ABSTRACT

This study identifies a high-risk subpopulation of children with a markedly antisocial behavioural profile in a national sample of Canadian children. We examine a broad array of environmental and child factors that may be associated with this high-risk group. The data are for 18,135 two to eleven year olds in the National Longitudinal Survey of Children and Youth. A cluster analysis was performed to identify children possessing extreme antisocial behaviour across five dimensions: aggression, hyperactivity, prosocial behaviour, emotional difficulties and misconduct. Clusters were compared across structural, family, school, neighbourhood, and health covariates. Membership in this severe cluster is associated with material disadvantage across the range of environmental factors as well as significant deficits in child health and education.

ABRÉGÉ

Cette étude identifie une sous-population d'enfants à risque élevé, présentant un profil de comportement antisocial très net, au sein d'un échantillon national d'enfants canadiens. On y examine un large éventail de facteurs propres à l'environnement et à l'enfance qui pourraient être associés à ce groupe à risque élevé. Les données proviennent de l'Enquête nationale longitudinale sur les enfants et les adolescents et portent sur 18 135 d'entre eux, âgés de deux à onze ans. On a procédé à une analyse typologique pour identifier les enfants manifestant un comportement antisocial extrême portant sur cinq dimensions : agression, hyperactivité, comportement prosocial, difficultés émotives et inconduite. Les groupes ont été comparés en fonction de covariables relatives à la structure, à la famille, à l'école, au voisinage et à la santé. L'appartenance à cette sous-population très problématique est associée aux désavantages matériels pour toute la gamme des facteurs environnants ainsi qu'à de graves déficiences aux plans de la santé et de l'éducation des enfants.

The Clustering of Severe Behavioural, Health and Educational Deficits in Canadian Children: Preliminary Evidence from the National Longitudinal Survey of Children and Youth

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Children possessing antisocial personality traits place a heavy burden on their parents, school, and the community at large. Moreover, such traits are quite likely to be stable across adolescence and adulthood,^{1,2} having far-reaching consequences for the individual and the community. Children possessing these traits are more likely to engage in adolescent delinquency and adult crime³⁻¹⁵ and comprise a high proportion of the incarcerated population in this country.¹⁶ However, consequences are not limited to the criminal justice system. There is evidence that this population is also more likely to consume a greater proportion of health and social resources^{7,15-19} and perform more poorly at school.^{4,20}

Several studies have identified links between these behaviours and a range of covariates centered around social and structural disadvantage such as a poor socio-economic status and family environ-

ment,^{3,8,18,21} hostile and aversive parenting,^{5,15,21-25} and ineffective family functioning.^{4,5,18,20-25} Most studies that have examined antisocial behaviour among children used unrepresentative, retrospective clinical or court samples^{13,15,24,25} or community-based cohort samples,^{3,4,9,14,17,21,26,27} making results ungeneralizable to the population or across different cohorts.

Several population-based epidemiological examinations of the distribution of antisocial behaviour and psychiatric disorder among children have found an association between behaviour and a disadvantaged environment.^{19,28-31} The Isle of Wight study focused on a 10 and 11 year old cohort.²⁹ The Manhattan Survey of Psychiatric Impairment in Urban Children sampled children ages 6-18 from 1,034 randomly selected families and 1,000 mothers on welfare.^{30,31} More recently, the Ontario Child Health Study (OCHS) randomly sampled 3,294 children in 1,869 families in Ontario^{18-20,28} to assess the childhood prevalence of conduct disorder, hyperactivity, emotional disorder and somatization. The study found that between 13.5% (girls 4-11) and 21.8% (girls 12-16) of children had at least one disorder¹⁹ while 68.2% of children with one diagnosis had at least one comorbid diagnosis.¹⁸ Moreover, it found significant associations between the presence of disorder and characteristics of the child and the child's environment.^{18-20,28,32}

