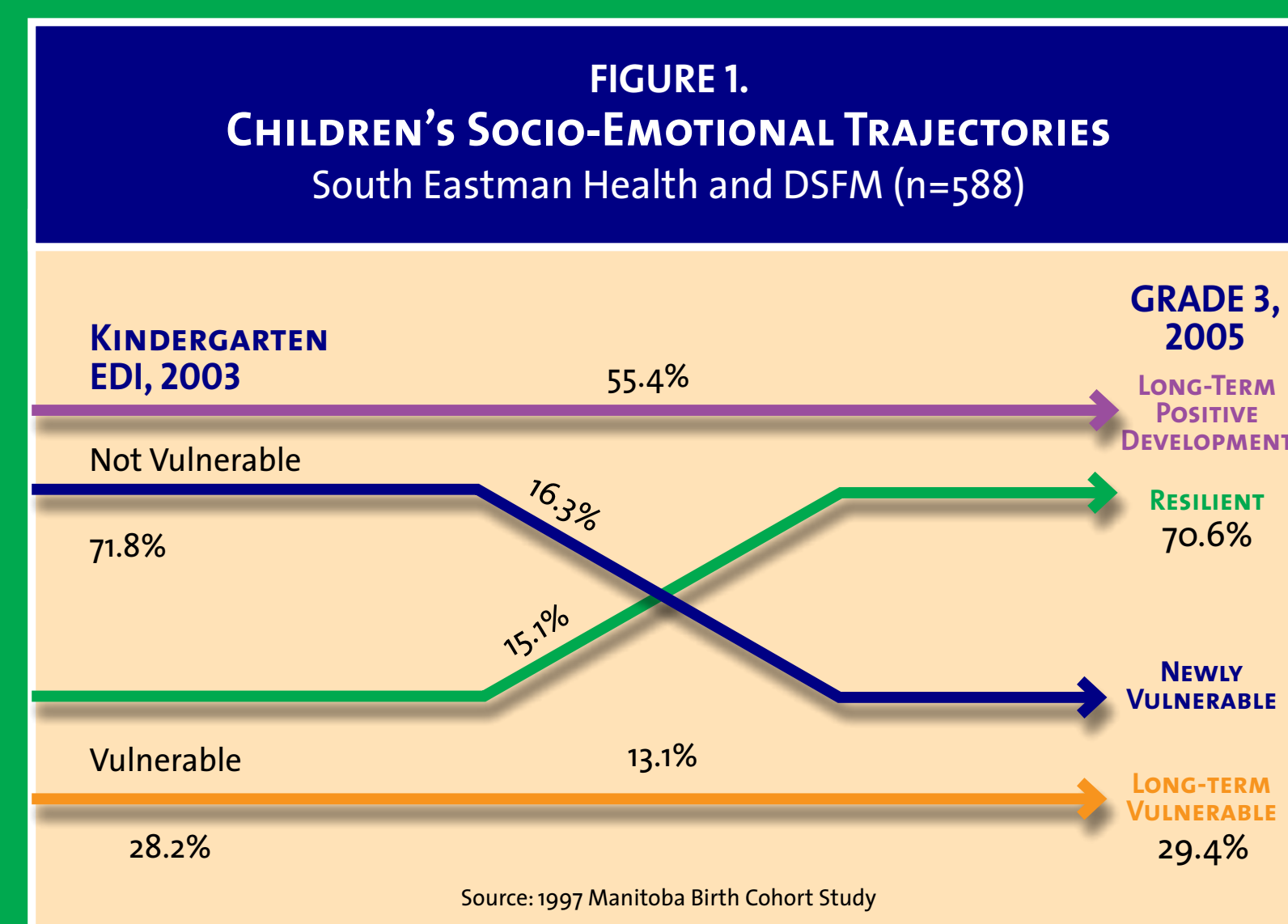
## Methods

- The 1997 *Manitoba Birth Cohort Study* is a longitudinal study of children's outcomes, family socio-demographics, parenting and school characteristics in Kindergarten and Grade 3.
- It surveyed 596 Manitoba children from the Division scolaire franco-manitobaine (DSFM; francophone school division) and the South Eastman Health Region.
- Academic and socio-emotional variables were created with the teacher-rated EDI and Grade 3 assessments shown in Table 1.
- Separate multiple logistic regression models were created with the vulnerable and non-vulnerable groups of children using SPSS13.0 (statistical software). The explanatory variables included children's age and gender, family income and change in family income, family type (single or two-parent) and change in family type, play activities parents do with their children, number of educational assistants, number of classmates with special needs, class size and combined classrooms (classrooms with more than one grade level).



