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## Early Childhood Characteristics and School Readiness: The Importance of a Family's Social Support<sup>1</sup>

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In Québec it is estimated that between 25% and 35% of children are vulnerable in terms of their physical, cognitive or socioemotional development at the time of school entry (Agence de la santé et des services sociaux de Montréal, 2008; Desrosiers, Tétreault and Boivin, 2012). This is of great concern because it has been demonstrated that children who are less ready for school are more likely to face future problems related to health, social and academic adjustment (Desrosiers, Tétreault and Boivin, 2012; Forget-Dubois et al., 2007; Kershaw et al., 2010; Lemelin et al., 2007; McCain, Mustard and Shanker, 2007).

Although it is recognized that early life experiences can be determinants of future adjustment and academic achievement, very little is known about the factors in early childhood likely to influence the developmental status of Québec children at school entry. For example, factors upon which interventions could be implemented to foster better readiness for school in the most vulnerable children have not been the subject of much research using population-based data. This has been the case until quite recently, because of the lack of Québec longitudinal data on both children's school readiness and their pre-school trajectories. But with the onset of the QLSCD, a wealth of data is now available for analysis.

Recent research conducted on data from the *Québec Longitudinal Study of Child Development* (QLSCD 1998-2010) suggests that attending daycare at a young age can foster better readiness for school in Québec children from disadvantaged households (Geoffroy et al., 2010). However, since these children are less likely to use child care services outside the home (Giguère and Desrosiers, 2010; Gingras, Audet and Nanhou, 2011),

and given that the majority of vulnerable children do not come from disadvantaged families (Desrosiers, Tétreault and Boivin, 2012; Willms, 2002), it seemed worthwhile to try to detect other factors in the social environment for which interventions could be made; given such early interventions, the likely result would be that a greater number of children would have the prerequisites for success when they enter elementary school. For example, a number of studies suggest that beyond the immediate family, the social capital in the community in which children live and grow up as well as social support for the parents can play an important role in children's learning, behaviour and well-being (Centre for Community Child Health, 2006; Elgar, Trites and Boyce, 2010; Kohen, Oliver and Fritz, 2009; Leventhal and Brooks-Gunn, 2000).

What child, family, neighbourhood and social characteristics are associated with vulnerability in one or another aspects of children's development when they enter the educational system? What is the contribution of social support for parents in the early, crucial years of their children's development?

The aim of this 18<sup>th</sup> edition of *Portraits and Pathways*, in continuity with No. 14 in the series (Desrosiers, Tétreault and Boivin, 2012), is to provide some answers to these questions. Based on data from the *Québec Longitudinal Study of Child Development* (QLSCD) (see the box entitled About the survey), we examine to what degree children's vulnerability at school entry in one or another domains of their development is associated with their environment, specifically the support their parents received during the pre-school period. We also examine the association between the number of risk factors in the children and their developmental status at the time they enter the education system.

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## Methods

### Assessing school readiness

The following analyses cover children born in Québec<sup>2</sup> who were attending kindergarten in a public or private school in 2004. Excluded were children with important limitations (autism, mental incapacity) and those in special needs classes according to data provided by the Ministère de l'Éducation, du Loisir et du Sport (MELS) (Ministry of Education, Leisure and Sport) ( $n = 41$ ). In all, the analyses cover 925 children whose mean age was 6.3 years at the time of the survey.

The assessment of the children's readiness for school was based on the Early Development Instrument (EDI) conceived by Janus and Offord (2000). The EDI is a questionnaire comprising 104 items. It provides a means by which kindergarten teachers can assess children's readiness for learning prior to entering elementary school. Five domains of school readiness are measured by the EDI: physical health and well-being, social competence, emotional maturity, language and cognitive development, communication skills and general knowledge. An abridged version (92 items) was used in the QLSCD.

Based on scores calculated for each of the aforementioned domains, it was possible to categorize vulnerable children at school entry. In this article, a child was considered vulnerable in one domain of his/her development if his/her score in that domain was equal to or lower than the 10<sup>th</sup> percentile of the distribution of the QLSCD sample adjusted for age and sex.<sup>3</sup>

Therefore, a child considered vulnerable in the domain *physical health and well-being* presented fine and general motor deficits (e.g. in holding a pencil, climbing stairs) or general problems in well-being (e.g. tiredness, hunger). A vulnerable child in *social competence* had few social skills, had difficulty getting along with peers, following routines and rules in class, listening and adapting to change, etc.

In a general sense, a child is considered vulnerable at school entry if his/her score in at least one domain of child development is in the lowest decile adjusted for age and sex. According to this criterion, approximately 25% of children born in Québec at the end of the 1990s was vulnerable in at least one domain at the time they entered elementary school (Desrosiers, Tétreault and Boivin, 2012).

### Associations between individual, family and social characteristics and vulnerability at school entry

In this article, the choice of characteristics potentially associated with school readiness was based on an ecological model that takes into account the various environments in which children grow up as well as certain individual child characteristics. Various types of variables are examined: 1) sociodemographic and socioeconomic characteristics of the mother, household and neighbourhood at the time the children were in kindergarten; 2) characteristics of the family and the social

environment in which the children were growing up; and 3) individual characteristics of the child. Unless otherwise indicated, the data were collected in annual interviews conducted with the Person Most Knowledgeable (PMK) of the child, usually the mother, or from self-administered questionnaires addressed to the mother.

Another issue in this series revealed that among a set of demographic, socioeconomic or neighbourhood characteristics, four variables were strongly associated with a child's vulnerability at school entry, namely mother's educational level, exposure to a language other than that of instruction, the number of siblings, and neighbourhood social cohesion (Desrosiers, Tétreault and Boivin, 2012). Three of these variables are covered here. For various reasons, the number of brothers and sisters was not taken into account in this article. Firstly, analyses revealed that this variable was marginally associated with vulnerability in only one domain of child development, communication skills and general knowledge, after other demographic and socioeconomic characteristics were taken into account (Desrosiers, Tétreault and Boivin, 2012). Secondly, there are fewer theoretical foundations for the contribution of the number of siblings variable to a child's readiness for school (Janus and Duku, 2007; Pati et al., 2009; Wake et al., 2008). Furthermore, the number of siblings was strongly correlated with other family characteristics analyzed in this article, so its inclusion would have masked the effect of certain variables the influence of which we were attempting to measure.

Therefore, the three demographic, socioeconomic or neighbourhood variables of the children in kindergarten examined in our analysis here were the following:

#### Mother's educational level

1) No high school diploma (14%); 2) High school diploma (23%); 3) Postsecondary diploma or degree (63%).

#### Exposure to a language other than that of instruction

1) Yes (26%); 2) No (74%).