The recently released National Longitudinal Survey of Children and

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Youth (NLSCY), a large, nationally representative sample of Canadian children from newborn to age 11 ($N=22,831$) undertaken by Statistics Canada to gather information on the well-being, health, and life opportunities of children,³³ permits further examination of these issues. While the NLSCY is limited in its ability to produce clinically relevant prevalence rates across psychiatric diagnoses, it builds upon the strength of the OCHS. First, the larger sample size of the NLSCY allows for a more subtle examination of age-graded child characteristics than that found in earlier research. This is especially important since the OCHS aggregated 4 to 11 into one age grouping. Second, the NLSCY included measures of antisocial tendencies from children 2 years of age or older, allowing for the examination of a younger population possessing symptoms of severe dispositional deficits. Third, since the NLSCY is a national sample, it can produce national Canadian population estimates unlike previous studies. Finally, the NLSCY collected greater detail on the child and the child's environment, including family dynamics and parental physical and mental health, allowing for a more thorough examination of the covariates of antisocial behaviour. For example, school performance in the OCHS was based on whether the child failed a grade or received special remediation or placement;²⁰ the NLSCY examines several dimensions of scholastic performance such as competence in reading, writing and arithmetic. Moreover, the NLSCY collected extensive information on the social processes within the family including parenting problems and parental health problems as well as family dysfunction.

This preliminary investigation of the first wave of the NLSCY focuses on three specific issues. First, it examines at what age it is possible to identify a subpopulation of children with high levels of antisocial behaviour. Second, it examines a wider array of environmental and child covariates associated with these behavioural deficits. Finally, it estimates the national population of children possessing these characteristics to assess the magnitude of the problem.

DATA

We confine our current study to children 2 to 11 years old ($N=18,135$) in the NLSCY. All information used in this analysis was collected from the person most knowledgeable (PMK) in the household, typically the mother. All analyses were computed using a standardized weighting scheme as suggested by Statistics Canada.³³

The information collected from the PMK included a broad array of measures about children's behaviour, school and health problems, parent's demographic, socio-economic, social support and health status, and an extensive collection of questions about the family and community environment including parenting practices, family functioning, and residential issues. A description of the measures are included in Appendix 1.

METHOD

In order to identify children manifesting extreme antisocial behaviour, a cluster analysis³⁴ was conducted on standardized reports of five behavioural measures for 4 to 11 year olds and four behavioural measures for 2 and 3 year olds.³³ The sample was divided into two-year age groups and examined separately to remove any age effects from the clustering procedure. The large sample size for each age group required the use of centroid sorting based on Euclidean distances.³⁵ This allocated cases to each cluster on the basis of the shortest Euclidean distance from each case to a cluster centre. The cluster centres were initially estimated from the data and adjusted as more cases were examined through an iterative process. The number of clusters was determined through an interactive process setting a minimum Euclidean distance between cluster centres at 2.0 to produce the most distinct, yet parsimonious number of clusters. Table I presents the details of the clusters. For each age group, the clusters were arranged so that cluster 1 represents the lowest mean level of antisocial behaviour and cluster 3 represents the most extreme mean level of antisocial behaviour. As the behavioural measures were standardized prior to the

clustering procedure, the cluster centres represent the number of standard deviations above and below the mean and the distances are the Euclidean distance between cluster centres. The right-hand side of Table I presents the numbers of cases in each cluster, the percentage of each sub-sample, and a population estimate derived from Statistics Canada weighting procedure.³³ The proportion of children in the most severe cluster manifesting the highest mean level of antisocial behaviour across all behaviours ranged from 5.0-8.0%. The population estimate for these percentages of children in the extreme clusters between 2 and 11 totaled 253,441. The final column of Table I reports the percentage of males in each cluster. The proportion of males varied across the age groups from 61.3%-70.7% in the extreme cluster. Discriminate function analysis and Duncan's multiple range test were employed to compare clusters across all covariates.

RESULTS

Consistent with previous studies, Table II reveals that children in the severe cluster were more likely to be in a disadvantaged environment, reflected in consistently lower mean levels of social support, SES, income adequacy, education, parental age, and a higher number of weeks not working. Table III indicates that the children in this severe cluster across all age groups were also exposed to significantly higher average levels of family dysfunction, hostile and punitive parenting and PMK depressive symptomatology as well as lower levels of positive and consistent parenting with the exception of positive parenting among the lowest age category.

