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Department of Applied Human Nutrition
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Masters Thesis

School Performance and Weight Status among Low-Income Canadian Children and Adolescents

by Stacey Lake, RD

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Department of Applied Human Nutrition

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Approved:

Dr. Misty Rossiter PhD, PDt
Thesis Co-Supervisor
Professor Applied Human Nutrition
University Prince Edward Island

Dr. Ilya Blum PhD
Thesis Co-Supervisor
Professor Mathematics and Computer Science (Retired)
Mount Saint Vincent University

Dr. Robert Arnold PhD
Associate Professor of Sociology
University of Windsor

Dr. Theresa Glanville PhD, PDt
Professor Applied Human Nutrition
Mount Saint Vincent University

Dedication

This thesis is dedicated to my loving husband, Joshua, who patiently stood by me during the long 6 years it took to complete this degree. Thank you for all the dishes you washed, floors you cleaned, puppies you picked up after, and laundry you folded to help make things easier as I carried on toward the finish line. Thank you too for all the hugs, kisses, surprise snacks and multitudes of tea you made me to help me get through the hardest times. We are here my love, and the best is yet to come! I love you.

Josh also wishes to thank Netflix and Marvel for keeping him company this winter.

Abstract

Increasing health care costs combined with climbing rates of child overweight and obesity are of significant concern worldwide, and in particular, Canada. Existing evidence shows clear linkages between child weight status and poorer health outcomes in adulthood, but results are conflicting regarding the association between childhood obesity and educational outcomes, which may mediate this relationship.

Our study therefore intended to explore relationships between school performance and weight status and to determine predictive factors among a cohort of disadvantaged children in the context of their ecological environments. A Social Ecological Model (SEM) viewpoint employing Social Cognitive Theory formed the basis of the approach taken, in the context of the Child Development Framework which also describes “development as a function of interaction” within several concentric layers of environmental influence.

Longitudinal data from the Better Beginnings Better Futures (BBBF) research demonstration project from eight low-income Ontario communities was used for this study. A total of n=1014 cases were included from among the older cohort of children aged 4 to 8 years at the start of the study. Child height and weight were both self-reported, and measured according to established guidelines, in grade 6 and 9, but were self reported in grade 12. Parents also self reported height and weight.

Our measures of school performance in grade 6 and 9 were based on an overall teacher-rated 5 point scale (1= near the top of the class, 5=near the bottom of the class). School Performance in grade 12 was based on overall marks provided by the Ontario Ministry of Education (MOE), subsequently recoded onto a similar 5 point scale. Thirteen (13) additional environmental factors related to family background/SES, and psychosocial factors were included for investigation through the lens of the SEM and child development framework including: Community of Residence, Immigration Status, Self Esteem, Popularity, Emotional Disorder, Parent Education Level, Financial Status, Parent Weight Status, Single Parent, Tired, Physical Activity, Dietary Intake and Breakfast.

Our study found that children who were obese in grade 9 were less likely to achieve Higher School Performance (HSP) in grade 12 (OR = .238, $p=.010$), while children who were underweight in grade 9 were more likely to achieve Lower School Performance (LSP) in grade 12 (OR= 4.774, $p = .034$). Interestingly children who were overweight in grade 6 were also less likely to achieve LSP in grade 12 (OR = .249, $p=.007$). In the reverse, children with failing School Performance in grade 6 were more likely to be overweight or obese (OOWS) in grade 12 (OR = 2.818, $p = .027$). While School Performance and Weight Status were not related directly to each other within any given grade level, our findings did reveal significant associations tracking forward from grade 6, grade 9, and grade 12.

Our findings suggested that this relationship may be mediated by the influence of Self Esteem. Children with moderate Self Esteem in grade 12 were less likely to achieve HSP in grade 12 (OR= .561, $p = .005$) while children with low Self Esteem in grade 12 were more likely to be Overweight or Obese (OOWS) in grade 12 (OR = 2.898, $p = .048$). Similarly, children with moderate Self Esteem in grade 6 were more likely to achieve LSP in grade 9 (OR = 2.281, $p =$

.010). Likewise, each increasing level of Self Esteem in grade 12 was associated with a 2.399 point increase ($p=.035$) in grade 12 MOE average marks.

Arriving to school tired was significantly associated School Performance at all grade levels and longitudinally. Children who were Tired at school in grade 6, were significantly more likely to achieve LSP ($OR=2.748, p=.000$; $OR=2.757, p=.000$; $OR=4.864, p=.000$) and less likely to achieve HSP ($OR=.218, p=.000$; $OR=.370, p=.003$; $OR=.389, p=.002$) in grades 6, 9 and 12. Arriving to school tired in grade 9 also significantly decreased grade 12 MOE average marks by -6.713 points ($p=.000$).

Our results further revealed that Family Background factors such as Parental Weight and Single Parent, as well as SES-related factors such as Parental Education and Household Income were predictive of both School Performance and Weight Status in varying degrees at each grade level, particularly in grade 6. Children having one parent, or no parents, with greater than high school education were more likely to achieve LSP ($OR=2.301, p=0.000$; $OR=2.632, p=.000$), and less likely to achieve HSP ($OR=.370, p=.000$; $OR=.561, p=.011$) in grade 6. Children having parents with normal Weight Status in grade 6, 9 and 12 were significantly less likely to be Overweight or Obese in the same respective grade ($OR=.375, p=.000$; $OR=.307, p=.000$; $OR=.314, p=.000$). Children in grade 9 having Financial Status at or above the Low Income Cut Off (LICO) were more likely to achieve HSP in grade 12 ($OR=.336, p=.015$). Also, children in grade 6 having Financial Status at or above the Low Income Cut Off (LICO) were less likely to be Overweight or Obese in grade 6 ($OR=.604, p=.016$). As well, children from Single Parent Families in grade 12 were more likely to achieve LSP, and less likely to achieve HSP in the same grade ($OR=1.764, p=.023$; $OR=.387, p=.000$).

Strengths of this study include: the large sample size, use of measured height and weight for the children in grades 6 & 9, and the use of developmentally appropriate, variables such as our comprehensive, teacher-rated measures of school performance. However, this study is limited by the inherent challenges associated with secondary data analysis, the use of self-reported parent height and weight, lack of waist circumference measures for children, and less than optimal measures of dietary intake and physical activity.

In keeping with the concepts of SEM, SCT and the Child Development Framework, these results suggest that interventions directed toward younger children should focus on healthy lifestyle practices, such as healthy eating, adequate sleep and increased physical activity, but particularly among adolescents entering High School, the focus should increasingly include intrinsic motivators such as positive self image/self esteem and resiliency. Additional focus on reducing the negative impacts of family background and SES-related factors on children, should be included in the development of policies and programs for communities and families. For example, this would enable children to access cultural/educational activities/events which would have otherwise been financially or socially restricted. And lastly, supportive environments for parents should be fostered to develop skills and knowledge related to positive parenting practices, healthy lifestyle choices, and to provide assistance with navigating the institutional school and healthcare systems.

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I can do all things through Christ who gives me strength.

Truly this thesis would not have been even completed if it weren't for the power of prayer. Thank you to my husband, Josh, my mom, Cathy, my grandmother, Violet, my parents-in-law, Donnie and Gail, and all my other family and friends who prayed, cared for me, and supported me along the way. Thank you all for celebrating the small victories with me along the way, and for comfort when the battles seemed lost.

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We made it!

Stacey

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1.0 INTRODUCTION

Childhood obesity, frequently referred to as a global epidemic, is of significant concern worldwide (1–3), in particular, Canada (2,4–7). With increasing health care costs (1,2,8–13) combined with climbing rates of child overweight (2,4,6,7) and evidence pointing to links between child weight status and adult weight status, as well as the associated health risks (10,12–19), childhood obesity has become a public health priority (7). Further evidence indicating an association between childhood obesity and school performance (20–23) has heightened public health interest as a factor related to education attainment which is a predictor of income, and subsequently a determinant of health (16,20,24–28).

1.1 PREVALENCE OF CHILDHOOD OBESITY

In 1978 the nationally representative Canada Health Survey identified approximately 1 in 5 Canadian children and youths between the ages of 2 and 17 as being either overweight or obese (4,7). In 2004, nearly a quarter of a century later, the Canadian Community Health Survey (CCHS) (4,7), revealed concerning figures describing rapidly increasing rates of obesity among Canadian children (4,7). Using Body Mass Index (BMI) cut-offs recommended by the International Obesity Taskforce (IOTF) (29) as a measure of weight status, the CCHS identified twice as many overweight or obese children ages 6 to 17 years old and three times more obese adolescents ages 12 to 17 years old than were identified in the 1978 Canada Health Survey (4,7). Even more recently (2014), the World Health Organization (WHO) reported that prevalence of obesity had doubled worldwide since 1980; particularly citing concerns regarding observed increases in middle and low-income countries in the urbanized settings (30). However, while some comparison can be made with studies from outside North America, consideration should be

given to the differences in cultural factors that exist such as the concepts of community, the family unit, and dietary habits.

1.2 FACTORS RELATED TO CHILDHOOD OBESITY

Childhood obesity is a complex disease with many genetic and environmental factors contributing in various degrees and in various combinations (19,31). Diet quality (32) and increased consumption of sugar-sweetened beverages has been suggested as linked to increased BMI (33–35), as well as decreased consumption of family dinners (36). Hours of sleep have additionally been inversely linked to obesity among children (34) .

Physical activity has been found to be negatively associated with weight status among children (19,37), evidenced by a reduction in risk of obesity by between 23% - 43% among children involved in sports and physical activity. Screen time has conversely been shown to increase risk of obesity by as much as 61% according to one Canadian study (37); however, further research also supports these findings (19,38,39) .

Birth weight has also been shown to be positively associated with BMI (15,40) , although after controlling for maternal characteristics such as BMI, the relationship disappeared in one study (40) . Maternal pre-pregnancy weight was associated with increased risk of being overweight at age 11 among Nova Scotian children (19). Conversely, previous research has shown an association between low birth weight, and resulting catch-up growth, with increased fatness at age five among children living in the UK (41).

Breastfeeding may have a protective effect on childhood obesity. According to a recent study conducted among Newfoundland and Labrador dwelling mothers and their children, breastfeeding infants exclusively for 3 months was found to reduce prevalence of obesity among

a group of preschool children with a mean age of 4.5 years (42). A meta-analysis conducted in 2005 investigated the findings of 17 studies; results indicated a strong inverse association between breastfeeding for >9 months ($OR=.68$; 95% CI = .50 - .91) (43). A previous meta-analysis conducted in 2004 included nine studies and likewise found a strong protective effective for obesity among breastfeed infants ($OR=.78$ 95% CI=.71-.85) (44). Additional research in Australia, however, found no significant association between breastfeeding duration and obesity at age 21 (45). Likewise, results of a randomized control trial conducted among 13,889 European children indicated that exclusive breastfeeding held no protective effective for prevalence of obesity in adulthood (46).

Socioeconomic status has been linked to obesity. In 2007, McLaren (47) conducted a review of the literature to update previous work completed in 1989 by Sobal and Stunkard (48). McLaren (2007) found that most of the studies reviewed reported a significant negative association between BMI and socioeconomic indicators such as education and occupation among women (47). Jansen, Simpson, Pickett and Boyce (2006) found a strong negative association between individual ($p<0.001$) and area-level ($p=0.03$) socioeconomic status and BMI among Canadian children and adolescents in grades 6 – 10 ($n=6684$) (49). Wang, in 2001 confirmed that low-income American adolescents were more likely to be obese than were high-income adolescents; however, there was no association found between BMI and income among children under the age of 10 years (50).

Further evidence from two recent studies in England indicate that obesity rates continue to climb among the low-income population of school-age children (51,52) while a leveling off of obesity rates among children belonging to the middle and high socioeconomic classes occurred (51). Data from The Canadian Community Health Survey conducted in 2004 indicated that the

proportion of obesity was similar among low-income children and high-income children (7). However, education variables provided more consistent findings with previous results, indicating that children from homes with only grade 12 education were more likely to be obese than children from homes with post-secondary education (7). Likewise, data collected through the National Longitudinal Survey of Children and Youth (NLSCY) (Cycle 4), indicated that the odds of obesity among children living in neighbourhoods with low socioeconomic status were greater than those living in a high socioeconomic status neighbourhood (OR=1.29; 95% CI=1.14-1.46) (53).

The magnitude of influence of genetic factors on child BMI is controversial (54–57) and it is difficult to determine the extent of parental influence in terms of environmental factors apart from genetics. However several studies (54–57), some involving twins (54,55), have sought to investigate the effect, one of which was successful in identifying that weight maintenance issues were a product of environmental influences which was independent of genetics (55).

Many studies have investigated psychological effects and influencers in relation to childhood obesity, including self esteem (58–60), depression (61–63), and stigma (61,64,65). While previous research has indicated that obesity is a risk factor for depression (61–63), additional investigation has not found such an association (58). However, body/weight dissatisfaction has been found to be strongly associated with poor self esteem variables and obesity among children (58,63). In 1997, Pierce and Wardle’s investigation involving a sample of children from London, England, age 9 – 11 years found a significant association between obesity and self esteem ($r=-0.44$, $p=.013$) (60). The researchers further determined that a child’s beliefs surrounding internal versus external causes for their obesity influenced this effect. Children who believed “they, themselves” were responsible for their overweight were found to

have lower self esteem, while children who believed external factors were responsible for their overweight were found to have higher self esteem (60). Similar results from a Korean study in 2008 (n=508) indicated a significant decrease in body satisfaction among obese children as compared to normal weight children ($F=18.71$, $p<0.00001$) (58). Likewise, self esteem was reported significantly lower among the obese sample ($F=4.95$, $p<.01$); depression was not linked to obesity among the same population (58).

Childhood obesity is a multifaceted disease (19,31) with influencers which permeate both the physical and non-physical aspects of a child's life, including: diet quality (32–36), sleep habits (34), physical activity (19,37), screen time (19,37–39), birth weight (15,40,41), maternal weight (19), breastfeeding (42–44), socioeconomic status (47–53), parental education attainment (7), self esteem (58–60) and body dissatisfaction (15,58). However, the highest importance must be given to the understanding that the obese child has little to no control over these influencers and thus over their weight status; childhood obesity is a product of the environment in which a child exists.

1.3 CHILDHOOD/ADOLESCENT OBESITY TRACKING INTO ADULTHOOD

Studies from around the globe report tracking of child and adolescent BMI into adulthood (14,15,17,18,21,66–68). A recent study conducted in Canada (66) using data from the Canada Fitness Survey collected between 1981 and 2002-04 found that the majority of adolescents who were either overweight or obese remained overweight or obese as adults; likewise, the majority of adolescents who were a healthy weight remained at a healthy weight as adults.

In 2001, a study by Eriksson et al., (15) which examined data collected from individuals between 1924 and 1997 found that BMI of children and adolescents at age 7 and 15 years old

was predictive of adult obesity ($p < 0.0001$) and that risk of adult obesity tripled among children with BMI > 16 at age 7. In addition, the researchers in this study found that 92.5% of adolescents between the ages of 7 and 15 years old whose BMI was $> 90^{\text{th}}$ percentile, became overweight or obese (BMI > 25) as adults (15). The apparent link between obesity in childhood and adulthood and the associated health risks further elevates the importance of preventative measures targeting children at a young age.

1.4 SCHOOL PERFORMANCE AND CHILDHOOD OBESITY

School performance in childhood could be an important factor for consideration in relation to income attainment (23,69,70), which has been identified as a determinant of health (26). Research in this area has identified a possible link between childhood obesity and school performance (23,69,70). However, evidence linking obesity and poor school performance among children and adolescents is relatively weak and directionality is yet to be determined (21,23,71); underlying factors associated with the disease may be the cause, such as diet quality, attendance and psychosocial factors such as social stigma (20,21,23,71).

A review of the literature conducted by Taras and colleagues in 2005 found relatively consistent results pointing toward a negative association between weight status and school performance (27). The researchers comment that the body of literature, albeit small and lacking clarity concerning the directionality of the effect, has many strengths including the consistency of results, the size of the populations studied and inclusion of the complete age range of children (27).

Some data suggests poor school performance may be pre-cursive to obesity in adulthood; (72) there is also a small body of evidence linking childhood obesity to adult education and socioeconomic status outcomes which may be considered a result of inadequate school

performance during childhood (23,69,70). However, studies investigating the association between BMI and school performance vary in their methodology, variables of interest and subsequent outcomes.

1.4.1 SCHOOL PERFORMANCE ASSOCIATED WITH OBESITY AMONG CHILDREN

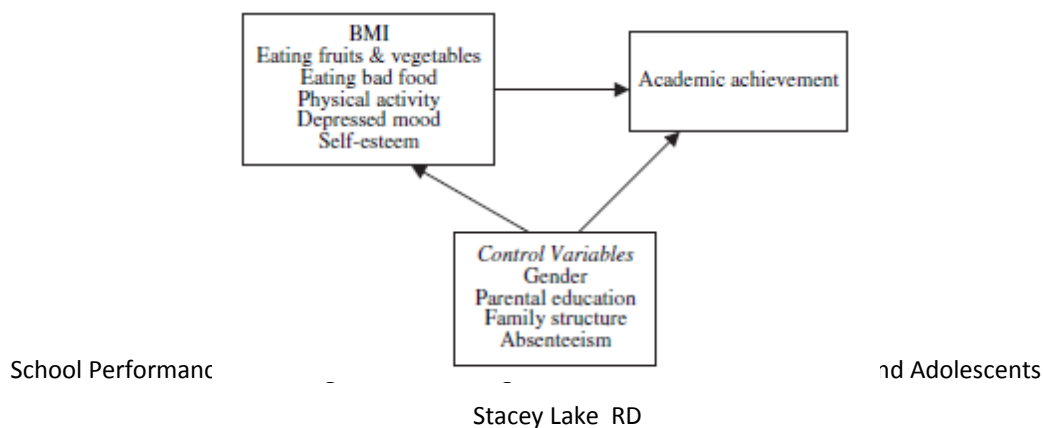
With rising rates of obesity in Thailand, analyses by Mo-Suwan, et al., (1999) (21) suggested the association between obesity and school performance among children in Thailand may exist among an older age group. The researchers conducted a cross-sectional, longitudinal study among children and adolescents ($n=1764$) over a two year period from 1992 to 1994 (21). A cohort consisting of an older group (grades 7-9) and a younger group (grades 3-6), was randomly selected from schools in an urban area in Southern Thailand. Weight status was classified according to age-for-gender data from the First National Health and Nutrition Examination Survey (NHANES-I); underweight was classified as $<15^{\text{th}}$ percentile, normal weight was considered $>15^{\text{th}}$ but $<85^{\text{th}}$ percentile, and overweight was classified as $>85^{\text{th}}$ percentile (21).

The results indicated a greater number of children in the younger cohort (20.9%) than in the older cohort (15.2%) were overweight ($p<0.001$). However, using multiple linear regression adjusted for gender, age, parental and family factors with the data from 1994, the researchers found that mean GPA was significantly lower (-0.20 points) only among overweight students in grades 7 – 9 and not among those in grades 3 – 6, when compared to normal-weight or underweight students ($p=0.017$). Furthermore, the researchers found that mean GPA decreased significantly ($p=0.008$) by -0.48 points among students in grades 7 – 9 who became overweight during the two year period of follow-up, but not among those in grades 3 – 6 (21). The findings of this study may indicate a latent manifestation of an association between weight status and

school performance that is not found in younger children; however studies from outside North America may not be fully generalizable to the Canadian setting due to significant cultural differences.

Sigfusdottir, in 2007, conducted an analysis of adolescents ($n=6346$) aged 14-15 years from Iceland. The study found a significant difference in mean self-reported grade (-1.70 ; $p<0.01$) between participants with self-reported BMI $>85^{\text{th}}$ centile and those with BMI $<85^{\text{th}}$ centile (73). The study also found a moderate correlation between BMI and mean grade (-0.12 ; $p<0.001$) after controlling for absenteeism, socioeconomic status, family structure, gender, depression indicators and level of self-esteem (73). The researchers noted that BMI, diet and physical activity measures accounted for 24% of the variance in the participant's grades, represented by the above figure which visually demonstrates the hypothesized relationships and their direction of influence (Figure 1) (73). The limitation of this study is the use of self-reported grades and self-reported BMI which may not be reliable or which may be influenced by factors such as self-esteem or depressed mood; however, the researchers reported that studies have validated the reliability of self-reported grades in estimating actual grades (73). As well, since this study occurred outside of North America, consideration must be given to the differences in culture that exist and may therefore affect the generalizability to the Canadian setting.

Figure 1: Hypothesized relationship of BMI, diet, physical activity and mental health to academic achievement (Sigfusdottir, 2007)



Another study conducted in Finland by Mikkila and colleagues (2003) with a sample of adolescents ($n=60,252$) between the ages of 14 and 16, similarly found an inverse association between obesity and the highest tertile of school performance compared to the lowest tertile among both males (0.68; 95% CI: 0.61,0.77) and females (0.62; 95% CI: 0.55,0.70) (74). The students completed a food frequency questionnaire and provided self-reported height and weight measures which were used to categorize student weight status based on an internally-relative sex-and-height specific weight percentile scale (obese $>120\%$; underweight $< 80\%$; normal weight $>80\%$ to $<120\%$) (74). School performance was measured by averaging marks from students' latest school reports which were subsequently divided into tertiles for analysis (74).

The limitations of this study surround the self-reporting of heights and weights and potential for mis-classification of weight status due to the use of an internally-relative scale. However, the results, which indicate that an association exists between obesity and school performance among young adolescents, are still considered strong because of the large number of participants, the high response rate (91%) (74). This inverse association demonstrated by Mikkila (2003) draws a parallel with previous research by Mo-Suwan (1999), Sigfusdottir (2007) and Li (2008) and raises questions concerning the effect of overweight among older children as opposed to younger children as well as the effect of becoming overweight as opposed to maintaining a stable weight status and the subsequent impacts on school performance (21,73–75); although generalizability to the Canadian setting may still be limited due to differences in culture.

Further research in the US from 2009 among children ages 4 – 13 ($n=1071$) found that overweight status was a predictor of poorer school performance ($R = 1.51$; 95% CI=1.01, 2.25) (76). However, this relationship became non-significant when adjusted for a weight-based

teasing variable using logistic regression models. Researchers surveyed a random selection of parents of Arkansas public school children as part of an “ongoing evaluation of the Arkansas Act 1220... a multifaceted legislated policy designed to reduce childhood obesity” (76). Questions asked regarding school performance pertained to letter grades obtained within the past 12 months, while weight status was obtained by parent-reported height and weight which was then used to calculate BMI and growth percentiles according to the CDC child growth charts (76). The researchers conclude that overweight children are more likely to have poorer school performance compared with non-overweight children, citing diet, physical activity and psychosocial factors (such as weight-based teasing and depression) as possible mediators (76).

1.4.2 NO ASSOCIATION BETWEEN WEIGHT STATUS AND SCHOOL PERFORMANCE

While several studies have found an association between school performance and obesity (21,23,69,73,74), other studies have not (20,70,77,78). Florence, in 2008, examined the association between weight status and school performance among 1,935 grade 5 students in Nova Scotia (20). Results of the multivariate analysis indicated a significant positive association between validated measures of diet quality and results of a literacy assessment; however, no significant independent association existed after controlling for the interaction between diet quality, socioeconomic status and school performance among the students (20). Further research conducted using the same data set by Wang in 2008 similarly found no significant association between obesity and school performance after controlling for self-esteem variables (77).

In 2003, a study by Kim and colleagues likewise did not find an association between weight and GPA among Korean school-age children (n=6,463) in grades 5, 8 and 11 (78). However, this study did not describe whether relative weight, weight-for age or weight-for-height (BMI) was used in the method for analysis of the association between weight and GPA

and appears to have merely investigated measured weight as an independent variable (77) . As well, the results may not be fully applicable to the North American setting due to cultural differences.

Therefore, since it is crucial to relate measures of weight among children to their respective height and age because of the potential influences of pubertal growth spurts as well as the onset of menarche and other factors, it is possible that an association between weight status and school performance may still exist in the dataset, but was not uncovered utilizing the described methods.

Similarly a study conducted among Taiwanese first graders over a period of 6 years (n=409) found no significant association between academic performance and BMI (79). An analysis of NHANES-III data (2008) among older children ages 8-16 (n=2,519) also found no significant association between weight status (based on the 2000 Center for Disease Control growth charts) and cognitive functioning (75). Standardized tests assessed children's skills in nonverbal reasoning, visuospatial construction, attention and working memory, mathematics, letter recognition and word-reading. When compared to normal-weight children, odds of poor performance (z-score <2) among children who were overweight, doubled for visuospatial organization tests (OR 1.97; 95% CI: 1.01, 3.83) and nearly tripled for general mental ability (OR 2.80; 95% CI: 1.16,6.75, p=0.0233). However, after controlling for parental socioeconomic status and other potential confounders such as participation in sports, level of physical activity, hours spent watching TV, developmental factors, and biochemical measures the results became non significant (75)

Therefore, while the hypothesized relationship between obesity and school performance among young children is not supported by these findings (20,75,77–79) the researchers suggest that other factors such as diet quality (20) and self-esteem (77) may be relevant; furthermore, these studies do not disprove the hypothesized association among older children (21), and several studies were based outside North America which may affect generalizability.

1.4.3 OBESITY AND SCHOOL PERFORMANCE INTERVENTIONS

In 2010, a study centering on the intervention of a free/reduced cost lunch at 4 elementary schools in Florida with 1 control school (n=3769) found that children (ages 6-12) in intervention schools were significantly more likely to have higher math scores than children in control schools ($p<0.001$), and higher reading scores (not significant) (80). Additional research by Griffiths (2011) indicates that obesity among very young children (ages 3 and 5) in the UK was significantly associated with increasing emotional and behavioural problems ($p<0.05$) such as (conduct, hyperactivity/inattention, peer problems), which could become factors relating to school performance (81). Veldwijk, in 2012 likewise found that overweight children (age 12) participating in the Prevention and Incidence of Asthma and Mite Allergy study in the Netherlands (n=2159) were more likely to score lower on standardized tests ($p<0.001$) and be rated lower by teachers ($p<0.01$) (82). Confounders accounted for in this study included parental education level, screen time and skipping breakfast.(82)

A very recent study in 2013 (Arora, 2013), among randomly selected students (age 11-18) from six schools located in the Midlands region of the UK also investigated the association between academic performance and obesity (n=624) (83). Researchers measured height and weight of students which were then used to calculate BMI; students self reported academic achievement and educational goals (83). The results indicated a significant negative association

between self reported academic achievement and BMI ($p < 0.001$) after controlling for confounding variables such as age, sex, ethnicity, screen time, snacking and amount of sleep (83).

1.4.4 SCHOOL PERFORMANCE ASSOCIATED WITH ADULT OBESITY, EDUCATIONAL OUTCOMES AND SOCIOECONOMIC STATUS

School performance in childhood may also be related to obesity in adulthood. Research among third graders in Copenhagen illuminated an association between poor school performance in grade 3 and increased risk of obesity (BMI > 95th percentile) at age 20-21 years (OR = 2.8; $p < 0.0006$) (72). Multi-variate logistic regression found that the association of child school performance (scholastic proficiency) and risk of obesity in young adulthood was independent of social background, BMI in childhood, and gender (72). These findings indicate that poor school performance in childhood may be precursive to obesity – likewise, obesity in adulthood may be considered a “cost” of poor school performance in childhood (72).

A secondary method to measure school performance which has been utilized in several studies, examines educational outcomes and income in adulthood in relation to a participant's BMI or weight status as a child. In 1994, a study by Sargent with the National Child Development Study in Wales and Great Britain ($n = 12,537$) found a negative association between adolescent BMI and income at age 23 (adulthood) among females (69). The association remained after controlling for social class and IQ and existed regardless of whether overweight/obese status was maintained through adolescence into adulthood or manifested in adulthood (69). Females with BMI > 90th percentile and > 99th percentile earned 7.4% less (95% CI: -11%, -3.8%) and 11.4% less (95% CI: -21%, -1.5%) respectively per hour than females with BMI < 90th percentile (69). However, it is possible that whether participants were still in school may have

had an influence on the amount of money they were able to make, thus confounding the results based on income.

A prospective, cross-sectional study conducted among a nationally representative sample of adolescents and young adults age 16-24 over a period 7 years (1981-1988) in the United States likewise found a significant difference in educational outcomes, household income and household poverty between overweight and non-overweight participants over time (23). The researchers investigated BMI (obtained from self-reported height and weights), level of education attained and socioeconomic status as part of the National Longitudinal Survey of Labour Market Experience, Youth Cohort (23). The results of this study indicated that young women who were overweight as older children/adolescents (age 16) completed 0.3 years less education (95% CI: 0.1,0.6) by age 24 than young women who were not overweight as children ($P = 0.009$) (23). Additionally this study found that 10% more young women who were overweight as children experienced household poverty (95% CI: 4%,16%; $p < 0.001$) and made \$6,710 less per year (95% CI: \$3,942,\$9,478; $p < 0.001$) than women who were not overweight as children (23).

Contrarily, in 2005 a study investigating the effect of childhood obesity on adult outcomes among a nationally representative birth cohort from Great Britain found no association between BMI at 10 years of age and educational outcomes at 30 years of age (70). The study was based on data collected over 20 years from a sample of 8,490 participants. Obesity was classified as BMI >95 centile among children and BMI > 28.5 among adults (accounts for underreporting of BMI). Educational outcomes were identified as either “leaving school at ≤ 16 years” or leaving school with “no qualifications”. The limitations of this study are related to the measure of educational outcomes; a less ambiguous or more appropriate measure of educational

attainment may have been “years of education” as opposed to the measures used which are described as dropping out of high school and lacking “qualifications” at the completion of their schooling.

Of additional significant concern is the association of childhood obesity to low socioeconomic status outcomes as adults (23,69,84). Results from a large cohort study in England indicated that women who were overweight or obese as adolescents (age 16) earned lower income than their non-overweight/obese counterparts regardless if they lost the weight as adults (age 23) (69). Women with BMI >90th percentile earned 7.4% less hourly earnings and with BMI >99th percentile were paid even lower with 11.4% less hourly earnings (69).

In another study conducted in Copenhagen, researchers found that significantly less obese men attained a higher level of social class regardless of parental social class than non-obese men (30% and 51% respectively; $p < 0.0001$); additionally, significantly more obese men attained a very low level of social class than non-obese men (18% and 7% respectively) (55).

Low socioeconomic status has been described by some as a “cost” of childhood obesity (23,69,84). The implications of these studies underscore the potential effects of obesity in childhood/adolescence on the educational and economical outcomes in adulthood and the need for further research.

1.5 CONSEQUENCES OF CHILDHOOD OBESITY

The effects of childhood obesity are as far reaching as they are devastating (38), resulting in the presentation of chronic conditions and diseases in adulthood, as well as increasingly more among younger populations (39,85–89). Recent research investigating the link between child BMI and young adult-onset Type-2 diabetes found a positive association between BMI of

children between the ages of 3 and 11 years (adiposity rebound) and risk of developing Type-2 Diabetes (177% increase in risk for every 1 kg/m²) (85). Incidence of Type-2 Diabetes among children and adolescents increased from 4% to 16% between 1992 and 1994 in a US study (n=1000) (89).

Results of a cross-sectional survey conducted in Canada between 1986 and 1992 among adults indicated prevalence of high blood pressure was significantly higher among overweight/obese (BMI >25) participants compared to participants who were at a healthy weight (BMI 20-24) (39). Additionally, this study found higher prevalence of Type-2 Diabetes among the obese population and higher incidence of dyslipidemia (39) which is consistent with further research conducted in this area (90,91).

Gunnell, in 1998 found a linear association between child BMI and adult risk of Ischemic Heart Disease (IHD); children with BMI >75th percentile were twice as likely to suffer from IHD compared to children with BMI between the 25th and 49th percentiles (86). C-reactive protein (CRP), a marker for atherosclerosis (92), has likewise been found to be associated with overweight/obesity among children (87). Ford et al., in 2001 found that children with a BMI >85th to <95th percentile were 2.2 times more likely to have elevated CRP levels than children with a BMI >15th to <85th percentile; children having a BMI >95th percentile were 4.92 times more likely (87). Furthermore, recent data from the Bogalusa Heart Study indicated a strong, positive correlation (r=0.50) between child BMI and a 6 factor risk summary for cardiovascular disease (triglycerides, LDL and HDL cholesterol, insulin and systolic and diastolic blood pressure); 62% of children having a BMI >95th percentile were found to have high adverse risk factor levels (p<0.001) (88).

1.5.1 HEALTHCARE COSTS

The healthcare costs associated with the increases in rates of obesity were reviewed recently by Canadian researchers according to BMI classifications (1), comparing expenditures of various countries which included the United States (US), Canada, Japan, and several European countries. The results indicated a range spanning 0.7% to 9.1% of total healthcare costs per country that were associated with obesity ($\text{BMI} \geq 25$) (1). In Canada, healthcare costs associated with obesity ($\text{BMI} \geq 27$) were determined to be \$1.8 billion or 2.8% of total healthcare costs in 1997 (93); the comorbidities associated with obesity for the purpose of determining cost included: postmenopausal breast cancer, colorectal cancer, coronary artery disease, endometrial cancer, gallbladder disease, hyperlipidemia, hypertension, pulmonary embolism, stroke and type-2 diabetes (93). Comparatively, in 2006, Long et al., (8) determined the total percentage of healthcare costs of non-drug expenses related to obesity in the US was 2.8% among adults with $\text{BMI} \geq 30$. In Switzerland, researchers similarly determined the total health care costs associated with obesity ($\text{BMI} \geq 27$) to be \$269 million or 2.3% of total healthcare costs (94).

Kuhle et al (2011) concluded that Canadian obese children have significantly higher health care costs, with a difference seen as early as age 3 (95). The researchers conducted a prospective study among grade 5 children living in Nova Scotia as part of the Children's Lifestyle and School Performance Study – III (CLASS-3) investigating health care costs for the three years (2003 -2006) post survey. Administrative data from provincial and federal medical records was linked to CLASS participant data including physician services and hospitalization records from age 0 to 14 years. Results indicated an approximate increase by \$357 dollars per child in healthcare costs among obese children age 0-14 (\$2504 CI: \$1694, \$3725) compared to

normal weight children (\$2147 CI: \$1428, \$3297) representing approximately 2.1% of total healthcare costs attributable to obesity (95).

1.6 SUMMARY

Childhood obesity is a complex disease (19,31) with a multitude of contributing factors; decreased physical activity (19,37–39), low birth weight (15,40,41), lack of breastfeeding (42–44), low socioeconomic status of parents (48–53), poor education attainment of the mother (7), poor diet quality (32,34–36,90), poor school performance (21,23,27,71,73–76,82,83), as well as decreased consumption of family dinners (36) and additional psycho-sociological factors (15,58–60,81) have all been suggested as linked to increased BMI.

Significant associations have been found between school performance and academic achievement variables with weight status among children (21,27,73–75,82,83), and these variables have also been identified as predictive of adult education outcome (23,69,70), which is a key determinant of health and a predictor for adult obesity (26); however the mechanisms are not fully understood. Conversely, several studies report no significant associations between school performance and weight status after controlling for confounding variables (20,70,77,78). As well, many of the reported studies relating to weight status and school performance were based outside of North American, and therefore may not be fully applicable to a Canadian population due to differences in cultural practices.

Obesity rates are rapidly increasing in Canada and worldwide (4,7); with the associated exponential increases in healthcare costs (1,95), it is crucial to continue conducting research around the outcomes and influencing factors related to childhood obesity in an effort to better understand the multifaceted nature of this disease.

2.0 RESEARCH QUESTION

This study seeks to investigate the relationships between school performance, weight status, and associated environmental factors and personal attributes such as: community of residence, immigrant status, parental education, parental weight status, financial status, physical activity, eating behaviours, peer supports, as well as emotional and behavioural patterns among a cohort of disadvantaged school-age Canadian children living in low-income communities in Ontario.

2.1 RESEARCH OBJECTIVES

- To determine factors associated with school performance and weight status among disadvantaged Canadian children in grades 6, 9 and 12, living in low-income communities in Ontario.
- To determine if significant longitudinal relationships exist between weight status, school performance and relevant associated factors among disadvantaged Canadian children in grade 6, 9 and 12, living in low-income communities in Ontario.