#### Neighbourhood social cohesion

The level of social cohesion (e.g. trust, cooperation, safety etc.) in the neighbourhood was assessed using five questions addressed to the parents when the child was in kindergarten. Taken from the *National Longitudinal Survey of Children and Youth* (NLSCY), these were: "1) If there is a problem around here, the neighbours get together to deal with it; 2) There are adults in the neighbourhood that children can look up to; 3) People around here are willing to help their neighbours; 4) You can count on adults in this neighbourhood to watch out that children are safe and don't get in trouble; and 5) When I'm away from home, I know that my neighbours will keep their eyes open for possible trouble." The response choices for each question were: "Strongly agree, Agree, Disagree, Strongly disagree, Don't know." In our analyses here, children in the lowest decile of the scale were considered living in a neighbourhood with low social cohesion.

2. The QLSCD is a longitudinal survey conducted on a cohort of children born in Québec at the end of the 1990s. Therefore excluded were children in kindergarten who had come to Québec after their birth. The Institut estimates that about 7% of children 6 years of age in 2004 (7<sup>th</sup> round of the QLSCD) had come to the province after being born elsewhere and were thus not part of the target population.

3. For more details on the version of the EDI used in the QLSCD, its psychometric properties and the justification for the threshold used, see Desrosiers, Tétreault and Boivin (2012).

With regards to variables related to family characteristics, we focused on those that reflect the first three years of life, given their presumed importance in child development. The choice was based on current knowledge of factors related to the level of child development at school entry (Agence de la santé et des services sociaux de Montréal, 2008; Farkas and Hibbel, 2007; Janus and Duku, 2007; Japel, 2008; Landry and Smith, 2007; Pati et al., 2009; Rimm-Kaufman, 2004; Ryan and Adams, 1999; Wake et al., 2008). Methodological considerations such as availability of the data, sufficient numbers, etc., also contributed to the choice of such variables, the goal being to obtain an inclusive model of the family characteristics covered, namely parents' perception of their child rearing, parental mental health, level of child stimulation, child care, family atmosphere and social support, all the while being parsimonious given the size of the sample on which the analyses would be based. Given their nature, or distribution, which was often asymmetrical, and to facilitate their interpretation, all the variables analyzed were treated as classes. In cases where the original variables were continuous, the cutoff points such as decile or quintile were chosen as a function of theoretical criteria and the distribution of the data.

Based on the preliminary bivariate analyses, what follows are the family and social characteristics we covered.<sup>4,5</sup>

#### **Mother's perception of her impact on the development of her child** (child 5 months of age)

Parents' perceptions of their efficacy, particularly their beliefs related to their capacity to accomplish their "job" as parents and their expectations of the impact of their acts (Bandura, 1989), seem to be key elements of the quality of their parenting and parent/child dynamics (Ardelt and Eccles, 2001; Jones and Prinz, 2005). Such perceptions, particularly in the mother, can predispose the child to better adjustment (Meunier, Roskam and Browne, 2010), especially in at-risk environments (Ardelt and Eccles, 2001).

The mother's perception of her impact was assessed for the first time when the QLSCD children were approximately 5 months of age using the following five statements: "1) My behaviour has little effect on the personal development of my baby; 2) Regardless of what I do, my baby will develop on his/her own; 3) My behaviour has little effect on the intellectual development of my baby; 4) My behaviour has little effect on the development of emotions (happiness, fear, anger) in my baby; 5) My behaviour has little effect on how my baby will interact with others in the future." The parent responded using a Likert-type 10 point scale (0 = "Not at all what I think" to 10 = "Exactly what I think") (Boivin et al., 2000). Based on the responses, a scale was constructed with values between 0 and 10. In our analysis, we compared children of mothers in the lowest decile of the scale with the other children.

#### **Maternal depression** (child 5 months of age)

The psychological well-being of the parents is also an important protective factor in the psychosocial adjustment of a child. Depression in the mother can compromise her interaction with her child (Lovejoy et al., 2000) and the level of cognitive stimulation she gives to him or her (Schoon et al., 2010). Furthermore, symptoms of depression in the mother are associated with a higher probability that a child will present difficulties in the areas of language, behaviour and emotional development (Kahn et al., 2002; Kiernan et Huerta, 2008; NICHD Early Child Care Research Network, 1999).

In the QLSCD, maternal depression was examined for the first time when the children were approximately 5 months of age. Symptoms of depression were assessed using an abridged version of the measurement scale developed by the Center for Epidemiologic Studies. This scale (CES-D) measured the presence and gravity of symptoms associated with depression, mainly affective and somatic, during the week preceding the survey. Though the depression scale used in the QLSCD is not a screening tool for clinical depression, we could identify parents who were more likely to fulfill the diagnostic criteria of depression by selecting those who reported the most symptoms. Landy and Tam (1996) consider that a score of 13 or more on this abridged version of the CES-D is an indicator of the presence of moderate or severe depression. In the QLSCD, approximately 10% of mothers obtained a score equal to or higher than 13 when their child was 5 months old.

#### **Level of social support** (child 2½ years of age)

Social support, particularly emotional, can play a protective role vis-à-vis stress and its effects in parents of children presenting developmental problems (Presutto, Goupil and Rogé, 2011) and families with low socioeconomic status (Caron, Latimer and Tousignant, 2007; Runyan et al., 1998). Having the support of family and friends means that a parent has someone to talk to when he/she has concerns, feels discouraged or depressed, or that he/she has someone who can provide information on resources available, finances, or other areas such as child care, when needed. The support received can be particularly important in a child's second year of life, not only because the developmental stage at 2 is one of the most difficult for most families, but also because often at this age certain health or developmental problems such as pervasive developmental disorders or language and hearing problems are diagnosed, if they had not been done so earlier. Appropriate support for families can therefore prove very productive for the development of children as they grow (Commissaire à la santé et au bien-être, 2012).

Social support was assessed using three questions taken from the *Social Provisions Scale* developed by Cutrona and Russell (1987). The Person Most Knowledgeable of the Child (PMK), usually the mother, was asked about her support network during her child's early years. The questions

4. The variables were first selected following exploratory analyses linking the risk of overall vulnerability in kindergarten and 15 variables describing the children's family characteristics during the first three years of life, such as the duration of breastfeeding, family functioning at 5 or 17 months, coercive parenting practices reported by the parent at 2½ years, the mother's perceived self-efficacy at 1½ years, parental overprotectiveness at 2½ years, etc. Among these variables, those that proved to have the strongest association with the children's overall risk of vulnerability based on bivariate and step-by-step regression analyses were retained for the final analyses (data not shown).

5. The internal consistency of each measurement scale was verified at the outset (Cronbach's alpha > 0.70).

were the following: "1) I have family and friends who help me feel safe, secure and happy; 2) There is someone I trust whom I would turn to for advice if I were having problems; 3) There are people I can count on in an emergency." The response choices were: "Strongly agree, Agree, Disagree, Strongly disagree." Based on responses to these questions, scores were calculated on a scale from 0 to 10. Parents whose score was in the lowest quintile of the social support scale were considered to have a low level of support from family, friends and other people.