The severe cluster was marked with lower school attachment and achievement among the school age children (Table IV). Poorer scholastic achievement across reading, math and written ability as well as a greater frequency of problematic behaviour contacts were reported among children as young as 4 and 5. Children aged 6 and 7 and above in this cluster also attended a greater number of schools during their scholastic career. The percentage of days missed was significantly higher and overall

Appendix 1

Description of All Measures Included in Analysis

Variable	Description
Behavioural Variables	
Aggression	4-11 years: 6-item measure included: how often the child gets into fights; reacts with anger and fighting; physically attacks people; threatens people; is cruel; bullies or is mean to others; and kicks, bites, or hits other children. Includes one item from the Montreal Longitudinal and Experimental Survey (MLES) and four items from the Ontario Child Health Study (OCHS). ($\alpha = 0.77$; range 0-12). 2-3 years: 8-item measure included: how often the child gets into fights; reacts with anger and fighting; kicks, bites, or hits other children; defiance; punishment not changing behaviour; temper tantrums; difficulty awaiting turn; and angry moods. Includes one item from the MLES and one item from the OCHS. ($\alpha = 0.75$; range 0-16).
Hyperactivity	4-11 years: 8-item measure included: how often the child is restless; difficulty sticking to any activity; fidgeting; difficulty concentrating; impulsiveness; difficulty awaiting turn in games; difficulty settling; and inattentiveness. Includes one item from the MLES and six items from the OCHS. ($\alpha = 0.84$; range 0-16). 2-3 years: 7-item measure included all of the above items except difficulty awaiting turn. Includes one item from the MLES and six items from the OCHS. ($\alpha = 0.79$; range 0-14).
Prosocial behaviour	4-11 years: 10-item measure included: how often the child shows sympathy; helps someone who is hurt; volunteers to clean up; helps other children with a task; tries to stop a fight; comforts another child; helps pick up objects; invites others to join a game; helps other children who are sick; and praises other children. Includes five items from the MLES and five items from the OCHS. ($\alpha = 0.82$; range 0-20). 2-3 years: 5-item measure included: helps someone who is hurt; comforts another child; helps other children with a task; helps other children who are sick; and praises other children. All items are from the MLES. ($\alpha = 0.85$; range 0-10).
Emotional disorder/anxiety	4-11 years: 8-item measure included: how often the child seems to be unhappy, sad, or depressed; not as happy as other children; fearfulness; is worried; crying; miserable or distressed; nervous or tense; and has trouble enjoying themselves. Includes seven items from the OCHS. ($\alpha = 0.79$; range 0-16). 2-3 years: 6-item measure included all of the above items except crying and miserable or distressed. All items are from the OCHS. ($\alpha = 0.59$; range 0-12).
Misconduct	4-11 years only: 6-item measure included: the destruction of own belongings; stealing at home; destruction of other peoples' belongings; tells lies or cheats; vandalism; and stealing outside the home. ($\alpha = 0.64$; range 0-12).
Structural Covariates	
Social support	A 6-item measure, based on the Social Provisions Scale, ^{33,40} designed to capture availability of persons to turn to in times of need and to offer general social support. ($\alpha = 0.82$; range 0-18).
Socioeconomic status	Based on occupation and education of the parents and household income with values truncated at +2 and -2. ³³
Income adequacy	A 5-category measure based on total household income adjusted for household size based on Statistics Canada low income cut-offs. ^{41,42}
Age of the PMK	Collapsed into five categories: 15-24 years; 25-29 years; 30-34 years; 35-39 years; 40+ years.