SOCIO-EMOTIONAL DEVELOPMENT	
KINDERGARTEN (EDI)*	GRADE 3 ASSESSMENT*
Social Competence - gets along with other children, accepts responsibility for actions	Prosocial - shows sympathy to someone who makes mistakes
Emotional Maturity - eager to explore new items, appears sad, gets into fights	Hyperactive - impulsive, can't concentrate
	Anxious or Depressed - appears unhappy, fearful or nervous
	Physical Aggression - gets into fights, bullies
ACADEMIC ACHIEVEMENT	
KINDERGARTEN (EDI)*	GRADE 3 ASSESSMENT*
Language and Cognitive Development - interested in games involving numbers, writes own name, reads sentences	Reading Assessments - oral reading, comprehension and reflection
Communication Skills and General Knowledge - clearly communicates own needs and understands others, shows interest in general knowledge	Mathematic Assessments - Additions, subtractions, problem solving, graphs, shapes and sizes

\* If children score poorly on one or more of the categories, they are considered "vulnerable."



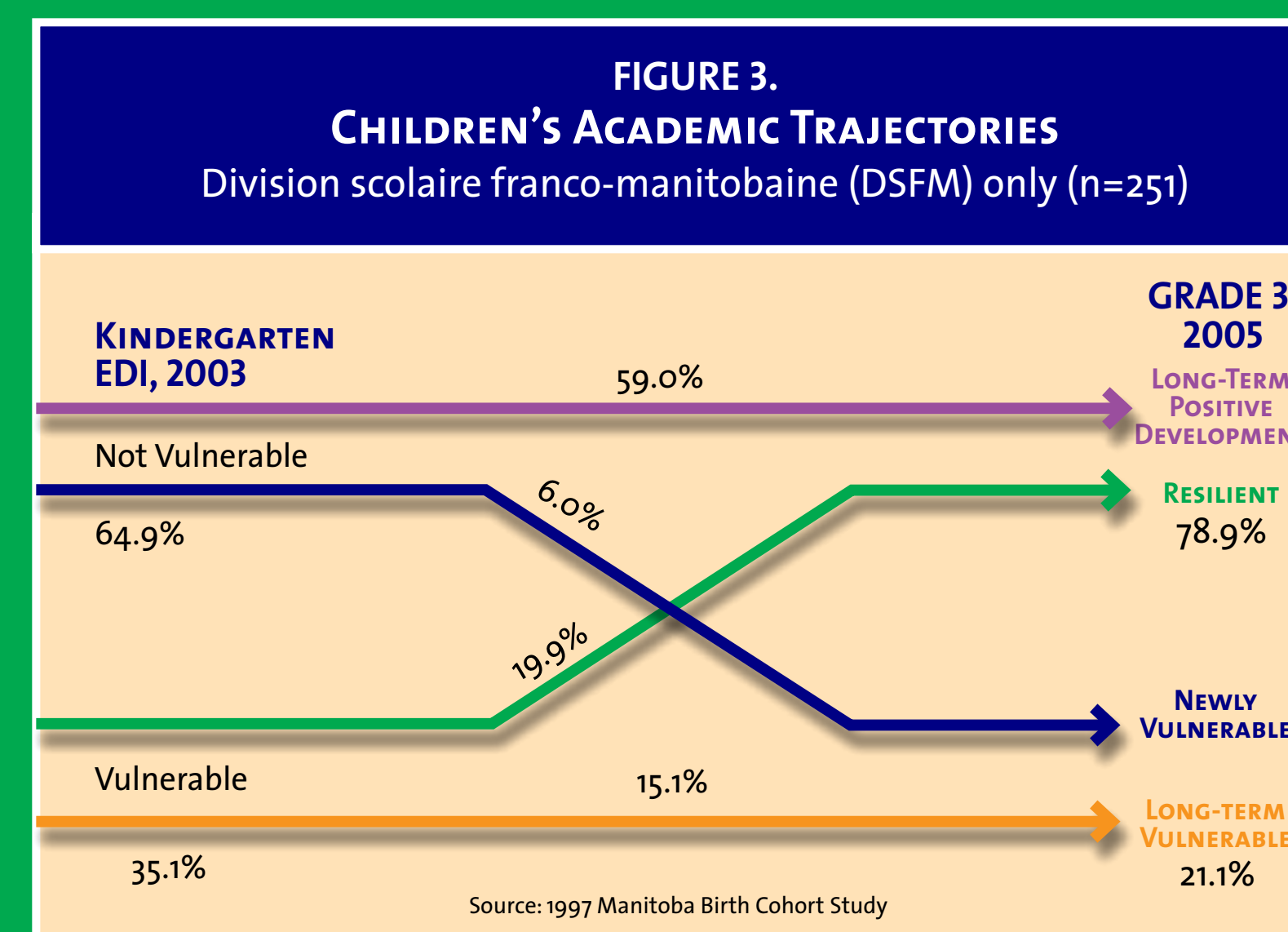
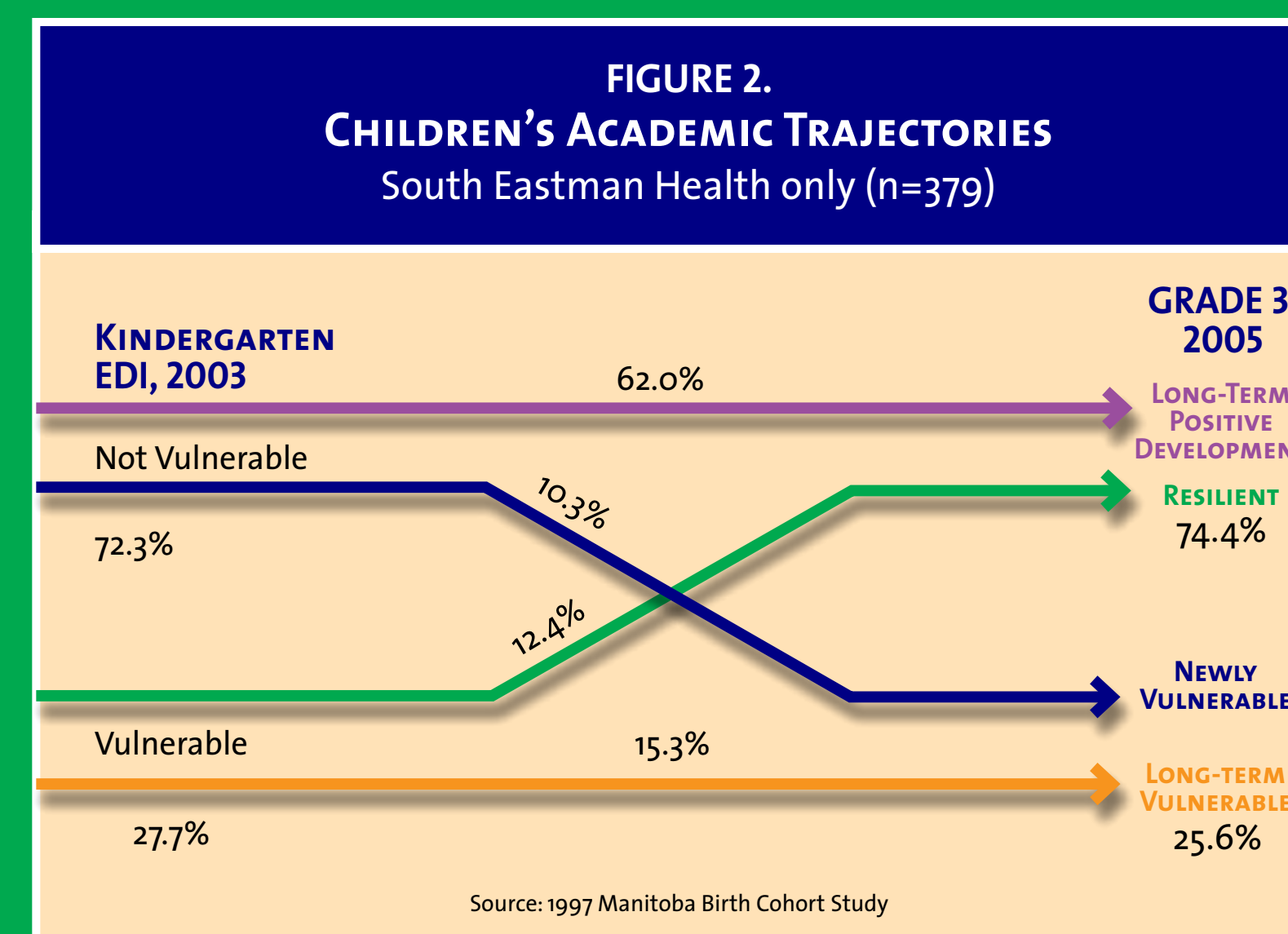
## Results: Question 1

