2

Identification of vulnerable children

2.1 INTRODUCTION

Over twenty years ago, both Canadian[1] and American [2] researchers began to report that children living in families with very low incomes often had poor verbal and cognitive skills at school entry. Subsequently, the *Ontario Child Health Study* documented the association between poor elementary school performance and living in a lone- parent family.[3] During the past two decades, low family income and living in a lone-parent family have each been used as easily observed 'markers' to identify children whose life situation may pose a threat to their development. In some cases these circumstances do put children at risk because they are associated with resource deficiencies. Such deficiencies include poor nutrition, for example, a diet deficient in calcium, vitamins and protein which compromises young children's physical and cognitive growth.[4]

More recent research has illustrated that the development of young children born with normal birth weight (and no evidence of physical disabilities or chromosome abnormalities such as Down Syndrome) also may be compromised by:

- Specific types of parenting styles.
- Living with a parent who is stressed.
- Living with a parent who is depressed.
- Living in a dysfunctional family.
- Lack of linguistic and/or cognitive stimulation.

This chapter reviews the research evidence about the relative importance of a variety of factors that put children's development at risk. It also identifies some of the limitations associated with relying on low family income or living in a lone-parent family to identify children whose development may be compromised by their family situation.

The chapter concludes that while we have a great deal of information about what threatens children's optimal development, it is not possible to be accurate in identifying the majority of at-risk children either reliably or at an early age.

2.2 Specific types of parenting styles

The National Longitudinal Survey of Children and Youth (NLSCY)

The NLSCY is a long-term Canada-wide research program that will track a large sample of children over many years. The first cycle of this study collected information about 22,831 Canadian children between birth and age 11 and their families in 1994/95. The families are a representative sample from all parts of the country, rural and urban communities, and all income levels. Information about the family and the children was collected through a parent questionnaire, and information about the children's development through two tests administered by the interviewer, one to measure motor and social development, the other to measure vocabulary. A mathematics test was done by the child at school.

Findings from the NLSCY

The NLSCY collected information about parenting styles through a specific scale that has been used in other research. [5] Three different studies using data from the first cycle illustrate the profound effect of parenting style — the usual ways in which parents interact with their children — on children's social, behavioural and language development.

The first study classified parenting styles into four categories:

- Authoritative.
- Authoritarian.
- Permissive.
- Permissive/irrational.

Forty-four percent of children age two to 11 whose parents were classified as having a permissive/irrational style [6] were deemed to have evidence of behavioural or emotional problems.[7] The next highest proportion of children with such difficulties, 30%, had parents who were classified as authoritarian. [8] In contrast, only 19.6% of children whose parents had an authoritative style [9] were classified as probably having problems. [10]

In the second study, a score indicative of normal cognitive and language development as measured by a standard tool [11] was obtained by 69.1% of four- and five-year-old children living with parents who reported high levels of 'positive parenting'[12] in contrast to 46.8% of peers whose parents scored low for this parenting style.[13]

A third study examined the effects of four parenting styles[14] and nine variables that, for the total NLSCY sample, were associated with poorer ability to get along with others among four- and five-year-olds.[15] The study found that, *"Risk factors accounted for only 5% of the*

variance in the child's overall relationships while parenting practices accounted for 22%."[16]
The same researchers also examined the impact of parenting practices on children age four to 11. They report that, *"Hostile* [17] *parenting practices increased the chance of occurrence of all problem outcomes, ranging from 1.4 times for repeating a grade in school to five times for conduct disorder."*[18]

Summary

In summary, analyses of data from the first cycle of the NLSCY found associations between:

- A positive parenting style (high levels of praising and talking and playing with children) and higher child scores on tests of language and cognitive development.

- A permissive/irrational parenting style (that is, inconsistent, tolerating misbehaviour) and higher incidence of child behaviour problems.

- Hostile parenting (harsh, punitive interactions with children) and a range of child problems including conduct disorder and higher incidence of repeating a grade.