#### Daily reading to the child (child 1½ years of age)

A number of studies have indicated that being read to at an early age has long-term benefits (Mullis et al., 2004). Independent of family income or the mother's level of education, children 2-3 years of age who have been read to daily have higher marks in vocabulary and mathematics tests in kindergarten. They have a higher capacity for learning, communicating, solving mathematical equations or recognizing geometric shapes (Lipps and Yiptong-Avila, 1999). In the QLSCD, when the children were approximately 1½ years of age, we asked the PMK the frequency with which an adult in the household read to the child. Response choices ranged from never to several times a day. For the purposes of our analyses here, a variable indicating whether an adult was reading to the child on a daily basis was constructed taking the values "Yes" (48%) or "No" (52%).

#### Main type of child care (child 2½ years of age)

Studies on the impact of early childhood daycare on child development in Québec have had contradictory results (for a review see Giguère and Desrosiers, 2010). However, a recent study based on QLSCD data indicated that children from disadvantaged backgrounds can benefit from more frequent time spent in formal daycare, at least in terms of cognitive development (Geoffroy et al., 2010). This is not including the fact that such daycare services can be a source of support for parents.

In the QLSCD, questions on child care during the pre-school period were asked of the parents in each round of the survey, from when the child was 5 months to 5 years of age. In our analysis here, we focused on the age of 2½ years (in 2000) since it was only from this age on that all the QLSCD children were eligible for low-cost daycare in "Centres de la petite enfance" (CPEs), publicly-owned, regulated, childcare centres created by the Québec government in 1997 as a result of a new family policy. This new access to low-cost daycare, along with the preference of parents with children 2 years of age or older for a group type of child care (Institut de la statistique du Québec, 2001), undoubtedly explains the marked increase in the proportion of children attending CPE facilities from 1½ to 2½ years of age (about 10% to 27% of QLSCD children in child care) (Giguère et Desrosiers, 2010). Taking into account the formulation of questions asked of the parents of children at this age and the importance of distinguishing daycare centres (government-regulated or not, mostly for profit, i.e. private) from CPEs,<sup>6</sup> because of the generally higher quality of the latter (Drouin et al., 2004), the children were grouped into four categories according to their main type of child care: 1) children not regularly in child care because of the parents' work or studies (41%); 2) children attending a daycare centre or home-based non-regulated daycare (32%); 3) children in a government-regulated home-based daycare (10%); 4) children attending a CPE (17%).

#### Recent breakup of the parents

Although the majority of children of separated/divorced parents have no developmental problems, parental breakup can indeed have negative effects on child development, at least in the short term, even when pre-existing conditions such as the level of parental conflict are taken into account (Desrosiers, Cardin and Belleau, 2012; Strohschein, 2005). Janus and Duku (2007) have observed that parental breakup is a stronger predictor of vulnerability at school entry than family structure as such (single-parent or two-parent family).

To gain a better understanding of the impact of parental breakup on children's school readiness, the proportion of vulnerable children was analyzed in light of the following variables: the number of transitions experienced by the child since birth because of a parental breakup or new parental union (none; one; two or more), family trajectory (born into a single-parent family; breakup of biological parents after the birth; biological parents still together) and the duration of time between when the parents separated/divorced and the child entering kindergarten (less than two years; two or more years; parents still together). Only this last variable proved associated with the risk of vulnerability in kindergarten, thereby supporting the idea that parental breakup can generate adjustment stress in children. Indeed, children of parents who had broken up in less than two years were significantly more likely to be vulnerable in kindergarten than those of parents who were still together, even when other family variables were taken into account (Table A.1 in the Appendix).<sup>7</sup> For the purposes of the analyses, we used the variable entitled "recent parental breakup (less than two years ago)" (Yes = 7%; No = 93%).

To better ascertain the singular impact on school readiness of the environment in which the children were growing up, various individual characteristics of the child were also included in the analysis. Studies have shown that these individual characteristics are associated with an increased risk of future physical problems (e.g. lower general health status), cognitive difficulties (low birth weight, language delays) or socio-emotional problems (hyperactivity-inattention) and can lessen the influence of the family on school readiness. A child in good health, with no cognitive delays, who has sufficient language skills to communicate appropriately and have positive interactions with his/her peers, who is calm and attentive enough to assimilate what is being taught, has greater chances of beginning school on the right foot and achieving good marks.

For the purposes of our analyses here, the following individual characteristics of the children were examined:

#### Low birth weight

In many studies conducted in Québec and elsewhere, low birth weight (under 2,500 g.) is widely recognized as being associated with a greater risk of cognitive deficits and problems in school (Bhutta et al., 2002; Desrosiers and Ducharme, 2008; Desrosiers and Ducharme, 2006; Pati et al., 2009; Tétrault, Desrosiers and Cardin, 2009). In our analysis here, we compared children who weighed less than 2,500 g. at birth (information obtained from medical records and the mother) with other children (Yes = 5%; No = 95%).

6. Though in everyday language in Québec, any type of paid child care outside the home is commonly called "daycare" or "daycare centre," for the purposes of this article the term "daycare centre" has the specific meaning indicated in parentheses and the word "childcare centre" is used as a synonym for a CPE.

7. Of note is that a trend was observed with regards to children whose parents had broken up two or more years earlier, when compared to children whose parents had not ( $p < 0.10$ ; Table A.1 in the Appendix).

### Language delays (around 1½ years of age)

The majority of children begin to speak during their second year of life and at 18 months know at least 50 words (Hoff, 2009). Therefore, not being able to say a simple word such as “ball” or “dada” at 1½ years of age may indicate a language or hearing problem. In this regard, QLSCD data revealed that children who had not yet said the word of a familiar object at 1½ years of age were more likely to present a delay in vocabulary in kindergarten (Desrosiers and Ducharme, 2008). In this article, we compared children who at 1½ years of age had not yet said the name of familiar object such as “ball” with the other children in the survey (Yes, had said the name = 77%; No, hadn't = 23%;).

### Overall health prior to 4 years of age

Perceived health status is considered a good indicator of the overall health of a child (Khanam, Nghiem and Connelly, 2008; Monette et al., 2007). Previous analyses of QLSCD data have shown that when various factors are taken into account, overall health status in early childhood is a better predictor of receptive vocabulary in kindergarten (Desrosiers and Ducharme, 2008) or reading skills in Grade 1 (Tétreault, Desrosiers and Cardin, 2009) than current or recent health status. For the purposes of our analyses here, we compared children with a health status considered less than “Very good” in at least one annual round of the QLSCD between the ages of 5 months and 4 years with the other children under study (Yes = 25%; No = 75%).