Education of the PMK	Collapsed into four categories: < High school; High school; > High school; College/trade/university degree.
Time not working	Recorded as weeks in the previous year. Respondents voluntarily out of the workforce were excluded from this comparison.
Family Covariates	
Family function	Family functioning followed a scale developed at McMaster University which has been widely used in studies conducted in Canada and abroad. ^{44,45} 12-item measure designed to provide an assessment of family functioning and an indication of the quality of the relationships between parents or partners. A higher score indicates greater family dysfunction. ($\alpha = 0.88$; range 0-35).
Positive interaction	A 5-item measure adapted from Strayhorn and Weidman's Parent Practices Scales ⁴⁵ designed to measure the frequency with which the parent praised the children, played with them, talked with them, and spent time with them. ($\alpha = 0.81$; range 0-20).
Hostile parenting	A 7-item measure adapted from Strayhorn and Weidman's Parent Practices Scales ⁴⁵ designed to measure the frequency that the parent gets annoyed with child for disobedience, praises the child very little, uses high levels of disapproval when talking to child, gets angry when punishing child, punishment depends on parent's mood, and disciplines repeatedly for the same thing. ($\alpha = 0.70$; range 0-25).
Consistent parenting	A 5-item measure adapted from Strayhorn and Weidman's Parent Practices Scales ⁴⁵ designed to measure the frequency that the parent enforces orders, punishes disobedience, doesn't permit the child to 'get away' with misconduct, the child avoids punishment, and the child ignores punishment. ($\alpha = 0.66$; range 0-20).
Punitive parenting	A 4-item measure adapted from Strayhorn and Weidman's Parent Practices Scales ⁴⁵ designed to measure the frequency that the parent scolds or yells at the child, calmly discusses problem behaviour, physically punishes the child, and discusses acceptable behaviour. ($\alpha = 0.57$; range 0-19).
PMK depression	A 12-item scale using a subset of the Centre for Epidemiological Studies-Depression scale. ⁴⁶ ($\alpha = 0.82$; range 0-35).
School Covariates	
School achievement variables	Ability in reading, writing, and math – ranged from 1=very well to 5=very poorly.
Test scale score	This measure was a mathematical computation test administered to age 6 and above and scaled by age.* For ages 4 and 5, the NLSCY employed the Peabody Picture Vocabulary Test-Revised (PPVT-R) to measure school readiness. ³³
Behaviour contacts	School contacts to a parent about the child's behaviour within the previous year.
Days missed	Percentage of school days missed in the previous year.
Number of schools	Total number of times changed schools.
Community Covariates	
Neighbourhood safety	A 2-item scale included: the neighbourhood is safe and it is safe for children to play outside. ($\alpha = 0.68$; range 0-6).
Neighbours score	A 5-item scale designed to measure social cohesion and cooperation included: neighbours deal with problems together; adults for kids to look up to; people are willing to help each other; adults watch out that children are safe; and if away, neighbours watch for trouble. ($\alpha = 0.86$; range 0-15).
Neighbourhood problems	A 5-item scale designed to measure problem activities such as selling drugs, public drinking, and burglary. ($\alpha = 0.70$; range 0-10).
Number of moves	Total number of times moved house.
Health Covariates	
Child-rated health	Standard single item using five categories from 1 = excellent to 5 = poor to rate one's perception of health.
PMK self-rated health	
Spouse-rated health	
Number of injuries	Frequency in the previous year.
Doctor contacts	
Dentist contacts	
Welfare contacts	
Therapist contacts	
Health Utility Index	Ranges from zero to one and was based on PMK reports of eight dimensions: vision, hearing, speech, mobility, dexterity, cognition, emotion, pain and discomfort. ⁴⁷