These findings are consistent with other research. For example, a study that combined the findings of 47 other studies examining the association between child behaviour and parenting style reports that a hostile, authoritarian style predicts undesirable child behaviour such as aggression and disobedience. [19] Of particular importance is the NLSCY finding that parenting practices can be a protective factor. *"Children in at-risk situations who enjoyed positive parenting practices achieved scores within the average range [for motor, social and language development] for children in Canada. Sometimes their scores even surpassed those of children who were living in more favourable sociodemographic conditions but who were exposed to less positive parenting practices or to more hostile/ineffective parenting."* [20]

2.3 Living with a parent who is stressed

Parental stress affects children through two paths. The first path is through its influence on parenting style. The second path is through its influence on the child's own level of stress. Studies have found that mothers reporting high levels of stress are less responsive to their infants and provide them with less linguistic and cognitive stimulation. [21] With older children, stressed mothers are more likely to use authoritarian, hostile parenting and/or inconsistent parenting. [22] As noted above, this type of parenting is associated with poorer child development.

Living with a stressed parent increases the child's stress level. Recent brain research [23] has found that the emotional tone of the parent-child interaction is a strong predictor of certain

biochemical reactions in the child's brain, for example, elevated levels of cortisol when the child is stressed as a result of unresponsive or hostile caregiving. Frequent release and high residual levels of stress hormones such as cortisol interfere with the development of synapses in the brain. The adverse effects of stress may be most pronounced in young children. [24]

Parental stress may be associated with a variety of life circumstances, such as:

- Low income and the constant challenge of trying to make ends meet.
- Being a lone parent and carrying all the responsibility for the children.
- Fear of job loss.
- The daily struggle to balance work and family responsibilities.

In 1997, more than two-thirds of women (68.8%) with at least one child under age five were engaged in the paid workforce. [25] There is persuasive evidence of high levels of stress among working parents across all income levels in Canada.[26] As noted by a researcher who studied fifty working couples over an eight-year period: *"There is no more time in the day than there was when wives stayed home, but there is twice as much to get done."*[27] Such daily time pressure and the need to accomplish various tasks quickly may contribute to harsh, authoritarian parenting rather than a style that is warm, nurturing and patient.

2.4 Living with a parent who is depressed

Research studies have found that toddlers and preschoolers who receive warm, supportive and responsive care are more likely to engage in active exploration of their environment.[28] This, in turn, supports their development since learning occurs in the context of children's active engagement with their surroundings and the people in them. Depression affects both the emotional energy a parent has available for meeting the child's needs and the emotional tenor of the parent-child interaction. In the NLSCY, indications of depressive tendencies in a parent [29] were associated with hostile parenting, a finding also reported by other researchers.[30] Research has also found a higher incidence of withdrawal from their children among depressed parents.[31]

A study using data from the NLSCY reports that young children living in families with a parent who appeared to have depressive tendencies obtained lower scores on a measure of their overall social relationships. [32] Findings from other research indicate that compared with children of non-depressed mothers, children with depressed mothers show higher rates of socio-emotional and behaviour problems, poor peer relationship skills, and various difficulties in school. [33]

2.5 Living in a dysfunctional family

Families are considered to be dysfunctional when, for example, they are characterized by poor or little communication among members and use ineffective problem solving approaches. The first cycle of the NLSCY assessed the level of family functioning by using a standard scale developed and used by clinicians at the Chedoke-McMaster Hospitals in Hamilton, Ontario.[34] Researchers using the data set from the first cycle of the NLSCY report that children of any age living in families classified as dysfunctional have significantly more difficulties in their relationships with others. [35] Among children aged six to 11 years, family dysfunction was found to be associated with higher levels of hostile parenting which, in turn, is associated with poorer academic skills and school achievement. [36]

2.6 Lack of linguistic and/or cognitive stimulation

Children's vocabulary increases dramatically between the ages of two and four years if they are exposed to language and provided with encouragement and opportunities to use it to describe experiences, seek information, and share feelings and ideas. [37] Several pieces of research prior to the NLSCY have documented that the more adults talk with toddlers and young preschoolers, read to them, and provide a variety of opportunities for exploration of the environment, play-based problem-solving and using language, the more advanced the child's language and cognitive skills are at age four and five.[38] Data from the first cycle of the NLSCY indicate that an increase of one session of reading per week during the toddler and preschool period is associated with a 5% decrease in the likelihood of a four- or five-year-old having a score on a standard vocabulary test indicative of delayed development.[39]

