

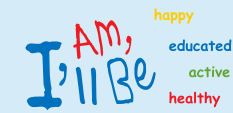
# Children's Health Prior to School Entry and Reading Skills in the First Year of Primary School: Identifying Protective Factors



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## 1 INTRODUCTION

Reading skills constitute one of the main determinants of academic achievement.<sup>1</sup> Though it is generally recognized that disadvantaged children manifest lower performance in reading, less is known about the role health plays in learning and to what degree various stimulation activities can contribute to fostering school readiness among children whose health renders them more vulnerable.<sup>2</sup>

## 2 OBJECTIVE

Examine the influence of health status in early childhood on reading skills among children in the first year of primary school, and verify whether certain stimulation activities in the preschool period can contribute to reducing inequalities in reading skills related to health trajectories.

## 3 DATA SOURCE

The analysis was based on data from the *Québec Longitudinal Study of Child Development* (QLSCD 1998-2010). The children were followed annually from the age of 5 months to 8 years, and since then are being followed biannually up to the age of 12. Data used in this analysis were collected from the Person Most Knowledgeable about the child (PMK) (in most cases the mother), as well as the interviewer, and the teacher.

## 4 METHODS

### Participants

A representative sample of 1,276 children born in Québec, who were approximately 7 years of age in 2005 (mean age = 7 years and 2 months). Excluded were the following: children who were not in Grade 1 due to a special dispensation or any other reason, children presenting with a chronic developmental condition such as autism, children whose teacher was not teaching them reading.

### Dependent variable

Performance level in reading in Grade 1, as assessed by the teacher. The original variable was divided into two categories – Average or Above Average (77%), and Below Average (23%). Performance level in reading as judged by the teacher was strongly associated with the results obtained from administering a reading test (K-ABC) as well as overall academic achievement.

### Independent variable. Health Trajectories of the Child (based on the mother's assessment every year).

Perceived health is considered a good indicator of a child's overall health.<sup>3</sup>

Three groups were identified:

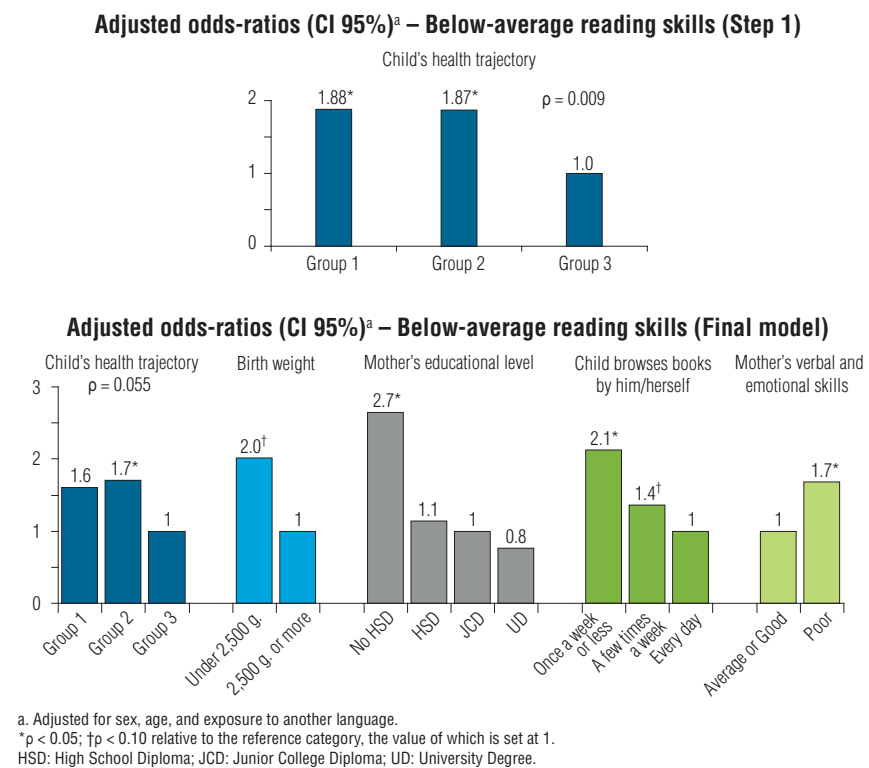
### Risk or Protective Factors

Low birth weight  
Sociodemographic Characteristics: child's age, sex, exposure to a language other than that of instruction at school, low income episodes since birth, current educational level of the mother.  
Stimulation Activities: contact with books (at 1½ yrs), adult in the household reads aloud to the child (at 1½ yrs), browses through books him/herself (at 2½ yrs), attended daycare (from the age of 1½ yrs to school entry), used a computer (at 4 yrs of age).  
Parenting Practices: maternal overprotectiveness (5 months), mother's verbal and emotional skills as assessed by the interviewer (HOME) (at 2½ yrs).  
Social Environment: social support (at 2½ yrs), social deprivation scale of the neighbourhood (at 7 yrs).