* The NLSCY Users Handbook and Microdata Guide³³ cautions that for "certain grades, the test that was used was not significantly difficult to properly distinguish math computation abilities for children in these grades. The problem was critical for grades 3 and 5 where many children achieved a perfect score on the test." (1997: 135)

TABLE I
Cluster Characteristics*

Ages & Cluster	Cluster Centres					Distances		N†	N (%)	Pop. Estimate	Male (%)
	Aggres	Hyper	Prosoc	Emot	Miscon	1	2				
10 & 11											
1	-0.408	-0.535	0.174	-0.466	-0.376	—	—	2335	63.7	477941	44.9
2	0.373	0.828	-0.209	0.684	0.325	2.107	—	1149	31.3	235138	59.5
3	2.856	1.713	-0.922	1.709	2.735	5.590	3.783	184	5.0	37626	64.0
8 & 9											
1	-0.439	-0.562	0.155	-0.468	-0.431	—	—	2259	61.8	462459	44.0
2	0.294	0.753	-0.138	0.592	0.297	2.003	—	1107	30.3	226661	59.2
3	2.296	1.481	-0.685	1.380	2.228	4.782	3.031	286	7.8	58641	70.7
6 & 7											
1	-0.451	-0.454	0.204	-0.410	-0.426	—	—	2330	65.5	476839	45.1
2	0.497	0.719	-0.307	0.627	0.406	2.077	—	991	27.8	202785	59.8
3	2.391	1.514	-0.694	1.506	2.446	4.969	3.049	237	6.7	48523	68.3
4 & 5											
1	-0.476	-0.615	0.126	-0.531	-0.489	—	—	2064	56.2	422542	47.7
2	0.267	0.644	-0.113	0.546	0.291	1.992	—	1312	35.7	268490	51.5
3	2.073	1.346	-0.396	1.292	2.113	4.553	2.777	295	8.0	60294	68.4
Ages & Cluster	Cluster Centres					Distances		N†	N (%)	Pop. Estimate	Male (%)
	Aggres	Hyper	Prosoc	Emot		1	2	3			
2 & 3											
1	-0.632	-0.609	-0.190	-0.535	—	—	—	1707	50.1	349524	48.5
2	-0.003	0.081	0.657	0.895	1.907	—	—	691	20.3	141499	48.4
3	0.977	0.907	-0.083	-0.276	2.229	1.889	—	774	22.7	158602	57.1
4	1.311	1.331	-0.272	2.300	3.949	2.640	2.476	236	6.9	48357	61.3

* 'Extreme' cluster in bold italics.

† Standardized weighting for the sample.

TABLE II
Means of Clusters among Structural Variables

Ages & Cluster	Social Support	SES	Income Adequacy	PMK Education	PMK Age	Weeks not Working (PMK)	Weeks not Working (Spouse)
10 & 11							
1	14.689	0.061	3.606	2.887	4.106	5.567	2.767
2	14.099	-0.110	3.413	2.771	4.036	5.417	3.213
3	13.816*	-0.426**	2.924**	2.648*	3.715**	12.111*	8.210**
8 & 9							
1	14.518	0.059	3.578	2.947	3.935	5.753	2.940
2	14.482	-0.135	3.409	2.779	3.744	6.263	3.966
3	13.853**	-0.377**	3.102**	2.444**	3.543**	9.429*	4.461**
6 & 7							
1	14.458	-0.019	3.511	2.828	3.628	6.179	3.529
2	14.217	-0.169	3.369	2.787	3.418	7.224	3.514
3	14.055	-0.337**	3.132**	2.550**	3.311*	9.267*	2.720
4 & 5							
1	14.860	0.046	3.513	2.941	3.352	6.738	2.992
2	14.508	-0.141	3.329	2.921	3.143	8.517	4.028
3	14.192*	-0.336**	3.154**	2.778	2.951**	7.612	4.703
2 & 3							
1	14.600	0.002	3.563	2.980	3.058	7.312	4.094
2	14.376	-0.035	3.418	2.983	2.847	10.690	2.453
3	14.540	-0.163	3.344	2.812	2.844	8.610	3.925
4	13.913*	-0.355**	3.000**	2.705*	2.643*	8.992	6.148

** p < 0.01 from the nearest cluster.

* p < 0.01 from the furthest cluster.

school test scores were significantly lower among these high-risk children aged 8 through 11.

The high-risk children lived in significantly more disadvantaged neighbourhoods (Table V). Across all age groups, PMKs consistently reported lower perceptions of neighbourhood safety and cohe-

sion as well as a higher number of neighbourhood problems. It is not surprising that these families also had a significantly higher level of residential instability compared to children in other clusters.

The health comparisons among clusters is presented in Table VI. The PMK and child health rating was significantly lower

across all age groups while spouse's health was lower among the children in the three middle age groups. Across all age groups, the high-risk cluster had significantly more doctor and therapist contacts. Among those aged 4 and older, these children had significantly higher rates of injury and higher welfare contacts. The difference