More recently, a study conducted with forty mothers in Québec and their children between age four and six, found statistically significant correlations between the types of linguistic and cognitive stimulation available in the home and the child's level of physical, social, language and cognitive development. Interestingly, these correlations persisted regardless of the family's income level.[40]

Over 20 years ago, Canadian[41] and American [42] researchers began to report that children living in families with very low incomes often have a decline in language and cognitive skills relative to other children over the entire preschool period. This decline was attributed to inadequate levels of linguistic and cognitive stimulation in the home resulting from the family's lack of resources.

There is no question that the level of family income can influence the developmental quality of the home environment through its influence on the funds available for toys, books and other stimulating activities and its influence on the mother's level of stress. However, as

found by the Québec study cited above, lack of linguistic and cognitive stimulation can occur across all income levels. Using a measure of family environment [43] that assesses variables such as the degree of maternal responsiveness, American researchers, like those in Québec, have reported that there is not a consistent relationship between a family's income and the support and stimulation provided by the home.[44]

2.7 Comparisons of children from families at various income levels

Table 2.1 illustrates the findings from two studies using data from the first cycle of the NLSCY to explore the effect of the level of annual family income on factors that influence early childhood development. The table illustrates that the largest proportion of children living in situations that put them at risk as a result of living with a parent who is depressed or in a family deemed to be dysfunctional were in the lowest family income category. However, 82.5% of children in this income category were ***not*** living with a parent deemed to be depressed and 85.6% were ***not*** living in a dysfunctional family. Also, as illustrated by Table 2.1, there were fewer children at risk as a result of either situation in the lowest income category than in the other two family income categories combined.

TABLE 2.1: THE EFFECT OF FAMILY INCOME LEVEL ON FACTORS KNOWN TO INFLUENCE DEVELOPMENT IN EARLY CHILDHOOD, CYCLE ONE, NLSCY, 1994/95

Factor	Annual family income less than $30,000 (N = 5,868)	Annual family income between $30-60,000 (N = 9,498)	Annual family income above $60,000 (N = 7,466)
Proportion of children living in a family with a parent who was deemed to be depressed	17.5% (1,027)	8.3% (788)	4.8% (358)
Proportion of children living in a family deemed to be dysfunctional	14.6% (857)	7.5% (712)	5.0% (373)

Source: Ross, Scott and Kelly, 1996a, p. 42.

Note: Numerical calculations of the number of children in each cell were done by the author.[45]

A third study used the same three income categories to identify the impact of annual family income level on language development among four- and five-year-old children. It reports that the proportion of children obtaining scores indicative of delayed development was 25.3% for children in the lowest income category, 15.6% for children in a family with an income between $30 - 60,000 and 9.2% for children in families with incomes above $60,000. [46]

The fourth study examined the effect of family income on the incidence of:

- Impaired social relationships.
- Emotional or behaviour problems.
- Repeating a grade among children age four to 11.

It used four family income categories:

- Very poor — adjusted family income below 75% of the low-income cut-off (LICO) used by Statistics Canada. [47]
- Poor — adjusted family income between 75% and 100% of the LICO.
- Not poor — adjusted family income up to 25% above the LICO.
- Well-off — adjusted family income more than 25% above the LICO.

As illustrated in Table 2.2, a higher proportion of very poor children had impaired social relationships or one or more emotional or behavioural problems or had repeated a grade. However, these developmental problems were found across all income groups.

TABLE 2.2: FREQUENCY OF PSYCHOSOCIAL PROBLEMS AMONG CHILDREN BY ADJUSTED ANNUAL FAMILY INCOME, CYCLE ONE, NLSCY, 1994/95.