### Level of hyperactivity-inattention symptoms at 4 years of age

The negative impact of hyperactivity-inattention (HI) in early childhood on school engagement and academic achievement is widely recognized (Bhutta et al., 2002; Breslau et al., 2009; Welsh et al., 2010). The association persists even when controlled for various family characteristics of the child at school entry, certain externalized or internalized behaviour problems (Breslau et al., 2009; Duncan et al., 2007; Pagani et al., 2011), language skills, numeracy and literacy skills (Pagani et al., 2011; Welsh et al., 2010). QLSCD data have provided a means of documenting hyperactivity-inattention (HI) behaviours in children from a very early age based on responses of a parent, generally the mother. In a recent publication based on these data, Cardin et al. (2011) showed that 8% of children were likely to have presented a high level of HI symptoms between the ages of 3½ and 8 years. For this article, we used the data from when the child was 4 years of age, namely about a year before kindergarten entry. We used a rather strict criterion to ensure good predictive validity of HI symptoms. Children with a score higher than or equal to 6.25 out of 10 on the hyperactivity-inattention scale at the age of 4 were considered to have a high level of such symptoms (Yes = 7%; No = 93%). For more details on the items comprising the HI scale and its psychometric characteristics, see Cardin et al., 2011.

### Analytical strategies

To ascertain the contribution of various family and environmental characteristics to the risk of vulnerability, multivariate logistic regressions were conducted. This method provided a means of estimating the probability of children with a given characteristic being vulnerable at school entry when other characteristics are entered into the model. To gain a better understanding of the respective contribution of each characteristic and given the exploratory nature of our analyses, the variables were entered into the models in sequential fashion. Distal variables, namely sociodemographic and neighbourhood characteristics when the child was in kindergarten, were first entered in the model, (Table 1, Model 1), then family and social characteristics describing the environment in which the child was growing up (Model 2) and finally certain individual characteristics of the child (Model 3). Only variables significant at the threshold of 0.10 in each group of variables were retained for final analysis. In the final step, tests of interaction between the level of social support reported by the parents when the child was at a young age and certain risk factors were conducted, the goal being to assess to what degree social support contributed to lowering inequality among children in terms of school readiness.

Analyses were conducted to assess factors associated with overall vulnerability of the children at school entry. Then, similar modeling was done for each of the five domains of school readiness. The aim of doing so was to gain a better understanding of the characteristics specifically associated with vulnerability in each domain.

All of the data presented in this article were weighted, i.e. adjusted to allow the results to be generalized to the target population of the QLSCD. In addition, the estimates were generated taking into account the complex sample design of the survey.

## Results

### Individual, family and social characteristics associated with vulnerability at school entry

Model 1 in Table 1 presents three demographic, socioeconomic and neighbourhood characteristics which individually predicted the status of school readiness, based on analyses presented in No. 14 of this Portraits and Pathways series (Desrosiers, Tétreault and Boivin, 2012). Model 2 includes various family and social characteristics describing the environment in which the children were growing up in addition to the aforementioned variables.

The results of Model 2 show that beyond demographic or socioeconomic variables, certain family and social characteristics were independently associated with developmental status in kindergarten. Children whose mother perceived she had little impact on her child as a parent when the latter was 5 months old, those whose parents or another adult in the household did not read to them on a daily basis when they were 1½ years old, and those whose parents had less support from family and other people when they were 2½ years of age, were more likely to be vulnerable in one or another domain of child development in kindergarten. Children of recently separated or divorced parents were more likely not to be sufficiently prepared for school. Neither depression in the mother nor the main type of child care contributed independently to predicting a child's readiness for school.<sup>8</sup>

8. When only the family characteristics were in the model, the main type of child care was significantly associated with the lack of school readiness (Table A.1). The lack of association between this variable and the risk of vulnerability when the characteristics in Model 1 were taken into account may be attributed to the strong association between the main type of daycare and the mother's level of education. Compared to children not in daycare, those who attended a CPE (government-regulated, subsidized, educational daycare) at the age of 2½ years were more likely to have a mother who had a post-secondary education (data not shown).

Table 1

**Various characteristics associated with overall risk of children's vulnerability in kindergarten<sup>1</sup> (lowest decile adjusted for age and sex in one or another domain of school readiness), logistic regression models, Québec, 1998-2004**

	Odds ratio <sup>2,3</sup>		
	Model 1	Model 2 <sup>4</sup>	Model 3 <sup>4</sup>
<b>Mother's educational level</b> (child 6 years of age, in kindergarten)			
No high school diploma	2.55 <sup>+++</sup>	1.83 <sup>+5</sup>	2.26 <sup>++</sup>
High school diploma	1.49 <sup>+</sup>	1.19	1.25
<i>More than a high school diploma</i>	1.00	1.00	1.00
<b>Child exposed to a language other than that of instruction</b> (6 years of age, in kindergarten)			
No	1.00	1.00	
Yes	1.66 <sup>+</sup>	1.36	
<b>Level of safety/cohesion of the neighbourhood</b> (child 6 years of age, in kindergarten)			
Low	2.64 <sup>++</sup>	1.97 <sup>+</sup>	2.09 <sup>+</sup>
<i>Other</i>	1.00	1.00	1.00
Missing data	0.65	0.64	0.54
<b>Moderate or severe maternal depression</b> (child 5 months of age)			
Yes		1.66	
No		1.00	
<b>Mother's perception of her impact on child's development</b> (child 5 months of age)			
Low		2.48 <sup>+</sup>	2.21 <sup>+</sup>
<i>Other</i>		1.00	1.00
<b>Reading to the child daily</b> (child 1½ years of age)			
No		1.57 <sup>+</sup>	1.49 <sup>+</sup>
Yes		1.00	1.00
<b>Low level of support from family and other people</b> (child 2½ years of age)			
Yes		1.97 <sup>++</sup>	2.28 <sup>++</sup>
No		1.00	1.00
<b>Main type of child care</b> (child 2½ years of age) <sup>6</sup>			
<i>Not regularly in child care because of parents' work or studies</i>		1.00	
Daycare centre, non-regulated daycare or regulated home-based daycare <sup>7</sup>		0.86	
CPE (regulated, non-profit childcare centre)		0.55	
<b>Recent breakup of parents</b> (less than two years ago)			
Yes		1.96 <sup>+</sup>	2.19 <sup>+</sup>
No		1.00	1.00
<b>Low birth weight</b> (under 2,500 g)			
No			1.00
Yes			2.84 <sup>++</sup>
<b>Already said the name of a familiar object</b> (1½ years of age)			
No			1.56 <sup>+</sup>
Yes			1.00
<b>Perceived health of the child less than "very good" in at least one round of the survey before he/she was 4 years of age</b>			
No			
Yes			
<b>Level of hyperactivity-inattention symptoms</b> (child 4 years of age)			
Score equal to or higher than 6.25			2.42 <sup>+</sup>
<i>Score under 6.25</i>			1.00

1. Children born in Québec in 1997-1998. The age in parentheses is the average age of the children in the particular round of the survey.