2.2. SUB-OBJECTIVES

- Explore pairwise associations between school performance, and weight status with each of the associated factors in grades 6, 9 and 12, in both the same grade level and in previous grades.
- Determine factors and combinations of factors in grades 6, 9 and 12 that may be predictive of 'higher' and 'lower' school performance and 'overweight/obese' weight status in both the same grade and in previous grades.

3.0 THEORETICAL FRAMEWORK

Since the study objectives are to explore relationships between school performance and weight status and to determine factors which may be predictive of school performance and weight status among disadvantaged children in the context of their ecological environments, this study will be approached from a Social Ecological viewpoint employing Social Cognitive Theory. The Social Ecological Model (SEM) is based on the understanding that health is not merely the absence of illness, but comprises a complex interrelation of an individual's environments (physical, social, cultural) and personal attributes (genetics, psychological state, behavioural patterns) (96). Furthermore, Social Cognitive Theory (SCT) proposes that observed outcomes are related to the concept: “reciprocal determinism ... in which environment, person and behaviour are continually interacting”, and therefore “a change in one component has implications for others” (97).

A variety of theoretical concepts such as observational learning, behavioural capability, and emotional arousal, combine to form the Social Cognitive Theory. Observational learning accounts for common behaviours among families; behavioural capability takes into account that an individual requires knowledge of the desired behaviour and how to execute it, while emotional arousal speaks to the triggering of defensive behaviours which can then inhibit the ability of an individual to perform a desired behaviour (97,98). Furthermore, the conceptual model of the relationship between social supports and health evidences that children who do more poorly in school may be subjected to negative influences through school/home, thereby increasing negative health behaviours which increases negative health outcomes (i.e. increased weight status and decreased mental health) and further influences/feeds into poor social networks/supports.

As previously noted, childhood obesity is a highly complex disease and therefore it is not intended within the scope of this study to fully explain the many factors and interactions which coalesce; however, it is hoped through this research to better understand the magnitude and direction of influence of both weight status and school performance on one another, as well as the effects of other contributing environmental, personal and behavioural factors (Figure 2).

It may be considered by some that SCT provides too broad a model for investigation; however, for the purpose of this study a comprehensive approach was sought to better allow for extensive exploration of the data collected regarding the numerous potentially related factors in relation to our variables of interest (school performance and weight status). Therefore, a theoretical approach which encompasses the ecological and bi-directional effect of each of the various aspects of an individual's environment and personal attributes is necessary, and is most adequately provided for by Social Cognitive Theory.

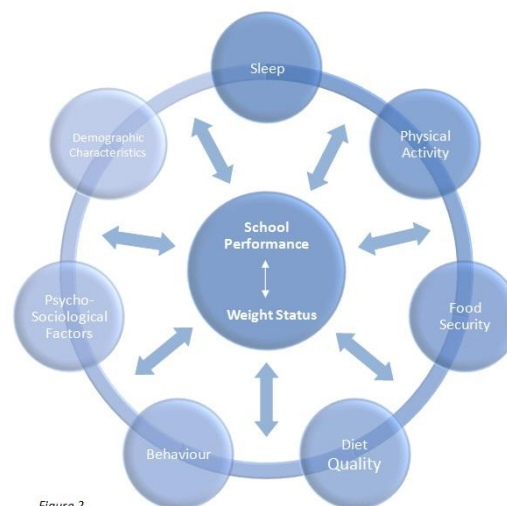


Figure 2

Figure 2: Example of Reciprocal Determinism in the context of this study

4.0 METHODS

Data for this study was collected through The Better Beginnings Better Futures (BBBF) research project which was announced by the Ontario Government in 1990 as “a 25-year longitudinal prevention policy research demonstration project to provide information on the effectiveness of prevention as a policy for children” (99–102). Funding for this research project was provided by the Ontario Departments of Community and Social Services, Health, and Education (103). Research was conducted independently from the BBBF program planning

teams through a Research Coordination Unit, with headquarters at Queens University, involving faculty from six Ontario Universities (101,103–105).

4.1 BETTER BEGINNINGS BETTER FUTURES BACKGROUND

The BBBF study was approached from an ecological perspective, consisting of both short term (baseline-focal) and long term (longitudinal) quasi-experimental investigations surrounding the implementation and 25 year follow-up of prevention programming among 1500 children in 2 cohorts aged 0-4 years old and age 4-8 years old in eight low-income communities (102,104–107). Approximately half of the participants are from three BBBF communities that focused on children who were aged 4-8 years old: Cornwall, Highfield and Sudbury, as well as two demographically similar comparison communities, Etobicoke and Ottawa-Vanier, while the remainder are from sites that focused on children aged 0-4 years and their comparison sites (100,105,106) (Table 56 in Appendix A: Tables and Figures).

BBBF communities were selected primarily in relation to socio-economic disadvantage and were funded to develop and implement ecologically integrated health prevention programs aimed at either the 0-4 cohort age group or the 4-8 cohort age group (100,105–107).

At the older cohort sites, recruitment of families and children took place through the public school system; all children and families residing within the defined geological areas were included in the study (105,106). With the cooperation of the schools, study personnel contacted the parents of the children to obtain written consent (105,106). Families with children (born in 1990) enrolled in junior kindergarten were recruited to form the older research cohort. As well, for the first four years, families moving into the BBBF communities with a child born in 1990

were recruited into the study (105). Participation rates are estimated between 50 – 60% and attrition at 29.2% by the grade 9 data collection (105).

Among the older cohort, data were collected from parents, teachers and children beginning in 1994 when the children were in junior kindergarten (JK), and each following year until the children were in grade 3 (103,106). Data were then collected again in 2001/2 when the children were in grade 6, 2004/5 when in grade 9, and 2007/8 when in grade 12. This study will investigate data from only the older cohort collected when children were in grades 6, 9 and 12 (n=1014). Data were collected from Canadian Education Quality and Accountability Office (EQAO) academic achievement test results, child assessments and questionnaires, parent interviews, and teacher questionnaires encompassing: social functioning, emotional and behavioural problems, school functioning, academic achievement, physical health and nutrition, health risk behaviours, parenting, family stress, parent social activities, parent activities in neighborhood, sense of community involvement, neighborhood satisfaction, and health care and social services use (100,102,105,106).

4.1.1 CHILD MEASURES

Children completed in-class questionnaires consisting of 60 questions under the supervision of study personnel and teachers, relating to: height and weight, dietary intake, cognitive development, emotional and behavioural problems, and academic achievement (Appendix B: Interview Guides and Questionnaires) (102–106). Study personnel measured child height and weight in grade 6 and 9 according to guidelines established by Lohman, Roche and Martorell (1988) employing a tape measure (microtoise, CMS Weighing Equipment, London, U.K.) and strain-gauge digital scale (wonderscale, Health-o-meter Inc., Bridgeview, IL)(105,108). Height was rounded to the nearest 0.1 cm and weight to the nearest 0.2 kg; each

were measured twice. BMI was then calculated as weight (kg) divided by height (m) squared (105).

In grade 12, school performance data was additionally obtained from the Ontario Ministry of Education regarding: average overall marks, total number of courses failed, completion of high school and receipt of special education services. The children/adolescents also responded to questions in grade 12 regarding the highest level of education they had obtained, which grade they were currently in, average marks for their most recent year in high school (1 = 90% – 100%, 7 = <50%) and types of courses taken (i.e. 1 = university preparatory courses, 5 = open courses) (Table 54, Appendix A: Tables and Figures) (105).

4.1.2 TEACHER RATINGS

Teachers completed questionnaires related to behavioural problems, academic achievement and social skills of the children (Appendix B: Interview Guides and Questionnaires) (100,102,105). Several scales were used to measure child school performance in grade 6 and 9 including the National Longitudinal Survey of Children and Youth (NLSCY) Student Preparedness Scale and the Adaptive Functioning Scale, as well as questions regarding number of suspensions and absences the child had in the last year, and how far they hoped the child would go in school/education (109). Teachers also indicated whether the child received ‘special education’ services, had individual education plans, or if the child had a learning impairment (105). In grade 9, teachers were additionally asked to rate the child’s academic achievement in relation to the rest of the class, according to a standardized NLSCY scale (i.e. 1= near the top of the class, 5=near the bottom of the class) (105,110).

4.1.3 PARENT INTERVIEW

Parents participated in an extensive 90-120 minute interview regarding their health, their child's health and behaviour, parenting practices, and family dynamics (Appendix B: Interview Guides and Questionnaires) (100,102,105). Several NLSCY scales were employed including: Prosocial Scale, Conflict Resolution Scale, General Self-Esteem Scale, Emotional-Anxiety Disorder subscale, Physical Aggression subscale, Indirect Aggression subscale, Hyperactivity-Inattention subscale, Delinquency scale, and Hostile-Ineffective Parenting scale (105,110). Additional scales employed included the Revised Ontario Child Health Study's Oppositional-Defiant subscale and Depression subscale, General Functioning Scale of the Family Assessment Device, and Social Provisions Scale among other measures (105,111).

4.2 VARIABLES

Data from a total of 2592 variables were collected in this study from three sources (parent, teacher and child) which could be organized into eight (8) categories related to the research question: a) baseline demographic and household data, b) anthropometric measures, c) school performance, d) diet, e) activity level, f) sleep, g) behaviors, and h) various other psychosocial factors.

- a) **Demographic and household data** were collected for children and their parents encompassing a range of variables such as: community of residence, gender, grade, age, employment status, income, expenses, education level, marital status, and ethnicity
- b) **Anthropometric measures** were collected for children and parents including height, weight, and BMI.
- c) A variety of **school performance** data were collected through several different developmentally appropriate measures at each grade level. Such variables identified

include: Teacher-rated current school performance in grade 6 (reading, writing, spelling and mathematics), province wide testing data in grade 6 (reading, writing, mathematics), teacher rated overall academic achievement in grade 9, literacy test score in grade 9 (pass/fail), province wide testing in grade 9 (mathematics), and Ontario Ministry of Education (MOE) average marks for grade 12. Attendance data was also collected through a number of variables as a further indirect measure related to school performance which included responses from parents, teachers, and children regarding frequency of skipping class, suspensions and number of days of school missed due to illness or injury.

- d) **Diet** related data were collected at the grade 6 and grade 9 levels only, through a validated, 7 day, retrospective food frequency questionnaire which included 25 groups of ‘common foods’, structured accordingly to highlight specific nutritional issues (i.e. low intake of fruits and vegetables, high intake of high fat foods, etc...) (105,106,112). The eating behaviours questionnaire was developed by investigators conducting research among Canadian school-aged children in southwestern Ontario and Prince Edward Island. The questionnaire allowed children to rank their frequency of consumption of the groups of ‘common foods’ along a 5-point scale which could then be converted to servings per day and compared to recommendations based on Eating Well with Canada’s Food Guide: “at least twice a day” = 2, “once a day” = 1, “4 to 6 times/week” = 0.71, “1 to 3 times/week” = 0.29 and “never” = 0 (105,106,112,113).
- e) Several variables at each grade level provided direct and indirect measures of **activity level** and inactivity among children including: frequency of participation in dance/karate/gym group lessons, frequency of playing sports, frequency of exercise in the past month, and hours of screen time per day.

- f) Variables related to **sleep and tiredness** included: frequency of arriving at school too tired to do school work, frequency of staying out all night, and frequency of staying out late.
- g) Many **behavioural characteristics** among children and parents were measured including variables of particular interest related to: hyperactivity, oppositional disorder, prosocial behaviours, and conflict resolution skills.
- h) Additional **psycho-sociological** variables of interest from the data set to be investigated include: self esteem, body satisfaction, depression, stigma/bullying, child's relationships (friends, parents and others), discrimination (based on age, gender, sex, ethnicity), involvement in community and social activities, safety, victim of abuse, sexual activity, family dynamics, supportive networks, and stress.

4.3 DATA ANALYSIS

As previously stated, the purpose of this study is to relate measures of school performance and weight status through the lens of Social Cognitive Theory with factors in the individual's environment (physical, social, cultural) and their personal attributes (psychological state, behavioural patterns), which includes: parental socioeconomic status and demographic data (education, marital status, household income, weight status), eating and diet-related behaviours, physical activity level, sleep/tiredness, and psycho-social factors such as self-esteem, emotional disorder and popularity.

4.3.1 MEASURES OF SCHOOL PERFORMANCE

Three measures of School Performance were created using monotonic transformations, to assess the school performance of the children at each grade level ('SchoolPerformance_6',

‘SchoolPerformance_9’, and ‘SchoolPerformance_12’) based on the following considerations: consistently measured across all three grade levels, comprehensive (measuring more than just one subject), teacher-rated (as opposed to self- or parent-reported), and/or results of standardized testing¹. The selected school performance measures were ranked on an ordinal scale of five (5) levels corresponding to: 1 (failing), 2 (low), 3 (average), 4 (high), and 5 (highest).

The preferred school performance measure selected for grade 6 from among the available variables was ‘acafuni’ (Teacher rated academic functioning (Achenbach Scale)) which was equivalent to the combination of four, teacher-rated, grade 6 “current school performance” variables: ‘achn07i’ (reading), ‘achn08i’ (spelling), ‘achn09i’ (writing) and ‘achn10i’ (math). For grade 9, ‘acadachj’ (Teacher rated academic functioning across all academic areas) was the preferred measure selected for consistency with the grade 6 measure. For grade 12, ‘moemarkk’ (Ministry of Education: Average Marks) was also selected for consistency with the grade 6 and 9 measures. (114–116). An exact description of the transformations used to create the school performance measures are provided in Table 52 in Appendix A: Tables and Figures .

Two further variables related to school performance, Higher School Performance (HSP) and Lower School Performance (LSP), were introduced at each grade level. Students whose school performance rating was 5 (Highest) or 4 (High) were assigned to the HSP category [1]; those whose school performance was 3 (Average), 2 (Low) or 1 (Failing) were assigned to the reference category [0]. Similarly, students whose school performance rating was 1 (Failing) or 2 (Low) were assigned to the LSP category [1], while those whose school performance was 5 (Highest), 4 (High), or 3 (Average) were assigned to the reference category [0]. The distribution

¹ The author gratefully acknowledges Dr. Carmel French, Professor of Child and Youth Study, Mount Saint Vincent University, for suggesting both the identification of the criteria and the selection of the measures described above.

of School Performance, in particular the low frequencies in extreme categories in some grade levels (Figure 9 in Appendix A: Tables and Figures) was a consideration in the creation of these categories. Analyses described below were carried out to identify factors that may be predictive of HSP and LSP.

4.3.2 MEASURES OF CHILD WEIGHT STATUS

Child BMI percentile was calculated from the available measured anthropometric data in grades 6 and 9 and self reported data in grade 12. Child BMI percentile is a continuous measure on a scale ranging from 0 – 100 which was used to define child weight status according to the Center for Disease Control (CDC) cut off points: underweight (<5th percentile), normal weight (5th – 85th percentile), overweight (85th-95th percentile), or obese (>95th percentile) (Table 53) (117). Using the Center for Disease Control MicrosoftTM Excel calculator “Children’s BMI Tool for School”, child BMI percentile was returned at each grade level by entering child gender, height, weight, date of measurement, and birth date (118). Child BMI percentile was then used to compute child weight status (‘WtStatus_6’, ‘WtStatus_9’, ‘WtStatus_12’) corresponding to: 1 (underweight), 2 (normal weight), 3 (overweight), or 4 (obese) (Table 53) (117).

As with school performance, an additional variable related to school performance, Overweight/Obese Weight Status (OOWS), was introduced at each grade level. Students whose weight status was 4 (Obese) or 3 (Overweight) were assigned to the ‘Overweight/Obese’ (OO) category [1]; those whose school performance was 2 (Normal) or 1 (Underweight) were assigned to the reference category [0]. The distribution of Weight Status, in particular the low frequencies in Obese categories in some grade levels (Figure 9 in Appendix A: Tables and Figures) was a consideration in the creation of these categories. Analyses described in the next sections were carried out to identify factors that may be predictive of OOWS.

Child Weight Status in grade 9 had a much smaller number of valid cases than grades 6 and 12; therefore, a new variable, 'WeightStatusEx9' (Extrapolated Weight Status grade 9), was computed from a combination of both self-reported and measured grade 9 anthropometric data. Grade 9 self reported height and weight were used to compute self-reported child BMI percentile and self-reported child weight status according to the procedures described above. A comparison of the measured BMI Percentile (mean = 66.43, SD = 23.63) and Self Reported BMI (mean = 65.3, SD = 26.44) revealed a very high correlation ($r = .869$, $n=281$, $p=.000$) and there was no significant difference between the means (pairwise difference mean = 1.14, $SD=13.57$, $t_{(167)} = 1.089$, $p=.278$).

Grade 9 measured weight status data were first transferred to the new variable in cases where it was available, subsequently missing values were replaced with available grade 9 self-reported weight status data. The resulting extrapolated weight status variable had $N=515$ valid cases, compared to $N=218$ for the measured weight status. This extrapolated Grade 9 Weight Status variable was used to re-compute the Overweight/Obese Weight Status (OOWS) variable for grade 9.

4.3.3 MEASURES OF ENVIRONMENTAL FACTORS AND PERSONAL ATTRIBUTES

Thirteen (13) variables were selected from the dataset consistent with the previously identified environmental factors and personal attributes for further investigation through the lens of Social Cognitive Theory. Each variable was recoded to eliminate non response categories (i.e. 'Did not know the answer' or 'Not Applicable') and also to combine levels where appropriate, to ensure an adequate number of respondents in each level ($n > 20$).

Household ‘Financial Status’ was coded as 1 (at or above LICO) or 2 (below LICO) using Low Income Cut Off (LICO) reference data published by Statistics Canada (119) for the respective year of the survey based on reported monthly household income, before deductions and tax, at each grade level, and grade 6 household size. Parental BMI for grade 12 was transformed to weight status rank according to CDC adult weight status cutoffs (underweight <18.5, normal weight 18.5- 24.9, overweight 25 – 29.9, obese > 30)(120). ‘Activity Level’ was calculated by creating a composite measure combining three separate measures of activity at each grade level (Grade 12 measures were not available), which were then recoded into 2 categories (0 = Low Physical Activity, 1 = High Physical Activity).

Parent Education in grade 12 had a much smaller number of valid cases than grades 9 and 6; therefore, a new variable, ‘EduParentsEx’ (Extrapolated Parent Education grade 12), was computed from a combination of grade 6, 9 and 12 data. In cases where Grade 12 Parental Education data was available, it was transferred to the new variable, otherwise missing values were replaced with available grade 9 Parental Education data, and subsequently any remaining missing values were replaced with available grade 6 Parental Education data. The resulting variable was used solely for analysis at the grade 12 level with binary logistic regression. The details of the transformations are provided in Table 54; see Table 1 below for the distributions of the identified environmental factors and personal attribute variables.

Table 1: Descriptive Analysis of Primary and Associated Factor Variables

New Variable	Code	Description	Grade 6		Grade 9		Grade 12	
			n	%	n	%	n	%
Community	0	Not BBBF	317	31.26%	409	40.34%	293	28.90%
	1	BBBF	413	68.74%	263	59.66%	239	71.19%
Immigration Status	0	Born Canadian	430	58.82%	399	59.20%	371	58.89%
	1	Immigrant	301	41.18%	275	40.80%	259	41.11%
Self Esteem	1	Low Self Esteem (4 - 13)	68	10.04%	91	17.33%	22	3.68%
	2	Moderate Self Esteem (14 - 18)	364	53.77%	279	53.14%	314	52.51%
	3	High Self Esteem (19 - 20)	245	36.19%	155	29.52%	262	43.81%
Popularity	1	Low popularity (0 - 8)	48	7.04%	31	6.00%	38	6.39%
	2	Moderate Popularity Popular (9-11)	127	18.62%	85	16.44%	106	17.82%
	3	High Popularity (12-14)	288	42.23%	204	39.46%	205	34.45%
	4	Very High Popularity (15-16)	219	32.11%	197	38.10%	246	41.34%
Emotional Disorder	0	No Emotional Disorder (= <5)	500	74.29%	390	74.29%	560	93.02%
	1	Yes Emotional Disorder (>5)	173	25.71%	135	25.71%	42	6.98%
Parental Education Level	0	Both High school and less (<6)	206	28.14%	182	27.00%	102	24.76%
	1	One greater than high school (>6)	247	33.74%	238	35.31%	128	31.07%
	2	Both greater than high school (>6)	279	38.11%	254	37.69%	182	44.17%
Parents Education Level (Extrapolated)	0	Both High school and less (<6)	.	.	.	.	102	24.76%
	1	One greater than high school (>6)	.	.	.	.	128	31.07%
	2	Both greater than high school (>6)	.	.	.	.	182	44.17%
Financial Status	0	Below LICO	342	46.91%	305	41.84%	268	36.76%
	1	At or above LICO	387	53.09%	424	58.16%	461	63.24%
Parental Weight Status	1	Underweight (BMI <18.5)	11	1.71%	8	1.31%	13	2.40%
	2	Normal Weight (BMI 18.5 – 24.9)	320	49.77%	288	47.29%	220	40.67%
	3	Over Weight (BMI 25- 29.9)	195	30.33%	202	33.17%	187	34.57%
	4	Obese (BMI >30)	117	18.20%	111	18.23%	121	22.37%
Single Parent	0	Not single parent	539	73.63%	472	46.50%	422	72.26%
	1	Single parent	193	26.37%	202	19.90%	162	27.74%
Tired	0	Not Tired (1 - 2)	451	73.57%	273	61.35%	.	.
	1	Tired (3 - 5)	162	26.43%	172	38.65%	.	.
Physical Activity	0	Low Physical Activity (3 - 6)	218	32.25%	279	54.07%	.	.
	1	High Physical Activity (7 - 12)	458	67.75%	237	45.93%	.	.
Dietary Intake By Food Group	0	Poor Intake (1 food group or less met)	310	50.16%	417	80.50%	.	.
	1	Good Intake (2 food groups or more met)	308	49.84%	101	19.50%	.	.
Breakfast	0	No (Did not eat Breakfast)	223	33.89%	281	27.70%	.	.
	1	Yes (Did eat Breakfast)	435	66.11%	245	24.20%	.	.

4.3.4 STATISTICAL ANALYSIS

Data was analyzed using SPSS® statistical analysis software versions 22.0 (SPSS Inc., Chicago, IL, USA). Significance was established at the 0.05 level.

Univariate analyses were performed to provide a description of the study participant characteristics (Table 55). Frequency tables and histograms were produced to display the distributions of school performance and weight status at each grade (Table 57, Table 56 & Figure 9).

The Chi square test was used to carry out the first objective of the study, which was to explore pairwise associations between school performance and weight status and each of the environmental factors at each grade level (Table 58). The appropriateness of the Chi-square analyses was assessed by looking at the number of expected values at each cell. Situations where the expected count was less than 5 in more than 25% of the cells were reported (Table 61 & Table 62). To understand the magnitude and direction of the associations identified through the Chi-square, standardized residuals for selected analyses as generated by SPSS were displayed in tabular and graphical form (Figure 3, Figure 4, Figure 5, Table 61 Table 62). A standardized residual was considered large if its absolute value was greater than 2.

Binary logistic regression was employed to identify environmental factors and combinations of environmental factors in grades 6, 9 and 12, which may be predictive of OOWS, LSP and HSP at the same grade level and in previous grades. At each grade level, models were generated for OOWS, LSP, and HSP first by using only factors at the given grade level, then using factors in previous grade levels, and subsequently using factors in both the given and previous grades.

Each regression model was selected using a three stage process. In the first stage, the full model included all thirteen environmental factors (Table 1) for the specified grade. Categorical predictors were automatically coded as binary dummy variables by the statistical software, using the final (highest) level of each predictor as the reference category. However, for School Performance and Weight Status, manual dummy variables were created using effect coding, with ‘average’ SP and ‘normal’ WS set as the respective reference categories.

In the second stage, the optimal model was generated by selecting significant predictors from the full model through the ‘Backward elimination’ method. The probability for inclusion and exclusion of predictors was set to 0.1 and to .05 respectively. The number of valid cases with positive outcomes in the response variable limits the number of predictors in Logistic regression models. Ten outcome events per variable (EPV) are generally considered necessary (121) while a more recent study(122) suggests that many model performance measures often remain acceptable with few as 6 EPV’s. In the present study where the events per variable (EPV) count in the optimal model was low (<7) the ‘Forward selection’ method was used to generate another the optimal model so as to decrease the number of predictors at all stages of the process.

In the third stage, the final model was computed by the ‘Enter’ method, based only on the significant, or almost significant, predictors identified in the optimal model. ‘Almost’ significant variables were those which fell just outside the significance level (i.e. $.05 > p < .10$) in the optimal model or which were removed in the final step of the Backward elimination procedure. This process of employing first Backward, then Enter methods, increased the number of valid cases and EPV used in the final model.

Each final regression model is reported in the results section and a complete listing can be found in Appendix C: Final Regression Models.

An additional analysis using linear regression, was used to generate a model for the prediction of ‘moemarkk’ (Grade 12 Ministry of Education Average Marks) using the environmental factors and personal attributes from all grade levels. The purpose of this analysis was to provide a quantitative predictive model for achievement in grade 12 instead of ‘higher’ or ‘lower’ School Performance. The model selection methodology was analogous to that described previously. Backward elimination was the optimization strategy followed by the SPSS Linear Regression procedure, again using PIN = .01 and POUT = .05

Interpretation of the strength and statistical significance of the Logistic regression models was based on measures of the reduction in the deviance from the Null Model (particularly the pseudo R^2 measures of Cox & Snell and Naglekerke), on the Hosmer-Lemmeshow test to assesses the goodness of fit, and on the proportion of cases correctly identified by the model both overall, and by their category. These values were reported for each model. All the models presented in this study had a significant reduction in deviance from the Null Model, as indicated by a Chi-square test. The Cox and Snell and Naglekerke R-square values for these models ranged from 0.031 to 0.545. We describe the predictive strength as “weak” when the R-square is less than 0.100, “moderate” when the R-square is between 0.100 and 0.300, and “strong” when the R-square is greater than 0.300. The Hosmer-Lemmeshow statistic with a p-value larger than 0.05 is generally considered indicative of a good fit. In this study all the p-values for the Hosmer-Lemmeshow statistic were much larger than 0.05, often larger than 0.500. A predictive accuracy of 70% overall was achieved in almost all models. The specificity of the predictions ranged from 62.6% to 100%, while the sensitivity ranged from 0.0% to 75.0%.

The appropriateness of the linear regressions models was assessed using the F-test for linearity, by visually examining histograms of residuals for normality, by checking plots of standardized residuals against predicted values for indications of non-randoms and heterogeneity of variances, and by checking case diagnostics for the existence of large outliers or influential observations.

4.4 ETHICAL CONSIDERATIONS

Ethical approval was granted through the Mount Saint Vincent University Research Ethics Board (February 2015) before data analysis was initiated. This project employs the use of secondary data which has had all identifying information removed and therefore poses minimal risk due to the nature of the research design. There are no financial conflicts of interest to disclose.

5.0 RESULTS

5.1 UNIVARIATE DESCRIPTIVE ANALYSIS

The demographic characteristics of the study participants ($n = 1014$) are summarized in Table 55 & Table 56. The proportion of male and female gender among child participants and parent respondents varied somewhat by grade level; however, on average, females were the majority (52.8% and 91.9% for children and parents respectively) (Table 56). The average ages of the children were consistent with what would be expected at each grade level (Table 55). Overall, the majority of children lived in BBBF communities (66.5%) and the average proportion of children with parents born in Canada (59.0%) was greater than those with parents not born in Canada (Table 56).

Forty percent of children had two parents with greater than high school education, and the average proportion of children across all grades having annual household income below the Low-Income Cut Off (LICO) was 41.8% as would be expected (Table 56). Average household size was 4.43 in grade 6; no household size data was available at grade 9 and grade 12 (Table 55). The average proportion of children across all grade levels living in single parents homes was much smaller (24.7%) compared to dual parent homes (64.1%) (Table 56).

The distribution of School Performance at each grade level was reasonably symmetrical and bell shaped (Table 57). Across all grade levels, the largest proportion of participants achieved “Average Grades” (40.0%). However, in grade 6, more children achieved ‘Failing’ or ‘Low Grades’, than ‘High’ or ‘Highest Grades’, while in grade 12, more children achieved ‘High’ or ‘Highest Grades’, than ‘Failing’ or Low Grades’. The majority of children across all grade levels were within the ‘Average Weight’ category (67%), while the least were ‘Underweight’ (4.9%). (Figure 9, Table 57: Descriptive Analysis).

5.2 FACTORS ASSOCIATED WITH SCHOOL PERFORMANCE AND WEIGHT STATUS

The chi-square test was used to identify significant associations between measures of school performance (SP) and measures of weight status (WS) at each grade level (Table 58); and subsequently, with each of the thirteen environmental and personal attribute variables (Table 59, Table 60).

5.2.1 ASSOCIATIONS BETWEEN WEIGHT STATUS AND SCHOOL PERFORMANCE

As shown in Table 58, significant associations among the participants were found between: a) grade 6 SP and grade 9 WS, b) 6 SP and grade 12 WS, as well as c) grade 9 WS and

Grade 12 SP. Chi-square residuals were examined to investigate the nature and directions of these relationships (Figure 3, Figure 4 and Figure 5; Table 61 & Table 62).

Prevalence of obesity in grade 9 was higher among children with ‘failing’ SP in grade 6, but lower among children with ‘high’ SP. Similarly, prevalence of underweight WS in grade 9 was higher among children with ‘failing’ SP in grade 6 (Figure 3, Table 58).

Prevalence of obesity in grade 12 was much higher among children with ‘failing’ SP, and lower among children with ‘high’ SP, in grade 6 (Figure 4, Table 58). Prevalence of obesity in grade 9 was much higher among children with ‘failing’ SP, and lower among children with ‘highest’ SP’, in grade 12. Prevalence of underweight in grade 9 was much higher among children with ‘low’ SP in grade 12. Interestingly, prevalence of overweight (BMI 85th–95th%) in grade 9 was higher among children with ‘highest’ SP in grade 12 (Figure 5, Table 58).

Figure 3 – Prevalence of Gr 9 Wt Status across Gr 6 School Performance Levels

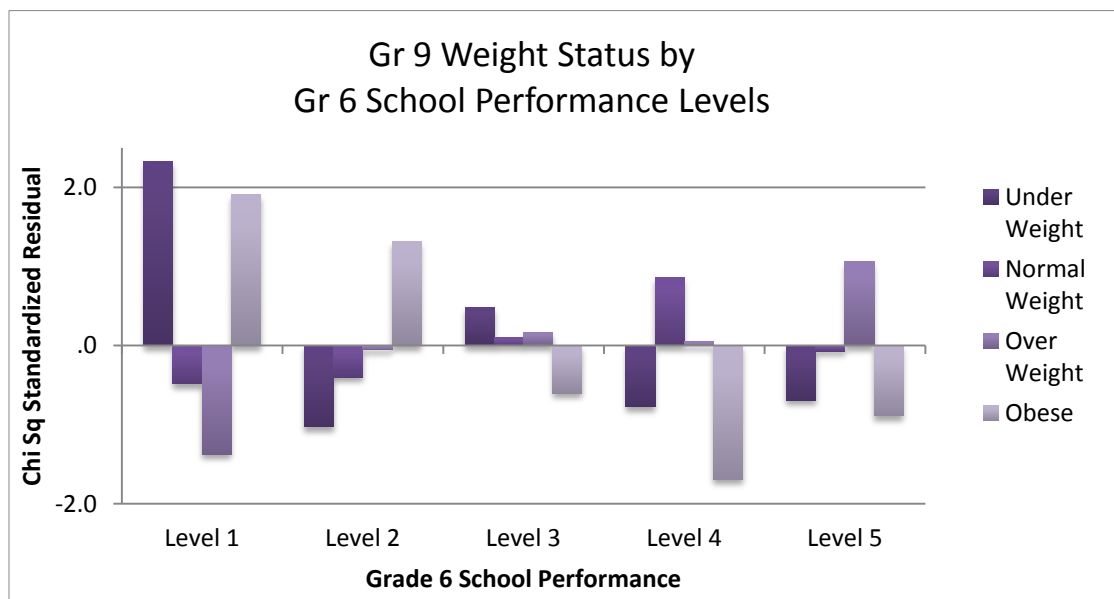


Figure 4 – Gr 12 Wt Status by Gr 6 School Performance Levels

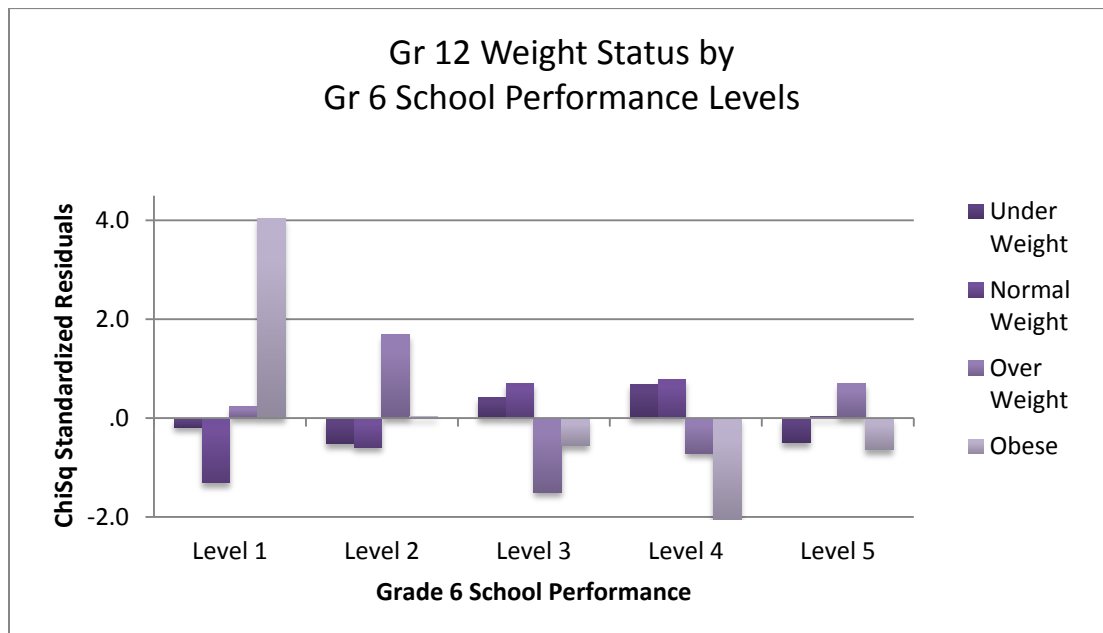
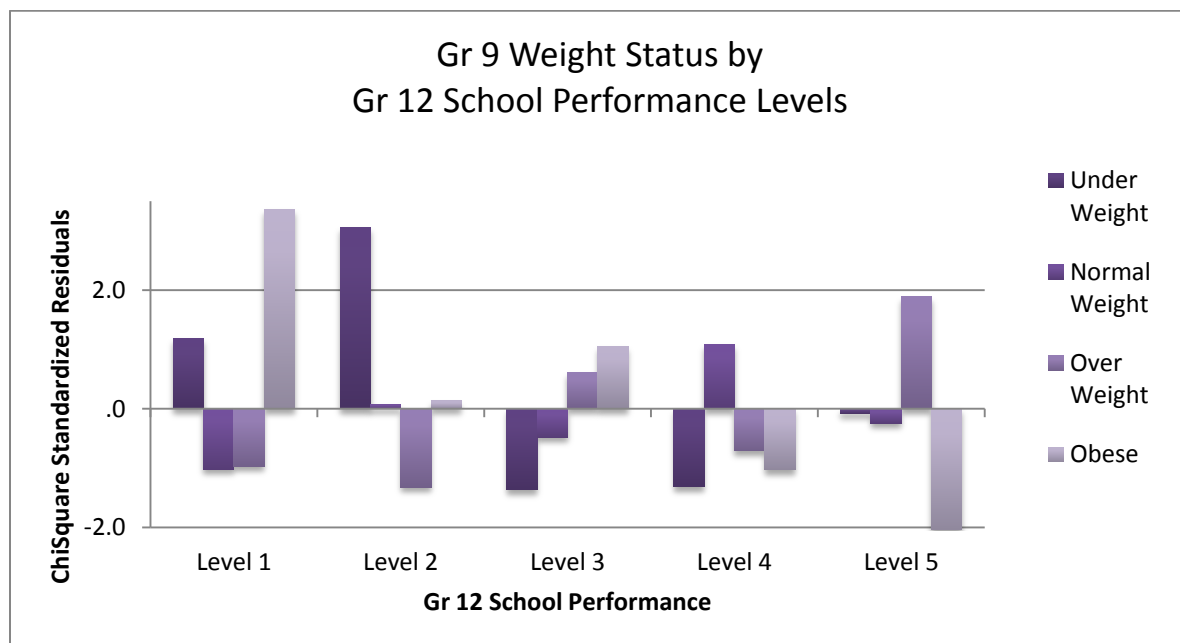


Figure 5 – Gr 9 Wt Status by Gr 12 School Performance Levels



5.2.2 ASSOCIATIONS BETWEEN ENVIRONMENTAL FACTORS AND SCHOOL PERFORMANCE AND WEIGHT STATUS

The chi-square test was further used to identify significant associations between measures of SP and/or measures of WS at each grade level with each of the thirteen environmental factors and personal attribute variables (Table 59, Table 60, Table 61, Table 62).