	Very poor (N =2,074)	Poor (N = 1,240)	Not poor (N =1,459)	Well-off (N =9,453)
impaired social relationships	7% (N = 145)	3% (N = 37)	4% (N = 58)	2% (N = 189)
one or more emotional or behavioural problem	29% (N =601)	23% (N = 285)	20% (N = 292)	19% (N = 1,796)
repeated a grade	11% (N = 228)	7% (N = 868)	8% (N = 117)	4% (N = 378)

Source: Canadian Institute of Child Health, 2000, Table 7-31 (based on Offord and Lipman, 1996).
Note: Numerical calculations of the number of children in each cell were done by the author. [48] There is a slight discrepancy between the total number of children in each column and the sum of the number of children in the same age range identified in the report due to effect of rounding.

A fifth study explored the impact of annual family income on parenting style and reports that, "*A full range of variables describing family structure [lone- or two-parent] and SES [socio-economic status] accounted for only about 2 to 6% of the variation in parents' practices. Thus, both positive and negative parenting practices are apparent in all types of families.*" [49]

2.8 Comparison of children from single- and two-parent families

Table 2.3 compares the incidence of various types of developmental problems among children living in single-mother and in two-parent families. The researchers decided to exclude single-father families because only 7.3% of the single parents in the NLSCY sample were fathers.[50] Note that the researchers provided weighted estimates of the number of children in each cell to reflect the national population of children.

The table illustrates that:

- The majority of children in single-parent families did ***not*** evidence a problem.
- The proportion of children with a developmental difficulty was higher among children from single-mother families for each type of problem but the actual ***number*** of estimated children was smaller than for two-parent families.
- Problems were identified in children in both types of family structure.

TABLE 2.3: RATES OF PROBLEMS FOR CHILDREN FROM SINGLE-MOTHER FAMILIES COMPARED WITH THOSE FROM TWO-PARENT FAMILIES, CYCLE ONE, NLSCY, 1994/95

Type of problem	Children from single-mother family	Children from two-parent family
Hyperactivity	15.6% (69,480)	9.6% (221,573)
Conduct disorder	17.2% (73,659)	8.1% (180,786)
Emotional disorder	15.0% (67,205)	7.5% (173,714)
One or more behavioural problems	31.7% (137,460)	18.7% (418,894)
Repeated a grade **	11.2% (36,288)	4.7% (78,026)
Current school problems **	5.8% (18,862)	2.7% (46,120)
Social impairment	6.1% (25,105)	2.5% (51,344)
One or more problems **	40.6% (128,895)	23.6% (381,715)

Source: Lipman, Offord and Dooley, 1996, p. 91.
Note: ** Data available for six — eleven-year-old children only, all other variables use data from four — eleven-year-olds. Also, the researchers provided weighted estimates of the number of children in each cell in order to reflect the national population of children.

2.9 Community mapping as a mechanism to identify children who are at risk for developmental problems

Community mapping — the use of census and other public data to identify the socio-demographic characteristics of individual neighbourhoods and the distribution, range and intensity of services within them — assists communities and governments to identify the social and resource environments in which young children live and develop. As part of the *Understanding the Early Years* initiative, several communities have combined information from community mapping with information on children's school readiness as assessed by kindergarten teachers using the Early Development Instrument (EDI).[51] The EDI is a teacher-completed checklist that assesses school readiness by rating the child's general physical health and well-being, social competence, emotional maturity, language and cognitive development, communication skills, and general knowledge. Combining the EDI scores for all children from a particular school provides information about the average school readiness of the total population of kindergarten children in that school.

Findings from conducting community mapping in combination with administration of the EDI have been released for two communities. [52] In both communities increasing levels of developmental problems among school populations, as measured by the EDI, were associated with increasing numbers of neighbourhood risk factors such as low average household incomes (all households combined), the proportion of families headed by a lone parent, and the proportion of all adults who have not completed high school. In other words, there was a cumulative effect with increasing levels of developmental problems as the number of neighbourhood risk factors increased. However:

- There was a great deal of variability within the EDI scores among children attending the same school even though most children attend the school whose catchment area includes their neighbourhood; [53] and

- A few school populations in neighbourhoods with several socio-demographic characteristics that are considered to make them high risk areas also had average scores indicating that the children were developing well on one or more of the EDI components. Conversely, some school populations in low risk neighbourhoods obtained scores indicative of problems on one or more component. [54]

What might explain these exceptions? In the community that also obtained information from the parents, better outcomes as measured by the EDI were obtained for children who experienced parenting that was rated as more positive and/or whose parent report about family functioning indicated emotional responsiveness among family members and adequate problem solving and communication skills.[55] This finding is consistent with findings obtained by the NLSCY and supports the hypothesis that positive parenting can act as a protective

factor for children living in a neighbourhood whose socio-demographic characteristics are associated with being at risk for developmental problems. Conversely, as noted earlier, living in a middle-income, two-parent family does not appear to protect children from the adverse effect of negative parenting.