TABLE III
Means of Clusters among Family Variables

Ages & Cluster	Family Function	Parenting				PMK Depression
		Positive	Hostile	Consistent	Punitive	
10 & 11						
1	7.097	11.784	7.313	15.434	8.287	3.638
2	9.349	10.973	10.517	14.096	9.441	6.699
3	12.235**	10.398**	13.699**	13.269**	9.864**	9.000**
8 & 9						
1	7.486	12.240	7.675	15.364	8.489	3.715
2	8.483	11.590	10.543	14.736	9.389	5.744
3	10.750**	11.222*	13.470**	13.429**	9.910**	8.063**
6 & 7						
1	7.398	13.425	7.575	15.328	8.403	4.134
2	8.615	12.552	10.495	14.323	9.533	6.075
3	10.233**	12.074**	13.651**	13.781*	10.272**	7.559**
4 & 5						
1	6.872	14.918	7.459	15.235	8.361	3.416
2	8.824	14.157	10.237	13.967	9.385	5.722
3	9.820**	14.000*	12.936**	12.836**	10.358**	8.625**
2 & 3						
1	7.431	16.483	7.506	14.774	8.719	3.788
2	8.294	16.188	9.388	14.132	9.117	6.108
3	8.534	15.993	11.051	13.558	10.053	6.063
4	10.832**	15.774*	13.285**	12.615**	10.726**	8.389**

** p < 0.01 from the nearest cluster.

* p < 0.01 from the furthest cluster.

TABLE IV
Means of Clusters among Schooling Variables

Ages & Cluster	Reading	Math	Written	Number of Schools	Behaviour Contacts	Days Missed (%)	Test Score
10 & 11							
1	1.631	1.695	1.808	1.729	1.034	2.579	491.11
2	2.065	2.080	2.446	1.989	1.143	2.666	473.52
3	2.600**	2.368**	3.029**	2.712**	1.555**	3.684*	455.31*
8 & 9							
1	1.650	1.677	1.842	1.584	1.026	2.822	392.79
2	2.060	1.957	2.350	1.786	1.137	3.158	379.79
3	2.341**	2.169**	2.796**	1.814	1.546**	3.458	359.78**
6 & 7							
1	1.677	1.620	1.859	1.388	1.029	3.496	320.69
2	2.015	1.907	2.222	1.402	1.126	3.213	307.24
3	2.310**	2.207**	2.568**	1.719*	1.371**	4.045	294.51
4 & 5							PPVT†
1	1.936	2.032	1.929	1.097	1.012	3.739	106.75
2	2.687	2.802	2.628	1.063	1.058	3.485	105.31
3	2.775	2.184	2.527	1.337	1.154**	4.674	115.00

** p < 0.01 from the nearest cluster.

* p < 0.01 from the furthest cluster.

† Peabody Picture Vocabulary Test

between clusters within age groups on mean health utility index was greater among the older cohorts. Finally, it should be noted that these children also had a lower rate of dentist contacts likely due to differential payment schemes.

DISCUSSION

The overall pattern among the severe cluster of children compared to other clusters for all age categories across this broad range of social-structural, family, school, community and health covariates is

impressive in its consistency. Although the clusters are based on a statistical procedure designed to separate children across these five behaviours, it appears to create a natural subpopulation that manifests significant deficits across a broad range of covariates not specified by the initial behaviour criteria.

With very few exceptions, the children in the severe clusters among all age groups manifest a serious pattern of disadvantage across social-structural, family, school, neighbourhood and health covariates.^{3-5,8,15,18,20-25,36} It is clear that even at 2 years of age, chil-

dren identified as possessing higher levels of antisocial traits reveal an isomorphic pattern of disadvantage across the associated covariates consistent with older cohorts. While the OCHS previously identified these patterns among a sample of children 4 to 16,¹⁹ the results presented here suggest that these behaviours can be identified among children at a much earlier age and that these are accompanied by deficits across all the environmental and child characteristics.

Even though the proportion of children from various age groups within this high-risk

TABLE V
Means of Clusters among Community Variables

Ages & Cluster	Neighbourhood Safety	Neighbour Score	Neighbourhood Problems	Number of Moves
10 & 11				
1	4.450	11.193	1.094	1.721
2	4.304	10.306	1.522	2.451
3	3.776**	9.262**	2.027**	3.508**
8 & 9				
1	4.374	10.912	1.142	1.586
2	4.348	10.741	1.432	1.975
3	4.035**	10.048*	2.140**	2.432**
6 & 7				
1	4.316	10.864	1.172	1.367
2	4.211	10.395	1.357	1.864
3	3.873**	9.751**	2.143**	2.263**
4 & 5				
1	4.367	10.945	1.123	0.957
2	4.070	10.355	1.448	1.421
3	4.027*	9.993*	2.133**	2.061**
2 & 3				
1	4.167	10.672	1.125	—
2	4.135	10.430	1.444	—
3	4.100	10.315	1.387	—
4	3.586**	9.582**	1.855**	—

** p < 0.01 from the nearest cluster.

* p < 0.01 from the furthest cluster.