COMMUNITY OF RESIDENCE

Few significant associations were identified with community of residence and school performance or weight status. The distribution of grade 9 school performance was found to differ significantly between children living in BBBF and non-BBBF communities in grade 6; prevalence of ‘failing’ SP in grade 9 was much higher among children living in non-BBBF communities in grade 6. As well, the distribution of weight status in grade 12 was found to differ significantly between children living in BBBF communities and non-BBBF communities in grade 9; the prevalence of underweight WS in grade 12 was much lower among children living in BBBF communities in grade 9. No other relationships were identified with community of residence and weight status or school performance.

IMMIGRATION STATUS

Immigration status was significantly related to SP across all grade levels and also to WS in grade 12. The distribution of SP in both grades 9 and 12 differed significantly between children with parents born in Canada and children with parents not born in Canada at all grade levels. Prevalence of ‘highest’ SP in grades 9 and 12 was much higher among children with parents born in Canada, and much lower among children with parents not born in Canada in grades 6, 9 and 12. Conversely, prevalence of ‘failing’ SP in grade 12 was much lower among

children with parents born in Canada compared to those with parents not born in Canada in grades 9 and 12.

The distribution of grade 12 WS also differed significantly across all grade levels by immigration status. Prevalence of underweight in grade 12 was much lower among children with parents born in Canada, and much higher among children with parents not born in Canada in grades 6, 9 and 12.

PARENTAL EDUCATION

The distribution of SP at all grade levels differed significantly by parental education level, while there were fewer significant associations with WS. Prevalence of ‘failing’ SP in grades 6, 9 and 12 was much lower among children with both parents having greater than HS education; while the prevalence of ‘highest’ SP was much higher among children with both parents having greater than HS education, in grade 6 and 9. Prevalence of obesity in grade 12 was much higher among children with no parents having greater than HS education in grade 12. Interestingly, prevalence of underweight in grade 6 was much lower among children with one parent having greater than HS education, and much higher among children with both parents having greater than HS education, in grade 6.

FINANCIAL STATUS

Household financial status according to the Low-Income Cut Off (LICO) had few significant associations with SP and WS. Prevalence of ‘failing’ SP in grades 6 and 12 was much greater among children with annual household income below LICO, and much lower among children with annual household income at or above LICO, in grades 6 and grade 12. Prevalence of underweight WS in grade 6 and 9 was much lower among children with annual household

income below LICO in grade 6; similarly, prevalence of underweight in grade 6 was much higher among children with household income at or above LICO in grade 6.

PARENTAL WEIGHT STATUS

The distribution of child WS at all grade levels differed significantly by parental WS at all grade levels. The distribution of SP did not differ significantly by parental WS at any grade level. Prevalence of underweight in grade 6 was much higher among children with a parent who was also underweight and much lower among children with a parent who was overweight in grade 6. Conversely, prevalence of overweight and obesity in grade 6, 9 & 12 was much greater among children with a parent who was also obese in the same or previous grade; prevalence was much lower in grade 12 among children with a parent who was normal WS in grade 6, 9 and 12. Prevalence of normal WS in grade 6 was much lower among children with a parent who was obese in grade 6 and grade 12; prevalence of normal WS in grade 9 was also lower among children with a parent who was obese in grades 9 and 12. Although non-significant, prevalence of failing SP in grade 6 was much higher among children with a parent who was underweight in grade 9. Similarly, prevalence of failing SP in grade 9 was much higher among children with a parent who was overweight, and much lower among those who had a normal WS, in grade 12. Prevalence of highest SP in grade 12 was much higher among children with a parent who was normal WS in grade 12.

SINGLE PARENT FAMILY

The distribution of SP across all grade levels was significantly different among single parent households compared to dual parent households, in grades 6 and 9; however only grade 12 SP was significantly associated with grade 12 single parent status. Prevalence of failing SP in grade 6 was much higher among children from single parent families in grade 9. Similarly,

Prevalence of failing SP in grade 12 was much higher among children from single parent families at all grade levels. Although non-significant, prevalence of overweight in grade 12 was much lower among children from single parent families in grades 6 and 9.

DIETARY INTAKE

The distributions of SP and WS did not differ significantly between children with good intake (2 or more food group requirements met according to Eating Well with Canada's Food Guide (113) and poor intake (less than 2 food group requirements met).

BREAKFAST CONSUMPTION

The distribution of SP in grades 6 and 12 differed significantly among children who consumed breakfast on the day of the interview compared to those who did not consume breakfast. Prevalence of highest SP in grade 6 was much lower among children who did not consume breakfast on the day of the interview in grade 6. Breakfast consumption was not significantly associated with WS at any grade level.

PHYSICAL ACTIVITY

The distribution of SP in grades 6 and 12 differed significantly by level of physical activity in grades 6 and 9 respectively. Prevalence of failing SP in grade 6 was much higher among children who also had lower levels of physical activity in grade 6. Level of physical activity was not significantly associated with WS at any grade level.

TIRED

The distribution of SP at all grade levels differed significantly by level of tiredness at school in grades 6 and 9. The distribution of WS in grade 6 also differed significantly by level of tiredness in grade 6 only. Prevalence of failing SP in grade 6, 9 and 12 was much higher among

children who were reported as tired by their teachers, and much lower among children who were not reported as tired by their teachers in grades 6 and 9. Conversely, prevalence of highest SP in grades 6, 9 and 12 was much higher among children who were not reported as tired by their teachers and much lower among children who were tired in grades 6 and 9.

SELF ESTEEM

The distribution of SP in grade 6 differed significantly by level of self esteem at all grade levels; SP in grade 9 differed by level of self esteem in grade 6 and 12 only; and SP in grade 12 differed by self esteem level in grade 9 and 12 only. Prevalence of failing SP in grade 6 was much higher among children with low self esteem in grade 6; likewise, prevalence of failing SP in grade 9 was much lower among children with high self esteem in grades 6 and 12, and higher among children with low self esteem in grade 12. Prevalence of highest SP in grade 6 was much higher among children with high self esteem in grade 6; prevalence of highest SP in grade 9 was similarly much higher among children with high self esteem in grades 9 and 12.

The distribution of WS in grade 6 differed significantly by level of self esteem in grade 12 only; there were no other significant associations between WS and level of self esteem. Prevalence of underweight in grade 6 was much higher among children with only moderate self esteem, and lower among children with high self esteem, in grade 12.

EMOTIONAL DISORDER

There were no significant associations between SP and level of emotional disorder; however, the distribution of WS in grade 12 was significantly associated with level of emotional disorder in grade 6 only. Prevalence of obesity in grade 12 was much higher among children

with an emotional disorder in grade 6. Although non-significant, prevalence of failing SP was much higher in grade 6 among children with an emotional disorder in the same grade.

POPULARITY

The distribution of SP differed significantly in grades 6 and 12 by level of popularity in grades 6 and 9 respectively. Prevalence of failing SP in grade 6 was much higher among children with low popularity in the same grade; conversely, prevalence of high SP in grade 6 and highest SP in grade 12 was much lower among children with low popularity in grade 6 and grade 12 respectively. Prevalence of failing SP in grade 12 was much higher among children with moderate popularity in grade 9. The distribution of WS in grade 12 differed significantly by level of popularity in grade 6 only. Prevalence of obesity in grade 12 was much higher among children with low popularity in grade 6 and although non-significant, grade 9 as well.

5.2.3 SUMMARY OF TWO-WAY ASSOCIATIONS

In summary the following variables were more strongly associated with SP, than WS: immigration status, self esteem, parental education, single parent status and tiredness. Parental WS was very strongly associated with child WS, but not SP. The following variables were somewhat associated with SP, but not WS: community of residence (BBBF), popularity, household income; physical activity level and breakfast consumption . Dietary intake by food group was not significantly associated with either SP or WS.

5.3 PREDICTORS OF SCHOOL PERFORMANCE

Binary stepwise logistic regression was employed to identify combinations of environmental factors and personal attributes of the children in grades 6, 9 and 12, which may be predictive of ‘overweight/obese’ weight status (OOWS), ‘lower’ school performance (LSP)

and ‘higher’ school performance (HSP) at each grade level for all students. As previously described, an optimal model was first generated from the full model containing all the available variables (see Table 2), by the ‘backward’ method.; however if the events per variable (EPV) count was low (<7) (121,122) the ‘Forward’ method was used instead A final model was subsequently identified employing the ‘enter’ method. A complete listing of all final regression models can be found in Appendix C: Final Regression Models.

Table 2: List of Environmental Factor variables included in the Full Models for Binary Logistic Regression at each grade level

BBBF Community
Immigration Status
Self Esteem
Popularity
Emotional Disorder
Parental Education
Financial Status (LICO)
Parental Weight Status
Single Parent
Tired*
Physical Activity*
Dietary Intake*
Breakfast*

*Data available only in grade 6 & 9

5.3.1 PREDICTORS OF SCHOOL PERFORMANCE IN GRADE 6

LOWER SCHOOL PERFORMANCE

The final model for the prediction of LSP in grade 6 based on the grade 6 predictors: Popularity, Parent Education, and Tired resulted in the following coefficients (see Table 4). The analysis was based on N=564 valid cases. Cox and Snell’s and Naglekerke’s R^2 indicated the model held weak predictive value ($R^2 = 0.108$ and $R^2 = 0.147$ respectively). The Hosmer-Lemmeshow test revealed the final model was a good fit ($p = 0.719$). Overall accuracy for the final model was 66.8% and deviance was reduced by 8.6%. LSP in grade 6 was predicted

correctly in 38.4% of cases while the reference category was predicted correctly in 84.9% of cases (Table 3).

Table 3: Model statistics for grade 6 LSP final regression model

Valid N	564
EPV	31
% R^2 improved	8.6%
-2 Likelihood (Step 0)	753.48
(Step Final)	688.781
R^2 (Cox and Snell)	.108
(Naglekerke)	.147
Hosmer-Lemeshow (χ^2)	4.517
df	7
sig	.719
Percent Correct (0)	84.9%
(1)	38.4%
(Overall)	66.8%

Table 4: Coefficients of significant predictors for grade 6 LSP in the final regression model

Variable	B	SE	e^B	p
Parental Education (0 > HS)	.968	.238	2.632	.000
(1 > HS)	.833	.220	2.301	.000
Tired	1.011	.203	2.748	.000
Popularity (Low)	.968	.377	2.633	.010

The final model (Table 4) shows that having one parent, or no parents, with greater than high school education significantly increased the odds of LSP in grade 6 by a factor of 2.301 ($p=0.000$) and 2.632 ($p=.000$) and respectively, compared to both parents having greater than high school education. Arriving to school tired also significantly increased the odds of LSP by a factor of 2.748 ($p=0.000$) compared to not being tired at school. Low popularity likewise increased the odds of LSP by a factor of 2.633 ($p=.010$).

HIGHER SCHOOL PERFORMANCE

The final model for the prediction of HSP in grade 6 based on the grade 6 predictors Self Esteem, Parent Education, and Tired resulted in the coefficients in Table 6 below. The analysis was based on $N=559$ valid cases. Cox and Snell's and Naglekerke's R^2 indicated the model held

moderate predictive value ($R^2 = 0.101$ and $R^2 = 0.147$ respectively). The Hosmer-Lemeshow test revealed the final model was a good fit ($p = 0.888$). Overall accuracy for the final model was 73.5% and deviance was reduced by 9%. However, HSP was predicted correctly in 0.0% of cases while the reference category was predicted correctly in 100.0% of cases.

Table 5: Model statistics for grade 6 HSP final regression model

Valid N	559
EPV	25
% R^2 improved	9.2%
-2 Likelihood (Step 0)	646.177
(Step Final)	586.818
R^2 (Cox and Snell)	.101
(Nagelkerke)	.147
Hosmer-Lemeshow (χ^2)	2.966
df	7
sig	.888
Percent Correct (0)	100.0%
(1)	0.0%
(Overall)	73.5%

Table 6: Coefficients of significant predictors for grade 6 HSP in the final regression model

Variable	B	SE	e^B	p
Parental Education (0 > HS)	-.994	.277	.370	.000
(1 > HS)	-.578	.228	.561	.011
Tired	-1.522	.313	.218	.000

The final model (Table 6) shows that having one parent, or no parents with greater than high school education significantly decreased the odds of obtaining HSP in grade 6 by a factor of 0.561 ($p=.011$) and 0.370 ($p=0.000$) respectively compared to both parents having greater than high school education. Arriving to school tired also significantly decreased the odds of obtaining HSP by a factor of 0.218 ($p=0.000$) compared to not being tired at school.

Self Esteem was not a statistically significant predictor in this model, although in the optimal model based on $N=378$ cases, 'moderate' Self Esteem was found to significantly

decrease the odds of obtaining HSP in grade 6 by a factor of 0.484 ($p=0.008$) compared to ‘high’ Self Esteem.

5.3.2 PREDICTORS OF SCHOOL PERFORMANCE IN GRADE 9

LOWER SCHOOL PERFORMANCE

The final model for the prediction of LSP in grade 9 based on the grade 9 predictors: Parent Education, Breakfast and Tired, resulted in the coefficients in Table 8 below. The analysis was based on $N=372$ valid cases. Cox and Snell’s and Naglekerke’s R^2 indicated the model held moderate predictive value ($R^2 = 0.221$ and $R^2 = 0.302$ respectively). The Hosmer-Lemeshow test revealed the final model was a good fit ($p = 0.905$). Overall accuracy for the final model was 75.0% and deviance was reduced by 18.9%. LSP was predicted correctly in 58.4% of cases while the reference category was predicted correctly in 84.7% of cases (Table 7).

Table 7: Model statistics for grade 9 LSP final regression model

Valid N	370
EPV	27
% R^2 improved	18.9%
-2 Likelihood (Step 0)	489.58
(Step Final)	396.82
R^2 (Cox and Snell)	.221
(Nagelkerke)	.302
Hosmer-Lemeshow (χ^2)	3.423
df	8
sig	0.905
Percent Correct (0)	84.7%
(1)	58.4%
(Overall)	75.0%

Table 8: Coefficients of significant predictors for grade 9 LSP in the final regression model

Variable	B	SE	e^B	p
Parental Education (0 > HS)	.828	.308	2.288	.007
Tired	2.026	.250	7.587	.000
Breakfast	-.536	.251	.585	.033

The final model (Table 8) showed that having no parents with greater than high school education significantly increased the odds of LSP in grade 9 by a factor of 2.288 ($p=.007$),

compared to both parents having greater than high school education. Arriving to school tired also significantly increased the odds of LSP by a factor of 7.587 ($p=0.000$) compared to not being tired at school. Regular breakfast consumption decreased the odds of LSP by a factor of .585 ($p=.033$).

HIGHER SCHOOL PERFORMANCE

The final model for the prediction of HSP in grade 9 based on the grade 9 predictors: Parental Education and Tired, resulted in the coefficients in Table 10 below. The analysis was based on $N=426$ valid cases. Cox and Snell's and Naglekerke's R^2 indicated the model held moderate predictive value ($R^2 = 0.190$ and $R^2 = 0.261$ respectively). The Hosmer-Lemeshow test revealed the final model was a good fit ($p = 0.604$). Overall accuracy for the final model was 68.1% and deviance was reduced by 16.2% .HSP was predicted correctly in 71.7% of cases while the reference category was predicted correctly in 66.1% of cases (Table 9).

Table 9: Model statistics for grade 9 HSP final regression model

Valid N		426
EPV		38
% R^2 improved		16.2%
-2 Likelihood	(Step 0)	555.128
	(Step Final)	465.324
R^2	(Cox and Snell)	0.190
	(Nagelkerke)	0.261
Hosmer-Lemeshow	(χ^2)	2.732
	df	4
	sig	0.604
Percent Correct	(0)	66.1%
	(1)	71.7%
	(Overall)	68.1%

Table 10: Coefficients of significant predictors for grade 9 HSP in the final regression model

Variable	B	SE	e^B	p
Tired	-2.290	.299	.101	.000

The final model (Table 10) shows that tiredness decreased the odds of HSP in grade 9 by a factor of 0.098 ($p=0.000$).

5.3.3 PREDICTORS OF SCHOOL PERFORMANCE IN GRADE 12

LOWER SCHOOL PERFORMANCE

The final model for the prediction of LSP in Grade 12 is based on the grade 12 predictors: Popularity, Single Parent, and Weight Status, resulted in the coefficients in Table 12 below. The analysis was based on $N=439$ valid cases. Cox and Snell's and Naglekerke's R^2 indicated the model held very weak predictive value ($R^2 = 0.036$ and $R^2 = 0.055$ respectively). The Hosmer-Lemeshow test revealed the final model was a good fit ($p = 0.467$). Overall accuracy for the final model was 77.0% and deviance was reduced by 3%.4. LSP was predicted correctly in 3.8% of cases while the reference category was predicted correctly in 99.7% of cases (Table 11).

Table 11: Model statistics for grade 12 LSP final regression model

Valid N	439
EPV	13
% R^2 improved	3.4%
-2 Likelihood (Step 0)	480.69
(Step Final)	464.40
R^2 (Cox and Snell)	.036
(Nagelkerke)	.055
Hosmer-Lemeshow (χ^2)	5.617
df	6
sig	.467
Percent Correct (0)	99.7%
(1)	3.8%
(Overall)	72.0%

Table 12: Coefficients of significant predictors for grade 12 LSP in the final regression model

Variable	B	SE	e^B	p
Single Parent	.568	.250	1.764	.023

The final model (Table 12) shows that children from single parent families had significantly increased odds for LSP in grade 12 by a factor of 1.764 ($p=.023$), compared to children from dual parent families.

HIGHER SCHOOL PERFORMANCE

The final model for the prediction of HSP in Grade 12 based on the grade 12 predictors: Self Esteem, Parental Weight Status, and Single Parent, resulted in the coefficients in Table 14 below. The analysis was based on N=425 valid cases. Cox and Snell's and Naglekerke's R^2 indicated the model held weak predictive value ($R^2 = 0.073$ and $R^2 = 0.098$ respectively). The Hosmer-Lemeshow test revealed the final model was a good fit ($p=0.612$). Overall accuracy for the final model was 62.6% and deviance was reduced by 5.5%. HSP was predicted correctly in 62.6% of cases while the reference category was predicted correctly in 62.6% of cases.

Table 13: Model statistics for grade 12 HSP final regression model

Valid N		425
EPV		28
% R^2 improved		5.5%
-2 Likelihood	(Step 0)	586.289
	(Step Final)	553.925
R^2	(Cox and Snell)	.073
	(Nagelkerke)	.098
Hosmer-Lemeshow	(χ^2)	5.396
	df	7
	sig	.612
Percent Correct	(0)	62.6%
	(1)	62.6%
	(Overall)	62.6%

Table 14: Coefficients of significant predictors for grade 12 HSP in the final regression model

Variable		B	SE	e ^B	P
Self Esteem	(Moderate)	-.579	.206	.561	.005
Single Parent		-.950	.242	.387	.000
Parental WS	(Normal)	.587	.271	1.798	.031

The final model (Table 14) shows that ‘moderate’ Self Esteem decreased the odds of HSP in grade 12 by a factor of 0.561 ($p=0.005$) compared to ‘high’ Self Esteem. Analysis similarly showed that being from a Single Parent family decreased the odds of obtaining HSP grade 12 by a factor of 0.387 ($p=0.000$) compared to being from a dual parent family. In addition, ‘normal’ Parental WS in grade 12 increased the odds of HSP by a factor of 1.798 ($p = 0.031$) compared to ‘obese’ Parental WS.

5.4 LONGITUDINAL PREDICTORS OF SCHOOL PERFORMANCE

5.4.1 GRADE 6 PREDICTORS OF SCHOOL PERFORMANCE IN GRADE 9

LOWER SCHOOL PERFORMANCE

The final model for the prediction of LSP in grade 9 based on the grade 6 predictors: Self Esteem, Tired, Breakfast, and School Performance resulted in the coefficients in Table 16 below. The analysis was based on $N=324$ valid cases. Cox and Snell’s and Naglekerke’s R^2 indicated the model held moderate predictive value ($R^2 = 0.215$ and $R^2 = 0.294$ respectively). The Hosmer-Lemmeshow test revealed the final model was a good fit ($p = 0.321$). Overall accuracy for the final model was 71.6% and deviance was reduced by 18.5%. LSP was predicted correctly in 48.3% of cases while the reference category was predicted correctly in 85.0% of cases (Table 15).

Table 15: Model statistics for grade 9 LSP final regression model based on grade 6 predictors

Valid N	324
EPV	13
% R^2 improved	18.5%
-2 Likelihood (Step 0)	424.955
(Step Final)	346.464
R^2 (Cox and Snell)	.215
(Nagelkerke)	.294
Hosmer-Lemeshow (χ^2)	9.254
df	8
sig	.321
Percent Correct (0)	85.0%
(1)	48.3%
(Overall)	71.6%

Table 16: Coefficients of significant grade 6 predictors for grade 9 LSP in the final regression model

Variable	B	SE	e^B	p
Self Esteem (Moderate)	.825	.319	2.281	.010
Tired	1.014	.291	2.757	.000
School Performance (Failing)	1.476	.425	4.377	.001
(Low)	.825	.319	2.281	.010
(Highest)	-1.829	.407	.161	.017

The final model (Table 16) shows that ‘moderate’ Self Esteem in grade 6 significantly increased the odds of LSP in grade 9 by a factor of 2.281 ($p=.010$), compared to ‘high’ Self Esteem. Arriving to school Tired also significantly increased the odds of LSP by a factor of 2.757 ($p=0.000$) compared to not being Tired at school. ‘Failing’ and ‘low’ SP in grade 6 likewise increased the odds of LSP in grade 9 by a factor of 4.377 ($p=.001$) and 2.281 ($p=.010$) respectively compared to ‘average’ School Performance in grade 6. Conversely, achieving ‘highest’ SP in grade 6 decreased the odds of LSP in grade 9 by a factor of .161 ($p=.017$) compared to ‘average’ SP.

HIGHER SCHOOL PERFORMANCE

The final model for the prediction of grade 9 HSP based on the grade 6 predictors: Tired and School Performance, resulted in the coefficients in Table 18 below. The analysis was based on $N=346$ valid cases. Cox and Snell’s and Naglekerke’s R^2 indicated the model held moderate

predictive value ($R^2 = 0.165$ and $R^2 = 0.226$ respectively). The Hosmer-Lemeshow test revealed the final model was a good fit ($p = 0.994$). Overall accuracy for the final model was 72.0% and deviance was reduced by 13.8%. HSP was predicted correctly in 28.6% of cases while the reference category was predicted correctly in 95.8% of cases (Table 17).

Table 17: Model statistics for grade 9 HSP final regression model based on grade 6 predictors

Valid N		346
EPV		20
% R^2 improved		13.8%
-2 Likelihood	(Step 0)	449.137
	(Step Final)	386.944
R^2	(Cox and Snell)	0.165
	(Nagelkerke)	0.226
Hosmer-Lemeshow	(χ^2)	1.024
	df	7
	sig	0.994
Percent Correct	(0)	87.1%
	(1)	44.3%
	(Overall)	72.0%

Table 18: Coefficients of significant grade 6 predictors for grade 9 HSP in the final regression model

Variable		B	SE	e^B	p
Tired		-.994	.332	.370	.003
School Performance	(Highest)	1.654	.414	5.227	.000

The final model shows that arriving to school Tired in grade 6 significantly decreased the odds of obtaining HSP in grade 9 by a factor of 0.370 ($p=0.003$) compared to not being Tired at school. Conversely, having the ‘highest’ level of SP in grade 6 increased the odds of HSP by a factor of 5.227 ($p = .000$) compared to ‘average’ SP in grade 6.

5.4.2 GRADE 9 PREDICTORS OF SCHOOL PERFORMANCE IN GRADE 12

LOWER SCHOOL PERFORMANCE

The final model for the prediction of grade 12 LSP based on the grade 9 predictors: Tired, Weight Status, and School Performance, resulted in the coefficients in Table 20 below. The analysis was based on N=289 valid cases. Cox and Snell's and Naglekerke's R^2 indicated the model held strong predictive value ($R^2 = 0.265$ and $R^2 = 0.395$ respectively). The Hosmer-Lemeshow test revealed the final model was a good fit ($p = 0.876$). Overall accuracy for the final model was 81.7% and deviance was reduced by 27.7%. LSP was predicted correctly in 57.7% of cases while the reference category was predicted correctly in 89.4% of cases (Table 19).

Table 19: Model statistics for grade 12 LSP final regression model based on grade 9 predictors

Valid N		289
EPV		8
% R^2 improved		27.7%
-2 Likelihood	(Step 0)	322.254
	(Step Final)	233.096
R^2	(Cox and Snell)	0.265
	(Nagelkerke)	0.395
Hosmer-Lemeshow	(χ^2)	3.788
	df	8
	sig	0.876
Percent Correct	(0)	89.4%
	(1)	57.7%
	(Overall)	81.7%

Table 20: Coefficients of significant grade 9 predictors for grade 12 LSP in the final regression model

Variable		B	SE	e^B	p
School Performance	(Failing)	1.609	.439	4.996	.000
	(Low)	1.281	.447	3.601	.004
Weight Status	(Underweight)	1.563	.737	4.774	.034
Tired		1.200	.380	3.319	.001

The final model (Table 20) showed that arriving to school Tired in grade 9 significantly increased the odds of LSP in grade 12 by a factor of 1.200 ($p=.001$), compared to not being Tired. Similarly, ‘failing’ or ‘low’ SP in grade 9 significantly increased the odds of LSP in grade 12 by a factor of 4.996 ($p=0.000$) and 3.601 ($p=.004$) respectively, compared to ‘average’ SP. Interestingly, being underweight in grade 9 also increased the odds of LSP in grade 12 by a factor of 4.774 ($p=.034$) compared to ‘normal’ WS.

HIGHER SCHOOL PERFORMANCE

The final model for the prediction of HSP in grade 12 based on the grade 9 predictors: Parental Education, LICO, Tired, Weight Status and School Performance, resulted in the coefficients in Table 22 below. The analysis was based on $N=272$ valid cases. Cox and Snell’s and Naglekerke’s R^2 indicated the model held strong predictive value ($R^2 = 0.314$ and $R^2 = 0.419$ respectively). The Hosmer-Lemeshow test revealed that the model was a good fit ($p=.865$). Overall accuracy for the final model was 76.1% and deviance was reduced by 27.3%. HSP was predicted correctly in 76.4% of cases while the reference category was predicted correctly in 75.9% of cases (Table 21).

Table 21: Model statistics for grade 12 HSP final regression model based on grade 9 predictors

Valid N		272
EPV		11
% R^2 improved		27.3%
-2 Likelihood	(Step 0)	375.880
	(Step Final)	273.401
R^2	(Cox and Snell)	0.314
	(Nagelkerke)	0.419
Hosmer-Lemeshow (χ^2)		3.908
df		8
sig		0.865
Percent Correct	(0)	75.9%
	(1)	76.4%
	(Overall)	76.1%

Table 22: Coefficients of significant grade 9 predictors for grade 12 HSP in the final regression model

Variable		B	SE	e ^B	p
School Performance	(Failing)	-1.212	.542	.298	.025
	(High)	1.016	.417	2.763	.015
	(Highest)	1.683	.467	5.379	.000
Weight Status	(Obese)	-1.434	.560	.238	.010
Parental Education	(1 > HS)	-.914	.358	.401	.011
LICO		.760	.312	2.138	.015
Tired		-1.091	.375	.336	.004

The final model (Table 22) showed that having one parent with greater than HS education in grade 9 decreased the odds of HSP in grade 12 by a factor of .401 ($p=.011$) compared to having two parents with greater than HS education. Analysis also showed that being obese decreased the odds by a factor of .238 ($p=.010$) compared to having a ‘normal’ WS. Being tired at school likewise decreased the odds of obtaining HSP in grade 12 by a factor of 0.336 ($p=0.004$) compared to not being tired. Similarly, ‘failing’ SP in grade 9 also decreased the odds of HSP in grade 12 by a factor of .298 ($p = 0.025$) compared to ‘average’ SP in grade 9. Conversely, ‘high’ and ‘highest’ SP in grade 9 increased the odds by a factor of 2.763 ($p=.015$) and 5.379 ($p=.000$) compared to having ‘average’ SP in grade 9.

5.4.3 GRADE 6 PREDICTORS OF SCHOOL PERFORMANCE IN GRADE 12

LOWER SCHOOL PERFORMANCE

The final model for the prediction of LSP in grade 12 based on grade 6 predictors: LICO, Tired, Weight Status and School Performance, resulted in the coefficients in Table 24 below. The analysis was based on $N=331$ valid cases. Cox and Snell’s and Naglekerke’s R^2 indicated the model held moderate predictive value ($R^2 = 0.174$ and $R^2 = 0.270$ respectively). The Hosmer-Lemmeshow test revealed the final model was a good fit ($p = 0.391$). Overall accuracy for the final model was 81.6% and deviance was reduced by 18.5%. LSP was predicted correctly

in 28.6% of cases while the reference category was predicted correctly in 95.8% of cases (Table 23).

Table 23: Model statistics for grade 12 LSP final regression model based on grade 6 predictors

Valid N	331
EPV	7
% R^2 improved	18.5%
-2 Likelihood (Step 0)	341.533
(Step Final)	278.281
R^2 (Cox and Snell)	0.174
(Nagelkerke)	0.270
Hosmer-Lemeshow (χ^2)	8.449
df	8
sig	0.391
Percent Correct (0)	95.8%
(1)	28.6%
(Overall)	81.6%

Table 24: Coefficients of significant grade 6 predictors for grade 12 LSP in the final regression model

Variable	B	SE	e^B	p
School Performance (Failing)	1.119	.476	3.062	.019
(Highest)	-2.148	1.049	.117	.041
Weight Status (Overweight)	-1.389	.513	.249	.007
Tired	1.582	.331	4.864	.000

The final model (Table 24) showed that children arriving to school Tired in grade 6 had significantly increased odds of LSP in grade 12 by a factor of 4.864 ($p=.000$), compared to not arriving to school Tired. Likewise, ‘failing’ SP in grade 6 significantly decreased the odds by a factor of 3.062 ($p=.019$) compared to ‘average’ SP. However, ‘highest SP decreased the odds of LSP in grade 12 by a factor of .117 ($p=.041$) compared to ‘average’ SP. Interestingly, being overweight in grade 6 also significantly decreased the odds of LSP in grade 12 by a factor of .249 ($p=.007$) compared to being ‘normal’ WS in grade 6.

HIGHER SCHOOL PERFORMANCE

The final model for the prediction of HSP in grade 12 based on the grade 6 predictors: Tired and School Performance, resulted in the coefficients in Table 26 below. The analysis was based on N=387 valid cases. Cox and Snell's and Naglekerke's R^2 indicated the model held moderate predictive value ($R^2 = 0.218$ and $R^2 = 0.291$ respectively). The Hosmer-Lemeshow test revealed the final was a good fit ($p=0.888$). Overall accuracy for the final model was 70.3% and deviance was reduced by 17.8%. HSP was predicted correctly in 48.0% of cases while the reference category was predicted correctly in 89.0% of cases (Table 25).

Table 25: Model statistics for grade 12 HSP final regression model based on grade 6 predictors

Valid N	387
EPV	30
% R^2 improved	17.8%
-2 Likelihood (Step 0)	533.679
(Step Final)	438.602
R^2 (Cox and Snell)	.218
(Nagelkerke)	.291
Hosmer-Lemeshow (χ^2)	1.703
df	5
sig	.888
Percent Correct (0)	89.0%
(1)	48.0%
(Overall)	70.3%

Table 26: Coefficients of significant grade 6 predictors for grade 12 HSP in the final regression model

Variable	B	SE	e^B	p
Tired	-.945	.303	.389	.002
School Performance (Failing)	-1.600	.563	.202	.004
(High)	1.200	.362	3.320	.001
(Highest)	1.869	.406	6.422	.000

The final model (Table 26) showed that arriving to school Tired in grade 6 decreased the odds of HSP in grade 12 by a factor of 0.389 ($p=0.002$) compared to not arriving tired. Analysis similarly showed that 'failing' SP in grade 6 also decreased the odds by a factor of .202 ($p =$

0.004) compared to ‘average’ SP. Conversely, ‘high’ and ‘highest’ SP in grade 6 increased the odds of HSP in grade 12 by a factor of 3.320 ($p=0.001$) and 6.422 ($p=.000$) compared to ‘average’ SP.

5.4.4 GRADE 6, 9 AND 12 PREDICTORS OF SCHOOL PERFORMANCE IN GRADE 12

LOWER SCHOOL PERFORMANCE

The final model for the prediction of LSP in grade 12 based on grades 6, 9 and 12 predictors: School Performance (Gr 9) and Tired (Gr 6 & 9) (Table 27), resulted in the coefficients in Table 29 below. The analysis was based on $N=274$ valid cases. Cox and Snell’s and Naglekerke’s R^2 indicated the model held moderate predictive value ($R^2 = 0.265$ and $R^2 = 0.394$ respectively). The Hosmer-Lemeshow test revealed the final model was a good fit ($p = 0.911$). Overall accuracy for the final model was 81.0% and deviance was reduced by 27.5%. LSP was predicted correctly in 48.5% of cases while the reference category was predicted correctly in 91.7% of cases (Table 28).

Table 27 - Summary of grade 6, 9 & 12 variables included for grade 12 LSP regression model

Full Model	Significant in Optimal Model	Significant in Final Model
School Performance (Gr 6 & 9)	School Performance (Gr 9)	School Performance (Gr 9)
Weight Status (Gr 6 & 9)	Tired (Gr 6 & 9)	Tired (Gr 6 & 9)
Self Esteem (Gr 6)		
Popularity (Gr 12)		
Parental Education (Gr 6 & 9)		
Financial Status (Gr 6)		
Parental Weight Status (Gr 6)		
Single Parent (Gr 12)		
Tired (Gr 6 & 9)		
Breakfast (Gr 6 & 9)		

Table 28: Model statistics for grade 12 LSP final regression model based on grade 6, 9 & 12 predictors

Valid N		274
EPV		10
% R^2 improved		27.5%
-2 Likelihood	(Step 0)	307.056
	(Step Final)	222.517
R^2	(Cox and Snell)	0.265
	(Nagelkerke)	0.394
Hosmer-Lemeshow (χ^2)		2.705
df		7
sig		0.911
Percent Correct	(0)	91.7%
	(1)	48.5%
	(Overall)	81.0%

Table 29: Coefficients of significant grade 6, 9 & 12 predictors for grade 12 LSP in the final regression model

Variable		B	SE	e^B	p
School Performance Gr 9	(Failing)	1.790	.447	5.987	.000
	(Low)	1.266	.465	3.546	.006
Tired Gr 6		.957	.367	2.603	.009
Tired Gr 9		.883	.365	2.418	.015

The final model (Table 29) showed that children arriving to school Tired in grades 6 and 9 had significantly increased odds of LSP in grade 12 by a factor of 2.603 ($p=.009$) and 2.418 ($p=.015$) respectively, compared to not arriving to school Tired. ‘Failing’ and ‘low’ SP in grade 9 likewise had significantly increased odds of LSP in grade 12 by a factor of 5.987 ($p=.000$) and 3.546 ($p=.006$) respectively, compared to children with ‘average’ SP in grade 9.

HIGHER SCHOOL PERFORMANCE

The final model for the prediction of HSP based on the grade 6, 9 and 12 predictors: Tired (Gr 9), School Performance (Gr 6 & 9), Weight Status (Gr 9), and Financial Status (Gr 6) (Table 30), resulted in the coefficients in Table 32 below. The analysis was based on $N=232$ valid cases. Cox and Snell’s and Naglekerke’s R^2 indicated the model held strong predictive value ($R^2 = 0.317$ and $R^2 = 0.423$ respectively). The Hosmer-Lemmeshow test revealed the final

was a good fit ($p=0.990$). Overall accuracy for the final model was 77.6% and deviance was reduced by 27.6%. HSP was predicted correctly in 73.8% of cases while the reference category was predicted correctly in 80.8% of cases (Table 31).