### Data analysis. Chi-square tests and logistic regression.

- ✓ All the variables associated with reading performance at the threshold of 0.10 in bivariate analyses were entered into the regression.
- ✓ SUDAAN software was used to produce weighted estimates and to address the complex sample design of the survey.

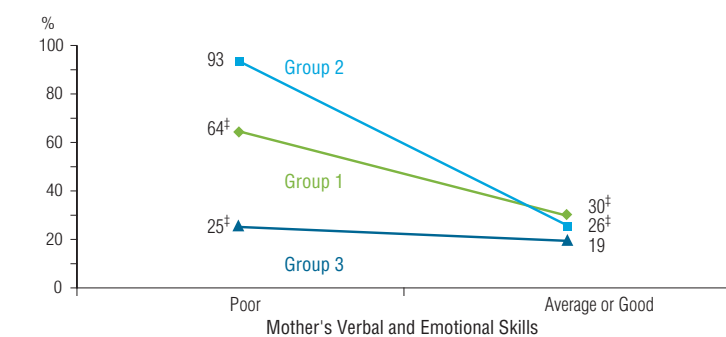
Figure 1  
IMPACT OF CHILDREN'S HEALTH TRAJECTORIES ON THEIR READING PERFORMANCE IN THE FIRST YEAR OF PRIMARY SCHOOL, QLSCD, QUÉBEC, CANADA, 1998-2005



## 5 SUMMARY OF FINDINGS

- ✦ Health trajectories were associated with children's reading performance in the first year of primary school (Grade 1), even taking into account other characteristics such as age, sex and exposure to a language other than that of instruction in school (Step 1, see Figure 1). Children presenting with less than optimal health during the pre-school years were most likely to manifest below-average reading performance in Grade 1, even if their current health status was very good or excellent. The impact of health on reading performance was however considerably weaker when the mother's educational level was entered into the model (Final model, see Figure 1) because of the strong association between these characteristics.
- ✦ Among the variables assessing family reading habits, the child's interest in reading was the one most strongly associated with reading performance at the age of 7 years.
- ✦ Tests on the interaction between health trajectories and stimulation activities showed that higher verbal and emotional skills in the mother constituted a protective factor for children whose health was less than optimal (Group 1 and Group 2, see Figure 2). This result holds even when all the other characteristics were taken into account (data not shown).

Figure 2  
PROPORTION OF CHILDREN WITH BELOW-AVERAGE READING ABILITY BY HEALTH TRAJECTORY AND MOTHER'S VERBAL AND EMOTIONAL SKILLS, QLSCD, QUÉBEC, CANADA, 1998-2005



† Coefficient of variation between 15% and 25%; interpret with caution.

## 6 RESEARCH AND POLICY IMPLICATIONS

Given the importance of reading skills for success in school and future social adjustment, it will be important to conduct further analyses in order to gain a better understanding of protective factors in children at higher risk because of health problems or the low educational level of their parents. Activities designed to improve parenting skills and/or stimulate interest in reading may contribute to fostering learning skills in reading in the first year of primary school in the most vulnerable populations.

## REFERENCES

1. DUNCAN, G. J., C. J. DOWSETT, A. CLAESSENS *et al.* (2007). "School readiness and later achievement," *Developmental Psychology*, Vol. 43, No. 6, p. 1426-1446.
2. DESROSIERS H., and A. DUCHARME (2008). *Poverty, Child Health, and Cognitive Development at Age 6: Some results from the Québec Longitudinal Study of Child Development (QLSCD-Canada)*, poster presented at the 20<sup>th</sup> Biennial ISSBD Meeting, Wurzburg (Germany), July 15, 2008.
3. SÉGUIN, L. *et al.* (2003). "Socioeconomic Conditions and Health, Part I – Poverty and Health in Quebecois Children," in *Québec Longitudinal Study of Child Development (QLSCD 1998-2002) – From Birth to 29 Months*, Québec, Institut de la statistique du Québec, Vol. 2, No. 3.