TABLE VI
Means of Clusters among Health Variables

Ages & Cluster	Child							PMK	Spouse
	Rated Health	Number of Injuries	Doctor Contacts	Dentist Contacts	Welfare Contacts	Therapist Contacts	Health Utility	Self-Rated Health	Self-Rated Health
10 & 11									
1	1.434	0.164	1.577	1.982	0.008	0.180	0.977	1.907	2.042
2	1.694	0.225	1.884	1.926	0.734	1.085	0.940	2.189	2.126
3	1.876**	0.331**	2.836**	1.266**	1.155**	3.569**	0.841**	2.245**	2.277
8 & 9									
1	1.462	0.111	1.750	1.920	0.100	0.465	0.981	1.873	1.864
2	1.624	0.124	2.661	1.797	0.171	0.882	0.947	2.034	2.098
3	2.008**	0.249*	2.664	1.592*	0.644*	2.891*	0.920**	2.268**	2.219*
6 & 7									
1	1.536	0.094	2.181	1.547	0.049	0.751	0.979	1.965	1.941
2	1.592	0.163	2.354	1.470	0.023	1.513	0.959	2.058	1.976
3	1.933*	0.171**	3.707*	1.506	1.208*	2.092**	0.919**	2.176*	2.245**
4 & 5									
1	1.454	0.091	2.550	1.064	0.059	0.564	0.987	1.780	1.721
2	1.596	0.103	2.658	0.998	0.252	0.696	0.974	2.012	1.964
3	1.778**	0.160*	2.717	1.107	0.561*	1.260	0.951**	2.223**	2.179**
2 & 3									
1	1.416	0.122	2.815	0.307	0.085	0.601	—	1.808	1.749
2	1.459	0.160	3.105	0.395	0.022	0.161	—	2.003	1.890
3	1.520	0.173	3.052	0.301	0.241	0.336	—	1.999	1.873
4	1.936**	0.204	4.290**	0.328	0.269	2.943**	—	2.240**	1.976*

** p < 0.01 from the nearest cluster.

* p < 0.01 from the furthest cluster.

group is relatively small, the number of Canadian children it represents gives grounds for concern. While these children may possess symptoms of antisocial behaviour, the data did not permit precise clinical diagnoses. However, the percentage of children in the various age groups in these high-risk clusters is consistent with or slightly lower than the prevalence of conduct disorder, hyperactivity and emotional disorder diagnosed among 4-11 year olds in the OCHS.¹⁸

Since children of all ages manifesting extreme levels of antisocial behaviour are more likely to be exposed to a disadvantaged environment, these may be markers for dispositional deficits.¹⁸ Moreover, they may also be markers for a broad array of difficulties in school, poorer physical and mental health, higher injuries, etc. While some environmental variables are interrelated – an unsafe neighbourhood and inadequate financial resources – these findings

support previous longitudinal research^{6,7,12,27,37} that identify environmental factors as having a cascading effect across the early life cycle. While we are unable to conclude that these environmental variables are causally involved due to the cross-sectional nature of these data, the consistency across age is highly robust. It can be inferred that this disadvantaged environment places children on a trajectory associated with a broad array of problems.^{38,39}

To conclude, the hazards that these children experience in their daily environment exact a very high cost to both the children and the community. Not only are anti-social behaviours prevalent among this group, but poor school performance and health problems provide very consistent and compelling evidence that problematic behaviours appear in environments which are least able to buffer their negative consequences. In the future, it will be possible to examine the causal ordering associated with the clusters examined here after subsequent waves of the NLSCY become available. More importantly, it will also be possible to examine the stability of these complex negative dispositions in very young children as they age to identify potential intervening mechanisms. In the meantime, the attraction of the cross-sectional approach explored here is that it documents the scope of the personal, medical, psychological, educational and interactional liabilities of the most vulnerable, behaviour-disordered children.

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