Table 30: Summary of grade 6, 9 and 12 variables included for grade 12 HSP regression models

Full Model	Significant in Optimal Model	Significant in Final Model
School Performance (Gr 6 & 9)	School Performance (Gr 6 & 9)	School Performance (Gr 6 & 9) ^a
Weight Status (Gr 9)	Weight Status (Gr 9)	Weight Status (Gr 9) ^b
Self Esteem (Gr 6 & 12)	Financial Status (Gr 6)	Financial Status (Gr 6)
Parental Education (Gr 6 & 9)	Tired (Gr 6 & Gr 9)	Tired (Gr 9)
Financial Status (Gr 6)		
Parental Weight Status (Gr 12)		
Single Parent (Gr 12)		
Tired (Gr 6 & 9)		
a. borderline significant $p=0.051$		
b. borderline significant $p=0.058$		

Table 31: Model statistics for grade 12 HSP final regression model based on grade 6, 9 and 12 predictors

Valid N	232
EPV	7
% R^2 improved	27.6%
-2 Likelihood (Step 0)	320.222
(Step Final)	231.837
R^2 (Cox and Snell)	.317
(Nagelkerke)	.423
Hosmer-Lemeshow (χ^2)	1.66
df	8
sig	.990
Percent Correct (0)	80.8%
(1)	73.8%
(Overall)	77.6%

Table 32: Coefficients of significant grade 6, 9 and 12 predictors for grade 12 HSP in the final regression model

Variable	B	SE	e ^B	p
School Performance (6) (High)	1.104	.520	3.016	.034
School Performance (9) (Failing)	-1.189	.610	.305	.051
Weight Status (9) (Obese)	-1.073	.566	.342	.058
Financial Status (6)	.700	.340	2.015	.039
Tired (9)	-1.311	.423	.270	.002

The final model (Table 32) showed that arriving to school Tired in grade 9 decreased the odds of HSP in grade 12 by a factor of 0.270 ($p=0.002$) compared to not arriving Tired.

Analysis similarly showed that ‘obese’ WS also decreased the odds of HSP in grade 12, although non-significant, by a factor of .342 ($p=.058$) compared to ‘normal’ WS. Likewise, ‘failing’ SP in grade 6 decreased the odds of HSP in grade 12, although non-significant, by a factor of .305 ($p=.051$) compared to ‘average’ SP, while ‘high’ SP significantly increased the odds by a factor of 3.016 ($p=.034$) compared to ‘average’ SP. Financial Status greater than or equal to LICO, also increased the odds of HSP in grade 12 by a factor of 2.015 ($p=.039$) compared to below LICO.

5.4.5 GRADE 6, 9 AND 12 PREDICTORS OF ACADEMIC ACHIEVEMENT IN GRADE 12

The final linear regression model for the prediction of average marks (%) in grade 12 from the Ministry of Education (MOE) for Ontario based on the predictors: Grade 9 ‘high’ and ‘highest’ SP, Grade 9 ‘overweight’ and ‘obese’ WS, Grade 12 Immigration Status, Grade 12 Parent Education, Gr 9 Parent WS, and Grade 9 Single Parent (Table 70) resulted in the following coefficients (Table 71). Immigration Status (Gr 6), Popularity (Gr 9) and Parent WS (Gr 12) were also included as a predictor in the final linear model as they were borderline significant ($p=.052$, $p=.062$, $p=.061$ respectively) in the optimal model (Table 70). The analysis was based on $N=131$ valid cases and produced a significant model ($F_{(11,119)} = 11.488$, $p < .000$) with an R^2 of .515 and adjusted R^2 of .470 (Table 71). Examinations of the residual histogram and plot against the predicted values indicated a reasonably normal distribution, and no serious concerns about the homogeneity and independence assumptions. Case diagnostics identified only 1 case with absolute standard residuals larger than 3.

Table 33: Summary of grade 6, 9 and 12 variables included for grade 12 MOE average marks regression models

Full Model (all grades)	Significant in Optimal Model	Significant in Final Model
School Performance	School Performance (Gr 6 & 9)	School Performance (Gr 9)
Weight Status	Weight Status (Gr 9)	Self Esteem (Gr 6)
BBBF Community	BBBF Community (Gr 12) ^a	Financial Status (Gr 9)
Immigration Status	Self Esteem (Gr 6) ^b	Tired (Gr 9)
Self Esteem	Financial Status (Gr 9)	
Popularity	Tired (Gr 9)	
Emotional Disorder		
Parental Education		
LICO		
Parental Weight Status		
Single Parent Status		
Tired		
Physical Activity		
Dietary Intake		
Breakfast		
a included in final model although non-significant in optimal model (p = .070)		
b included in final model although non-significant in optimal model (p = .084)		

Table 34: Coefficients of significant grade 6, 9 and 12 predictors for grade 12 MOE average marks in the final regression model

F_(15,188) = 12.970 p < .000 R² = .509 adjusted R² = .469.					
Variable		B^{un}	SE	T	p
School Performance (6) (Highest)		6.276	2.105	2.982	.003
School Performance (9) (Failing)		-7.285	2.060	-3.536	.001
	(High)	3.593	1.923	1.869	.063
	(Highest)	5.679	2.094	2.712	.007
Self Esteem (12)		2.399	1.133	2.118	.035
Financial Status (9)		2.786	1.296	2.150	.033
Tired (9)		-6.713	1.585	-4.236	.000
B ^{un} = Unstandardized Beta					

The final model (Table 71) shows that each increasing level of Self Esteem in grade 12 was associated with a 2.399 point increase (p=.035) in grade 12 MOE average marks; likewise, Financial Status at or above LICO was associated with a 2.786 point increase(p=.033). ‘Highest’ SP in grade 6 was also significantly associated with an increase in MOE average marks in grade 12 by 6.276 points (p=.003) compared to ‘average’ SP. Similarly, ‘highest’ SP in grade 9 was significantly associated with an increase in MOE average marks in grade 12 by 5.679 points

($p=.007$) compared to ‘average’ SP in grade 9, and ‘high’ SP was associated with an increase by 3.5 points ($p=.063$) although non-significant. Conversely, ‘failing’ SP in grade 9 was associated with a significant decrease in MOE average marks in grade 12 by -7.286 points ($p=.001$) compared to ‘average’ SP. Arriving to school Tired also significantly decreased MOE average marks by -6.713 ($p=.000$) compared to not arriving to school Tired.

5.5 PREDICTORS OF WEIGHT STATUS

5.5.1 PREDICTORS OF WEIGHT STATUS IN GRADE 6

The final model for the prediction of Overweight/Obese Weight Status (OOWS) in grade 6 based on the grade 6 predictors: Parental WS, LICO and Single Parent, resulted in the coefficients in Table 36 below. The analysis was based on $N=509$ valid cases. Cox and Snell’s and Naglekerke’s R^2 indicated the model held weak predictive value ($R^2 = 0.057$ and $R^2 = 0.079$ respectively). Overall accuracy for the final model was 66.2% and deviance was reduced by 4.6%. The Hosmer-Lemeshow test revealed the final model was a good fit ($p = 0.623$). OOWS was predicted correctly in 8.7% of cases while the reference category was predicted correctly in 95.5% of cases (Table 35).

Table 35: Model statistics for grade 6 OOWS final regression model

Valid N	509
EPV	29
% R^2 improved	4.6%
-2 Likelihood (Step 0)	651.158
(Step Final)	621.296
R^2 (Cox and Snell)	0.057
(Nagelkerke)	0.079
Hosmer-Lemeshow (χ^2)	5.300
df	7
sig	0.623
Percent Correct (0)	95.5%
(1)	8.7%
(Overall)	66.2%

Table 36: Coefficients of significant predictors for grade 6 OOWS in the final regression model

Variable	B	SE	e ^B	p
LICO	-.504	.208	.604	.016
Parental WS (Normal)	-.981	.246	.375	.000
(Overweight)	-.557	.263	.573	.035

The final model (see Table 36) shows that having a parent with either ‘normal’ or ‘overweight’ WS significantly decreased the odds of OOWS in grade 6 by a factor of 0.375 (p=.000) and 0.573 (p=0.035) respectively, compared to having a parent with ‘obese’ WS. Similarly, analysis also showed that having household Financial Status greater than or equal to LICO significantly decreased the odds by a factor of 0.604 (p=.016) compared to Financial Status below LICO.

5.5.2 PREDICTORS OF WEIGHT STATUS IN GRADE 9

The final model for the prediction of OOWS in Grade 9 based on the grade 9 predictor: Parental Weight Status resulted in the coefficients in Table 38 below. The analysis was based on N=461 valid cases. Cox and Snell’s and Naglekerke’s R^2 indicated the model held very weak predictive value ($R^2 = 0.0642$ and $R^2 = 0.060$ respectively). The Hosmer-Lemeshow test revealed the final model was a good fit (p = 1.000). Overall accuracy for the final model was 70.5% and deviance was reduced by 3.6%. OOWS was predicted correctly in 0.0% of cases while the reference category was predicted correctly in 100.0% of cases (Table 37).

Table 37: Model statistics for grade 9 OOWS final regression model

Valid N	461
EPV	34
% R^2 improved	3.6%
-2 Likelihood (Step 0)	559.264
(Step Final)	539.342
R^2 (Cox and Snell)	0.042
(Nagelkerke)	0.060
Hosmer-Lemeshow (χ^2)	0.000
df	2
sig	1.000
Percent Correct (0)	100.0%
(1)	0.0%
(Overall)	70.5%

Table 38: Coefficients of significant predictors for grade 9 OOWS in the final regression model

Variable	B	SE	eB	p
Parental WS (Normal)	-1.179	.276	.307	.000

The final model (Table 38) shows that having one parent with ‘normal’ WS significantly decreased the odds of OOWS in grade 9 by a factor of 0.307 ($p=.000$) compared to having one parent with ‘obese’ WS.

5.5.3 PREDICTORS OF WEIGHT STATUS IN GRADE 12

The final model for the prediction of OOWS in grade 12 based on the predictors: Self Esteem and Parental Weight Status, resulted in the coefficients in Table 40 below. The analysis was based on $N=490$ valid cases. Cox and Snell’s and Naglekerke’s R^2 indicated the model held weak predictive value ($R^2 = 0.047$ and $R^2 = 0.076$ respectively). The Hosmer-Lemmeshow test revealed the final model was a good fit ($p = 0.898$). Overall accuracy for the final model was 81.8% and deviance was reduced by 5.0%. OOWS was predicted correctly in 3.4% of cases while the reference category was predicted correctly in 99.3% of cases (Table 39).

Table 39: Model statistics for grade 12 OOWS final regression model

Valid N		490
EPV		15
% R^2 improved		5.0%
-2 Likelihood	(Step 0)	464.383
	(Step Final)	440.990
R^2	(Cox and Snell)	.047
	(Nagelkerke)	.076
Hosmer-Lemeshow (χ^2)		1.630
	df	5
	sig	.898
Percent Correct	(0)	99.3%
	(1)	3.4%
	(Overall)	81.8%

Table 40: Coefficients of significant predictors for grade 12 OOWS in the final regression model

Variable		B	SE	e ^B	p
Self Esteem	(Low)	1.064	.537	2.898	.048
Parental WS	(Normal)	-1.158	.329	.314	.000

The final model (see Table 40) shows that having ‘low’ Self Esteem significantly increased the odds of OOWS in grade 12 by a factor of 2.898 ($p=.048$) compared to having ‘high’ Self Esteem. Analysis also revealed that ‘normal’ Parental WS significantly decreased the odds of OOWS in grade 12 by a factor of 0.314 ($p=0.000$) compared to ‘obese’ Parental WS.

5.6 LONGITUDINAL PREDICTORS OF WEIGHT STATUS

5.6.1 GRADE 6 PREDICTORS OF WEIGHT STATUS IN GRADE 9

The final model for the prediction of OOWS in grade 9 based on the grade 6 predictor: Weight Status, resulted in the coefficients in Table 42 below. The analysis was based on $N=406$ valid cases. Cox and Snell’s and Naglekerke’s R^2 indicated the model held strong predictive value ($R^2 = 0.330$ and $R^2 = 0.463$ respectively). The Hosmer-Lemmeshow test revealed the final model was a good fit ($p = 1.000$). Overall accuracy for the final model was 84.2% and deviance

was reduced by 32.1%. OOWS was predicted correctly in 75.0% of cases while the reference category was predicted correctly in 84.2% of cases (Table 41).

Table 41: Model statistics for grade 9 OOWS final regression model based on grade 6 predictors

Valid N	406
EPV	19
% R^2 improved	32.1%
-2 Likelihood (Step 0)	506.082
(Step Final)	343.645
R^2 (Cox and Snell)	0.330
(Nagelkerke)	0.463
Hosmer-Lemeshow (χ^2)	0.000
df	2
sig	1.000
Percent Correct (0)	84.2%
(1)	75.0%
(Overall)	81.3%

Table 42: Coefficients of significant grade 6 predictors for grade 9 OOWS in the final regression model

Variable	B	SE	e^B	p
Weight Status (Overweight)	1.965	.302	7.136	.000
(Obese)	3.790	.405	44.250	.000

The final model (Table 42) shows that ‘overweight’ and ‘obese’ WS in grade 6 significantly greatly increased the odds of OOWS in grade 9 by a factor of 7.136 ($p=.000$) and 44.250 ($p=0.000$) respectively, compared to ‘normal’ WS in grade 6.

5.6.2 GRADE 9 PREDICTORS OF WEIGHT STATUS IN GRADE 12

The final model for the prediction of grade 12 OOWS based on the grade 9 predictors: Weight Status, Parental Education, Parental Weight Status, and Dietary Intake, resulted in the coefficients in Table 44. The analysis was based on $N=371$ valid cases. Cox and Snell’s and Naglekerke’s R^2 indicated the model held strong predictive value ($R^2 = 0.309$ and $R^2 = 0.506$ respectively). The Hosmer-Lemmeshow test revealed the final model was a good fit ($p = .836$).

Overall accuracy for the final model was 87.9% and deviance was reduced by over a third (39.2%). OOWS was predicted correctly in 50.7% of cases while the reference category was predicted correctly in 96.1% of cases (Table 43).

Table 43: Model statistics for grade 12 OOWS final regression model based on grade 9 predictors

Valid N		371
EPV		7
% R^2 improved		39.2%
-2 Likelihood	(Step 0)	350.440
	(Step Final)	213.106
R^2	(Cox and Snell)	0.309
	(Nagelkerke)	0.506
Hosmer-Lemeshow (χ^2)		3.493
df		7
sig		0.836
Percent Correct	(0)	96.1%
	(1)	50.7%
	(Overall)	87.9%

Table 44: Model statistics for grade 12 OOWS final regression model based on grade 9 predictors

Variable		B	SE	eB	p
Weight Status	(Overweight)	2.327	.406	10.245	.000
	(Obese)	4.698	.561	109.741	.000
Dietary Intake		1.048	.453	2.852	.021

This model (see Table 44) shows that ‘overweight’ and ‘obese’ WS in grade 9 significantly increased the odds of OOWS in grade 12 by a factor of 10.245($p=.000$) and 109.741 ($p=0.000$) respectively, compared to having ‘average’ WS. ‘Good’ Dietary Intake likewise increased the odds of OOWS by a factor of 2.852 ($p=.000$) compared to ‘poor’ Dietary Intake.

5.6.3 GRADE 6 PREDICTORS OF WEIGHT STATUS IN GRADE 12

The final model for the prediction of grade 12 OOWS based on the grade 6 predictors: Weight Status, resulted in the coefficients in Table 46 below. The analysis was based on $N=451$ valid cases. Cox and Snell’s and Naglekerke’s R^2 indicated the model held moderately strong

predictive value ($R^2 = 0.217$ and $R^2 = 0.343$ respectively). The Hosmer-Lemeshow test revealed the final model was a good fit ($p = 1.000$). Overall accuracy for the final model was 83.6% and deviance was reduced by 24.5%. OOWS was predicted correctly in 48.9% of cases while the reference category was predicted correctly in 92.2% of cases (Table 45).

Table 45: Model statistics for grade 12 OOWS final regression model based on grade 6 predictors

Valid N	451
EPV	23
% R^2 improved	24.5%
-2 Likelihood (Step 0)	450.808
(Step Final)	340.440
R^2 (Cox and Snell)	0.217
(Nagelkerke)	0.343
Hosmer-Lemeshow (χ^2)	0.000
df	2
sig	1.000
Percent Correct (0)	92.2%
(1)	48.9%
(Overall)	83.6%

Table 46: Coefficients of significant grade 6 predictors for grade 12 OOWS in the final regression model

Variable	B	SE	e^B	p
Weight Status (Overweight)	1.791	.333	5.997	.000
(Obese)	3.025	.339	20.594	.000

The final model (Table 46) shows that ‘overweight’ and ‘obese’ WS in grade 6 significantly increased the odds of OOWS in grade 12 by a factor of 5.997 ($p=.000$) and 20.594 ($p=.000$) respectively compared to having ‘normal’ WS in grade 6.

5.6.4 GRADE 6, 9 AND 12 PREDICTORS OF WEIGHT STATUS IN GRADE 12

The final model for the prediction of grade 12 OOWS based on the grade 6 and 9 predictors: School Performance (Gr 6) and Weight Status (Gr 6), resulted in the coefficients in Table 47 below. The analysis was based on $N=393$ valid cases. Cox and Snell’s and

Naglekerke's R^2 indicated the model held moderately strong predictive value ($R^2 = 0.238$ and $R^2 = 0.369$ respectively). The Hosmer-Lemeshow test revealed the final model was a good fit ($p = 0.868$). Overall accuracy for the final model was 82.4% and deviance was reduced by 26.2%. OOWS was predicted correctly in 46.4% of cases while the reference category was predicted correctly in 92.2% of cases (Table 48).

Table 47: Summary of grade 6, 9 and 12 variables included for grade 12 OOWS regression models

Full Model	Significant in Optimal Model	Significant in Final Model
School Performance (Gr 6)	School Performance (Gr 6)	School Performance (Gr 6)
Weight Status (Gr 6 & 9)	Weight Status (Gr 6 & 9 ^a)	Weight Status (Gr 6)
Self Esteem (Gr 12)		
Parental Education (Gr 9)		
Financial Status (Gr 6)		
Parental Weight Status (Gr 6, 9 & 12)		
Single Parent (Gr 6)		
Dietary Intake (Gr 9)		

a. excluded in the final model due to high correlation with Weight Status (Gr 6) $r = 0.743$ ($p = .000$)

Table 48: Model statistics for grade 12 OOWS final regression model based on grade 6, 9 and 12 predictors

Valid N	393
EPV	11
% R^2 improved	26.2%
-2 Likelihood (Step 0)	407.83
(Step Final)	300.837
R^2 (Cox and Snell)	0.238
(Nagelkerke)	0.369
Hosmer-Lemeshow (χ^2)	2.504
df	6
sig	0.868
Percent Correct (0)	92.2%
(1)	46.4%
(Overall)	82.4%

Table 49: Coefficients of significant grade 6, 9 and 12 predictors for grade 12 OOWS in the final regression model

Variable		B	SE	e ^B	p
School Performance (6)	(Failing)	1.036	.468	2.818	.027
Weight Status (6)	(Overweight)	1.729	.356	5.634	.000
	(Obese)	2.891	.357	18.016	.000

The final model (Table 49) shows that ‘overweight’ WS in grade 6, ‘overweight’ WS and ‘obese’ WS in grade 6 significantly increased the odds of OOWS in grade 12 by a factor of 5.634 ($p=.000$) and 18.016 ($p = .000$) respectively compared to having ‘normal’ WS in the grade 6. Similarly, ‘failing’ SP in grade 6 significantly increased the odds by a factor of 2.818 ($p = .027$) compared to ‘average’ SP.

5.6.5 GRADE 6, 9 AND 12 PREDICTORS OF BMI PERCENTILE IN GRADE 12

The final linear regression model for the prediction of BMI percentile (%) in grade 12 based on the predictors: School Performance (Gr 6, 9 & 12), Weight Status (Gr 6 & 9), BBBF (Gr 12), and Diet Quality (Gr 9) (Table 50) resulted in the following coefficients (Table 51). The analysis was based on N=131 valid cases and produced a significant model ($F_{(24,106)} = 5.149$, $p < .000$) with an R^2 of .538 and adjusted R^2 of .434 (Table 51). Examination of the residual histogram and plot against the predicted values indicated a reasonably normal distribution, and no serious concerns about the homogeneity and independence assumptions. Case diagnostics identified 0 cases with absolute standard residuals larger than 3.

Table 50: Summary of grade 6, 9 & 12 variables included for grade 12 BMI Percentile regression models

Full Model (all grades)	Significant in Optimal Model	Significant in Final Model
School Performance	School Performance (Gr 6, 9 & 12)	School Performance (Gr 9 ^a)
Weight Status	Weight Status (Gr 6 & 9)	Weight Status (Gr 9)
BBBF Community	BBBF (Gr12)	BBBF Community (Gr 12)
Immigration Status	Emotional Disorder (Gr 6)	Dietary Intake (Gr 9)
Self Esteem	Parental Weight Status (Gr 6 9)	
Popularity	Dietary Intake (Gr 6 & 9)	
Emotional Disorder		
Parental Education		
Financial Status		
Parental Weight Status		
Single Parent Status		
Tired		
Physical Activity		
Dietary Intake		
Breakfast		
a included in final model although non-significant (p = .077)		

Table 51: Coefficients of significant grade 6, 9 and 12 predictors for grade 12 BMI Percentile final regression model

F _(24,106) = 5.149 p < .000 R ² = .538 adjusted R ² = .434				
Variable	B ^{un}	SE	T	p
School Performance (9) (Highest)	11.650	6.534	1.783	.077
Weight Status (9) (Underweight)	-20.774	11.498	-1.807	.074
(Overweight)	20.567	7.126	2.886	.005
(Obese)	34.878	9.148	3.812	.000
BBBF Community (Gr 12)	-12.449	4.267	-2.917	.004
Dietary Intake (Gr 9)	13.326	5.297	2.516	.013

B^{un} = Unstandardized Beta

The final model (Table 51) shows that ‘highest’ SP in grade 9 was associated with an increase in BMI percentile in grade 12 by 11.7 points (p=.077) although non-significant, compared to ‘average’ SP. Likewise ‘overweight’ and ‘obese’ WS in grade 9 were associated with significant increases in BMI percentile in grade 12 by 20.6 points (p=.005) and 34.9 points (p=.000) respectively, compared to ‘normal’ WS; conversely, ‘underweight’ WS was associated with a non-significant decrease in BMI percentile by -20.8 points (p=.074). Living in a BBBF

community in grade 12, was also significantly associated with a decrease in grade 12 BMI percentile by -12.5 points ($p=.004$) compared to not living in a BBBF community; however, ‘good’ Dietary Intake in grade 9 was significantly associated with a 13.3 point increase in grade 12 BMI percentile ($p=.013$) compared to ‘poor’ Dietary Intake.

6.0 DISCUSSION

The purpose of this project was to investigate relationships between weight status and school performance over time among a cohort of disadvantaged, school-aged, Canadian children in grades 6, 9 and 12, within the context of environmental factors related to their socioeconomic status as well as certain personal attributes and behaviours. Since the existing evidence describing these relationships is limited and somewhat conflicting, our project is important because it describes the magnitude and direction of the relationships between school performance and weight status over time, as well as the environmental factors influencing both weight status and school performance at each grade point.

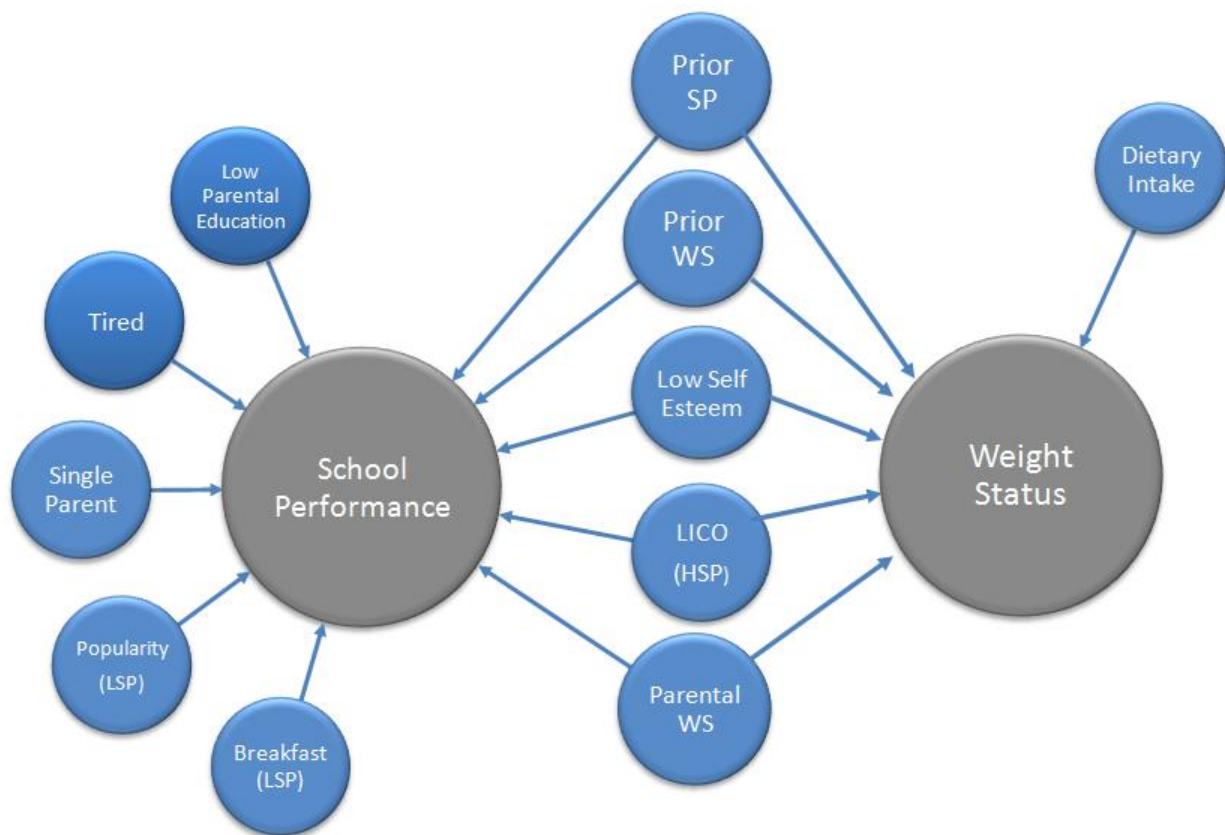
Social Cognitive Theory suggests that health, “comprises ... a complex interrelation of an individual’s environments”, whereby environmental factors and personal attributes influence health outcomes (i.e. weight status and school performance) (96,97). The ecological child development framework originally described by Bronfenbrenner (1975) as “development as a function of interaction” (123,124), similarly consists of four layers of influence: 1) the child, 2) the family, 3) the school/community and 4) the ‘wider’ environment.

These theoretical concepts suggest that health outcomes and learned health behaviours are dependent functions of not just intrinsic attributes of the child, but of the child’s ecological environment. Furthermore, that attributes of the child develop as a function of the complex

interactions that occur between environmental factors. Therefore these two models describe a dynamic, complex, multi-directional evolution of health outcomes, health behaviours and child development over time which is difficult not only to define, but also to predict.

In keeping with these theoretical constructs, our study found that significant longitudinal relationships did exist between school performance and weight status in our population, within the context of multiple other interrelated aspects of the children's environment and their personal attributes, such as Prior Weight Status, Prior School Performance, Parental Education, Parental Weight Status, Single Parent, Financial Status (LICO), Popularity, Self Esteem, Tiredness, Dietary Intake and Breakfast consumption (see Figure 6).

Figure 6: Predictive factors for school performance and weight status in grades 6, 9 and 12.

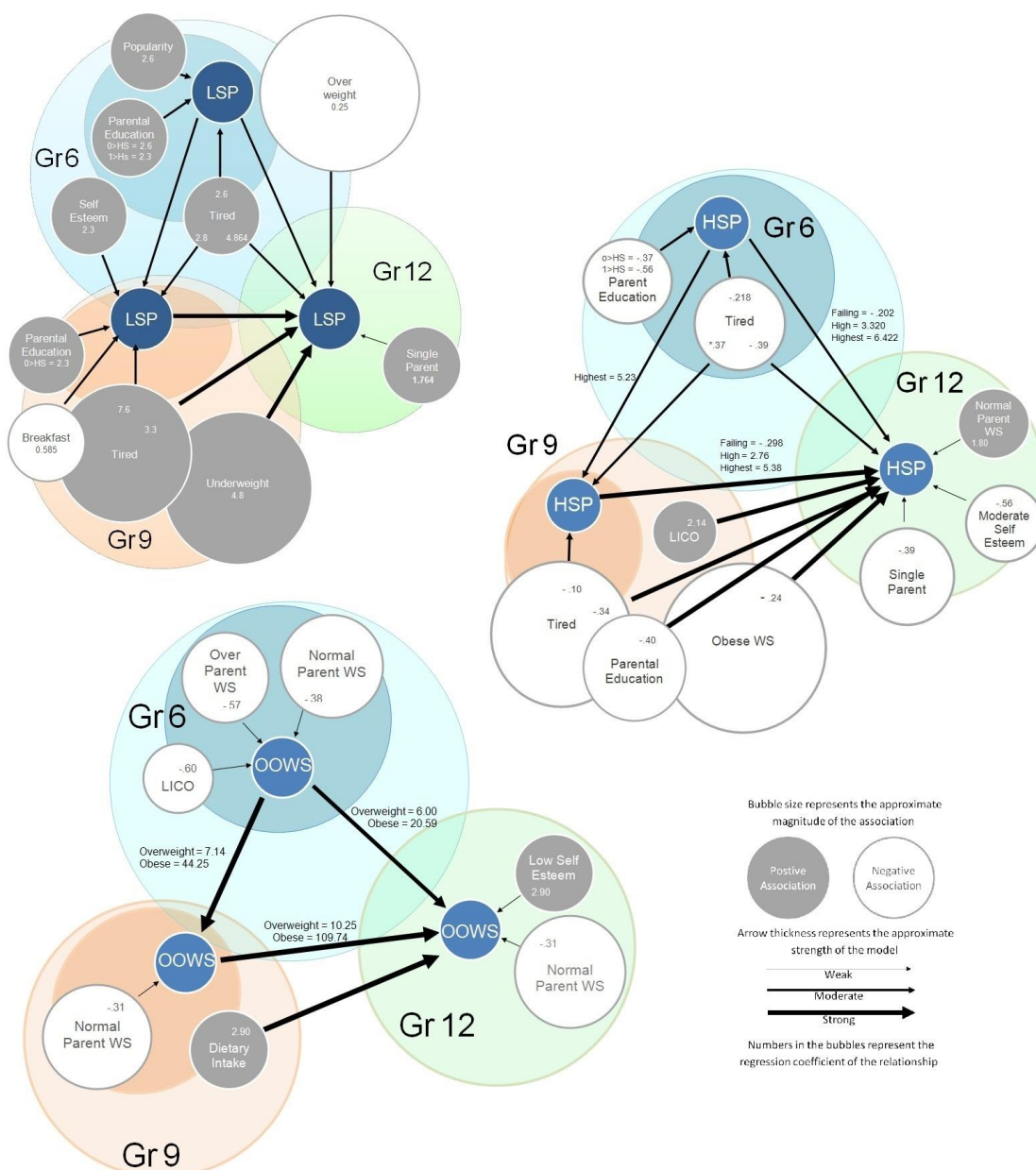


Several factors including: School Performance, Weight Status, Self Esteem, Financial Status, Parental Weight Status and Dietary Intake were related to both School Performance and Weight Status outcomes while others were related to either one or the other, indicating that unique pathways exist for each outcome in the context of shared factors. As well, several factors including: Prior Weight Status, Self Esteem, Parental Education, Single Parent, and Tired were related to both Lower School Performance (LSP) and Higher School Performance (HSP). This indicates a particularly important association contrasting increased risk of LSP, with increased likelihood of HSP, or vice versa, with either their presence or absence. However, other factors were related to only HSP or LSP, indicating that although the two school performance variables are similar, they are not one and the same. For example: lower Popularity increased the risk of LSP and Breakfast decreased the risk of LSP in our study, yet neither one had an association with HSP; conversely, higher Financial Status was associated with increased likelihood of HSP, but the opposite was not true for LSP. Child Weight Status was also associated primarily with Parental Weight Status, but also Financial Status, Dietary Intake and Self Esteem.

Our findings suggest, and are discussed in more detail below, that parent weight status and SES-related factors such as, education, single parent, and financial status in combination with Tiredness, and Popularity, influence child Weight Status and School Performance in grade 6. Child Weight Status and School Performance in grade 6 track forward into grade 9 and are also influenced by Parental Weight Status, Parental Education, Tired and Breakfast consumption. Subsequently, both prior Weight Status and School Performance in grades 6 and 9, in combination with Parental Weight Status and SES-related factors such as Single Parent, Parental Education and Financial Status, as well as Self Esteem, and Tiredness, influence School Performance in grade 12. As well, we found that prior Weight Status from grades 6 and 9 ,

Parent Weight Status, Self Esteem and Dietary Intake influence Weight Status in grade 12 (see Figure 7). However it is important to note that several models predicting outcomes in the same grade were quite weak ($r^2 < .100$) or had very low sensitivity (<5%) such as: grade 6 HSP, grade 12 LSP & HSP, and grades 6, 9 & 12 OOWS. Therefore results from these models have been interpreted with caution; however all longitudinal models had $r^2 > .150$ and most had sensitivity > 40%.

Figure 7: Graphic Models representing direction and magnitude of influence for the prediction of LSP, HSP, OOWS in grades 6, 9 and 12



Our findings are relevant in light of the body of evidence which shows that decreased education attainment (125,126) is associated with lower income (23,69) in adulthood particularly among women (70), as well as poorer health outcomes (38,39,85–91) and increased healthcare costs (1,8,93–95). These previous findings highlight the significance of academic achievement and income attainment in adulthood as a function of early childhood developmental processes, as well as other research which has found early child academic achievement is a function of parent-related factors.

Furthermore our research supports the enhanced development of appropriately-targeted and effective interventions, programs and policies impacting disadvantaged, Canadian, school-aged children in order to positively influence adult determinants of health such as income attainment, educational outcomes and weight status, thereby reducing financial consequences related to health care and social services and increasing the contribution to the Canadian economy.

6.1 ASSOCIATIONS BETWEEN SCHOOL PERFORMANCE AND WEIGHT STATUS

Our findings suggest that the influence of weight status on subsequent school performance, but not the reverse, tends to occur over time. As previously stated, we found no significant associations between School Performance and Weight Status within the *same* grade level at any grade. These findings are in agreement with several studies that similarly found no association between weight status and school performance within the same grade (20,21,77,78), as well as others that found significant associations over a period of time (23,69). However, while some comparisons can be drawn between our study and the previous evidence, our population of low-income Canadian children and the use of consistent teacher-rated measures of overall School Performance, as opposed to self- or parent-rated measures, are unique.

A 2008 study among $n=1935$ grade 5 Nova Scotian children found no association between weight status and literacy within the same grade (20). This study is comparable to ours due to the Canadian population, however the school performance measure used in their study was based on a standardized literacy test measuring only reading and writing which was then dichotomized; while our study measured teacher-rated overall School Performance (reading, writing, spelling and math in grades 6 and 9, and overall average grades from the Ontario Ministry of Education in grade 12) which was transformed onto a 5 point scale. Also, weight status in this study was based on the International Obesity Taskforce (IOTF) guidelines, which employs health outcome based measures associated with adult BMI cut-offs of 25kg/m^2 and 30kg/m^2 at 18 years of age (29,127); while we chose to use the CDC BMI-for-age growth charts which provide reference ranges for use with children 2 to 20 years of age taking into account normal differences in body fat among gender and at different ages (128).