2. The reference category is in italics. It is recommended to interpret an odds ratio as a type of correlation, namely as only indicating that the probability is increased or decreased by a given factor without specifying the magnitude of the "effect" observed. Therefore, an odds ratio higher than 1 indicates that the children presenting a given characteristic were more likely to be vulnerable in one or another domain of school readiness compared to the reference category, while an odds ratio less than 1 indicates they were less likely.

3. Threshold: ‡ p < 0.10; † p < 0.05; ++ p < 0.01; +++ p < 0.001.

4. The non-response rate of this model was between 5 and 10%. The analysis of non-response and various tests conducted revealed that the risk of bias was very low. It was therefore judged that data imputation was not required.

5. The overall threshold for this variable was 0.08.

6. See footnote 4 in Table A.1.

7. These categories were grouped together since they did not differ from the reference category nor amongst themselves (see Table A.1).

Source: Institut de la statistique du Québec, QLSCD 1998-2010.

In comparing Model 2 with Model 1, it is noteworthy that the threshold of significance of certain demographic characteristics such as the mother's educational level and the child being exposed to a language other than that of instruction decreased with regards to predicting the risk of vulnerability when family characteristics were taken into account. These results suggest that the greater vulnerability of children presenting these characteristics can in part be attributed to certain family and social characteristics of the environment in which the children were growing up (Farkas and Hibel, 2007).

Model 3, the most parsimonious, includes only variables significant at the threshold of 0.05, when the complete set of characteristics, including those of the child, were analyzed simultaneously. These latter characteristics had little or no effect on the contribution of the family and neighbourhood characteristics to overall vulnerability at school entry. With the exception of overall health status of the child at a young age, each of these variables, namely low birth weight, the level of hyperactivity-inattention symptoms at 4 years of age, and to a lesser degree, language delays at 17 months, contributed to increasing the risk of vulnerability in kindergarten, taking the other factors into account.

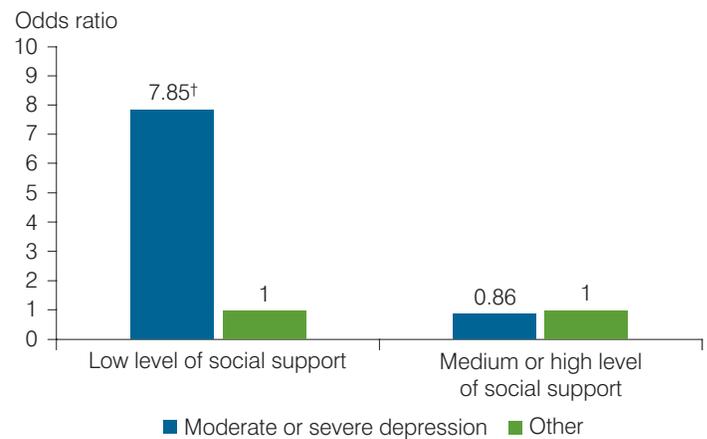
Model 3, integrating all the individual and family variables, shows the unique contribution of the parents' interpersonal support network and neighbourhood cohesion to predicting children's readiness for school. These results corroborate those of other studies showing that a low level of support from family and other people or little social support in the neighbourhood increases the probability that young children will present developmental problems, independent of family structure or socioeconomic status, maternal depression or the health status of the child (Hertzman and Kohen, 2003; Runyan et al., 1998).

**The family's social support: a protective factor for certain vulnerable children?**

Though certain children or their parents are exposed to risk factors, some social characteristics can provide a counterweight and protect them from various problems. Families experiencing difficult and/or stressful situations, but receiving physical and emotional support, can adjust to what confronts them. The models in Table 1 show that the health status of the child at a young age and maternal depression were not independently associated with vulnerability in any domain of school readiness. The lack of significant results can however camouflage interactions between these factors and the parents' support network. In other words, the contribution of these factors to school readiness could have varied with the level of social support received. To shed light on this question, interaction tests were conducted. The results revealed that a perceived health status of the child at a young age of less than "very good" and maternal depression constituted additional risk factors for families with a low level of social support. In contrast, with a higher level of social support, children of depressed mothers or whose health was less than optimal in early childhood, fared just as well as other children in terms of school readiness (Figures 1a and 1b).

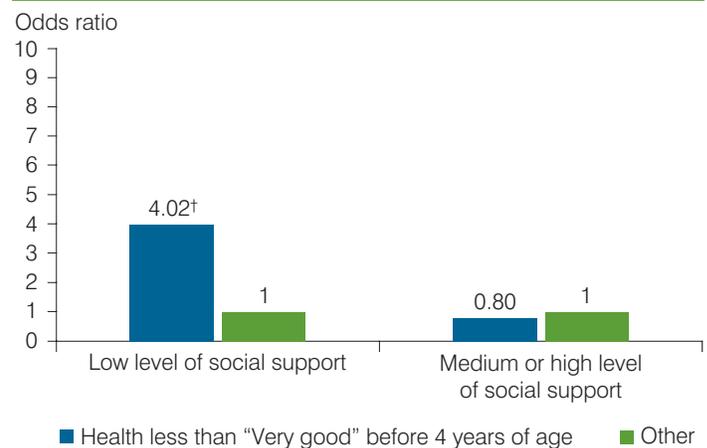
Since social support was assessed after maternal depression, it is possible that the negative effect of the latter in a context of a low level of the former reflects an intermittent or chronic state of depression in these mothers, the negative impact of which on child development has been well established (Campbell et al., 2004; Schoon et al., 2010). We know that depressed people tend to have negative emotions and

**Figure 1a**  
**Risk of a child being vulnerable in at least one domain of school readiness by maternal depression when the child was 5 months of age and by level of social support for the parent (child 2½ years of age),<sup>1</sup> Québec, 1998-2004**



† p < 0.05 compared to the reference category which has the value of 1.  
 1. Adjusted for various characteristics of the child and family in Table 1, Model 3, as well as for the child's health status.  
 Source: Institut de la statistique du Québec, QLSCD 1998-2010.

**Figure 1b**  
**Risk of a child being vulnerable in at least one domain of school readiness by general health status of the child and level of social support for the parent (child 2½ years of age),<sup>1</sup> Québec, 1998-2004**



† p < 0.05 compared to the reference category which has the value of 1.  
 1. Adjusted for various characteristics of the child and family in Table 1, Model 3, as well as for maternal depression.  
 Source: Institut de la statistique du Québec, QLSCD 1998-2010.

become socially isolated. Therefore, the above results corroborate the idea that depressed mothers should be supported in the months following the birth of their child. Some studies suggest that social support and home visits are successful in improving the moods and attitudes of such mothers as well as bonding with the infant and his/her psychomotor development (Canadian Pediatric Society, 2004).