2.10 Summary and conclusions

As indicated by the research discussed in this chapter, there are many factors that contribute to the development of children. Some, called risk factors, are associated with developmental problems. However, there are also protective factors, such as positive parenting, that improve resistance to risk factors and contribute to successful outcomes.

The relationship between risk and protective factors is complex. As a result, predicting a child's developmental trajectory or assessing potential for developmental problems is challenging.

The research reviewed in this chapter has identified a variety of threats to children's optimal development in addition to living in a family with a low income and/or with a lone-parent. It also documents that:

- The majority of young children living in low-income families are developing at a normal rate (see Tables 2.1 and 2.2).

- The majority of young children living with a lone-parent are faring well in terms of their development (see Table 2.3).

- Factors associated with compromised development and below average development occur across all income groups and among children in both lone- and two-parent families (see Tables 2.1 - 2.3).

Numerically, the majority of children live in middle- or upper-income families. As a result, the higher incidence of threats to a child's development found among children living in poverty actually translates into a **lower** number of vulnerable children than occurs in higher-income families (see Table 2.2). In 1994/95, 84.2% of children under age 11 lived in a two-parent family. [56] Again it is necessary to recognise that the higher incidence of threats to children's development in lone-parent families actually translates into a **lower** number of vulnerable children than occurs in two-parent families (see Table 2.3).

These facts have important implications. First, targeting children living in low-income and/or lone-parent households/communities to be the **only** recipients of affordable programs to

support early childhood development inevitably results in the exclusion of a large number of children who are at risk for developmental problems.

Second, research using data from the NLSCY found that:

- Parenting style was the most important influence on children's behavioural outcome, even more important than combining several other risk factors. [57]
- Parenting style strongly influences language and cognitive development.
- Positive and negative parenting practices occur across all income levels and in both lone- and two-parent families. [58]

Parenting style is not public information in the way living in a low-income neighbourhood is. This means that there is an inherent limitation in the use of neighbourhood socio-demographic characteristics to decide where to implement targeted programs intended to enhance the development of children at risk for developmental problems.

In summary, while we have a great deal of information about what threatens children's optimal development, it is not possible to be accurate in identifying the majority of vulnerable children through easily observed 'markers' such as family socio-demographic characteristics. Neither is there a good mechanism to identify at risk children at an early age. The earliest that we can be sure that all children will come into contact with an adult able to identify a problem is when the child enters the public school system and is identified by the teacher as lacking school readiness.

Notes

1. Fowler, 1978; Wright, 1983.
2. For example, Birch et al., 1970; Jencks, 1972.
3. Blum, Boyle and Offord, 1988; Offord, Boyle and Racine, 1989.
4. McCain and Mustard, 1999.
5. Strayhorn and Weidman, 1988.
6. A combination of being overly indulgent, providing few limits, tolerating misbehaviour and being inconsistent.
7. For example, indications of hyperactivity, behaviour problems such as aggression, parent reports suggesting high levels of anxiety in the child.
8. Highly controlling, very demanding, inflexible, lacking responsiveness and warmth.

9. Warm and nurturing, set firm limits on children's behaviour, explain the reasons for rules and encourage children's independence.

10. McCain and Mustard, 1999, Table 3.17 and Chao and Willms (in press).

11. The Peabody Picture Vocabulary Test (PPVT) - Revised (Dunn and Dunn, 1981) was used for English-speaking children and a French version of the PPVT specially developed for the NLSCY, Echelle de vocabularie en image, for French-speaking children. The PPVT is generally considered to not only assess the child's verbal ability but also to be a measure of cognitive development.