A subsequent study conducted in the US in 2009 found that a relationship between school performance and weight status existed, but became non-significant after controlling for a “teasing” variable (76). This study was based solely on data collected through parent interviews conducted via the phone; parents were asked to rate their children’s school performance on a scale ranging from mostly ‘A’s’ to mostly ‘F’s’, and also to report their child’s height and weight. The authors acknowledged that the use of parent reported measures to determine BMI percentile and weight status in their study was a significant limitation due to over and under-reporting (129); whereas height and weight in our study, particularly for grade 6 and 9, were collected by trained research assistants using calibrated instruments and standard procedures providing more accurate data.

Further research in 1999 found that grade point average (GPA) was not significantly associated with weight status among Taiwanese students after controlling for environmental factors similar to those in our study (gender, age, parent occupation, parent education and household income). GPA did decrease significantly among the students who became overweight during a two year time span in two cohorts, one in elementary (grade 3 to 6) and one in middle school (grade 7 to 9) (21). The results and longitudinal design of this study are similar to ours; however the time period was much shorter; two years (grades 3 - 6 to grades 7 – 9) compared to our six years (grade 6 to 12) over three data points. The researchers also explored ‘change- in’ weight status over the time, while our study explored point-in-time data at three grade levels. A similar approach using ‘change-in’ variables was considered for our study, but due to the already extensive exploration of the ‘point-in–time’ data, it was not considered to be within the scope of this study to investigate ‘change-in’ variables for weight status and school performance. As well, the overall GPA variable used in their study is comparable to our grade 12 variable, Ministry of Education (MOE) average marks, since both were based on a continuous scale and provided an overall measure of school performance. Our grade 6 and 9 variables for school performance, while based on a 5 point scale and not a continuous one, were somewhat comparable to their GPA measure in that they also provide an overall measure of school performance. However, the researchers categorized their BMI percentile variable using data from the National Health and Nutrition Examination Survey - I (NHANES-I)(130) which was replaced by the CDC growth charts used in our study to categorize BMI percentile into weight status classifications.

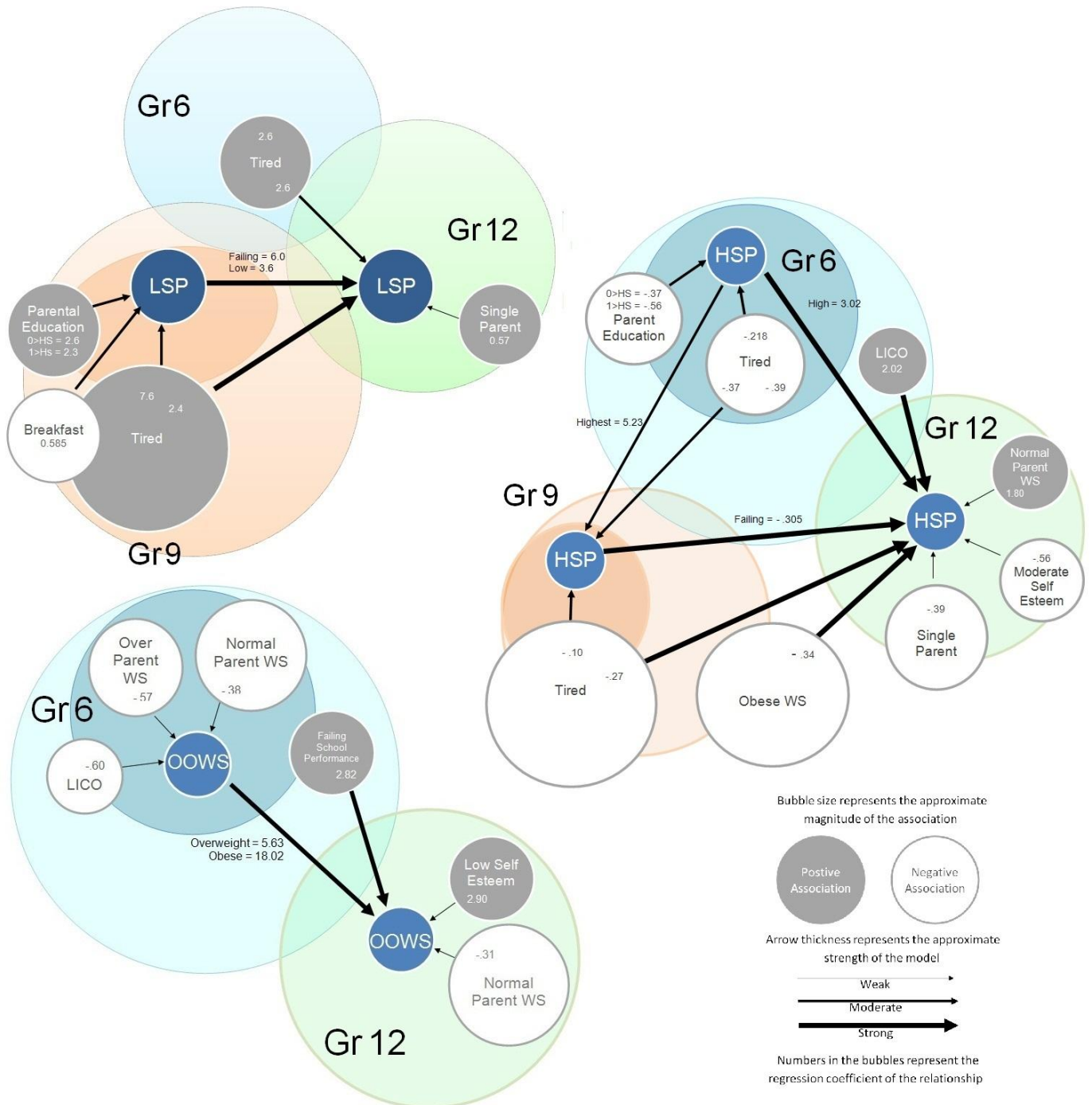
Our results therefore support and augment these previous findings, showing that children who were obese in grade 9 were much less likely to achieve Higher School Performance in grade

12 even after controlling for other grade 9 socioeconomic and environmental factors (see Table 22). We also found almost the reverse, that children who were underweight in grade 9 were much more likely to achieve Lower School Performance in grade 12 after controlling for environmental factors (see Table 20); as well, children who were overweight in grade 6 were much less likely to achieve Lower School Performance in grade 12 (see Table 24). However the findings for underweight should be interpreted with caution due to the low case count for this grade level. These findings did not remain significant, however, for prediction of School Performance in grade 12 after controlling for other environmental variables in all grades (6, 9 and 12); although obese WS in grade 9 was borderline significant ($p = .058$) in the final model (see Table 32 and Figure 8). As well, investigation employing the continuous grade 12 MOE school performance variable, likewise did not show a significant linear association existed with obesity in grade 9, which would be expected given the non-linear relationship observed through chi square residuals.

Our findings do however indicate that prior weight status is somewhat predictive of school performance in grade 12; achieving positive educational outcomes in grade 12 is less likely among children who are underweight or obese in earlier grades. Our findings also indicate that the interval between grade 9 and 12 may represent a pivotal period or a unique set of circumstances mediating a relationship between prior weight status and subsequent school performance. In Ontario, grade 9 is the first year of High School; the school system is divided into two levels consisting of Primary (kindergarten through to Grade 8) and Secondary (grade 9 through to grade 12), as well as Middle School (grades 5 through to 8) in some communities, such as several of those in our study (131). The transition to High School can be challenging and tumultuous for children as they adjust to new surroundings, expectations and social pressures,

6.1 Associations between School Performance and Weight Status

Figure 8: Graphic Models representing direction and magnitude of influence for the prediction of LSP, HSP, OOWS in grade12 based on predictors from grades 6, 9 and 12



while in the midst of significant physiological and neurological changes taking place in their bodies. This is often compounded by messages promoting disordered body image in social media, movies, television, magazines and advertisements, through marketing an over-sexualization of the human body.

However, it appears that while obesity in grade 9 may be a risk factor for poorer school performance in grade 12, overweight may be protective against lower school performance longitudinally – however as previously stated this does not necessarily imply that children are therefore more likely to achieve high grades, it may simply mean that the children were more likely to achieve average grades. Our study is the first, to our knowledge, to identify this relationship. It is possible that children who are overweight according to the CDC growth chart standards, represent more so, an average child with neither strongly negative, or strongly positive health behaviours/environmental influences; and may therefore avoid the detrimental psychosocial effects of obesity, including poorer school performance, as shown in our study.

Investigation employing the continuous grade 12 BMI percentile variable showed a significant association between highest School Performance in grade 9 and higher BMI even after controlling for all other grade 6, 9 and 12 factors. We did not, however, find similar associations between prior school performance and the dichotomized overweight/obese weight status (OOWS) variable. This aligns with our previously reported findings showing that prior overweight weight status appears to have an opposite and positive effect on school performance compared to prior obese weight status which has a negative effect. In the future it would be preferable to separate overweight and obese weight status for further investigations into this effect; however, in our study it was not possible due to the low number of valid cases with obese weight status.

As previously noted, prior School Performance was a significant predictor of subsequent School Performance at all grade levels in combination with a unique set of environmental factors for each grade; likewise the same was true for weight status. Heckman, in 2006 stated “lifecycle skill formation is a dynamic process”, encapsulating a combination of neurological development, skill foundation/mastery for economic success, experiential learning, and developmental psychology (132). Duncan (2007) also suggests that child “academic achievement is a cumulative process involving both mastering new skills and improving already existing skills” (133). Thus, by very nature, the process of learning and gaining knowledge is an iterative one, representative of an outcome that is the sum of the many different factors and influences.

School performance and weight status at the grade 12 level has been shown by other researchers to influence both education attainment, and weight status in adulthood, thus both school performance and obesity among children impacts health outcomes in future generations (69,125,126). Therefore in keeping with Social Cognitive Theory, our findings suggest that school performance and obesity in grade 12 are not entirely dependent upon a child’s cognitive ability/academic potential or certain physical attributes, but rather a combined result of various inter-related environmental factors, beginning in grade 6, as is the case in this study, or potentially even younger, with a key focus on the transition between grade 9 and grade 12.

6.2 FAMILY BACKGROUND AND SOCIOECONOMIC STATUS IN RELATION TO SCHOOL PERFORMANCE AND WEIGHT STATUS

Factors related to family background and socioeconomic status (SES) such as: Parental Education, Parental Weight Status, Single Parent and Financial Status/LICO were associated with poorer school performance and increased weight status at all grade levels in our study; although most interestingly in grade 6 (see Figure 7). Low parental SES has previously been

linked with poorer child academic achievement (78,132–137) and increased weight status (19,137–139). Evidence from a study involving n=150 socioeconomically diverse children from New York City public schools revealed that parental SES (education level, income and occupation) was a strong predictor of child cognitive functioning (a proxy for school performance) (135). While further longitudinal research employing an ecological model in Chicago, among a cohort of disadvantaged children in grades 1 through 5, similarly revealed that poverty greatly impacted child academic achievement (136). As well, a 2012 study conducted in Sweden among n=3636 Swedish school age children (7-9 years old) found that Parental Weight Status (in particular having an obese mother) was very strongly associated with child overweight and obesity based on the IOTF guidelines (139). Further evidence from research conducted in the US among children (6 to 18 years old) living in an urban neighbourhood showed that children from single parent households were at increased risk of obesity (140).

In accordance with these previous findings, Parental Education in our study was most noticeably associated with child School Performance in grade 6, less in grade 9 and least of all in grade 12. Lower Parental Education attainment inversely increased risk of LSP, and decreased risk of HSP in grade 6, while only risk of LSP increased in grade 9. Likelihood of grade 12 HSP was decreased by lower Parental Education in grade 9 only.

Parental Weight status in our study was similarly most markedly associated with child Weight Status in grade 6, but less in grades 9 and 12. Both normal and overweight Parental Weight Status reduced the likelihood of OOWS in grade 6, but in grades 9 & 12 only normal Parental Weight Status reduced the likelihood of OOWS.

Single Parent status was inversely related to both LSP and HSP in grade 12 only, increasing the risk of LSP and decreasing the chances of HSP. Financial Status was only somewhat related to School Performance in grade 12 and also Weight Status in grade 6; which may be expected because of the homogeneity of the sample (all participating neighbourhoods were selected based on SES disadvantage).

Similar previous findings have revealed a strong association between Family/SES-related factors and Weight Status and School Performance among younger children that diminishes over time. Kim, in 2003, found that parental SES was predictive of academic achievement among Korean children in grades 5 and 8, with a diminished effect in grade 11 (78). The longitudinal design of this study is comparable to ours in respect to the three grades investigated at similar points-in-time. However, SES in this study was based solely on Parental Education, whereas our study examined several measures of SES including: Parent Education, Single Parent, and Financial Status (LICO). As well, academic achievement in their study was based on GPA across 9 subjects, compared to our 5-point School Performance measure. Their findings mirror ours, showing a diminished association between parental influence and School Performance over time; although interestingly, we did find a significant association with grade 12 MOE grades and Financial Status in grade 9 even after controlling for other family background/SES and environmental variables from each grade level.

Bachman, in 2015 also found that achievement in grade 5 math was most strongly associated with maternal education even after controlling for other relevant environmental factors including household income and other family demographic characteristics (134). In our study, women were the vast majority of parental respondents (92% of all valid responses),

showing a similar association between grade 6 School Performance and Parent (maternal) Education after likewise controlling for Financial Status (LICO) and other environmental factors.

Furthermore, research conducted in Denmark based on a 2007 population survey of children ages 5 to 17, likewise found that a composite variable for SES, or “cultural capital” (a combination of parental education level, household newspaper subscription, and frequency of visits to the museum, theatre or opera) was the strongest predictor of parent-reported child weight status(138). The researchers also found that self-reported overweight Parent Weight Status was associated with parent-reported child Weight Status (138). Our findings are consistent showing a persistent relationship between Parent Weight Status and child Weight Status at all grade levels; however, we found no associations between Parental Education attainment and Weight Status (OOWS).

In keeping with concepts first introduced by Bourdieu (1977), ‘cultural capital’(141,142), ‘concerted cultivation’ (142,143) and ‘academic socialization’, the researchers, and others in previous studies (19,138,139,141–143), propose that parents with higher SES (income, education, and weight status) are often afforded enhanced knowledge, skills and resources which better enable them to foster positive health behaviours and high academic achievement (134). As such, we find that child lifestyle formation is an embodiment of the practices of the parent(s) and is therefore the basis upon which our findings may rest.

It is known that child development early in life is especially vulnerable to external influences; development during this time period sets the foundation upon which children subsequently develop both psychologically and physiologically (123,124). But as children age, their circle of influence expands to increasingly include peer or ‘group-influences’(123,124) and

their desire for developmental autonomy increases (144). The role of the parent through adolescence becomes more so to provide support as the child learns from successes and failures and to help interpret these experiences (144).

Therefore it is possible that we are seeing this same mechanism in our study whereby family background/SES-related factors, while strongly impactful early in life, become increasingly less influential as children age, although still relevant. We also may be seeing an advantage related to the concepts of ‘cultural capital’ and ‘concerted cultivation’ as previously noted (141,142). These concepts point toward parents with higher SES having greater skills and knowledge to navigate the school system, enhanced knowledge and educational background to provide additional support with school work, additional financial resources to purchase educational technology and provide educational and sporting experiences (i.e. computer programs/apps, trips to the museum, or gymnastics lessons) as well as knowledge of positive health behaviours and their benefits/repercussions (134).

Single parent households are associated with increased prevalence of low SES/disadvantage (in particular low income and lower education) (145). In our study, Single Parent status was divergently associated with both Lower and Higher School Performance, but not Overweight/Obese Weight Status (OOWS). These finding are in agreement with previous longitudinal research among low-income single-parent families in the US, which showed that children from single mother families with greater involvement of the father either in personal time spent with the child or by providing financial support, demonstrated increased vocabulary range by age three (a proxy for cognitive development) (146). Although children were much younger in this study than in ours, their findings are generalizable given that early child development lays the groundwork for future development (123,124), and other evidence that has

strongly correlated “school-entry” reading and math skills with later academic achievement (133). The researchers previously suggested that the positive effects resulting from fatherly involvement and financial contributions were indirectly mediated through a reduction in maternal stress and an increase in positive maternal parenting behaviours. Similarly, previous research conducted among disadvantaged elementary school children in Chicago found that “having a father in the household significantly reduced the risk of having behavioural problems, as well as repeating one or more grades”(136).

Surprisingly, we found no incidence of overweight and obesity in our study in relation to Single Parent, and minimally with lower Financial Status; whereas previous evidence has found a clear association (137,140,147). Children living in Nova Scotia in grade 5 from families with higher household income (>\$60,000 per year) were found to have decreased risk of overweight weight status (137,147), and as previously noted, increased household disadvantage has been associated with increased risk of obesity among children (137,140,147). Since our study population is primarily from a disadvantaged neighbourhood, it is possible that the mediating factors which influence child weight status are similar in both dual parent or higher-income households compared to single parent or low-income households.

Despite the conflicting findings noted above, our study supports the existing body of evidence which shows that family background and SES-related factors influence early child development (135), child school performance/academic achievement (136) and child weight status (138). Our study found that lower Parental Education attainment, Single Parent status and lower Financial Status were associated both longitudinally, and in the same grade, with negative education outcomes (poorer school performance). We also found that normal (and overweight in grade 6) Parental Weight Status was associated with decreased risk of child OOWS at all grade

levels in our study (see Figure 7). Previous literature indicates that these influences and their resulting outcomes become the foundation (123,124) upon which a dynamic and cumulative process of lifecycle skill formation and cognitive development occurs throughout childhood and adolescence in the approach toward adulthood (132,133,144,148).

6.3 TIREDNESS IN RELATION TO SCHOOL PERFORMANCE AND WEIGHT STATUS

Tired was inversely associated with both lower and higher School Performance at all grade levels, both longitudinally and in the same grade; however, there were no associations with Overweight/Obese Weight Status at any grade level. Tiredness was likewise related to other risk factors for lower School Performance in our study including: Popularity, Parental Education, Financial Status (LICO), Single Parent, and Self Esteem. Therefore Tiredness may represent an aggregate or proxy measure encompassing the combined effects of the factors listed above and thus may be masking the strength of influence of each of these factors. Further investigation should be considered to explore the factors included in this study as predictors for Tiredness to better understand this association.

General fatigue among adolescents in grades 7 – 12, described as “tiredness with no reason”, was the third most prevalent ailment reported as part of the National Longitudinal Study of Adolescent Health in the US (n = 20,000), at 21% (149). In an effort to better understand potential contributing factors of child fatigue, focus groups consisting of School Nurses and Teachers revealed several common themes. These common themes included: excessive use of technology and the inability of the child to separate themselves from it in order to go to sleep, over-commitment of children to just “go-go-go”, parental pressure to achieve high marks, and regular daily life/emotional stresses (150). Of particular interest was the concept of a changed family dynamic with both parents working and supper time being pushed later and subsequently

bed time being pushed later. Participants also acknowledged that they did not feel child fatigue was necessarily due to SES disadvantage (150).

Further evidence concurs with the findings from these focus groups (151) and our own results highlighting that technology and screen time was associated with poor sleep habits and enjoying school less. This study also found that the number of children having difficulty sleeping increased dramatically with age; from a small fraction (10%) of children at age 6-7, to over 40% of adolescents at age 14. Similarly, in our study we found that prevalence increased over time; in grade 6, 26.4% of children were reported as tired, while in grade 9, 38.7% of children were reported as tired.

However, evidence also indicates that the association between Tiredness and School Performance may be due to undiagnosed sleep disorders, such as sleep apnea, resulting in cognitive impairment in children that may be long-term or even permanent (152–156). One study in particular investigated cognitive outcomes among n=205 children aged 5 living in Ohio and Massachusetts, USA between March 2000 and May 2002 (153). The investigators found that children who had symptoms of sleep-disordered breathing, performed significantly poorer on a wide range of neurocognitive tests. The researchers also found associations with behavioural issues, and therefore hypothesized that sleep-disordered breathing may impair development of parts of the brain still developing during childhood such as the frontal lobe(153). This hypothesis supports the previous evidence, as already discussed, that child development is highly sensitive to influence early in life (123,124) and subsequently that once fallen behind academically, children may struggle to keep up with their peers (133).

6.4 POPULARITY AND SELF ESTEEM IN RELATION TO SCHOOL PERFORMANCE AND WEIGHT STATUS

Lower Popularity and Lower Self Esteem in our study, were related to lower School Performance in grades 6 & 9. Lower Self Esteem was also associated with increased risk of Overweight/Obese Weight Status and decreased chances of Higher School Performance in grade 12. Previous evidence supports these findings indicating that negative social interactions with peers at school, in combination with feelings of low self worth/self-confidence have an influence on children's performance at school (73,157,158) and also weight status (157,159).

Sigfusdottir, in 2007 found that Self Esteem, as well as Parental Education and Absenteeism were most significantly related to students' academic achievement; Self Esteem in particular, greatly reduced the strength of other health behaviours such as physical activity and intake of fruits and vegetables in relation to academic achievement among Icelandic children 14-15 years old (73). A similar 10-point scale to measure Self Esteem was employed, as in our study; however a limitation of their study is that children's height, weight and grades were self reported and therefore may be subject to bias.

Further investigation based on the same data set used by Sigfusdottir (2007) as previously discussed, likewise identified Self Esteem as a mediator between various health behaviours (intake of fruits and vegetables, intake of 'junk food', BMI, and Physical Activity) and academic achievement, although weakly (157). These findings, as well as Sigfusdottir's (2007), correspond with ours, showing an association between lower Self Esteem and lower School Performance among both males and females at all grade levels, which was strongest in grade 12.

Kristjansson (2010) further found that higher BMI was associated with lower Self Esteem (157); this is in agreement with our findings which showed that lower Self Esteem in grade 12

increased the risk of Overweight/Obese weight status in grade 12; but contrasts with our linear regression findings which did not show a significant association with. Interestingly however, Sabia, in 2015, similarly found that higher BMI was more strongly associated with lower Self Esteem and higher risk of depression among female High School students, than among male students (159). This study was based on data from the National Longitudinal Study of Adolescent Health (Add Health) in the US (n=35,293) and employed a comparable measure of Self Esteem to that used in our study, as well as measured height and weight of the children, and weight status classifications based on the CDC growth charts, as were ours (159).

Popularity in our study primarily measured how well children were liked by their peers and how much other students wanted, or did not want, to be their friend. Children in our study who were less popular, were more likely to be rated lower by their teachers in relation to School Performance. Graham, in 2006 found that children who were unpopular (victims of peer rejection) were most at risk of lower Self Esteem and subsequently lower academic achievement (158).

These findings align with ours and seem to suggest a potential intermediary effect between measures of Popularity, Self Esteem and School Performance similar to that described previously above. The researchers concisely summarize this previously by stating: “peer harassment, self-blame, and their associated toll on mental health can undermine self-confidence and deplete the cognitive resources needed to do well in school”(158). These findings also further support the theory of child development whereby peer influences increasingly hold more weight as the child ages (123,124); therefore it is not surprising that Popularity did not seem to have a strong influence until the child is older.

Interestingly, Overweight/Obesity was not found to be related to Popularity, despite the overwhelming evidence showing linkages between weight status and stigmatization/social exclusion as previously summarized by Puhl (2001, 2007, 2009) (64,65,160). It is possible that our measure of popularity is not a strong indicator for stigmatization/social exclusion, but rather of measure of general student likeability, which may not represent the same sub- population of children as those who are ostracized or excluded from social systems.

Our findings therefore indicate that Self Esteem may be the intermediary by which Weight Status is associated with lower School Performance. Through the lens of Social Cognitive Theory and Child Development Theory (124), we see how the interrelations between Self Esteem, Popularity, Weight Status and School Performance manifest within the context of the child's ecological environment and also evolves as the child ages over time.

Contrary to our findings, Duncan, in 2007 and similarly Romano, in 2010, did not find an association between socioemotional behaviours at age 5-6 with later academic achievement (test scores) in a meta-analysis consisting of 6 large longitudinal data sets (133,161). However the measures used in these studies were not directly the same as those in ours, although similar. 'Socio-emotional behaviours' in these studies referred to desirable attributes of the children such as: self control, interpersonal skills, attention skills, cooperativeness, helpfulness and sympathy; as well as undesirable attributes such as: antisocial behaviour, stubbornness, bullying, and fighting (133). It is not unexpected; however, that socioemotional factors such as those described above would not show an association with academic test scores which merely provide an objective picture of the child's academic abilities. Teacher rated school performance, such as those applied in our research particularly in grades 6 and 9 provide a more multi-faceted

evaluation of the child’s “everyday performance”, which also includes their academic achievement (133).

6.5 STRENGTHS AND LIMITATIONS

This study has many strengths, such as the initial sample size (n=1014), longitudinal design, and relatively low attrition rate (29% by 9th grade), as well as the use of measured child height and weight data for grades 6 and 9; although child waist circumference was not considered. Grade 12 height and weight was self reported, however, and grade 9 measured height and weight was supplemented with self reported data to increase the number of valid cases; likewise, parental height and weight was self-reported at all grades. Also of notable mention is the favourable use of select developmentally appropriate child measures (100) such as: Popularity, Self Esteem and School Performance. In particular, the measures we selected for overall Teacher-rated School Performance provide a comprehensive assessment of the child’s “everyday performance” and is inclusive of their academic achievement as well as interactions with peers (133); however, this measure was only available in grades 6 & 9. In grade 12, average overall Ministry of Education (MOE) grades was selected as a substitute for the Teacher-rated overall variable, therefore some variability in grade 12 findings may be due in part to this difference. Other variables not available in grade 12, and having no reasonable substitutions, included: Tired, Breakfast, Dietary Intake and Physical Activity. Therefore we were unable to make predictions at the grade 12 level regarding the contribution of these factors to grade 12 School Performance and Overweight/Obese Weight Status.

Also important to note is the relatively low number of obese children in this study. For this reason we combined overweight and obese cases to form the Overweight/Obese Weight Status (OOWS) variable. However, it would have been preferable to investigate obesity

separately to provide a truer picture of the factors associated with this at-risk population; particularly, due to our disparate findings for obesity and overweight weight status in relation to school performance, which may have occluded more significant findings.

Another consideration is the lack of data regarding family size in grade 9 and 12 that was available. Therefore, family size data from grade 6 was used to determine Financial Status (equal to/above or below LICO) in grades 9 and 12. It is possible that family size changed over the years, however it was expected that family size would most often increase, rather than decrease, therefore it is possible families with household Financial Status below LICO were under-reported.

The response rate for parental education in grade 12 in this study was quite low, therefore an extrapolated grade 12 parental education variable was created employing additional data from grades 6 and 9 to increase the number of valid cases for analysis. It is possible that parental education increased from the time the child was in grade 6 or grade 9, to when they were in grade 12; therefore, it is possible that more highly educated parents were under-reported.

Our measure of dietary intake may not provide an adequate assessment of dietary adequacy and therefore we have avoided providing interpretations based on these results. The original data collection tool used in the BBBF study to assess dietary intake provided a relatively incomplete picture of a child's intake due to a limited number of food items available to select from, and may have resulted in under-reporting intake. Furthermore a lack of valid cases with adequate intake of servings in 3 – 4 food groups according to Canada's Food Guide for Healthy Eating (162) resulted in grouping 'good' intake as adequate servings from 2 – 4 food groups,

although it would have been preferable include only those cases with adequate servings from 3 - 4 food groups.

It is important to acknowledge that our sample is derived from a homogenous sub-population characterized by low SES (101); therefore similarities may exist between overweight/obese and non overweight/obese children as well as children with higher school performance and those with lower, which could mask the strength of their effect. For example it was surprising that Financial Status (LICO), Physical Activity level and Emotional Disorder factors were not significant predictors in any of our model models, despite the volume of evidence showing their association with School Performance and Weight Status.

Lastly this study is limited by the inherent challenges associated with secondary data analysis which limits the ability of the researcher to answer the research question using only the existing data as it was originally collected.

6.6 IMPLICATIONS FOR RESEARCH

Influences early in life provide the basis upon which children's cumulative learning and lifestyle/skill formation processes are founded. In the context of Social Cognitive Theory (96,97) and the ecological child development framework (123,124), recommendations from our research must consider the developmental processes of the child's intrinsic attributes within the concentric layers of their environment, including their family, school/community as well as the broader socio-cultural surroundings.

Our findings support the development and design of various early interventions from a health promotion approach (163) fostering supportive environments for health. Such interventions should include strategies to lessen the negative impacts of low parental SES/family

family background, foster positive self image, improve stress management skills, reduce fatigue, and prevent obesity among both children and adolescents in the context of their developmental stage and their home and school environments. Interventions focusing on building positive self image and stress management skills throughout the developmental process, but in particular during the transition to High School, are important and have the potential to greatly improve academic outcomes and subsequently health outcomes later in life.

Health promotion strategies to address these risk factors should be designed uniquely for low-income populations and should not focus on providing education as a sole means to enable behaviour change (164,165). A study conducted using data from the 1990 Ontario Health Survey found that adults with low SES (educational achievement, household income, and occupational prestige) were less likely to have acted upon health recommendations related to “unhealthy” behaviours (smoking, increased fat intake and decreased physical activity) than adults with higher SES (164). Recommendations for strategy development to address childhood obesity from the World Health Organization and others, therefore, strongly support a collaborative, ecological/“upstream” approach employing long-term school- and community-based interventions to ensure their effectiveness and sustainability (165–168). The “School Policy Framework: Implementation of the Global Strategy on Diet, Physical Activity, and Health” developed by the World Health Organization, in collaboration with other partners, provides a comprehensive outline of approaches and innovative interventions designed to improve health outcomes among children (169). The framework recommends setting up a coordination committee to oversee the project, engaging children, families, school and community partners throughout the process to identify their own barriers and solutions, and also suggests potential

solutions such as policy changes to allow only healthy vending machines in schools and offering health promotion training for teachers/school staff (169).

Education and support for families with low SES should focus on healthy eating behaviours, increased physical activity, stress management skills, encouraging positive parenting practices, and self-advocacy skills in navigating the healthcare and education systems. Strategies should also focus on providing resources for current/cultural learning opportunities for children, such as access to current technology, participation in sports lessons, visiting locations with historical importance, or attending prestigious music/theatre events. In keeping with the concepts of ‘cultural capital’ (141,142), ‘concerted cultivation’ (142,143) and ‘academic socialization’, these approaches outlined above seek to ‘level the playing field’ so to speak, for children from low SES families thereby lessening the negative long term impacts to the child.

For example, a community-based intervention in Sweden called the ‘Health Equilibrium Initiative’ (HEI) among low SES children in grades 5 and 6, found that children from low SES communities had significantly poorer outcomes compared to high SES communities. The HEI intervention focused on engaging community partners, schools and parents, taking an ecological and culturally-appropriate approach based on aspects of Social Cognitive Theory. Their study subsequently saw a significant reduction in BMI z-scores as well as significant improvements in dietary habits among girls over a 5 year period from 2003 – 2008 as a result of the HEI intervention (168).

Likewise, the Better Beginnings Better Futures (BBBF) primary prevention project in Ontario, Canada, of which the data used in our study is the focus, took a comprehensive, ecological/holistic and community-based approach to developing age-appropriate interventions

aimed at low-income school aged children and their respective communities. The participating communities were supported to develop and implement their own programs that responded to the unique needs of their local neighbourhood while incorporating the Better Beginnings model (107,170). Examples of programs and interventions developed include: school snack and reading programs, assistance for teachers in preparing class plans, parenting discussion groups and workshops, community kitchens and gardens, and vocational skills training (170). The BBBF project yielded successful results showing significantly improve health outcomes compared to communities not part of the BBBF project. Improved health outcomes among children/adolescents included: improved average high school grades, increased physical activity, and less delinquent activity; while portents reported reduced alcohol use, lower smoking rates and reduced rates of depression, as well as increased sense of community (104). Lessons learned from this initiative include the need for programs to be visible in the community, accessible, and free; their focus should be on families, and not individuals, to avoid stigmatization, while strengthening communities and family units (170).

Education for teachers and parents should also focus on recognizing tiredness/fatigue as a sign of stress in the child's environment and should provide background information on the possible causes. Teachers should seek to engage parents to identify the source of the tiredness, whether it may be due to the child's desire to succeed, parental pressure to achieve, over-commitment in extra-curricular activities, excessive use of technology (particularly at bedtime), or whether a sleep disorder might be the source (150–156). Children should also be engaged in learning throughout their developmental process about the ill-effects of lack of sleep and tiredness throughout the day, particularly as they become more autonomous in their decisions around bedtime and extra-curricular activities. Efforts to reduce the incidence of child

tiredness/fatigue may have significant and positive impacts for school performance and subsequently post-secondary educational attainment. Further research is needed to more fully understand the factors related to child tiredness/fatigue as well as their association with school performance, SES, and weight status in order to narrow the focus of prevention strategies and to support the development of resources.

Programming in schools is further needed to foster healthy self image and stress management skills among children at all developmental stages, but in particular during the transition to high school. Children need to learn the skills to manage a healthy school/work/life balance and also resiliency to navigate new social settings, while maintaining a healthy sense of self. “Beautiful from the Inside Out” was a school-based intervention program focused on self esteem aimed at children in grades 5 and 6 living in Ontario, Canada. This program involved 5 school-based sessions over the course of one week which consisted of activities, discussions and lessons focusing on media literacy, realistic perceptions of beauty, individuality and communication skills. A study evaluating the effectiveness of this “Beautiful from the Inside Out” program reported a significant increase in self esteem among participants (171).

“Reach Rookys” was another community-based intervention program focusing on promoting resiliency and self esteem aimed at children ages 10 – 12 living in Victoria, Australia (172). The program involved 2 full day youth-led programs as well as follow ups consisting of fun and inspirational activities including storytelling, drama, dance, etc.... A report from Monash University (173) indicated positive outcomes 6 months later including improved confidence, increased use of positive thinking strategies and greater social inclusion among students who participated in the program.

Similarly, “Self Esteem Enhancement Program” (SEEP) was a school-based intervention program focusing on promoting increased self esteem and media literacy and building resiliency among children in grade 5 and 6 living in Nebraska, USA (174). The program consisted of 4 school-based sessions combining lessons and activities about self esteem, influences of self esteem and how to improve their own self esteem. Results of a study investigating the effectiveness of SEEP showed that children with low SES had significantly lower self esteem than children with high SES before the intervention program. Following the intervention, self esteem was greatly improved among children with low SES, with almost no change among children with high SES; no significant difference in self esteem was found between low and high SES after the intervention (174).

These are but some of many examples of interventions designed to improve self esteem outcomes among children in elementary school. No studies were found reporting the effects of intervention programs aimed at High School students; yet, the ability to maintain balance and to succeed in a new social environment during the transition to High School may set children on a path toward better school performance in grade 12, as well as higher SES and improved health outcomes in adulthood . Further research is therefore critically needed to more fully understand the role of self esteem interventions in relation to school performance and child weight status during the transition to High School.

7.0 RECOMMENDATIONS

Our findings support the recommendation of several long-term, community- and school-based strategies which focus on families and employ a collaborative, ecological/”upstream” approach; as well as policies aimed at creating healthy environments and reducing disparities between families with low and high socioeconomic status.

- Existing community groups/programs which focus on parenting and families should be leveraged and augmented with support from government agencies to provide expanded opportunities for knowledge exchange and education, regarding positive parenting and healthy lifestyle practices with a focus on:
 - Setting healthy routines/structure for children to balance school, play, and sleep
 - Importance of providing cultural/educational opportunities such as visiting the museum, attending the theatre, participating in sports or taking music lessons,
 - Strategies to help children deal with daily stresses, social pressures and negative messages in the media
 - Building self-advocacy skills to navigate the healthcare and education systems, such as critical thinking skills, self-confidence and conflict resolution skills.
 - The importance of adequate sleep and the negative impacts of tiredness on educational outcomes, as well as the potential underlying causes such as excessive use of technology (particularly at bedtime), over-commitment in extra-curricular activities, depression, or a sleep disorder.
 - The importance of physical activity and healthy eating behaviours for maintaining a healthy weight, for both parents, and their children, including Canada's Physical Activity Guidelines, Eating Well with Canada's Food Guide, appropriate food portion sizes, benefits of eating breakfast, how to understand nutrition labels, healthy shopping on a budget, healthy weight management strategies, and concepts related to positive body image.
- Teachers should be provided educational in-services regarding tiredness/fatigue as a risk factor for negative educational outcomes, as well as the many possible causes and

underlying factors, such as, excessive use of technology (particularly at bedtime), over-commitment in extra-curricular activities, depression, or a sleep disorder, and to encourage supportive conversations with parents when tiredness is recognized.