With regards to children's overall health status in early childhood, our results corroborate the importance of a support network for parents of children presenting health or developmental problems. Indeed, certain experts highlight the importance of such families having timely access to appropriate support and information, and that lacking this can have an impact, sometimes serious, on the child, parent, couple and family (Commissaire à la santé et au bien-être, 2012). However, since the assessment of health status here was not specific, more detailed analyses would be needed to discern health and/or developmental problems in early childhood for which better support could be given to the family to better prepare the child for school. For example, the nature of health problems can vary among children; some may have functional deficits or special needs (Janus et al., 2008; Janus et al., 2007).

### Individual, family and social characteristics associated with vulnerability in each domain of school readiness

The preceding sections described certain conditions of early childhood associated with the risk of children being vulnerable in one or another domain of development in kindergarten, thereby not being adequately prepared to face the demands of the education system. Among the characteristics examined, which ones were associated with each domain of school readiness as assessed by the EDI? Does the lack of association between certain characteristics such as the type of child care and overall vulnerability camouflage an association in any specific domain of school readiness?

To answer these questions, logistic regressions were conducted in sequence for each domain of school readiness,<sup>9</sup> similar to those described in the preceding section. We should remind the reader here that children considered vulnerable in a particular domain of school readiness were those in the lowest decile of the scale assessing each domain of child development.

As expected, the results showed that certain variables such as maternal depression were associated with the socioemotional domain of child development, and stimulation activities such as reading to the child and health characteristics such as birth weight and overall health status contributed to cognitive and physical development (Landry and Smith, 2007; Wake et al., 2008). The results also showed that the mother's educational level was associated with the child's physical and cognitive development (Farkas and Hibbel, 2007). In addition, a lower level of social support (from family, friends and the local community [neighbourhood cohesion]) was associated with an increased risk of vulnerability in three of the five domains of school readiness assessed, independent of other factors analyzed (Table 2).

Two other factors merit particular attention. Children who attended a CPE seemed to have had a lower risk of presenting problems in social skills. Compared to those not in child care at 2½ years of age, children in kindergarten who attended a CPE at the aforementioned age had fewer problems getting along with their peers, following class rules and routines, listening, and adjusting to change. In contrast, children who had been in other types of child care, namely regulated home-based daycare, daycare centre or non-regulated daycare, did not show any

significant difference from those who were not regularly in child care at this age. These are interesting results since previous research on QLSCD data has shown that children of less-educated mothers could benefit from regular attendance in a formal daycare setting, at least in terms of cognitive development (Geoffroy et al., 2010). The results presented here reveal that whatever their socioeconomic status, children who attended a CPE in early childhood were at a lower risk of presenting social skills problems at school entry (Sylva et al., 2010). The fact that only children attending a CPE were at a lower risk compared to children not in child care supports the idea that it is perhaps not child care in itself but rather the characteristics of the type of child care that is at play here. In this regard, it is important to note here that the children who attended a CPE at 2½ years of age were those who were more regularly in child care in subsequent years right up to school entry (data not shown). More in-depth analyses could better differentiate the effect attributed to constant child care from that of the type of child care being used.

Children who had experienced the separation or divorce of their parents in the two years preceding school entry were at significantly higher risk of problems in the domain of language and cognitive development and to a lesser degree in the domain of communication skills and general knowledge. We might have expected that parental breakup would also be associated with emotional problems such as internalized behavioural ones (Desrosiers, Cardin and Belleau, 2012; Kim, 2011; Strohschein, 2005). However, since the emotional maturity domain covers a variety of behavioural problems, both externalized and internalized, such an association is difficult to discern. Some researchers have suggested that the period of time involved in separation or divorce may be associated with a lower level of cognitive stimulation of the child (Goodman, Gisselmann and Koupil, 2010), since he or she may have less contact with one of the parents, and both parents will be spending more time re-organizing their lives in terms of residence, money and assets, custody, etc. It is also possible that changes incurred by parental breakup push certain children to be less open to learning in school, or that the association is simply a translation of pre-existing conditions that were not assessed that led to the breakup of the parents. Clearly, more in-depth analyses would be required to support these hypotheses. Janus and Duku (2007) have observed that parental breakup is a strong predictive factor of children's vulnerability in four out of the five domains of school readiness, an example being language and cognitive development (Kerr, 2004; Kim, 2011). Other research has demonstrated a negative association between parental breakup and academic problems in elementary school, beyond a set of sociodemographic characteristics or family functioning before the breakup (Kerr, 2004; Kim, 2011).

Overall, our results obtained here in terms of the factors associated with each domain of school readiness seem to support the validity of the construct of five scales comprising the EDI, namely their capability of measuring various aspects of child development (Janus and Duku, 2007). However, with regards to the domain of emotional maturity, it would be productive to conduct more specific analyses by sub-domain in order to distinguish factors associated with externalized behavioural problems such as hyperactivity-inattention from those associated with internalized behavioural problems such as anxiety.

9. No interaction was tested for here because of the limited numbers of vulnerable children by domain.

Table 2

**Various characteristics associated with the risk of children's vulnerability in kindergarten<sup>1</sup> by domain of school readiness (lowest decile adjusted for age and sex), logistic regression models, Québec, 1998-2004**

	Odds ratio <sup>2,3</sup>				
	Physical health and well-being	Social competence	Emotional maturity	Language and cognitive development	Comm. skills and general knowledge
<b>Mother's educational level</b> (child 6 years of age, in kindergarten)					
No high school diploma	2.53 <sup>†</sup>			3.82 <sup>+++</sup>	
High school diploma	1.87 <sup>†</sup>			1.62	
<i>More than a high school diploma</i>	1.00			1.00	
<b>Child exposed to a language other than that of instruction</b> (child 6 years of age, in kindergarten)					
No		1.00			
Yes		1.85 <sup>†</sup>			
<b>Level of neighbourhood safety/cohesion</b> (child 6 years of age, in kindergarten)					
Low			2.26 <sup>†</sup>		
<i>Other</i>			1.00		
Missing data			0.52		
<b>Moderate or severe maternal depression</b> (child 5 months of age)					
Yes		2.67 <sup>†</sup>	2.71 <sup>†</sup>		
No		1.00	1.00		
<b>Mother's perception of her impact on child's development</b> (child 5 months of age)					
Low					2.54 <sup>†</sup>
<i>Other</i>					1.00
<b>Reading to the child daily</b> (child 1½ years of age)					
No	1.73 <sup>†4</sup>				2.27 <sup>††</sup>
Yes	1.00				1.00
<b>Low level of support from family and other people</b> (child 2½ years of age)					
Yes				2.76 <sup>††</sup>	3.01 <sup>†††</sup>
No				1.00	1.00
<b>Main type of child care</b> (child 2½ years of age) <sup>5</sup>					
<i>Not regularly in child care for work or school reasons</i>		1.00			
Daycare centre, non-regulated daycare or regulated home-based daycare		0.62			
CPE (regulated, non-profit childcare centre)		0.29 <sup>††</sup>			
<b>Recent breakup of parents</b> (less than two years ago)					
Yes				2.92 <sup>†</sup>	2.23 <sup>†</sup>
No				1.00	1.00
<b>Low birth weight</b> (under 2,500 g)					
No				1.00	1.00
Yes				5.72 <sup>††</sup>	3.23 <sup>†</sup>
<b>Already said the name of a familiar object</b> (child 1½ years of age)					
No				1.91 <sup>†</sup>	
Yes				1.00	
<b>Perceived health of the child less than "very good" in at least one round of the survey before he/she was 4 years of age</b>					
No	1.00			1.00	
Yes	1.95 <sup>†</sup>			1.92 <sup>†</sup>	
<b>Level of hyperactivity-inattention symptoms</b> (child 4 years of age)					
Score equal to or higher than 6.25			3.45 <sup>††</sup>		
<i>Score under 6.25</i>			1.00		