12. A high 'positive parenting' score indicates parents who reported high levels of behaviour such as praising and talking and playing with their child(ren).

13. Ross, Scott and Kelly, 1996, p. 42.

14. The four styles were: (1) positive interaction, (2) consistent parenting, (3) aversive (hostile) parenting, and (4) hostile/ineffective parenting.

15. These factors were: (1) living in a single parent family, (2) mother was or had been a teen-age parent, (3) low family income, (4) mother reports low levels of social support, (5) mother has low level of formal education, (6) mother's responses to a series of screening questions suggest depression, (7) parent reports suggest family dysfunction, (8) parent is a recent immigrant, (9) there are four or more children in the family.

16. Landy and Tam, 1996, p. 107.

17. Hostile parenting is characterized by harsh, punitive interactions and parents who are frequently angry with their children.

18. Landy and Tam, 1998, p. 7.

19. Rothbaum and Weisz, 1994.

20. Landy and Tam, 1996, p. 109.

21. Crockenberg, 1987.

22. Crnic and Greenberg, 1987; Longfellow, Zelkowitz and Saunders, 1982; Patterson, 1993

23. Gunnar, 1998.

24. Evans, Hodge and Pless, 1994.

25. Cleveland and Krashinsky, 1998, p. 42.

26. Duxbury and Higgins, 1994; Michalski and Wason, 1999

27. Hochschild, 1989, p. 8.

28. Whitebook, Howes and Phillips, 1990.

29. Depressive tendencies were assessed through a self-administered scale that has been used in previous research (Radloff, 1977).

30. Beckwith, 1990; Lyons-Ruth et al., 1990.

31. Frankel and Harmon, 1996; Tronick and Weinberg, 1997.

32. Landy and Tam, 1996.

33. Cummings and Davies, 1994; Zeanah, Boris and Larrieu, 1997.

34. Byles, Byrne and Boyle, 1988.

35. Landy and Tam, 1996, p. 117.

36. Human Resources Development, Canada 1999.

37. Gopnik, Meltzoff and Kuhl, 1999, Chapter 4.

38. Bradley et al., 1989; Brooks-Gunn, Klebanov and Duncan, 1996; Lamb et al., 1988.

39. Cook and Willms, 1998, p. 3.

40. Palacio-Quinton and Terrisse, 1997.

41. Wright, 1983.

42. See, for example, Birch et al., 1970; Jencks, 1972.

43. The *Home Observation for Measurement of the Environment* (HOME), Caldwell and Bradley, 1984.

44. Bradley et al., 1989; Caughy, DiPietro and Strobino, 1994.

45. The number of children in each cell was calculated on the basis that just over a quarter, 25.7% of the 22,831 children in the NLSCY lived in families that reported an annual family income below $30,000, another 41.6% lived in families that reported an annual income between $30,000 and $60,000 (Ross, Scott and Kelly, 1996, p. 33).

46. Ross, Scott and Kelly, 1996, p. 42.

47. Statistics Canada, 1994.

48. The calculations were based on the number of children of each age for age four to 11 inclusive (Human Resources Development Canada/Statistics Canada, 1996, Table 1 in the Technical Appendix) and the proportion of children by age in each family income category: (1) very poor - 15.9% of children age four to seven and 13.2% age eight – 11, (2) poor - 9.3% of children age four to seven and 8.1% age eight to 11, (3) not poor - 10.4% of children age four to seven and 10.1% of children age eight to 11, and (4) well-off - 64.3% of children age four to seven and 68.7% of children age eight to 11 (Offord and Lipman, 1996, p. 120).

49. Chao and Willms, 1998, p. 2.

50. Lipman, Offord and Dooley, 1996, p. 84.

51. The EDI has been normed on over 16,000 students across Canada with validity and reliability studies conducted in Ontario and Alberta (Hertzman et al., forthcoming, p. 1).

52. Connor, 2001; Hertzman et al., forthcoming.

53. Connor, 2001, p. 19.

54. Ibid., maps 2 through 6.

55. Ibid., pp. 38.

56. Ross, Scott and Kelly, 1996, p. 28.

57. Landy and Tam, 1996.

58. Chao and Willms, 1998.