- School curriculums should be required by government policy to incorporate modules on healthy lifestyles such as healthy eating, physical activity, mental health, pro-social behaviours and positive self image, at all grades, but particularly in grades 9 -12 when children transition to high school in order to encourage optimal education outcomes, support a healthy life balance, and to enhance skills in resiliency to navigate new social settings, while maintaining a healthy sense of self.
- Schools should also be required by government policy to provide supportive environments for health, such as serving healthy foods at school cafeterias, replacing vending machines containing pop and high calorie snacks, with healthy options such as bottled water and fresh fruit and nutrient-dense snacks, and ensuring children participate in regular physical education classes.
- Funding should be made available through government programs for parents with low socioeconomic status to provide opportunities for children to experience cultural and educational events including opportunities for travel and prestigious music events, as well as the ability to participate in team sports and access to current technology such as owning a computer or purchasing apps/programs, as well as the purchase of healthy foods, to help mitigate the negative impacts associated with low socioeconomic status.
- Further research should focus on the underlying psychosocial drivers, such as Self Esteem, Tiredness/Fatigue, Depression, in relation to health outcomes, such as weight status and school performance among children and adolescents in the context of their holistic

environments to better focus and direct the work of schools, community organizations and government agencies in developing effective programs and policies.

8.0 CONCLUSION

This project intended to investigate the direction and magnitude of relationships between School Performance and Weight Status as well as relevant associated factors over time, among a population of disadvantaged Canadian children in the context of their ecological environments. In keeping with the framework of the Social Ecological Model, the ecological child development framework (124), and the concept of reciprocal determinism (96–98), the researchers explored School Performance and Weight Status in relation to family background and SES-related factors such as Parent Weight Status, Financial Status, Parent Education, Single Parent, and Immigrant Status, in combination with child-related behaviours and psychosocial factors such as Emotional Disorder, Self Esteem, Popularity, Tiredness, Dietary Intake, Breakfast consumption, and level of Physical Activity.

Our study found a relationship between Obesity in grade 9 and poorer School Performance in grade 12. Our findings suggested that this relationship may be mediated by the influence of low or moderate Self Esteem which was predictive of School Performance and Weight Status in grades 9 and 12. While School Performance and Weight Status were not directly related to each other within any given grade level, our findings did reveal that they tracked forward from grade 6, to grade 9, and subsequently grade 12. Interventions directed toward younger children should focus on healthy lifestyle practices, such as healthy eating and increased physical activity, but particularly among adolescents entering High School, the focus should increasingly include intrinsic motivators such as positive self image/self esteem and resiliency.

Tiredness was also very strongly associated with poorer School Performance at all grade levels, as well as with many other risk factors in our study such as Popularity, Parental Education, Financial Status (LICO), Single Parent, and Self Esteem. Although our findings on one hand, may point to Tiredness producing a masking effect on other underlying factors, previous findings indicate that inadequate sleep reduces a child's ability to focus on school work and to participate in learning activities, and also impairs cognitive development among young children. Education is therefore needed for parents and teachers to highlight the risks of inadequate sleep on educational outcomes and to identify the underlying causes of tiredness among children and adolescents such as undiagnosed sleep disorders, increased pressure to succeed (both internal to the child or externally from parents), increased screen time/technology use, over-commitment with extracurricular activities, and late bedtimes.

Our results further revealed that Family Background and SES-related factors (Weight Status, Education and Single Parent) were predictive of both School Performance and Weight Status in varying degrees at each grade level, particularly in grade 6. Interventions aimed toward parents should be designed to address the underlying root-causes of poor child school performance and increased weight status. Efforts should focus on reducing the impacts of family background and SES-related factors on children, thus enabling them to access to otherwise financially or socially restrictive cultural/educational activities/events, as well as fostering supportive environments among parents to develop skills and knowledge related to positive parenting practices, healthy lifestyle choices, and assistance navigating the institutional school and healthcare systems.

This study provides an important contribution to the existing literature due in part to the inconsistent evidence regarding weight status and school performance, as well as strengths of the

study such as the large sample size, use of measured height and weight for the children in grades 6 & 9, and also the use of developmentally appropriate, variables such as our comprehensive, teacher-rated measures of school performance. However, this study is limited by the inherent challenges associated with secondary data analysis, the use of self-reported parent height and weight, lack of waist circumference measures for children, and undesirable measures of dietary intake and physical activity.

One of the most striking observations from our inquiry into the relationship between school performance and weight status, is the incredible complexity of the many inter-related contributing factors creating a spider-web effect of health risk factors. As researchers and policy makers, there is sometimes a tendency to focus on the ‘behaviour’ instead of “the drivers of the[se] behaviours - the causes of the causes” (175); it is therefore essential to continually reflect back on the holistic paradigm of the World Health Organization’s (WHO) Ottawa Charter for Health (163) and to ask the question, “How does this fit with health as whole?”. Therefore, further research would be beneficial to continue to explore the underlying psychosocial drivers impacting health outcomes among children and adolescents in the context of their holistic environments. Enhanced understanding of these and other inter-related factors such as the role of tiredness/fatigue and the differences among gender, would serve to better focus and direct the work of schools, community organizations and government agencies in developing effective programs and policies which meet the real needs of individuals to improve the health of the population.

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APPENDIX A: TABLES AND FIGURES

Table 52: Recoding and Monotonic Transformations of School Performance Measures

Variable	Code	Description	Old Variable	Old Code	Old Description
Grade 6 School Performance 'School Performance_6'	1	(4 – 6) Failing Grades	Teacher rated academic functioning (Achenbach scale) 'acafuni'		4 (low) – 20 (high)
	2	(7 – 9) Low Grades			
	3	(10 – 12) Average Grades			
	4	(13 – 16) High Grades			
	5	(17 – 20) Highest Grades			
Grade 9 School Performance 'School Performance_9'	1	(5) Failing Grades	How would you rate the student's current academic achievement across all areas of instruction? 'acadachj'	1	near the top of the class
	2	(4) Low Grades		2	above the middle, but not at the top
	3	(3) Average Grades		3	in the middle of the class
	4	(2) High Grades		4	below the middle, but above the bottom
	5	(1) Highest Grades		5	near the bottom of the class
	Missing	(6) I am unable to make the appropriate evaluation		6	I am unable to make the appropriate evaluation
Grade 12 School Performance 'School Performance_12'	1	(< 49.99%) Failing Grades	MOE: Average Marks Obtained 'moemarkk'		0 - 100%
	2	(50 - 59.99%) Low Grades			
	3	(60 - 69.99%) Average Grades			
	4	(70 - 79.99%) High Grades			
	5	(> 80%) Highest Grades			

Table 53: Recoding and Monotonic Transformations of Child Weight Status

Variable	Code	Description	Old Variable	Old Description
Grade 6 Weight Status WtStatus_6	1	Underweight	BMI Percentile Grade 6	0 – 100%
	2	Normal Weight		
	3	Overweight		
	4	Obese		
Grade 9 Weight Status WtStatus_9 WtStatusEx9*	1	Underweight	BMI Percentile Grade 9	0 – 100%
	2	Normal Weight		
	3	Overweight		
	4	Obese		
Grade 12 Weight Status WtStatus_12	1	Underweight	BMI Percentile Grade 12	0 – 100%
	2	Normal Weight		
	3	Overweight		
	4	Obese		

* WtStatusEx9 is an extrapolated variable based on measured and self-reported data – see detailed description of transformation in section 4.3.3 Measures of Environmental Factors and Personal Attributes

Table 54: Recoding and Monotonic Transformations of Factor Variables

New Variable	New Value	New Description	Old Variable	Old Value	Old Description
BBBF Community	0	Not BBBF	Which community reside?	0	Not in a BB neighbourhood
BBBFi	1	BBBF	rlive2i	1	Cornwall
BBBFj			rlive2j	2	Sudbury
BBBFk			rlive2k	3	Highfield
				4	Guelph
				5	Kingston
				6	Ottawa
				7	Toronto
				8	Walpole Island
				21	Etobicoke-Comparison
				22	Ottawa-Vanier
				24	Peterborough
Immigration Status	0	Born Canadian	No change		
Immi	1	Immigrant			
Immj					
Immk					
Self Esteem	1	Low Self Esteem (4 - 13)	General self esteem scale (NLSCY)		recode ysrc1ak ysrc1bk ysrc1ck
Selfesteemi	2	Moderate Self Esteem (14 - 18)	nlsgei	Scale	ysrc1dk (0=1) (1=2) (2=3) (3=4)
Selfesteemj	3	High Self Esteem (19 - 20)	nlsgej	4- 20	(4=5).
Selfesteemk			nlsgek		compute nlsgek = ysrc1ak
					+ysrc1bk +ysrc1ck +ysrc1dk
Popularity	1	Low popularity (0 - 8)	YSR: relationship with friends scale		recode ysra1k ysra2k ysra3k
Friendsi	2	Moderate Popularity Popular (9-11)	nlsfrii	Scale	ysra4k (1=0) (2=1) (3=2) (4=3)
Friendsj	3	High Popularity (12-14)	nlsfrij	0 - 16	(5=4) (6,7 = sysmis) into ysra1xk
Friendsk	4	Very High Popularity (15-16)	nlsfrik		ysra2xk ysra3xk ysra4xk.
					compute nlsfrik = ysra1xk
					+ysra2xk +ysra3xk +ysra4xk.
Emotional Disorder	0	No Emotional Disorder (= \leq 5)	Emotional Disorder (YSR)	0	No
Emoi	1	Yes Emotional Disorder ($>$ 5)	ysremodk	1	Yes
Emoj					
Emok					
			NLSCY Emotional Disorder Scale (YSR)		
			nlsyemi	Scale	
			nlsyemoj	0 - 13	
Parent Education Level	0	Both High school and less ($<$ 6)	Respondent Education Level	1	No schooling
eduparentsi	1	One greater than high school ($>$ 6)	edlevlri	2	Some primary school
eduparentsj	2	Both greater than high school ($>$ 6)	edlevlrj	3	Primary school
eduparentsk			edlevlrk	4	Some high school
eduParentsEx*				5	High school
				6	Some college
				7	College
				8	Some university
				9	University
				10	University (professional)
				11	University (graduate)
			Partner's Education Level	1	No schooling
			edlevlpi	2	Some primary school
			edlevlpj	3	Primary school
			edlevlpk	4	Some high school
				5	High school
				6	Some college
				7	College
				8	Some university
				9	University
				10	University (professional)
				11	University (graduate)
Financial Status	0	Below LICO	Monthly Household Income (capped at 15000) before tax and deductions		
LICOii	1	At or above LICO		Scale	
LICOj			moninci		
LICOk			monincj		
			moninck		
Parent Weight Status	1	Underweight (BMI $<$ 18.5)	Respondent total weight status	1	Underweight (BMI $<$ 18.5)
Bmirsti	2	Normal Weight (BMI 18.5 – 24.9)	bmirsti	2	Normal Weight (BMI 18.5 – 24.9)
Bmirstj	3	Over Weight (BMI 25- 29.9)	bmirstj	3	Over Weight (BMI 25- 29.9)
Bmirstk	4	Obese (BMI $>$ 30)		4	Obese (BMI $>$ 30)

			Respondent BMI	Scale	
			bmiri bmirj bmirk		
Single Parent	0	Not single parent	No Change		
singpari	1	Single parent			
singparj					
singpark					
Tired	0	Not Tired (1 - 2)	Student arrives too tired to do school work (teacher)	1	Never
Tiredi	1	Tired (3 - 5)	arrive3i	2	Rarely
Tiredj			arrive3j	3	Sometimes
				4	Often
				5	Always
Physical Activity	0	Low Physical Activity (3 - 6)	During the past 12 months how often have you played sports without a Coach?	1	Never
PhysActi	1	High Physical Activity (7 - 12)	ysrg1ai	2	Less than once a week
PhysActj			ysrg1aj	3	1 to 3 times a week
				4	4 or more times a week
			During the past 12 months how often have you played sports with a Coach?	1	Never
			ysrg1bi	2	Less than once a week
			ysrg1bj	3	1 to 3 times a week
				4	4 or more times a week
			During the past 12 months how often have you participated in dance/gym/karate group lesson?	1	Never
			ysrg1ci	2	<1 times/wk
			ysrgcj	3	1-3 times/wk
				4	4 or more times/wk
Dietary Intake	0	Poor Intake (1 food group or less met)	Number food groups meets recs in all 4 food groups grades 6 & 9	Scale	
Dietquali	1	Good Intake	meetAllcfigin	0 - 4	
Dietqualj		(2 food groups or more met)	meetAllcfigjn		
Breakfast	0	No (Did not eat Breakfast)	No Change		
breakfasti	1	Yes (Did eat Breakfast)			
breakfastj					

* EduParentsEx is an extrapolated variable based on grade 12 and subsequently grade 9 and grade 6 Parental Education data – see detailed description of transformation in section 4.3.3 Measures of Environmental Factors and Personal Attributes

Table 55: Distributions of Age, BMI, Household Size and Income

Variable	(Gr 6) (Gr9) (Gr12)	n	Min	Average	Max
Child Age (yrs)	(732)	10.8	12.0	14.0	
	(674)	13.0	14.5	17.0	
	(580)	17.0	18.5	20.0	
Household Size (# of people)	(729)	1.00	4.43	15.00	
	
	
Household Monthly Income before tax and deductions (\$)	(721)	\$269.00	\$3,681.65	\$35,000.00	
	(663)	\$110.00	\$3,639.81	\$10,072.00	
	(584)	\$100.00	\$4,454.46	\$15,000.00	
Child BMI (Percentile)	(600)	0.00	62.63	99.70	
	(281)	0.10	63.22	99.70	
	(515)*	0.10*	63.70*	100.00*	
	(573)	0.00	54.30	99.80	
Parent BMI	(643)	17.14	25.77	61.16	
	(603)	16.28	26.02	51.77	
	(541)	16.30	26.81	51.49	

* Extrapolated grade 9 BMI Percentile for logistic regression

Table 56: Distribution of Gender and Community of Residence

Variable	Code	Description	Gr 6		Gr 9		Gr 12	
			(n)	%	(n)	%	(n)	%
Gender (Child)	0	M	(394)	54%	(350)	52%	(306)	52%
	1	F	(338)	46%	(324)	48%	(278)	48%
Gender (Respondent)	0	M	(58)	8%	(48)	7%	(47)	8%
	1	F	(674)	92%	(626)	93%	(583)	93%
Community Resides	0	Not a BBBF	(317)	43%	(409)	61%	(293)	55%
	3	Highfield	(106)	15%	(73)	11%	(74)	14%
	4	Guelph	.	.	.	.	(1)	0%
	5	Kingston	.	.	(1)	0%	.	.
	6	Ottawa	(4)	1%	(1)	0%	(21)	4%
	7	Toronto	.	.	.	.	(2)	0%
	8	Walpole Island	.	.	.	.	.	.
	21	Etobicoke	(62)	9%	.	.	.	.
	22	Ottawa-Vanier	(64)	9%	(36)	5%	(22)	4%
	23	Hamilton	.	.	.	.	(1)	0%
	24	Peterborough	.	.	.	.	.	.

Table 57: Descriptive Analysis of School Performance and Child Weight Status Measures

Variable	Code	Description	Gr 6		Gr 9		Gr 12	
			n	%	N	%	n	%
School Performance	1	Failing Grades (Level 1)	(75)	12.5%	(90)	20.7%	(37)	7.34%
	2	Low Grades (Level 2)	(161)	26.8%	(73)	16.8%	(83)	16.5%
	3	Average Grades (Level 3)	(212)	35.3%	(118)	27.2%	(161)	32.1%
	4	High Grades (Level 4)	(77)	12.8%	(82)	18.9%	(138)	27.5%
	5	Highest Grades (Level 5)	(75)	12.5%	(71)	16.4%	(83)	16.5%
Weight Status	1	Underweight	(34)	5.6%	(7)	2.5%	(30)	5.2%
	2	Normal Weight	(357)	59.1%	(185)	65.8%	(435)	75.9%
	3	Overweight	(112)	18.5%	(54)	19.2%	(65)	11.3%
	4	Obese	(101)	16.7%	(35)	12.5%	(43)	7.5%
Extrapolated Weight Status	1	Underweight	.	.	(32)	6.2%	.	.
	2	Normal Weight	.	.	(321)	62.3%	.	.
	3	Overweight	.	.	(88)	17.1%	.	.
	4	Obese	.	.	(74)	14.4%	.	.

Figure 9: Histograms of School Performance and Weight Status

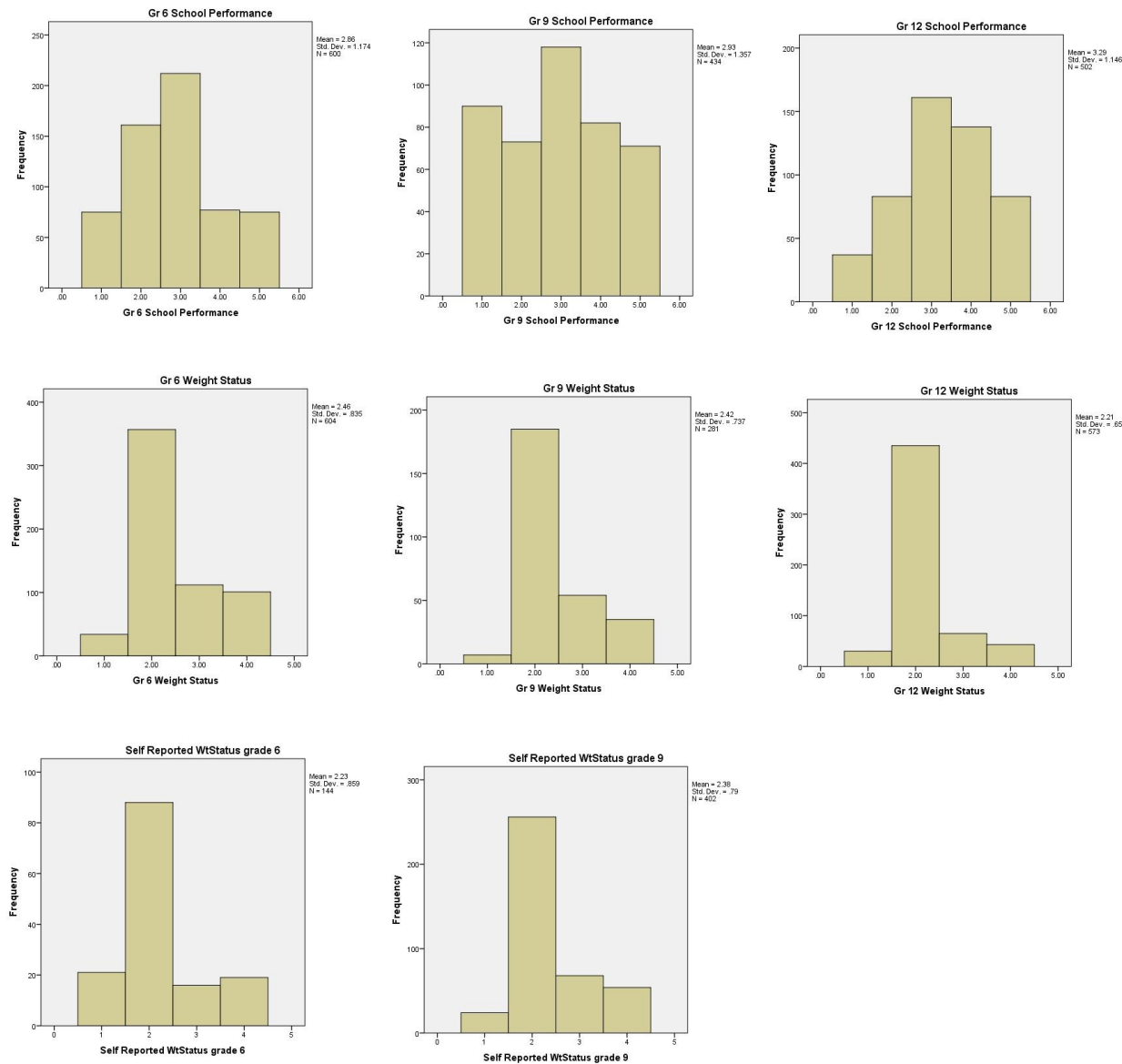


Table 58: Significant Associations between School Performance and Weight Status

	Gr 6 Weight Status				Gr 9 Weight Status*				Gr 12 Weight Status			
	n	χ^2	df	Sig	n	χ^2	df	Sig	n	χ^2	df	Sig
School Performance												
Grade 6	(528)	13.878	12	.309	†(234)	21.446	12	.044	†(442)	31.888	12	.001
Grade 9	†(348)	13.505	12	.333	†(213)	19.690	12	.073	†(353)	13.051	12	.365
Grade 12	†(399)	16.519	12	.169	†(221)	41.604	12	.000	†(482)	14.524	12	.268
Weight Status												
Gr 6	.	.	.	.	(241)	148.562	9	.000	(451)	207.543	9	.000
Gr 9*	(241)	148.562	9	.000	.	.	.	.	(237)	141.364	9	.000
Gr 12	(451)	207.543	9	.000	(237)	141.364	9	.000	.	.	.	.

	Gr 6 School Performance				Gr 9 School Performance				Gr 12 School Performance			
	N	χ^2	df	Sig	N	χ^2	df	Sig	N	χ^2	df	Sig
School Performance												
Grade 6	.	.	.	.	(346)	84.987	16	.000	(387)	123.013	16	.000
Grade 9	(346)	84.987	16	.000	.	.	.	.	(331)	162.659	16	.000
Grade 12	(387)	123.013	16	.000	(331)	162.659	16	.000	.	.	.	.
Weight Status												
Grade 6	(528)	13.878	12	.309	†(348)	13.505	12	.333	†(399)	16.519	12	.169
Grade 9*	†(234)	21.446	12	.044	†(213)	19.690	12	.073	†(221)	41.604	12	.000
Grade 12	†(442)	31.888	12	.001	†(353)	13.051	12	.365	†(482)	14.524	12	.268

* The extrapolated Grade 9 weight status variable was not used for the original Chi Square calculations
† ≥25% of cells have expected counts less than 5
‡ ≥25% of cells have expected counts less than 5 with at least one cell count <1
‡ at least one cell count <1

Table 59: Significant 2-way Associations between School Performance and Environmental Factors and Personal Attributes

		Gr 6 School Performance						Gr 9 School Performance						Gr 12 School Performance				
	(n)	% valid	χ ²	df	Sig		(n)	% valid	χ ²	df	Sig		(n)	% valid	χ ²	df	Sig	
BBBF Community																		
Gr 6	(576)	56.8%	2.667	4	.615		(396)	39.1%	9.959	4	.041		(466)	46.0%	2.369	4	.668	
Gr 9	(511)	50.4%	2.545	4	.637		(428)	42.2%	1.874	4	.759		(461)	45.5%	2.582	4	.630	
Gr 12	(413)	40.7%	5.729	4	.220		(334)	32.9%	1.906	4	.753		(431)	42.5%	2.241	4	.692	
Immigration Status																		
Gr 6	(575)	56.7%	3.577	4	.466		(396)	39.1%	20.774	4	.000		(467)	46.1%	12.607	4	.013	
Gr 9	(511)	50.4%	6.601	4	.159		(429)	42.3%	17.710	4	.001		(462)	45.6%	19.508	4	.001	
Gr 12	(482)	47.5%	9.597	4	.048		(379)	37.4%	20.099	4	.000		(502)	49.5%	20.240	4	.000	
Self Esteem																		
Gr 6	(581)	57.3%	20.064	8	.010		(388)	38.3%	16.965	8	.030		(448)	44.2%	9.647	8	.291	
Gr 9	(413)	40.7%	15.777	8	.046		(377)	37.2%	12.710	8	.122		(386)	38.1%	20.721	8	.008	
Gr 12	(459)	45.3%	29.216	8	.000		(364)	35.9%	39.138	8	.000		(499)	49.2%	20.746	8	.008	
Popularity																		
Gr 6	(586)	57.8%	29.227	12	.004		(391)	38.6%	16.700	12	.161		(451)	44.5%	12.660	12	.394	
Gr 9	(406)	40.0%	11.488	12	.488		(371)	36.6%	11.700	12	.470		(380)	37.5%	26.341	12	.010	
Gr 12	(456)	45.0%	16.294	12	.178		(363)	35.8%	15.939	12	.194		(496)	48.9%	11.966	12	.448	
Emotional Disorder																		
Gr 6	(578)	57.0%	8.825	4	.066		(386)	38.1%	2.093	4	.719		(445)	43.9%	3.266	4	.514	
Gr 9	(414)	40.8%	1.930	4	.749		(376)	37.1%	1.312	4	.859		(384)	37.9%	2.094	4	.718	
Gr 12	(462)	45.6%	3.439	4	.487		(367)	36.2%	3.013	4	.556		(502)	49.5%	2.448	4	.654	
Parental Education																		
Gr 6	(576)	56.8%	41.260	8	.000		(397)	39.2%	17.832	8	.023		(467)	46.1%	27.157	8	.001	
Gr 9	(511)	50.4%	48.641	8	.000		(429)	42.3%	17.611	8	.024		(462)	45.6%	34.113	8	.000	
Gr 12	(321)	31.7%	14.798	8	.063		(253)	25.0%	10.045	8	.262		(335)	33.0%	11.401	8	.180	
Financial Status (LICO)																		
Gr 6	(575)	56.7%	10.531	4	.032		(395)	39.0%	4.491	4	.344		(467)	46.1%	16.171	4	.003	
Gr 9	(575)	56.7%	23.815	4	.000		(395)	39.0%	4.840	4	.304		(467)	46.1%	12.593	4	.013	
Gr 12	(575)	56.7%	2.901	4	.574		(395)	39.0%	5.582	4	.233		(467)	46.1%	4.616	4	.329	
Parental Weight Status																		
Gr 6	(509)	50.2%	11.039	12	.526		(357)	35.2%	6.482	12	.890		(417)	41.1%	7.684	12	.809	
Gr 9	(463)	45.7%	15.112	12	.235		(387)	38.2%	7.507	12	.822		(417)	41.1%	12.740	12	.388	
Gr 12	(416)	41.0%	13.880	12	.308		(330)	32.5%	13.598	12	.327		(428)	42.2%	15.446	12	.218	
Single Parent																		
Gr 6	(576)	56.8%	14.239	4	.007		(397)	39.2%	11.187	4	.025		(467)	46.1%	20.357	4	.000	
Gr 9	(511)	50.4%	15.246	4	.004		(429)	42.3%	10.380	4	.034		(462)	45.6%	24.265	4	.000	
Gr 12	(452)	44.6%	3.839	4	.428		(356)	35.1%	5.938	4	.204		(464)	45.8%	15.419	4	.004	
Tired																		
Gr 6	(599)	59.1%	54.816	4	.000		(354)	34.9%	27.444	4	.000		(396)	39.1%	39.754	4	.000	
Gr 9	(351)	34.6%	37.976	4	.000		(431)	42.5%	122.077	4	.000		(336)	33.1%	75.434	4	.000	
Physical Activity																		
Gr 6	(580)	57.2%	10.133	4	.038		(387)	38.2%	3.553	4	.470		(448)	44.2%	5.858	4	.210	
Gr 9	(405)	39.9%	4.659	4	.324		(369)	36.4%	3.807	4	.433		(377)	37.2%	12.947	4	.012	
Dietary Intake by Food Group																		
Gr 6	(530)	52.3%	2.352	4	.671		(360)	35.5%	5.239	4	.264		(409)	40.3%	5.565	4	.234	
Gr 9	(408)	40.2%	7.065	4	.133		(372)	36.7%	3.217	4	.522		(380)	37.5%	4.452	4	.348	
Breakfast Consumption																		
Gr 6	(565)	55.7%	13.532	4	.009		(375)	37.0%	8.222	4	.084		(437)	43.1%	6.596	4	.159	
Gr 9	(414)	40.8%	2.892	4	.576		(378)	37.3%	6.150	4	.188		(385)	38.0%	12.401	4	.015	

† ≥25% of cells have expected counts less than 5

‡ ≥25% of cells have expected counts less than 5 with at least one cell count <1

† at least one cell count <1

Table 60: Significant 2-way Associations between Child Weight Status and Environmental Factors and Personal Attributes

	Gr 6 Weight Status					Gr 9 Weight Status					Gr 12 Weight Status				
	(n)	% valid	χ^2	df	Sig	(n)	% valid	χ^2	df	Sig	(n)	% valid	χ^2	df	Sig
BBBF Community															
Gr 6	(578)	57.0%	4.080	3	.253	†(267)	26.3%	1.266	3	.737	(530)	52.3%	.580	3	.901
Gr 9	(516)	50.9%	7.229	3	.065	†(276)	27.2%	.256	3	.968	(524)	51.7%	8.388	3	.039
Gr 12	(427)	42.1%	2.490	3	.477	†(224)	22.1%	1.998	3	.573	(490)	48.3%	6.318	3	.097
Immigration Status															
Gr 6	(579)	57.1%	.565	3	.904	†(266)	26.2%	4.566	3	.206	(531)	52.4%	10.141	3	.017
Gr 9	(516)	50.9%	1.009	3	.799	†(276)	27.2%	6.467	3	.091	(525)	51.8%	9.938	3	.019
Gr 12	(490)	48.3%	2.523	3	.471	†(253)	25.0%	6.252	3	.100	(573)	56.5%	8.047	3	.045
Self Esteem															
Gr 6	(597)	58.9%	3.622	6	.728	†(254)	25.0%	3.661	6	.722	(501)	49.4%	4.325	6	.633
Gr 9	(411)	40.5%	11.183	6	.083	†(272)	26.8%	6.260	6	.395	(420)	41.4%	4.631	6	.592
Gr 12	†(467)	46.1%	17.063	6	.009	†(244)	24.1%	5.515	6	.480	†(569)	56.1%	9.016	6	.173
Popularity															
Gr 6	(601)	59.3%	9.996	9	.351	†(258)	25.4%	4.840	9	.848	(506)	49.9%	17.329	9	.044
Gr 9	†(404)	39.8%	10.038	9	.347	†(269)	26.5%	10.766	9	.292	†(413)	40.7%	14.792	9	.097
Gr 12	(463)	45.7%	9.582	9	.385	†(245)	24.2%	3.554	9	.938	†(566)	55.8%	9.507	9	.392
Emotional Disorder															
Gr 6	(593)	58.5%	1.060	3	.787	†(254)	25.0%	6.365	3	.095	(499)	49.2%	8.137	3	.043
Gr 9	(412)	40.6%	.652	3	.884	(273)	26.9%	5.868	3	.118	(421)	41.5%	.434	3	.933
Gr 12	†(470)	46.4%	2.583	3	.461	†(246)	24.3%	2.720	3	.437	†(573)	56.5%	1.272	3	.736
Parental Education															
Gr 6	(580)	57.2%	13.385	6	.037	†(267)	26.3%	8.519	6	.202	(531)	52.4%	15.990	6	.014
Gr 9	(516)	50.9%	1.100	6	.982	†(276)	27.2%	7.995	6	.238	(525)	51.8%	9.888	6	.129
Gr 12	(324)	32.0%	8.218	6	.223	†(168)	16.6%	2.727	6	.842	(375)	37.0%	5.979	6	.426
Financial Status															
Gr 6	(577)	56.9%	10.363	3	.016	†(267)	26.3%	8.706	3	.033	(530)	52.3%	3.833	3	.280
Gr 9	(577)	56.9%	5.867	3	.118	†(267)	26.3%	6.630	3	.085	(530)	52.3%	2.641	3	.450
Gr 12	(577)	56.9%	4.034	3	.258	†(267)	26.3%	.370	3	.946	(530)	52.3%	1.683	3	.641
Parental Weight Status															
Gr 6	†(510)	50.3%	41.157	9	.000	†(234)	23.1%	14.957	9	.092	†(476)	46.9%	27.604	9	.001
Gr 9	†(465)	45.9%	24.187	9	.004	†(250)	24.7%	20.486	9	.015	†(477)	47.0%	30.820	9	.000
Gr 12	†(427)	42.1%	35.141	9	.000	†(229)	22.6%	20.177	9	.017	†(494)	48.7%	21.949	9	.009
Single Parent															
Gr 6	(580)	57.2%	3.320	3	.345	(267)	26.3%	4.605	3	.203	(531)	52.4%	9.726	3	.021
Gr 9	(516)	50.9%	3.555	3	.314	(276)	27.2%	2.066	3	.559	(525)	51.8%	9.646	3	.022
Gr 12	(463)	45.7%	1.567	3	.667	(239)	23.6%	2.111	3	.550	(532)	52.5%	2.460	3	.483
Tired															
Gr 6	(539)	53.2%	11.253	3	.010	†(236)	23.3%	6.586	3	.086	(452)	44.6%	2.725	3	.436
Gr 9	(351)	34.6%	4.410	3	.220	†(217)	21.4%	1.314	3	.726	(359)	35.4%	2.253	3	.522
Physical Activity															
Gr 6	(598)	59.0%	1.383	3	.710	†(254)	25.0%	1.256	3	.740	(503)	49.6%	1.409	3	.703
Gr 9	(403)	39.7%	5.362	3	.147	†(266)	26.2%	6.257	3	.100	(412)	40.6%	1.368	3	.713
Dietary Intake by Food Group															
Gr 6	(542)	53.5%	2.413	3	.491	†(230)	22.7%	.483	3	.923	(462)	45.6%	2.699	3	.440
Gr 9	(405)	39.9%	2.636	3	.451	†(270)	26.6%	1.771	3	.621	(416)	41.0%	5.161	3	.160
Breakfast Consumption															
Gr 6	(578)	57.0%	2.661	3	.447	†(245)	24.2%	6.468	3	.091	(489)	48.2%	4.684	3	.196
Gr 9	(412)	40.6%	5.411	3	.144	†(274)	27.0%	4.657	3	.199	(422)	41.6%	3.198	3	.362

* The extrapolated Grade 9 weight status variable was not used for the original Chi Square calculations

† ≥25% of cells have expected counts less than 5

‡ ≥25% of cells have expected counts less than 5 with at least one cell count <1

† at least one cell count <1

Table 61: Standardized Residuals from Chi-square analyses with School Performance and Environmental Factors