1. Children born in Québec in 1997-1998. The age in parentheses is the average age of the children in the particular round of the survey.

2. The reference category is in italics. It is recommended to interpret an odds ratio as a type of correlation, namely as only indicating that the probability is increased or decreased by a given factor without specifying the magnitude of an "effect" observed. Therefore, an odds ratio higher than 1 indicates that the children presenting a given characteristic were more likely to be vulnerable in one or another domain of school readiness compared to the reference category, while an odds ratio less than 1 indicates they were less likely.

3. Threshold: ‡ p < 0.10; † p < 0.05; †† p < 0.01; ††† p < 0.001.

4. p = 0.054. The threshold became significant at 0.05 when the perceived health status of the child was withdrawn from the model.

5. See footnote 4 in Table A.1.

Source: Institut de la statistique du Québec, QLSCD 1998-2010.

### What about cumulative risk factors?

Since the end of the 1980s, a number of studies have concluded that one risk factor by itself is not sufficient to explain developmental problems in children (Sameroff et al., 1993). According to these studies, the risk of problems in cognitive development or psychosocial adjustment tends to increase with the number of risk factors present. Some studies show that the risk significantly increases with two factors, other studies indicate four (Japel, 2008). To shed light on this cumulative “effect,” we constructed an indicator based on the number of risk factors to which each child was exposed among the nine associated with overall vulnerability in kindergarten (Table 1, Model 3).

The results showed that slightly less than a quarter of the children (24%) did not present any of the risk factors assessed here. Therefore, the majority of children (76%) presented one or another of the nine risk factors in the analysis. This result puts into perspective the idea that a risk factor is a measurable characteristic that can predict a negative outcome, without however, indicating exactly which children in a group at risk will experience problems. In examining the number of risk factors in a child and his/her risk of being vulnerable at school entry, we see that compared to children who presented none of the risk factors (24%), those who presented one (33%), two (28%) or three (10%), were more likely to face difficulties in coping with the demands of the education system upon entry. The children who presented four or more risk factors (5%)<sup>10</sup> were at a significant disadvantage compared to their peers, including those who presented three (data not shown). Therefore, children who cumulatively had at least four risk factors, although few in proportion, were far more likely to be vulnerable in terms of readiness to learn at school entry.

### Conclusion

Data already presented in a previous article in this series revealed that, among children born in Québec at the end of the 1990s, approximately 25% were vulnerable in one or another domain of child development upon entry into the education system, as measured by the Early Development Instrument (EDI) (Desrosiers, Tétreault and Boivin, 2012). The goal of this article was to investigate associations between certain characteristics of the children or the environment in which they were growing up during the pre-school period and their vulnerability at school entry, with a particular focus on support from family, friends and the local community. Analyses were conducted in this regard, all domains of child development cross-referenced. In addition, each domain of child development using the EDI was analyzed: social competence; emotional maturity; language and cognitive development; communication skills and general knowledge.

In general, the results support the ecological model of child development by which individual, family and social characteristics combine to explain a child’s chances of being successful, both academically and socially. It was not surprising to see that a child having a parent who reads to him/her, having an educated parent and one who understands that his/her parenting skills affect his/her child’s development, having a good interpersonal support network, being in a two-parent united family and living in a safe and cohesive neighbourhood, positively contributed to the physical, cognitive and social development of children at school entry.

Maternal depression and general health status of the child in early childhood were not associated with the risk of vulnerability at school entry, when other factors were taken into account. A more in-depth analysis of the results revealed that the lack of these associations camouflaged differences among certain sub-groups of children. More specifically, we were able to see that the contribution of these characteristics to children’s readiness for school likely depended on the level of social support received by the parents. So maternal depression and a less than favourable health status in early childhood constituted additional risk factors for families who were more socially isolated. By the same token, with a higher level of social support, children with depressed mothers or whose health was not optimal were similar in terms of development as other children at school entry. These results suggest that not receiving adequate support limited the capacity of families to cope with certain difficulties and compromised the development of their children. It therefore seems that effort should be devoted to addressing the social isolation of young families, particularly those in which the parents or children present certain mental or physical health problems.

Another goal of our study here was to identify which specific domain of child development could be compromised by the risk factors examined. We can see that certain variables such as maternal depression were negatively associated with a child’s socioemotional development. Stimulation activities (e.g. regularly reading to the child) and health characteristics such as “normal” birth weight and overall “very good” or “excellent” health status, were positively associated with cognitive or physical development. The mother’s educational level was associated with the physical and cognitive development of the child. In addition, a low level of support from family, friends and the local community was independently associated with increased vulnerability in three of the five domains of child development. More specifically, neighbourhood safety and cohesion was associated with emotional maturity, and support from family, friends and other people was associated with language and cognitive development as well as communication skills and general knowledge. Overall, the results with regards to the factors associated with each domain of school readiness seem to validate the construct of the five scales that comprise the EDI, namely their capacity to measure various aspects of child development. However, it would be productive to conduct more specific analyses by sub-domain in the domain of emotional maturity to better distinguish the factors associated with externalized behaviours from internalized ones.

Although it is recognized that the family plays a more important role than the social environment in terms of optimal child development, the results obtained here are similar to those of other studies showing that neighbourhood safety and cohesion, i.e. a supportive local community, can have an influence independent of other factors such as family structure or socioeconomic level (Moren-Cross et al., 2006), maternal depression, perceived level of social support or the health status of the child (Hertzman and Kohen, 2003).

How do we explain this finding? Some researchers suggest that problems of safety and security in the neighbourhood can increase parental stress and are associated with a lack of positive role models and quality resources for families, such as health and daycare services, schools, supermarkets, libraries, parks and family-oriented green spaces etc.