- The socio-emotional trajectories for children in the South Eastman Health Region and DSFM were similar and therefore reported jointly in Figure 1.
- A greater percentage of vulnerable compared to non-vulnerable children in Kindergarten were observed to have long-term vulnerability in Grade 3.

## Results: Question 2

SOCIO-EMOTIONAL	ACADEMIC ACHIEVEMENT
• being older*	• being older**
• being from higher income family*	• being from a higher income family*
• not being in a combined classroom**	• mother having high school education*
	• not being in a combined classroom*

\*\* statistically significant at p<0.05 (very certain that finding is correct)  
\* statistically significant at p<0.15 (less certain that finding is correct)



- Among the children who were vulnerable in Kindergarten, about half continued to be vulnerable in Grade 3.
- Some children who were not vulnerable in Kindergarten became newly vulnerable in Grade 3.



SOCIO-EMOTIONAL	ACADEMIC ACHIEVEMENT
• being a girl**	• being older**
• family type stability between Kindergarten and Grade 3 (versus change from single to two-parent or vice versa) **	• being from a higher income family*
	• mother having high school education*
	• not being in a combined classroom*

\*\* statistically significant at p<0.05 (very certain that finding is correct)  
\* statistically significant at p<0.15 (less certain that finding is correct)

## Discussion

- This study supports that vulnerability is not a permanent state. The trajectories created with data from the Manitoba Birth Cohort Study are consistent with earlier research which examined children's trajectories over time. (Brink, 2000; Lloyd & Hertzman, 2009).
- Different strategies for supporting child learning and development should be considered for children who are vulnerable and children who are not vulnerable in Kindergarten. This is based on the fact there are differences in factors associated with how the two groups of children do in Grade 3.
- Measuring child development over time is a challenge. The trajectories found in this study might look different, if socio-emotional development and academic achievement in Grade 3 were measured in a different manner.
- Linking the EDI to the Grade 3 education data has increased our understanding of children's trajectories and given some preliminary insights into factors that may be influencing them.

## Acknowledgements –

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## References

- Brink, S. *What Works Workshop*. Presented in Edmonton, Canada in April 2000.
- Janus, M., Brinkman, S., Duku, E., Hertzman, C., Santos, R., Sayers, M. et al. (2007) *The Early Development Instrument: A population-based Measure for Communities: A Handbook on Development, Properties and Use*. Offord Centre for Child Studies, Hamilton, Canada.
- Lloyd, J.E.V. & Hertzman C. (2009) From Kindergarten readiness to fourth-grade assessment: Longitudinal analysis with linked population data. *Social Science & Medicine*, 68, 111-123.

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