(Grade 6) (Grade 9) (Grade 12)	Gr 6 School Performance										Gr 9 School Performance										Gr 12 School Performance												
	Level 1		Level 2		Level 3		Level 4		Level 5		Level 1		Level 2		Level 3		Level 4		Level 5		Level 1		Level 2		Level 3		Level 4		Level 5				
	res	(n)	res	(n)	res	(n)	res	(n)	res	(n)	res	(n)	res	(n)	res	(n)	res	(n)	res	(n)	res	(n)	res	(n)	res	(n)	res	(n)	res	(n)			
BBBF Community																																	
Not BBBF BBBF	.0	(27)	1.0	(64)	-.2	(73)	-.3	(27)	-.7	(23)	2.0	(44)	-.3	(24)	-.4	(40)	-.1	(30)	-1.4	(20)	.7	(16)	.3	(34)	.2	(65)	-.1	(54)	-.9	(28)			
	.0	(46)	-.8	(88)	.2	(129)	.2	(50)	.6	(49)	-1.6	(38)	.2	(40)	.3	(66)	.0	(46)	1.1	(48)	-.6	(16)	-.3	(42)	-.2	(85)	.1	(76)	.7	(50)			
	.8	(44)	-.3	(70)	.3	(104)	-.4	(35)	-.5	(33)	.6	(56)	.2	(42)	.1	(67)	-.6	(43)	-.2	(39)	-.3	(19)	.4	(50)	.6	(92)	-.4	(71)	-.6	(42)			
	-.9	(26)	.3	(59)	-.3	(77)	.5	(32)	.5	(31)	-.7	(34)	-.2	(29)	-.1	(48)	.7	(39)	.3	(31)	.3	(15)	-.4	(30)	-.8	(53)	.5	(54)	.7	(35)			
	.7	(25)	.2	(54)	.0	(78)	-1.4	(20)	.6	(32)	.3	(35)	.7	(32)	-.4	(47)	-.1	(33)	-.3	(27)	.3	(18)	.4	(42)	.2	(72)	.0	(68)	-.8	(32)			
	-.7	(18)	-.2	(50)	.1	(77)	1.4	(34)	-.6	(25)	-.3	(29)	-.8	(22)	.4	(49)	.2	(32)	.3	(28)	-.3	(13)	-.5	(31)	-.2	(59)	.0	(59)	.9	(37)			
Immigration Status																																	
Born in Canada Not Born in Canada	.8	(47)	.1	(89)	-.8	(108)	-.1	(44)	.4	(44)	1.1	(58)	.2	(41)	-.3	(63)	1.2	(55)	-2.3	(27)	1.4	(25)	.1	(46)	-.1	(89)	.6	(83)	-1.7	(35)			
	-1.0	(25)	-.2	(63)	.9	(94)	.1	(33)	-.4	(28)	-1.3	(24)	-.3	(23)	.4	(43)	-1.5	(21)	2.9	(41)	-1.7	(7)	-.1	(30)	.1	(62)	-.8	(47)	2.0	(43)			
	1.2	(48)	.5	(79)	-1.0	(94)	-.1	(38)	-.2	(36)	1.2	(64)	.4	(46)	-.4	(68)	.8	(56)	-2.1	(29)	1.9	(28)	.1	(47)	-.6	(79)	.9	(80)	-1.9	(32)			
	-1.4	(22)	-.6	(50)	1.2	(87)	.1	(29)	.2	(28)	-1.5	(26)	-.5	(25)	.5	(48)	-1.0	(26)	2.7	(41)	-2.2	(6)	-.2	(33)	.6	(67)	-1.1	(45)	2.2	(45)			
	1.9	(40)	.0	(68)	-.7	(96)	-.3	(36)	-.2	(37)	1.5	(53)	.6	(39)	-.6	(59)	.8	(49)	-2.2	(25)	2.0	(31)	.0	(48)	-.3	(91)	.8	(87)	-1.9	(35)			
	-2.2	(12)	.0	(50)	.9	(84)	.4	(30)	.2	(29)	-1.8	(20)	-.7	(21)	.7	(48)	-.9	(25)	2.6	(40)	-2.4	(6)	.0	(35)	.3	(70)	-.9	(51)	2.3	(48)			
Self Esteem																																	
Low Moderate High	2.6	(15)	-.3	(15)	-.8	(18)	.7	(10)	-1.4	(4)	.7	(9)	.9	(8)	.5	(11)	-.7	(5)	-1.6	(2)	.2	(3)	1.2	(10)	.1	(14)	-.8	(9)	-.4	(6)			
	.1	(40)	.5	(89)	.5	(118)	-.6	(38)	-1.1	(34)	1.6	(53)	.2	(36)	-1.1	(48)	-.5	(38)	.0	(35)	.6	(18)	.5	(43)	.6	(84)	-.6	(63)	-.9	(35)			
	-1.6	(17)	-.5	(49)	-.2	(69)	.4	(28)	2.2	(37)	-2.2	(17)	-.7	(20)	1.1	(45)	.9	(33)	.8	(28)	-.8	(8)	-1.1	(21)	-.8	(47)	1.1	(53)	1.3	(34)			
	1.8	(15)	.5	(22)	-1.0	(20)	1.0	(13)	-1.8	(4)	1.0	(16)	.6	(13)	.4	(19)	-.4	(11)	-1.8	(5)	.6	(6)	2.1	(20)	-1.5	(15)	.3	(21)	-.9	(9)			
	-1.9	(19)	.0	(60)	.8	(84)	-.4	(28)	1.0	(35)	-.9	(34)	.2	(37)	.4	(58)	.7	(44)	-.4	(33)	-.3	(13)	-1.3	(29)	2.2	(82)	-.9	(50)	-.3	(34)			
	1.2	(19)	-.4	(28)	-.3	(37)	-.3	(14)	.1	(15)	.5	(23)	-.8	(15)	-.9	(24)	-.6	(18)	2.0	(27)	-.1	(7)	.0	(19)	-1.8	(23)	1.0	(35)	1.1	(23)			
	.0	(2)	1.5	(8)	-1.9	(2)	2.7	(7)	-1.6	(0)	2.4	(7)	.3	(3)	-1.2	(2)	-.1	(3)	-1.1	(1)	.4	(2)	1.5	(6)	-.1	(6)	-.2	(5)	-1.3	(1)			
	1.4	(31)	-1.2	(49)	1.5	(100)	-1.0	(26)	-1.0	(26)	1.3	(41)	2.1	(40)	-1.3	(43)	.4	(38)	-2.0	(21)	1.2	(24)	1.0	(49)	.7	(88)	-1.0	(62)	-1.6	(32)			
	-1.4	(15)	.8	(58)	-1.0	(69)	.3	(30)	1.5	(36)	-2.1	(19)	-2.3	(14)	1.8	(60)	-.4	(30)	2.4	(42)	-1.4	(11)	-1.5	(28)	-.8	(65)	1.1	(70)	2.1	(50)			
	Popularity																																
Low Moderate High Very High	4.1	(15)	.1	(12)	-.6	(13)	-2.0	(1)	-1.1	(3)	.8	(8)	1.0	(7)	-.6	(6)	.2	(6)	-1.3	(2)	1.6	(4)	.7	(6)	-.7	(7)	.1	(8)	-.8	(3)			
	1.0	(18)	.1	(31)	-.9	(35)	.5	(17)	-.2	(14)	.6	(16)	-1.5	(6)	.8	(21)	-.3	(12)	.2	(12)	.0	(5)	.3	(14)	.6	(29)	-1.3	(16)	.5	(15)			
	-1.1	(25)	.4	(69)	.2	(90)	.2	(34)	.0	(32)	.3	(37)	.5	(31)	-1.7	(34)	.8	(38)	.4	(31)	-1.2	(8)	.8	(36)	.1	(63)	-.2	(52)	.0	(32)			
	-1.5	(15)	-.6	(43)	.7	(68)	.4	(25)	.7	(26)	-1.3	(19)	.1	(21)	1.7	(43)	-.8	(20)	.0	(21)	.7	(12)	-1.4	(18)	-.3	(48)	1.1	(50)	-.1	(25)			
	1.0	(5)	1.1	(10)	-1.3	(5)	.3	(4)	-.8	(2)	.8	(6)	.1	(4)	-.3	(5)	.3	(5)	-.9	(2)	-.4	(1)	.8	(5)	-.2	(6)	.5	(7)	-.9	(2)			
	.6	(10)	1.3	(23)	-1.0	(18)	.1	(9)	-.9	(6)	.9	(15)	.5	(12)	.7	(19)	-.9	(9)	-1.4	(6)	3.2	(10)	.5	(11)	-.2	(17)	-1.1	(11)	-.9	(7)			
	-.7	(17)	-.8	(38)	.6	(60)	.0	(21)	1.0	(26)	.3	(30)	-.2	(24)	-.5	(36)	.8	(33)	-.3	(24)	-1.5	(6)	1.0	(32)	1.1	(58)	-.9	(38)	-.3	(26)			
	.0	(19)	-.4	(38)	.5	(56)	-.2	(19)	.0	(20)	-1.2	(21)	-.2	(23)	.1	(38)	-.3	(26)	1.7	(33)	-.3	(9)	-1.6	(16)	-.9	(39)	1.4	(48)	1.2	(31)			
	.5	(4)	1.5	(12)	-.8	(9)	.8	(6)	-2.0	(0)	1.7	(8)	.5	(5)	-.9	(5)	-.4	(4)	-.6	(3)	1.0	(4)	1.5	(9)	-.2	(10)	-1.3	(5)	-.2	(5)			
	.1	(8)	-.4	(17)	.5	(31)	-1.0	(7)	.7	(12)	-.4	(11)	.9	(14)	-.1	(20)	.0	(14)	-.3	(11)	-.1	(6)	1.2	(18)	-.8	(23)	.7	(26)	-1.0	(10)			
	1.2	(21)	-.1	(39)	.3	(62)	-.8	(18)	-.6	(18)	1.0	(26)	1.0	(23)	-.5	(32)	-.5	(21)	-.8	(17)	-.1	(13)	-.1	(29)	.7	(64)	-.4	(46)	-.3	(28)			
	-1.3	(14)	-.3	(46)	-.3	(70)	1.1	(32)	.9	(30)	-1.3	(20)	-1.7	(15)	.8	(49)	.6	(33)	1.2	(32)	-.2	(14)	-1.2	(26)	-.1	(64)	.5	(58)	.9	(38)			
Emotional Disorder																																	
No Disorder Disordered	-1.3	(42)	-.3	(109)	.5	(156)	.1	(57)	.6	(58)	.1	(58)	-.3	(45)	.0	(77)	-.3	(53)	.6	(52)	.5	(24)	-.3	(51)	-.3	(105)	-.1	(94)	.6	(61)			
	2.1	(28)	.4	(44)	-.9	(49)	-.2	(20)	-1.1	(15)	-.1	(20)	.6	(19)	.0	(27)	.5	(22)	-1.0	(13)	-.8	(5)	.6	(20)	.6	(39)	.2	(32)	-1.1	(14)			
	.1	(40)	-.1	(80)	.1	(107)	-.5	(38)	.4	(41)	-.5	(51)	.0	(47)	.2	(75)	.0	(54)	.3	(50)	-.2	(18)	-.2	(50)	-.3	(88)	.1	(80)	.6	(53)			
	-.2	(13)	.2	(30)	-.2	(36)	.9	(18)	-.7	(11)	.8	(23)	.0	(17)	-.3	(25)	-.1	(19)	-.5	(15)	.3	(7)	.3	(18)	.6	(33)	-.2	(25)	-1.0	(12)			
	-.3	(44)	.1	(109)	.2	(165)	-.3	(57)	.0	(58)	-.2	(62)	-.2	(52)	.1	(101)	.0	(68)	.2	(62)	-.2	(33)	-.2	(75)	.2	(151)	-.1	(127)	.2	(79)			
	1.1	(5)	-.5	(6)	-.9	(8)	1.0	(6)	.1	(4)	1.0	(6)	.9	(5)	-.5	(5)	-.2	(4)	-.9	(2)	.8	(4)	.8	(8)	-.5	(10)	.3	(11)	-.9	(4)			
Parent Education																																	
0 > HS 1 > HS 2 > HS	2.5	(31)	1.4	(50)	-.4	(52)	-1.9	(12)	-1.9	(11)	.4	(27)	1.8	(28)	.2	(34)	-.9	(19)	-1.5	(14)	1.1	(11)	2.5	(30)	-.6	(34)	-.8	(28)	-1.3	(14)			
	.8	(30)	.9	(60)	-.6	(66)	-.6	(24)	-.5	(23)	1.6	(37)	-1.6	(15)	-.5	(34)	.3	(28)	.1	(24)	1.0	(15)	-.9	(23)	1.6	(67)	-.7	(43)	-1.0	(23)			
	-3.0	(12)	-2.0	(42)	.9	(84)	2.2	(41)	2.1	(38)	-1.9	(18)	-.1	(22)	.2	(38)	.5	(29)	1.3	(30)	-1.8	(6)	-1.1	(23)	-1.0	(50)	1.3	(59)	2.0	(41)			
	1.7	(25)	1.8	(43)	-.8	(40)	-1.4	(11)	-1.5	(10)	1.3	(32)	1.1	(25)	-.1	(32)	-.7	(20)	-1.7	(12)	1.7	(13)	1.7	(27)	-.1	(35)	-.4	(28)	-2.2	(9)			
	2.6	(39)	-.1	(47)	-.5	(63)	-.4	(23)	-1.4	(17)	.9	(35)	-.2	(23)	-.8	(34)	.7	(31)	-.5	(21)	1.1	(15)	.8	(31)	.8	(54)	-1.3	(33)	-.9	(21)			
	-4.0	(6)	-1.4	(39)	1.2	(78)	1.5	(33)	2.6	(37)	-1.9	(23)	-.8	(23)	-.8	(50)	-.1	(31)	2.0	(37)	-2.2	(6)	-2.0	(22)	-.6	(57)	1.5	(64)	2.5	(47)			

Appendix A: Tables and Figures

		1.2 (26)	.9 (49)	-.5 (54)	-.9 (17)	-.8 (17)	.7 (30)	.4 (23)	-.3 (33)	.4 (26)	-1.1 (16)	1.4 (14)	1.3 (28)	-.6 (38)	-.2 (35)	-1.0 (17)			
		1.7 (37)	.6 (63)	-.4 (75)	-.7 (25)	-1.3 (21)	1.1 (37)	-.7 (21)	-.7 (36)	.2 (29)	.1 (25)	.0 (13)	.7 (34)	1.3 (67)	-.8 (44)	-1.4 (22)			
		-2.8 (12)	-1.5 (44)	.8 (81)	1.5 (35)	2.1 (37)	-1.7 (23)	.4 (28)	1.0 (49)	-.5 (27)	.8 (30)	-1.2 (9)	-1.8 (21)	-.7 (53)	1.0 (58)	2.3 (43)			
Financial Status																			
	< LICO	1.8 (46)	.7 (79)	-.7 (91)	-.5 (34)	-1.0 (29)	.8 (44)	.1 (31)	-.4 (48)	-1.1 (30)	.6 (36)	2.3 (23)	1.1 (40)	-.1 (66)	-1.4 (47)	-.6 (31)			
	≥ LICO	-1.7 (27)	-.7 (72)	.7 (111)	.5 (43)	1.0 (43)	-.8 (37)	-.1 (33)	.4 (58)	1.0 (46)	-.6 (32)	-2.1 (9)	-1.0 (36)	.1 (85)	1.2 (83)	.5 (47)			
		3.1 (49)	.7 (71)	-1.2 (77)	-.8 (29)	-1.3 (24)	.4 (42)	.9 (36)	-.4 (49)	-1.1 (30)	.3 (35)	2.1 (22)	.8 (38)	.0 (67)	-1.4 (47)	-.4 (32)			
		-2.7 (24)	-.6 (80)	1.0 (125)	.7 (48)	1.1 (48)	-.4 (39)	-.9 (28)	.3 (57)	1.1 (46)	-.3 (33)	-1.9 (10)	-.7 (38)	.0 (84)	1.2 (83)	.4 (46)			
		-.3 (27)	-.8 (53)	.8 (86)	.5 (33)	-.4 (26)	-.2 (32)	-.8 (22)	-.2 (42)	-.4 (29)	1.6 (36)	1.3 (19)	.6 (37)	-.4 (63)	-.6 (53)	-.1 (34)			
		.2 (46)	.6 (98)	-.6 (116)	-.4 (44)	.3 (46)	.1 (49)	.7 (42)	.2 (64)	.3 (47)	-1.3 (32)	-1.2 (13)	-.5 (39)	.4 (88)	.5 (77)	.1 (44)			
Parent Weight Status																			
	Underweight	.0 (1)	-.1 (2)	-.5 (2)	-.1 (1)	1.0 (2)	.1 (2)	-1.2 (0)	.4 (3)	-.5 (1)	1.1 (3)	-.8 (0)	-.4 (1)	.7 (4)	-.3 (2)	.4 (2)			
	Normal Weight	-.3 (32)	-.4 (62)	.8 (97)	-.1 (33)	-1.0 (25)	-.8 (33)	.5 (34)	.3 (52)	.0 (35)	.1 (33)	.2 (15)	-.7 (32)	-.2 (65)	.9 (65)	-.3 (35)			
	Overweight	.1 (19)	-1.0 (34)	-.3 (53)	.7 (24)	1.1 (24)	.3 (22)	.2 (18)	-.4 (25)	.0 (19)	-.1 (17)	.0 (8)	.2 (21)	-.7 (33)	.1 (33)	.6 (23)			
	Obese	-.6 (10)	1.9 (35)	-.9 (30)	-.6 (11)	.0 (12)	1.1 (16)	-.7 (8)	-.2 (15)	.2 (12)	-.4 (9)	-.1 (5)	1.0 (17)	.9 (29)	-1.4 (15)	-.4 (12)			
		2.0 (3)	-.8 (1)	-.5 (2)	-1.0 (0)	1.0 (2)	1.3 (2)	.4 (1)	-.1 (1)	-.9 (0)	-.8 (0)	-.7 (0)	-.2 (1)	-.1 (2)	.1 (2)	.6 (2)			
		-.8 (23)	-.9 (50)	.4 (81)	1.0 (32)	.4 (29)	-1.0 (31)	-.1 (32)	.1 (50)	.2 (37)	.8 (37)	.2 (15)	-.3 (34)	-1.0 (52)	.1 (53)	1.4 (45)			
		.8 (23)	.3 (43)	.2 (57)	-1.2 (14)	-.5 (17)	.9 (30)	-.5 (20)	-.2 (33)	.3 (26)	-.5 (20)	-.3 (9)	-.6 (22)	1.1 (49)	.8 (41)	-1.6 (17)			
		-.5 (9)	1.3 (29)	-.9 (26)	.4 (12)	-.2 (10)	.2 (14)	.7 (14)	.1 (18)	-.5 (11)	-.5 (10)	.3 (6)	1.3 (18)	.2 (23)	-1.2 (14)	-.4 (12)			
		1.0 (2)	-.9 (1)	.6 (5)	-1.2 (0)	.5 (2)	.5 (2)	-.2 (1)	-.9 (1)	1.2 (3)	-.4 (1)	.2 (1)	.0 (2)	1.2 (6)	-.8 (2)	-.8 (1)			
		-1.2 (12)	-.8 (36)	.9 (71)	-.2 (23)	1.0 (28)	-1.9 (15)	.0 (21)	.3 (40)	.5 (28)	1.0 (29)	.7 (14)	-1.1 (23)	-.6 (48)	-.5 (45)	2.0 (41)			
		.8 (18)	.0 (36)	-.2 (54)	.0 (21)	-.3 (19)	2.0 (30)	-.5 (16)	.2 (34)	-.8 (18)	-.9 (17)	-1.0 (7)	.7 (29)	-.3 (44)	1.1 (50)	-1.1 (21)			
		.4 (10)	1.4 (28)	-1.1 (27)	.7 (15)	-1.2 (8)	-.1 (13)	.7 (14)	-.3 (20)	.0 (14)	-.1 (13)	.2 (7)	.5 (18)	.8 (33)	-.5 (24)	-1.1 (12)			
Single Parent																			
	Not Single Parent	-1.1 (45)	-1.0 (100)	.4 (152)	.8 (62)	.9 (59)	-.9 (52)	-.9 (41)	.2 (78)	.7 (60)	1.0 (56)	-1.3 (18)	-.8 (52)	-.6 (108)	1.2 (111)	.9 (66)			
	Single Parent	1.8 (28)	1.6 (52)	-.7 (50)	-1.3 (15)	-1.5 (13)	1.5 (30)	1.4 (24)	-.3 (28)	-1.1 (16)	-1.6 (12)	2.3 (14)	1.4 (24)	1.1 (43)	-2.2 (19)	-1.6 (12)			
		-1.4 (39)	-.7 (84)	.3 (130)	1.2 (55)	.8 (50)	-.7 (58)	-1.2 (42)	.5 (87)	.5 (62)	.8 (55)	-1.6 (17)	-1.0 (51)	-.4 (103)	1.5 (106)	.7 (62)			
		2.2 (31)	1.0 (45)	-.4 (51)	-1.8 (12)	-1.2 (14)	1.1 (32)	1.8 (29)	-.8 (29)	-.8 (20)	-1.2 (15)	2.6 (17)	1.7 (29)	.7 (43)	-2.5 (19)	-1.2 (15)			
		.3 (37)	-.4 (76)	-.4 (116)	.1 (46)	.8 (51)	-.9 (44)	-.1 (39)	-.1 (73)	.7 (56)	.5 (49)	-1.2 (18)	-.5 (54)	-.7 (98)	.9 (107)	1.0 (67)			
		-.4 (12)	.6 (34)	.7 (51)	-.1 (17)	-1.3 (12)	1.5 (25)	.2 (15)	.2 (28)	-1.1 (14)	-.9 (13)	2.0 (14)	.9 (24)	1.2 (44)	-1.6 (25)	-1.7 (13)			
Tired																			
	Not Tired	-2.2 (38)	-1.5 (101)	.4 (160)	1.4 (67)	2.3 (72)	-1.5 (44)	-1.1 (36)	.0 (72)	1.3 (59)	1.4 (51)	-1.5 (14)	-1.7 (36)	-.4 (95)	1.1 (95)	1.6 (65)			
	Tired	3.6 (36)	2.5 (60)	-.7 (52)	-2.4 (10)	-3.8 (3)	2.6 (31)	1.8 (22)	.0 (25)	-2.3 (8)	-2.3 (6)	2.7 (13)	3.1 (26)	.7 (33)	-2.0 (15)	-3.0 (4)			
		-2.0 (18)	-1.8 (42)	1.3 (91)	.2 (32)	2.3 (39)	-4.8 (20)	-1.9 (33)	.7 (79)	3.0 (73)	3.1 (65)	-2.6 (6)	-2.7 (21)	-.3 (63)	1.5 (76)	3.1 (52)			
		2.6 (27)	2.4 (46)	-1.7 (35)	-.2 (17)	-3.0 (4)	6.2 (69)	2.4 (40)	-1.0 (37)	-3.9 (9)	-4.0 (6)	3.6 (20)	3.7 (37)	.4 (38)	-2.0 (23)	-4.3 (0)			
Physical Activity																			
	Not Physically Active	2.0 (32)	.8 (53)	-.9 (56)	-.7 (20)	-.9 (19)	.2 (23)	-.2 (17)	.2 (30)	-1.2 (16)	1.0 (23)	1.1 (12)	-.6 (19)	.9 (50)	-1.2 (30)	.3 (24)			
	Physically Active	-1.4 (40)	-.5 (100)	.6 (148)	.5 (56)	.6 (56)	-.1 (55)	.2 (47)	-.1 (73)	.7 (60)	-.6 (43)	-.7 (17)	.4 (54)	-.6 (96)	.8 (95)	-.2 (51)			
		.9 (33)	.7 (63)	-.6 (68)	-.7 (25)	-.2 (26)	.2 (39)	1.1 (38)	-.2 (49)	-.3 (35)	-.7 (28)	1.5 (19)	1.1 (41)	.2 (64)	-1.6 (41)	-.3 (32)			
		-1.0 (20)	-.7 (46)	.7 (70)	.7 (29)	.2 (25)	-.2 (35)	-1.1 (24)	.2 (50)	.3 (37)	.7 (34)	-1.5 (7)	-1.2 (25)	-.2 (55)	1.7 (60)	.4 (33)			
Dietary Intake																			
	Poor Intake	-.8 (25)	.6 (73)	-.2 (87)	.0 (33)	.4 (35)	-.6 (32)	.2 (32)	.9 (57)	.3 (38)	-1.1 (24)	.3 (15)	-.6 (28)	1.0 (75)	-1.1 (50)	.5 (37)			
	Good Intake	.8 (37)	-.5 (70)	.2 (100)	.0 (36)	-.3 (34)	.6 (38)	-.2 (29)	-1.0 (42)	-.3 (33)	1.1 (35)	-.3 (13)	.6 (35)	-1.0 (59)	1.1 (66)	-.5 (31)			
		-.9 (36)	-.2 (84)	.4 (116)	.6 (49)	.1 (44)	-.2 (58)	-.1 (50)	-.4 (77)	.5 (64)	.4 (55)	-.1 (20)	-.6 (51)	-.3 (93)	.5 (89)	.4 (57)			
		1.9 (16)	.5 (23)	-.8 (23)	-1.2 (7)	-.1 (10)	.5 (15)	.2 (12)	.9 (22)	-1.0 (10)	-.8 (9)	.2 (5)	1.3 (17)	.5 (24)	-.9 (15)	-.9 (9)			
Breakfast																			
	No Breakfast	1.1 (29)	.8 (56)	-.7 (61)	1.2 (31)	-2.3 (14)	1.6 (35)	.9 (26)	-1.0 (29)	-.5 (24)	-.9 (18)	1.1 (12)	1.1 (28)	.3 (48)	-.7 (36)	-1.2 (18)			
	Breakfast	-.8 (41)	-.6 (92)	.5 (137)	-.9 (43)	1.6 (61)	-1.2 (41)	-.7 (36)	.7 (70)	.3 (51)	.7 (45)	-.8 (15)	-.8 (42)	-.2 (94)	.5 (88)	.9 (56)			
		.2 (30)	.2 (61)	.1 (79)	.4 (33)	-1.0 (24)	.9 (46)	.6 (39)	-.2 (53)	-.1 (39)	-1.2 (28)	1.1 (18)	.9 (42)	.9 (71)	-1.2 (48)	-1.3 (28)			
		-.2 (23)	-.2 (48)	-.1 (63)	-.5 (23)	1.1 (30)	-1.0 (28)	-.7 (26)	.3 (48)	.1 (34)	1.3 (37)	-1.2 (8)	-1.0 (26)	-.9 (48)	1.3 (58)	1.4 (38)			

Table 62: Standardized Residuals from Chi-square analyses with Weight Status and Environmental Factors

(Grade 6) (Grade 9) (Grade 12)	Gr 6 Weight Status								Gr 9 Weight Status								Gr 12 Weight Status							
	Under res	Normal (n)	Normal res	(n)	Over res	(n)	Obese res	(n)	Under res	(n)	Normal res	(n)	Over res	(n)	Obese res	(n)	Under res	(n)	Normal res	(n)	Over res	(n)	Obese res	(n)
BBBF Community																								
Not BBBF BBBF	-1.3	(7)	0.3	(122)	-0.5	(34)	0.7	(38)	-0.8	(1)	0.0	(58)	0.3	(18)	-0.1	(10)	0.3	(13)	0.1	(172)	-0.5	(25)	0.2	(17)
	1.0	(26)	-0.2	(219)	0.4	(73)	-0.5	(59)	0.6	(6)	0.0	(119)	-0.2	(33)	0.1	(22)	-0.3	(15)	0.0	(228)	0.4	(39)	-0.2	(21)
	0.3	(17)	-1.1	(157)	1.2	(68)	0.5	(48)	0.0	(3)	-0.2	(77)	0.2	(24)	0.2	(15)	1.6	(23)	-0.7	(229)	0.4	(40)	0.2	(26)
	-0.4	(11)	1.2	(148)	-1.4	(36)	-0.6	(31)	0.0	(4)	0.2	(106)	-0.2	(29)	-0.2	(18)	-2.0	(4)	0.8	(165)	-0.5	(22)	-0.3	(15)
	0.3	(14)	-0.5	(125)	0.9	(51)	-0.2	(37)	-0.2	(2)	-0.6	(63)	0.7	(25)	0.4	(13)	1.6	(18)	-0.3	(205)	-0.3	(31)	0.0	(20)
	-0.4	(10)	0.5	(121)	-0.9	(34)	0.2	(35)	0.2	(3)	0.5	(84)	-0.7	(22)	-0.4	(12)	-1.8	(4)	0.3	(169)	0.3	(27)	0.0	(16)
Immigration Status																								
Born in Canada Not Born in Canada	-0.2	(18)	0.2	(196)	0.0	(62)	-0.4	(52)	0.9	(6)	-0.5	(100)	-0.1	(30)	0.9	(23)	-2.0	(8)	0.3	(234)	0.1	(37)	0.5	(24)
	0.2	(15)	-0.3	(144)	0.0	(47)	0.5	(45)	-1.1	(1)	0.6	(76)	0.1	(21)	-1.1	(9)	2.3	(20)	-0.4	(167)	-0.1	(27)	-0.6	(14)
	0.3	(17)	0.2	(177)	-0.6	(55)	0.0	(45)	0.9	(6)	-0.4	(105)	-0.5	(29)	1.2	(25)	-1.8	(8)	0.0	(220)	0.6	(38)	0.9	(27)
	-0.3	(11)	-0.3	(128)	0.6	(49)	0.0	(34)	-1.1	(1)	0.5	(78)	0.6	(24)	-1.4	(8)	2.0	(19)	0.0	(175)	-0.6	(24)	-1.0	(14)
	-0.2	(16)	0.6	(171)	-0.8	(50)	-0.3	(44)	0.9	(6)	-0.5	(92)	-0.4	(28)	1.2	(24)	-1.7	(10)	0.1	(249)	0.2	(38)	0.7	(28)
	0.2	(13)	-0.7	(113)	0.9	(47)	0.3	(36)	-1.1	(1)	0.6	(71)	0.5	(23)	-1.4	(8)	1.9	(20)	-0.2	(186)	-0.2	(27)	-0.8	(15)
Self Esteem																								
Low Moderate High	-0.2	(3)	-0.8	(31)	0.9	(14)	0.6	(12)	-0.7	(0)	-0.6	(12)	0.8	(6)	0.9	(4)	0.2	(3)	-0.7	(31)	1.0	(8)	0.9	(5)
	0.5	(20)	-0.1	(192)	-0.5	(57)	0.4	(58)	0.4	(4)	0.4	(96)	-0.8	(24)	-0.1	(16)	-0.8	(12)	0.1	(203)	0.1	(33)	0.1	(19)
	-0.5	(10)	0.5	(130)	0.2	(40)	-0.9	(30)	-0.1	(2)	-0.2	(59)	0.6	(21)	-0.3	(10)	0.8	(13)	0.2	(143)	-0.6	(20)	-0.6	(11)
	0.5	(4)	-1.6	(29)	1.6	(17)	1.2	(14)	-0.3	(1)	-0.6	(29)	-0.3	(9)	1.9	(11)	-1.3	(1)	-0.2	(50)	0.7	(9)	0.9	(8)
	-0.6	(9)	0.1	(137)	-0.4	(38)	0.5	(39)	0.2	(4)	0.0	(93)	0.7	(32)	-0.9	(14)	0.4	(13)	-0.2	(174)	0.1	(25)	0.0	(20)
	0.4	(7)	1.0	(84)	-0.6	(20)	-1.5	(13)	0.0	(2)	0.5	(55)	-0.7	(13)	-0.3	(9)	0.4	(7)	0.4	(95)	-0.7	(10)	-0.7	(8)
	-1.0	(0)	0.0	(10)	-1.3	(1)	1.9	(6)	-0.5	(0)	0.6	(8)	-1.4	(0)	0.7	(2)	-0.1	(1)	-0.8	(12)	1.8	(5)	0.4	(2)
	2.3	(22)	-0.3	(132)	-0.2	(44)	-0.6	(35)	1.0	(5)	-0.5	(69)	0.4	(26)	0.1	(14)	-0.1	(15)	0.3	(225)	-1.4	(25)	0.9	(26)
	-2.1	(5)	0.3	(130)	0.6	(46)	0.0	(36)	-0.8	(2)	0.3	(80)	0.0	(25)	-0.3	(13)	0.1	(14)	-0.1	(194)	1.0	(35)	-1.0	(15)
Popularity																								
Low Moderate High Very High	-0.2	(2)	-0.6	(22)	-0.6	(6)	1.9	(12)	1.0	(1)	-0.2	(10)	-0.1	(3)	0.1	(2)	0.0	(2)	-0.7	(22)	-0.5	(3)	2.9	(7)
	-0.9	(4)	-0.1	(65)	0.1	(21)	0.5	(21)	-1.1	(0)	-0.1	(33)	0.9	(13)	-0.5	(5)	-1.0	(3)	-0.2	(68)	1.1	(15)	0.1	(7)
	1.3	(20)	0.3	(160)	-0.7	(44)	-0.7	(40)	0.2	(3)	0.3	(78)	-1.0	(18)	0.4	(15)	1.0	(16)	0.4	(167)	-1.4	(19)	-0.3	(14)
	-0.7	(8)	-0.1	(108)	1.0	(40)	-0.5	(28)	0.2	(2)	-0.2	(49)	0.5	(17)	-0.1	(9)	-0.4	(8)	0.1	(123)	1.0	(24)	-1.1	(8)
	0.1	(1)	-0.6	(10)	-0.9	(2)	2.1	(7)	-0.4	(0)	-0.8	(4)	0.9	(3)	0.9	(2)	-1.0	(0)	-0.5	(14)	-0.8	(1)	3.2	(6)
	-0.6	(2)	-0.4	(37)	1.1	(16)	-0.1	(10)	2.1	(3)	-0.3	(26)	0.6	(10)	-0.9	(3)	-0.2	(3)	0.2	(54)	-0.9	(5)	0.5	(7)
	0.2	(8)	-0.2	(96)	-0.3	(28)	0.6	(29)	-0.3	(2)	-0.1	(73)	-0.4	(20)	0.9	(17)	0.0	(8)	0.0	(128)	0.5	(20)	-0.6	(12)
	0.2	(8)	0.6	(102)	-0.1	(29)	-1.3	(19)	-0.9	(1)	0.5	(74)	-0.2	(20)	-0.6	(11)	0.5	(9)	0.0	(118)	0.4	(18)	-0.9	(10)
	0.2	(2)	-0.1	(17)	-0.8	(4)	1.0	(7)	-0.7	(0)	0.5	(12)	-0.7	(2)	0.1	(2)	0.8	(3)	-0.6	(24)	0.0	(4)	1.4	(5)
	1.6	(8)	-0.2	(44)	0.4	(17)	-1.0	(9)	0.8	(2)	-0.6	(23)	0.6	(10)	0.1	(5)	0.0	(5)	0.4	(75)	-0.8	(8)	-0.4	(6)
	0.7	(11)	0.1	(90)	-0.2	(29)	-0.5	(22)	0.5	(3)	0.1	(53)	0.0	(17)	-0.5	(8)	0.1	(11)	0.2	(153)	-1.2	(17)	0.7	(18)
	-1.7	(6)	0.1	(120)	0.2	(41)	0.6	(36)	-0.6	(2)	0.0	(70)	-0.1	(22)	0.3	(14)	-0.4	(11)	-0.2	(177)	1.6	(35)	-0.9	(14)
Emotional Disorder																								
No Disorder Disordered	0.3	(26)	0.1	(261)	0.1	(84)	-0.4	(71)	-0.2	(4)	0.6	(130)	-0.3	(36)	-1.1	(17)	-0.6	(18)	0.6	(291)	-0.2	(44)	-1.1	(19)
	-0.5	(7)	-0.1	(88)	-0.2	(27)	0.7	(29)	0.3	(2)	-1.1	(37)	0.4	(15)	1.8	(13)	1.1	(10)	-1.0	(86)	0.4	(17)	1.9	(14)
	-0.2	(14)	0.2	(190)	-0.3	(54)	0.0	(49)	0.8	(7)	0.0	(132)	0.4	(42)	-0.8	(21)	0.1	(16)	-0.2	(237)	0.2	(35)	0.2	(28)
	0.4	(6)	-0.4	(61)	0.4	(21)	0.0	(17)	-1.3	(0)	0.1	(47)	-0.7	(11)	1.4	(13)	-0.1	(5)	0.3	(82)	-0.4	(10)	-0.3	(8)
	-0.3	(24)	-0.1	(258)	0.2	(89)	0.0	(73)	0.1	(7)	0.0	(150)	-0.2	(47)	0.3	(29)	0.0	(28)	0.1	(408)	-0.2	(59)	-0.2	(39)
	1.2	(3)	0.2	(16)	-0.9	(3)	-0.1	(4)	-0.6	(0)	0.2	(9)	0.8	(4)	-1.2	(0)	0.0	(2)	-0.5	(27)	0.7	(6)	0.6	(4)
Parent Education																								
0 > HS 1 > HS 2 > HS	-0.4	(8)	0.1	(95)	-1.1	(24)	1.2	(33)	0.0	(2)	-0.9	(43)	0.2	(15)	1.7	(14)	-0.2	(7)	-0.2	(104)	-1.2	(12)	2.5	(18)
	-2.0	(5)	0.2	(123)	1.0	(45)	-0.4	(32)	-1.0	(1)	0.3	(68)	-0.2	(18)	0.0	(12)	-1.5	(5)	0.5	(144)	0.2	(23)	-0.6	(11)
	2.2	(20)	-0.3	(123)	-0.1	(40)	-0.7	(32)	1.0	(4)	0.5	(66)	0.0	(18)	-1.6	(6)	1.5	(16)	-0.3	(153)	0.8	(29)	-1.5	(9)
	0.3	(8)	-0.2	(77)	0.2	(28)	0.1	(21)	-0.7	(1)	-0.3	(48)	-0.4	(13)	1.6	(14)	-0.8	(5)	0.3	(108)	-1.6	(10)	1.6	(16)
	0.0	(10)	0.3	(113)	0.1	(38)	-0.7	(25)	1.2	(4)	0.2	(60)	-0.7	(14)	-0.2	(10)	0.0	(9)	-0.3	(127)	0.5	(23)	0.4	(15)
	-0.2	(10)	-0.1	(115)	-0.2	(38)	0.5	(33)	-0.5	(2)	0.1	(75)	1.0	(26)	-1.2	(9)	0.6	(13)	0.0	(160)	0.8	(29)	-1.6	(10)