10. In a study on vulnerable children based on QLSCD data, Japel (2008) observed that 40% of children presented four or more risk factors in at least one round of the survey prior to school entry. The risk factors in the analyses and the goals of the study were not the same as those in our article here. Among other things, the goal of the Japel study was to examine associations between the number of risk factors in the children’s lives and their readiness for school in light of theoretical considerations, namely whether these factors could be individually associated or not with the various outcomes measured.

(Kohen, Hertzman and Brooks-Gunn, 1998; Sampson, Morenoff and Gannon-Rowley, 2002). Therefore, children growing up in less safe neighbourhoods have fewer resources that would stimulate them to develop their full potential. Other research has shown that living in less safe, less cohesive community-oriented neighbourhoods is associated with less consistent parenting behaviours (Hill and Herman-Stahl, 2002 cited in Landry and Smith, 2007). The QLSCD data revealed that the average level of consistent parenting practices assessed when the child was in kindergarten tended to be lower among families living in less cohesive neighbourhoods ( $p < 0.10$ ; data not shown).

In general, the results related to the family and social environment, namely the presence of both biological parents in the household, greater support from family, friends and the local community, highlight the importance of family and social integration in optimal child development. We can surmise that the positive effects of such support on the well-being of parents translates into the academic success and social integration of their young children (Rude, 2003).

As in any study, the analyses presented here have certain limits. We cannot exclude the fact that certain results observed could be attributed to other characteristics not examined. It would be interesting to conduct further analyses to see whether, for example the factors identified here differ by the child's sex. Further research could also be conducted to gain a better understanding of interactions among the individual characteristics of the children (e.g. low birth weight, language problems) and parenting practices. How did certain practices or resources of the parents mitigate the effect of the child's individual characteristics? What role did the school play – i.e. school atmosphere, composition of classes, kindergarten teacher characteristics such as sex, educational level and years of experience – in the children's readiness for first grade? And what influence did the father have? These are some of the questions the answers to which would be productive in terms of factors that could foster the social adjustment and academic success of a greater number of Québec children.

## Appendix

Table A.1

**Certain family and social characteristics associated with the risk of children's vulnerability<sup>1</sup> in kindergarten (lowest decile adjusted for age and sex in one or another domain of school readiness), logistic regression models, Québec, 1998-2004**

	Odds ratio <sup>2,3</sup>
<b>Mother's perception of her impact on child development</b> (child 5 months of age)	
Low	2.82 <sup>††</sup>
<i>Other</i>	1.00
<b>Moderate or severe maternal depression</b> (child 5 months of age)	
Yes	1.74 <sup>†</sup>
No	1.00
<b>Reading to the child daily</b> (child 1½ years of age)	
Yes	1.00
No	1.59 <sup>†</sup>
<b>Low level of support from family and other people</b> (child 2½ years of age)	
Yes	2.12 <sup>†††</sup>
No	1.00
<b>Main type of child care</b> (child 2½ years of age) <sup>4</sup>	
<i>Not in regular daycare for reasons of work or school</i>	1.00
Daycare centre or non-regulated home-based daycare	0.75
Regulated home-based daycare	0.66
CPE (regulated, non-profit childcare centre)	0.45 <sup>†††</sup>
<b>Recent breakup of parents</b> (less than two years ago)	
Yes	2.25 <sup>†</sup>
No, broke up more than two years ago	1.54 <sup>†</sup>
<i>Still together</i>	1.00

1. Children born in Québec 1997-1998.
2. The reference category is in italics. It is recommended to interpret an odds ratio as a type of correlation, namely as only indicating that the probability is increased or decreased by a given factor without specifying the magnitude of an "effect" observed. Therefore, an odds ratio higher than 1 indicates that the children presenting a given characteristic were more likely to be vulnerable in one or another domain of school readiness compared to the reference category, while an odds ratio less than 1 indicates they were less likely.
3. Threshold: ‡  $p < 0.10$ ; †  $p < 0.05$ ; ††  $p < 0.01$ ; †††  $p < 0.001$ .
4. In the 2000 round of the QLSCD, when the children were approximately 2½ years of age, the wording of the questions addressed to the parents on the types of child care they used was different than that used in later rounds. Children in a "daycare centre" or non-regulated home daycare were considered to be those in a regulated or non-regulated centre, most often private or in a daycare with no government permit or not governed by a home-daycare organization (e.g. child care in the home or a relative's home). Children who were in a "regulated home-based daycare" were defined as being in one authorized as such by the government. Children in a CPE (regulated, non-profit childcare centre) were considered to be in a centre with a permit from the Québec government (for more details, see Giguère and Desrosiers, 2010).

Source: Institut de la statistique du Québec, QLSCD 1998-2010.

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## About the survey

The *Québec Longitudinal Study of Child Development* (QLSCD 1998-2010) is being conducted by the Institut de la statistique du Québec (ISQ) (Québec Institute of Statistics) in collaboration with various partners. The main goal of this study is to gain a better understanding of the trajectories which, during early childhood, contribute to children's social adjustment and success in the education system.

The target population of the QLSCD comprises children (singleton births) born to mothers residing in Québec in 1997-1998, with the exception of those whose mother, at the time of the child's birth, was living in certain administrative regions of the province (Nord-du-Québec, Terres-Cries-de-la-Baie-James and Nunavik) or on Indian reserves. Certain children were also excluded because of constraints related to the sample frame or major health problems. The initial sample eligible for longitudinal monitoring comprised 2,120 children. The children were monitored annually from the age of about 5 months to 8 years, then bi-annually to the age of 12, when they finished elementary school. Data collection continued in 2011 and 2013, when most of the children were in first and third year of high school respectively (Secondary 1 and Secondary 3).

The QLSCD employs a variety of data collection instruments to gather data on the child, the person most knowledgeable of the child (PMK), her or his spouse/partner (if applicable) and the biological parent(s) not residing in the household (if applicable). During each round of data collection, the child is asked to respond to a questionnaire or participate in a variety of activities designed to assess development. As of the 2004 round when the children were in kindergarten, the child's teacher is also being asked to respond to a questionnaire covering various aspects of the child's development and adjustment to school.

Since 2004, the QLSCD has been funded by the Ministère de la Santé et des Services sociaux du Québec, the Ministère de la Famille, the Fondation Lucie et André Chagnon, and the ISQ. The Ministère de l'Éducation, du Loisir et du Sport du Québec provides administrative data that can be matched with those of the QLSCD.

For more information on the survey, you can access the website of the QLSCD, also known as "I am, I'll be," at: [www.iamillbe.stat.gouv.qc.ca](http://www.iamillbe.stat.gouv.qc.ca).

To access the survey microdata, you can contact the *Centre d'accès aux données de recherche* at the ISQ (CADRISQ) through their web page ([www.stat.gouv.qc.ca/produits-services/acces-donnees-recherche/centre-acces\\_an.html](http://www.stat.gouv.qc.ca/produits-services/acces-donnees-recherche/centre-acces_an.html)) or by telephone (514-343-2299).

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