		-0.1	(9)	-0.2	(96)	0.2	(32)	0.2	(29)	-0.1	(2)	-0.4	(54)	-0.7	(14)	1.9	(17)	-0.5	(7)	0.1	(123)	-0.8	(15)	1.3	(17)
		-0.2	(12)	-0.4	(127)	0.3	(44)	0.6	(41)	1.0	(4)	0.2	(67)	0.0	(19)	-0.9	(9)	0.4	(12)	-0.4	(149)	0.8	(27)	-0.1	(15)
		0.3	(13)	0.6	(129)	-0.5	(36)	-0.8	(30)	-0.9	(1)	0.2	(64)	0.6	(21)	-0.8	(9)	0.1	(11)	0.3	(155)	0.0	(23)	-1.1	(11)
Financial Status																									
	< LICO	-2.0	(8)	-0.1	(166)	0.9	(59)	0.5	(51)	-1.8	(0)	0.4	(86)	-0.8	(20)	0.8	(18)	-0.4	(11)	0.0	(180)	-0.7	(25)	1.2	(22)
	≥ LICO	2.0	(25)	0.1	(175)	-0.9	(48)	-0.5	(45)	1.7	(7)	-0.4	(91)	0.7	(31)	-0.8	(14)	0.4	(17)	0.0	(220)	0.6	(39)	-1.1	(16)
		-1.4	(9)	0.3	(152)	0.9	(53)	-0.6	(38)	-1.3	(1)	0.6	(92)	-1.0	(20)	0.6	(18)	0.6	(15)	-0.3	(178)	-0.4	(27)	0.9	(21)
		1.3	(24)	-0.2	(189)	-0.8	(54)	0.5	(58)	1.3	(6)	-0.5	(85)	1.0	(31)	-0.6	(14)	-0.6	(13)	0.3	(222)	0.4	(37)	-0.8	(17)
		-1.1	(9)	-0.4	(130)	0.9	(48)	0.5	(41)	0.0	(3)	-0.1	(73)	-0.1	(21)	0.4	(15)	-0.5	(11)	-0.2	(181)	0.5	(32)	0.6	(20)
		0.9	(24)	0.3	(211)	-0.7	(59)	-0.4	(55)	0.0	(4)	0.1	(104)	0.1	(30)	-0.4	(17)	0.5	(17)	0.2	(219)	-0.4	(32)	-0.6	(18)
Parent Weight Status																									
	Underweight	3.8	(3)	0.1	(5)	-1.2	(0)	-1.1	(0)	-0.3	(0)	0.1	(3)	0.3	(1)	-0.6	(0)	0.7	(1)	0.1	(8)	-0.1	(1)	-0.8	(0)
	Normal Weight	1.2	(19)	1.0	(165)	-1.7	(35)	-0.8	(34)	0.1	(4)	0.9	(97)	-1.4	(17)	-0.5	(11)	0.4	(14)	0.7	(194)	-0.6	(24)	-1.9	(9)
	Overweight	-1.9	(3)	0.2	(93)	1.4	(35)	-0.7	(20)	-0.7	(1)	-0.1	(47)	0.1	(13)	0.5	(8)	-0.9	(5)	0.5	(112)	-0.5	(14)	-0.2	(9)
	Obese	-0.7	(4)	-1.8	(45)	1.4	(24)	2.5	(25)	1.1	(2)	-1.7	(14)	2.5	(12)	0.5	(4)	0.3	(5)	-1.9	(50)	1.7	(15)	3.8	(15)
		0.9	(1)	0.4	(5)	-0.3	(1)	-1.0	(0)	-0.3	(0)	0.0	(2)	0.6	(1)	-0.5	(0)	1.0	(1)	-0.6	(4)	1.4	(2)	-0.7	(0)
		1.2	(17)	1.2	(148)	-1.8	(30)	-1.2	(25)	0.3	(4)	1.3	(93)	-1.9	(14)	-0.9	(9)	1.0	(16)	1.0	(187)	-1.6	(17)	-2.2	(8)
		-0.3	(8)	-0.4	(90)	1.0	(35)	-0.1	(22)	-0.9	(1)	-0.2	(58)	0.8	(20)	-0.2	(8)	-0.9	(6)	-0.3	(119)	1.3	(23)	0.2	(13)
		-1.7	(1)	-1.5	(40)	1.6	(22)	2.3	(20)	0.8	(2)	-2.0	(17)	1.9	(13)	2.0	(8)	-0.7	(3)	-1.1	(53)	0.4	(10)	3.6	(15)
		1.7	(2)	0.5	(7)	-1.4	(0)	-0.5	(1)	-0.4	(0)	-0.2	(3)	0.0	(1)	0.6	(1)	1.5	(2)	-0.3	(9)	0.5	(2)	-0.9	(0)
		0.3	(12)	2.0	(118)	-2.2	(20)	-1.5	(19)	1.1	(4)	0.7	(63)	-0.2	(17)	-1.9	(4)	0.2	(12)	1.3	(166)	-1.7	(14)	-2.3	(5)
		0.1	(10)	-0.3	(84)	0.8	(33)	-0.3	(22)	-1.5	(0)	0.8	(59)	-0.6	(14)	-0.4	(8)	-0.3	(9)	-0.6	(128)	1.0	(24)	1.1	(16)
		-1.0	(4)	-2.3	(40)	2.5	(30)	2.4	(25)	0.5	(2)	-1.7	(26)	0.9	(14)	2.7	(13)	-0.4	(5)	-0.8	(74)	0.9	(15)	2.1	(13)
Single Parent																									
	Not Single Parent	0.9	(28)	-0.4	(240)	0.1	(80)	0.1	(71)	0.8	(7)	-0.5	(126)	0.3	(40)	0.4	(26)	0.4	(23)	-0.4	(295)	1.3	(57)	-0.7	(25)
	Single Parent	-1.4	(5)	0.7	(101)	-0.2	(29)	-0.2	(26)	-1.3	(0)	0.9	(51)	-0.6	(11)	-0.8	(6)	-0.7	(5)	0.7	(106)	-2.2	(7)	1.2	(13)
		0.8	(23)	-0.2	(211)	-0.5	(69)	0.5	(59)	0.4	(6)	-0.4	(127)	0.2	(39)	0.5	(26)	0.2	(20)	-0.2	(278)	1.3	(53)	-1.0	(24)
		-1.2	(5)	0.3	(94)	0.7	(35)	-0.7	(20)	-0.7	(1)	0.6	(56)	-0.3	(14)	-0.8	(7)	-0.3	(7)	0.4	(117)	-2.1	(9)	1.5	(17)
		0.1	(21)	-0.2	(186)	0.5	(70)	-0.3	(53)	0.4	(6)	-0.4	(111)	0.1	(36)	0.5	(23)	0.4	(23)	-0.3	(287)	0.6	(49)	-0.2	(27)
		-0.1	(8)	0.2	(78)	-0.9	(22)	0.5	(25)	-0.6	(1)	0.6	(45)	-0.2	(12)	-0.9	(5)	-0.7	(6)	0.4	(115)	-1.0	(13)	0.4	(12)
Tired																									
	Not Tired	0.5	(24)	0.6	(251)	0.0	(67)	-1.5	(58)	-0.6	(2)	0.5	(124)	0.1	(36)	-0.9	(20)	0.2	(18)	0.2	(257)	0.1	(45)	-0.8	(21)
	Tired	-0.9	(5)	-1.1	(74)	0.0	(23)	2.5	(37)	1.1	(2)	-0.9	(30)	-0.2	(10)	1.7	(12)	-0.3	(5)	-0.3	(80)	-0.1	(14)	1.4	(12)
		-0.2	(10)	0.4	(138)	0.3	(47)	-1.1	(27)	0.2	(3)	0.1	(97)	0.3	(27)	-0.6	(16)	0.3	(12)	0.2	(181)	-0.1	(23)	-0.8	(14)
		0.3	(7)	-0.6	(72)	-0.4	(24)	1.5	(26)	-0.3	(1)	-0.1	(49)	-0.4	(12)	0.8	(12)	-0.4	(5)	-0.3	(97)	0.2	(14)	1.1	(13)
Physical Activity																									
	Not Physically	0.0	(11)	-0.6	(107)	0.6	(40)	0.4	(35)	0.9	(3)	0.1	(51)	-0.3	(14)	-0.1	(9)	0.4	(10)	-0.5	(109)	0.7	(21)	0.3	(12)
	Physically Active	0.0	(23)	0.4	(244)	-0.4	(72)	-0.3	(66)	-0.6	(3)	0.0	(116)	0.2	(36)	0.1	(22)	-0.3	(19)	0.3	(269)	-0.4	(39)	-0.2	(24)
		1.1	(13)	-0.7	(122)	0.9	(44)	-0.2	(34)	1.2	(6)	-0.6	(84)	-0.3	(26)	1.0	(22)	0.7	(12)	-0.2	(160)	-0.3	(22)	0.3	(20)
		-1.2	(5)	0.7	(123)	-0.9	(29)	0.3	(33)	-1.3	(1)	0.6	(88)	0.3	(27)	-1.1	(12)	-0.7	(7)	0.2	(152)	0.3	(23)	-0.3	(16)
Dietary Intake																									
	Poor Intake	0.7	(18)	-0.6	(147)	0.7	(54)	-0.1	(42)	-0.3	(2)	-0.1	(73)	0.4	(24)	-0.2	(12)	-0.7	(10)	-0.1	(166)	0.1	(29)	0.9	(18)
	Good Intake	-0.6	(14)	0.6	(173)	-0.7	(48)	0.1	(46)	0.3	(3)	0.1	(80)	-0.4	(22)	0.1	(14)	0.7	(16)	0.1	(181)	-0.1	(30)	-0.9	(12)
		-0.5	(14)	0.2	(198)	-0.4	(56)	0.3	(55)	-0.2	(5)	-0.2	(137)	0.5	(45)	-0.2	(25)	0.2	(17)	0.2	(259)	-0.9	(30)	0.2	(30)
		1.0	(6)	-0.4	(47)	0.8	(18)	-0.6	(11)	0.4	(2)	0.3	(40)	-1.0	(8)	0.3	(8)	-0.4	(3)	-0.5	(57)	1.9	(14)	-0.4	(6)
Breakfast																									
	No Breakfast	-0.7	(9)	-0.6	(106)	0.8	(40)	0.6	(36)	0.9	(3)	-0.2	(47)	-1.1	(11)	1.6	(13)	-1.1	(6)	-0.3	(116)	0.6	(22)	1.2	(15)
	Breakfast	0.5	(25)	0.4	(233)	-0.5	(67)	-0.4	(62)	-0.6	(3)	0.1	(113)	0.7	(40)	-1.0	(15)	0.8	(23)	0.2	(251)	-0.4	(37)	-0.8	(19)
		-1.4	(6)	-0.2	(130)	0.4	(41)	0.7	(39)	-1.4	(1)	-0.2	(89)	0.5	(30)	0.4	(19)	-1.2	(7)	0.2	(168)	0.3	(25)	0.1	(19)
		1.5	(14)	0.2	(122)	-0.5	(32)	-0.7	(28)	1.4	(6)	0.2	(90)	-0.5	(24)	-0.4	(15)	1.2	(14)	-0.2	(152)	-0.4	(20)	-0.1	(17)

APPENDIX B: INTERVIEW GUIDES AND QUESTIONNAIRES

Appendix B: Interview Guides and Questionnaires

GRADE SIX OLDER FOCAL & FOLLOWING PARENT INTERVIEW

childid	UNIQUE CHILD ID
site	SITE
cohort	COHORT
sexchild	SEX OF CHILD
bdy	CHILD'S UNIVERSAL BIRTH DATE (YEAR)
bdm	CHILD'S UNIVERSAL BIRTH DATE (MONTH)
bdd	CHILD'S UNIVERSAL BIRTH DATE (DAY)
pdatai	PARENT DATASET (0 = NO, 1 = YES)
tdatai	TEACHER DATASET (0 = NO, 1 = YES)
cdatai	CHILD MEASURES DATASET (0 = NO, 1 = YES)
gdatai	GROWTH MEASURES DATASET (0 = NO, 1 = YES)
pwdati	PROVINCE-WIDE DATA
intdatyi	YEAR OF INTERVIEW
intdatmi	MONTH OF INTERVIEW
intdatdi	DAY OF INTERVIEW
intrvidi	INTERVIEWER ID
respodi	RESPONDENT CODE (SEE APPENDIX A)
qfranc	USE OF FRENCH AND ENGLISH BY RESPONDENT (J K TO G3 COMBINED) (SEE APPENDIX A)

SECTION A

ingrsyil ingrscmi	A.2 How long has (name of child) lived in this neighbourhood? (RECORD YEARS AND MONTHS)
relachli	A.3 What is your relationship to (name of child)? Are you The biological mother/father 1 The adoptive mother/father 2 The stepmother/father 3 The foster mother/father 4 The guardian 5 In some other relationship to child .. 6 (PLEASE SPECIFY ON LONG FORM)
bdcyil bdcmil bdcdi	A.4 WHEN WAS (NAME OF CHILD) BORN? (RECORD YEAR, MONTH AND DAY)
sexri	A.5 What is the sex of the respondent? Male 1 Female 2
sexchildi	A.7 What is the sex of the child? Male 1 Female 2
pplehomi	A.8 How many people currently live in your home? (PROBE IF NECESSARY WITH "Could you tell me their relationship to you and (name of child)?")
	THE RESPONSE TO THIS QUESTION IS THE TOTAL NUMBER OF PEOPLE LIVING IN THE HOME, INCLUDING THE CHILD. QUESTIONS A.9 - A.15 REQUIRE A BREAKDOWN OF THE TOTAL RECORDED IN A.8.
	Establish how many are... (see following)
childhomi	A.9 The focal child
parnhomi	A.10 The child's parent(s)
sphomi	A.11 Spouse or partner who is not the child's parent
slbshomi	A.12 The child's brothers or sisters
granhomi	A.13 The child's grandparents
aunthomi	A.14 The child's aunts and uncles
othrhomi	A.15 Friends of family/Boarders/Others

lanhom1i lanhom2i	A.16 What are the main languages spoken at home? (RECORD THE TWO MOST IMPORTANT) Arabic 01 Chinese 02 English 03 French 04 German 05 Hindi 06 Italian 07 Ojibway 08 Polish 09 Portuguese 10 Somali 11 Urdu 12 Vietnamese 13 Punjabi 14 Other (PLEASE SPECIFY ON LONG FORM) .. 15
frenchi	FRENCH USE INDEX (SEE APPENDIX A)
evermari	A.17 Are you now or have you ever been married? No (GO TO A.21) 0 Yes 1
marrieni	A.18 How many times? Once 1 Twice 2 Three or more 3
whuswifl	A.20 Are you currently living with your husband/wife? No 0 Yes (A.25) 1
livparti	A.21 Are you living with a partner or in a common-law relationship? No (A.26) 0 Yes 1
livlongi	A.22 How long have you been living together? (RECORD NUMBER OF YEARS)
bdryi bdmri bdrdi	A.24 When were you born? (RECORD YEAR, MONTH & DAY)
bpri	A.25 Where were you born? In Canada... (GO TO A.28) Ontario 01 Outside Ontario 02

	Outside Canada... China 03 Germany 04 Hong Kong 05 India 06 Iran 07 Italy 08 Jamaica 09 Pakistan 10 Poland 11 Portugal 12 Somalia 13 Sri Lanka 14 Trinidad 15 United Kingdom 16 U.S.A. 17 Vietnam 18 Lebanon 19 Haiti 20 Other (SPECIFY ON LONG FORM) 21
immgrtyi	A.26 In what year did you immigrate to Canada? (RECORD '19' OR '20' FIRST TO INDICATE THE CENTURY AND THEN THE SPECIFIC YEAR)
singpari	SINGLE PARENT HOUSEHOLD (SEE APPENDIX A) Not single parent 0 Single parent 1
	* ONLY ASK QUESTIONS MARKED WITH * IF R IS LIVING WITH A HUSBAND, WIFE OR PARTNER, THAT IS IF R HAS ANSWERED "YES" TO A.20 OR A.21.
bdpyil bdpmi bdpdi	* A.27 When was your (husband/wife/partner) born? (RECORD YEAR, MONTH AND DAY)
bppli	* A.28 Where was your (husband/wife/partner) born? (USE CODES FROM A.25)
ethidr1i ethidr2i	A.30 How would you describe your ethnic identity? (RECORD UP TO TWO RESPONSES) Canadian 61 British origins British 01 British-Canadian 21 English (Anglosaxon) 02 English-Canadian 22 Irish 05

Appendix B: Interview Guides and Questionnaires

	<p>Irish-Canadian .....25</p> <p>Scottish .....03</p> <p>Scottish-Canadian .....23</p> <p>Welsh .....04</p> <p>Welsh-Canadian .....24</p> <p>French origins</p> <p>French .....06</p> <p>French-Canadian .....26</p> <p>Franco-Ontarian .....41</p> <p>Quebecois .....42</p> <p>European origins</p> <p>Dutch .....15</p> <p>Dutch-Canadian .....35</p> <p>German .....09</p> <p>German-Canadian .....29</p> <p>Greek .....74</p> <p>Greek-Canadian .....75</p> <p>Italian .....08</p> <p>Italian-Canadian .....28</p> <p>Polish .....11</p> <p>Polish-Canadian .....31</p> <p>Portuguese .....43</p> <p>Portuguese-Canadian .....44</p> <p>Scandinavian (Danish, Icelandic, Norwegian, Swedish) .....13</p> <p>Scandinavian-Canadian .....33</p> <p>Ukrainian .....07</p> <p>Ukrainian-Canadian .....27</p> <p>Other European (SPECIFY) .....93</p> <p>African Origins</p> <p>Somali .....47</p> <p>Other African (SPECIFY) .....94</p> <p>Asian origins</p> <p>Chinese .....18</p> <p>Chinese-Canadian .....38</p> <p>Indian .....49</p> <p>Iranian .....50</p> <p>Lebanese .....54</p> <p>Pakistani .....51</p> <p>Philipino .....67</p> <p>Punjabi .....52</p> <p>Sri Lankan .....53</p> <p>Vietnamese .....72</p> <p>Other Asian (SPECIFY) .....95</p> <p>American and Other origins</p> <p>American .....62</p> <p>Barbadians/Bajans .....58</p> <p>Central American (SPECIFY) .....96</p>	
	<p>Haitian .....59</p> <p>Jamaican .....56</p> <p>Metis .....63</p> <p>Native Indian .....19</p> <p>South American (SPECIFY) .....97</p> <p>Trinidadian .....57</p> <p>Other Caribbean (SPECIFY) .....98</p> <p>Other (SPECIFY) .....99</p>	
ethcodi	Cultural id crosstab code	
	Code as...	
	Anglo .....1	
	Franco .....2	
	Native .....3	
	Other .....4	
	Chinese .....5	
	Vietnamese .....6	
ethcod2i	CULTURAL ID CROSTAB CODE (SEE APPENDIX A)	
	(CODE AS ABOVE)	
ethidp1i	*A.33 How would you describe your (wife/husband/	
ethidp2i	partner's ethnic identity? (record up to two	
	responses, use codes from A.30)	
edlevlri	A.36 What is the highest level of schooling that	
	you have completed? (INCLUDE ANY PROGRAMS	
	TO PREPARE A PERSON FOR WORK)	
	No formal schooling (A.38).....01	
	Some primary school .....02	
	Primary school .....03	
	Some secondary or high school .....04	
	Completed secondary or	
	high school .....05	
	Some community college,	
	technical college, CEGEP,	
	or RN program without a	
	university degree (A.38).....06	
	Completed community college,	
	technical college, CEGEP,	
	or RN program without a	
	university degree (A.38).....07	
	Some university (not completed) (A.38).....08	
	University degree (completed):	
	B.A./B.Sc. (A.38).....09	
	University degree (completed):	
	Professional (e.g., law, nursing,	dentistry, medicine,
	commerce,	
	engineering) degree (A.38).....10	
	University degree (completed):	
	M.A./Ph.D. (A.38).....11	
edyrsri	A.37 How many years of elementary and high	
	school have you successfully completed?	
educri	RS EDUCATION - COMBINED CODE (SEE APPENDIX A)	
edlevlpi	*A.38 What is the highest level of schooling that	
	your (husband/wife/partner) has completed?	
	No formal schooling (A.40).....01	
	Some primary school .....02	
	Primary school .....03	
	Some secondary or	
	high school .....04	
	Completed secondary or	
	high school .....05	
	Some community college,	
	technical college, CEGEP,	
	or RN program without a	
	university degree (A.40).....06	
	Completed community college,	
	technical college, CEGEP,	
	or RN program without a	
	university degree (A.40).....07	
	Some university	
	(not completed) (A.40).....08	
	University degree (completed)	
	B.A./B.Sc. (A.40).....09	
	University degree (completed)	
	Professional (e.g., law, nursing,	
	dentistry, medicine, commerce,	
	engineering) degree (A.40).....10	
	University degree (completed)	
	M.A./Ph.D. (A.40).....11	
edyrspi	*A.39 How many years of elementary and high	
	school has he/she successfully completed?	
educpi	PS EDUCATION - COMBINED CODE (SEE APPENDIX A)	
gradei	A.40 Is (name of child) going to school? (If yes	
	then probe: "Which grade?")	
	No .....0	
	Grade 4 .....6	
	Grade 5 .....7	
	Grade 6 .....8	
	Grade 7 .....9	
	Grade 8 .....10	
	Grade 9 .....11	
	Grade 10 .....12	
nisedu1i	A.41 How far do you hope (name of child) will go in	
	school?	
	1. Primary/elementary school	
	2. Secondary or high school	
	3. Community college or CEGEP	
	4. Trade, technical or vocational school, or business	
	college	
	5. University	
	6. Other	
	THE NEXT QUESTIONS ARE ABOUT PAID JOBS.	
	(ASK EVERYONE A.42. SKIP A.44 IF R HAS ANY KIND OF JOB.)	
ftimeri	A.42 Do you have a paid full-time job?	
	No .....0	
	Yes (GO TO A.45).....1	
ptimeri	A.43 Do you have a paid part-time job?	
	No .....0	
	Yes (GO TO A.45).....1	
jserchri	A.44 Are you looking for paid work?	
	(DO NOT ASK IF RESPONDENT HAS ANY KIND OF JOB)	
	No .....0	
	Yes .....1	
	FOR ALL R ASK A.45. IF R IS NOT CURRENTLY WORKING,	
	ASK ABOUT HIS/HER MOST RECENT JOB IF IT HAS BEEN	
	IN THE LAST 5 YEARS.	
	Now I would like some more information about the	
	most recent job you have had in the last 5 years.	
	A.45 What kind of work are/were you doing? (PROBE	
	IF NECESSARY: What is your job title?)	
	(RECORD ON LONG FORM)	
	What does/did this job involve? (Identify	
	most important duties or activities)	
	(RECORD ON LONG FORM)	
	What kind of business or organization do/did	
	you work in? (PROBE IF NECESSARY: what does it	
	do or make?)	
	(RECORD ON LONG FORM)	
nocri	1990 NATIONAL OCCUPATIONAL CLASSIFICATION, 4 DIGIT	CODES (SEE
	APPENDIX A)	
ccdiri	CANADIAN CLASSIFICATION AND DICTIONARY OF OCCUPATIONS, 4 DIGIT	
	CODES (SEE APPENDIX A)	
ppmri	PINEO, PORTER & MCROBERTS OCCUPATION CODES (SEE	APPENDIX A)
blshri	BLISHEN OCCUPATIONAL STANDING CODES (SEE APPENDIX A)	

Appendix B: Interview Guides and Questionnaires

main34ri	<p>People also do other kinds of work, even if they are not paid. Are you...</p> <p>A.47 Going to school or taking job training? No 0 Yes 1</p> <p>ASK EVERYONE WITH A PARTNER A.49*. SKIP A.51* IF THE PARTNER HAS ANY KIND OF JOB.</p>
ftimepi	<p>*A.49 Does your (husband/wife/partner) have a paid full-time job? No 0 Yes (GO TO A.52) 1</p>
ptimepi	<p>*A.50 Does he/she have a paid part-time job? No 0 Yes (GO TO A.52) 1</p>
jserchpi	<p>*A.51 Is he/she looking for paid work? (DO NOT ASK IF PARTNER HAS ANY KIND OF JOB) No 0 Yes 1</p> <p>Now I would like some more information about the most recent job your husband/wife/partner has had in the last 5 years.</p> <p>*A.52 What kind of work is/was your husband/wife/partner doing? (PROBE IF NECESSARY: What is his/her job title? (RECORD ON LONG FORM))</p> <p>What does/did this job involve? (Identify most important duties or activities) (RECORD ON LONG FORM)</p> <p>What kind of business or organization does/did he/she work in? (PROBE IF NECESSARY: what does it do or make?) (RECORD ON LONG FORM)</p>
nocpi	1990 NATIONAL OCCUPATIONAL CLASSIFICATION, 4 DIGIT CODES (PARTNER, SEE APPENDIX A)
ccdapi	CANADIAN CLASSIFICATION DICTIONARY OF OCCUPATIONS, 4 DIGIT CODES (PARTNER, APPENDIX A)
ppmpi	PINEO, PORTER & MCROBERTS OCCUPATION CODES (PARTNER) (SEE APPENDIX A)
blishpi	BLISHEN OCCUPATIONAL STANDING CODES (PARTNER, SEE APPENDIX A)

emfi	<p>FEMALE EMPLOYMENT (SEE APPENDIX A)</p> <p>Full time 1 Part time 2 Seeking work 3 Not seeking work 4</p>
emmi	<p>MALE EMPLOYMENT (SEE APPENDIX A)</p> <p>Full time 1 Part time 2 Seeking work 3 Not seeking work 4</p>

Note: Questions F.1 to F.3 were asked at the end of Section A (as A.60 to A.62) for the following cohort version of the interview. The following cohort version was done using CAPI and was used for all following cohort children as well as a focal children in Sudbury, English children in Ottawa-Vanier and anyone else interviewed in 2001-02.

main34pi	<p>*A.53 Is your partner going to school or taking job training? No 0 Yes 1</p>
mincomi mincom1i mincom2i	<p>Now I would like to ask you some questions about your monthly income and household expenses.</p> <p>A.54 What is your current total monthly household income from all sources before taxes or other deductions? (RECORD FULL AMOUNT, E.G., "EIGHT-FIFTY" AS 00850. USE 3 MONTH AVERAGE IF R SAYS IT CHANGES. PROBE: IF R IS UNABLE TO ANSWER THEN SAY "Could you give me a range?")</p>
moninci	MONTHLY INCOME AFTER IMPUTATION CODE (SEE APPENDIX A)
incimpi	<p>INCOME IMPUTED NO, INCOME NOT IMPUTED 0 YES, INCOME IMPUTED 1</p>
mfoodi	A.55 How much does your household pay for food each month? (DO NOT INCLUDE NON-FOOD ITEMS. RECORD FULL AMOUNT, E.G. "THREE SEVENTY-FIVE" AS 0375.)
mrenti	A.56 How much does your household pay for rent or in mortgage payments plus utilities and taxes each month? (Record full amount, e.g., "six hundred" as 0600. Include gas, oil and phone.)
disinci	DISPOSABLE INCOME (SEE APPENDIX A)
	Which of the following was true for your household in the past 3 months.
finstr1i	<p>A.57 Sometimes we didn't have enough money for our food and daily living expenses. True 1 Not true 2</p>
finstr2i	<p>A.58 We've had to go to a food bank. True 1 Not true 2</p>
finstr3i	<p>A.59 We have not been able to pay all of our bills. True 1 Not true 2</p>
finstrsi	FINANCIAL STRESS SCALE (SEE APPENDIX A)

SECTION B

	<p>Now we would like some information about your child's school and your involvement in your child's school. Please turn to page 1 of the response booklet and indicate the number that best completes each statement. The following are possible descriptions of his/her present school. For each, please indicate whether you strongly agree, agree, disagree, or strongly disagree, using the scale on page 1.</p> <p>Strongly agree 1 Agree 2 Disagree 3 Strongly disagree 4</p>
	B.41 Academic progress is very important at this school.
nlsch1i	
nlsch2i	B.42 Most children in this school enjoy being there.
nlsch3i	B.43 Parents are made to feel welcome in this school.
nlsch4i	B.44 School spirit is very high.
schlgood	SCHOOL GOOD (PARENT-TEACHER SCALE)(SEE APPENDIX A)
nisedu2i	<p>B.45 This school offers parents many opportunities to be involved in school activities.</p> <p>During this school year, have you done any of the following? No 0 Yes 1</p>
nisedu3i	B.46 Attended a school event in which child participated, for example a play, sports competition or science fair.
nisedu4i	B.47 Volunteered in child's class or helped with a class trip or helped elsewhere in the school.
nisedu5i	B.48 Attended a parent-school association, home and school liaison committee, parent advisory committee or parent council meeting.
nisedu6i	<p>B.49 Has your child repeated a grade? No 0 Yes 1</p>
nisedu7i	<p>B.50 Which ones? (Record all that apply.)</p> <p>Junior Kindergarten 1 Senior Kindergarten 2</p>

Appendix B: Interview Guides and Questionnaires

	Grade 1 3
	Grade 2 4
	Grade 3 5
	Grade 4 6
	Grade 5 7
	Grade 6 8
	Grade 7 9
	Grade 8 10
suspi	B.51 Has (name of child) been suspended from school during the last three years? No 0 Yes 1
suspi	B.52 How many times?
susp1i susp2i susp3i	B.53 How long was s/he suspended (each time)? Record up to three. If more than three, record the longest three.

SECTION D

	Please turn to page 2 of the booklet and use the answers to respond to the next set of questions. Now we have a list of statements about the feelings and behaviour of children. For each of them, could you tell me which of the responses on page 2 of the booklet best describes (name of child) now or within the last six months. So that would be since (month).	
	Never or not true 0	
	Sometimes or somewhat true 1	
	Often or very true 2	
ochsp01i	D.1 Argues a lot with adults.	
ochsp02i	D.2 Blames others for own mistakes.	
ochsp03i	D.3 Easily annoyed by others.	
ochsp04i	D.4 Angry and resentful.	
ochsp05i	D.5 Temper tantrums or hot temper.	
ochsp06i	D.6 Does things that annoy others.	
ochsp07i	D.7 Gets back at people.	
bbcq6bi	D.8 Can't sit still or is restless.	
ochsp09i	D.9 Defiant, talks back to adults.	

bbcq6gi	D.32 Gets into many fights.	
bbcq6ji	D.33 When mad at someone, tries to get others to dislike that person.	
bbcq6ki	D.34 Is not as happy as other children.	
bbcq6qi	D.35 Is too fearful or anxious.	
bbcq6ri	D.36 When mad at someone, becomes friends with another as revenge.	
behq74i	D.37 Helps those who do not do as well as s/he does.	
ochsp38i	D.38 Feels too guilty.	
bbcq6vi	D.39 Is worried.	
behq47i	D.40 When somebody accidentally hurts him/her s/he reacts with anger and fighting.	
bbcq6zi	D.41 When mad at someone, says bad things behind the other's back.	
bbcq6ai	D.42 Physically attacks people.	
bbcq6ci	D.43 Cries a lot.	
bbcq6iii	D.44 Appears miserable, unhappy, tearful, or distressed.	
bbcq6ffi	D.45 Threatens people.	
ochsp47i	D.46 Feels worthless or inferior.	
ochsp48i	D.47 Has difficulty making decisions.	
bbcq6hhi	D.48 Cannot settle to anything for more than a few minutes.	
bbcq6jji	D.49 Bullies or is mean to others.	
bbcq6nni	D.50 Kicks, bites, or hits other children.	
bbcq6lli	D.51 When mad at someone, says to others: let's not be with him/her.	
bbcq6qqi	D.52 Is inattentive.	
bbcq6rri	D.53 Has trouble enjoying him/herself.	
bbcq6tti	D.54 When mad at someone, tells the other one's secrets to a third person.	

ochsp10i	D.10 Can't concentrate, can't pay attention for long.
behq20i	D.11 Shows sympathy to someone who has made a mistake.
behq22i	D.12 Destroys his/her own things.
behq23i	D.13 Will try to help someone who has been hurt.
hahn74i	D.14 Stalks at home
ochsp15i	D.15 Fidgets.
behq28i	D.16 Volunteers to help clear up a mess someone else has made.
behq33i	D.17 Destroys things belonging to his/her family, or other children.
ochsp18i	D.18 Impulsive, acts without thinking.
ochsp19i	D.19 Has difficulty awaiting turn in games or groups.
behq34i	D.20 If there is a quarrel or dispute, will try to stop it.
ochsp21i	D.21 Distractible, has trouble sticking to any activity.
behq42i	D.22 Tells lies or cheats.
behq44i	D.23 Offers to help other children (friend, brother, or sister) who are having difficulty with a task.
behq52i	D.24 Comforts a child (friend, brother, or sister) who is crying or upset.
behq54i	D.25 Vandalizes.
behq58i	D.26 Spontaneously helps to pick up objects which somebody has dropped.
behq66i	D.27 Will invite others to join in a game.
ochsp28i	D.28 Is nervous, highstrung or tense.
behq67i	D.29 Steals outside his/her home.
behq71i	D.30 Helps other children (friends, brother, or sister) who are feeling sick.
bbcq6fi	D.31 Seems to be unhappy or sad.

ochspadi	OCHS PARENT ATTENTION DEFICIT SCALE (SEE APPENDIX A)
ochspdpi	OCHS PARENT DEPRESSION SCALE (SEE APPENDIX A)
ochsp1i	OCHS PARENT TOTAL SCALE (SEE APPENDIX A)
ochspini	OCHS PARENT INTERNALIZING SCALE (SEE APPENDIX A)
ochspoi	OCHS PARENT OVERANXIOUS SCALE (SEE APPENDIX A)
ochspodi	OCHS PARENT OPPOSITIONAL-DEFIANT SCALE (SEE APPENDIX A)
behq81i	D.55 Stayed out later than you said s/he should.
behq82i	D.56 Stayed out all night without permission.
behq83i	D.57 Skipped a day of school without permission.
behq84i	D.58 Gotten drunk.
behq85i	D.59 Been questioned by the police about anything they thought s/he might have done.
behq86i	D.60 Ever run away from home.
	The following questions are pertaining to (name of child's) health.
healthci	D.61 In general, would you say (name of child's) health is: Excellent 1 Very Good 2 Good 3 Fair 4 Poor 5
	I'm going to read through a list of physical and mental health conditions. Has a doctor ever told you that (name of child) has any of the following conditions and these have lasted or are expected to last 6 months or more: No 0 Yes 1
	D.62 Food or digestive allergies.
helth01i	
hitq45ai	D.63 Respiratory allergies such as hay fever.
hitq45bi	D.64 Any other allergies.

Appendix B: Interview Guides and Questionnaires

hitq45ci	D.65 Bronchitis.
helth06i	D.66 Heart condition or disease.
helth09i	D.67 Epilepsy.
helth08i	D.68 Cerebral palsy.
helth15i	D.69 Kidney condition or disease.
hitq45di	D.70 Mental handicap.
hitq45ei	D.71 Learning disability.
hitq45fi	D.72 Attention deficit disorder.
hitq45gi	D.73 Emotional, psychological or nervous difficulties.
helth16i	D.74 Any other long-term condition.
limsci	D.76 Does(do) this(these) condition(s) or health problem(s) prevent or limit your child's participation in school, at play, or any other activity normal for a child his/her age? No 0 Yes 1
hospi	D.77 In the past 12 months, was (name of child) an overnight patient in a hospital? No 0 Yes 1
hitq43ai	The following questions are about asthma. D.78 Has (name of child) ever had asthma that was diagnosed by a health professional? No (go to D.82) 0 Yes 1
hitq43bi	D.79 Does this condition or health problem prevent or limit (name of child's) participation in school, at play or any other activity normal for a child his/her age? No 0 Yes 1
hitq43ci	D.80 Has (name of child) had an attack of asthma in the last 12 months? No 0 Yes 1
hitq51ai	D.81 Does (name of child) take ventolin, inhalers, puffers or other medications for asthma?

	Yes 1
injnst4i	D.92 Cut, Scrape or Bruise No 0 Yes 1
injnst5i	D.93 Concussion No 0 Yes 1
injnst6i	D.94 Poisoning by Substance or Liquid No 0 Yes 1
injnst7i	D.95 Internal injury No 0 Yes 1
hitq39ci	D.98 Dental injury No 0 Yes 1
injnst8i	D.99 Other (PLEASE SPECIFY ON LONG FORM) No 0 Yes 1
hitq39di	D.98 Multiple injuries No 0 Yes 1
causini	D.99 What happened? For example, was the injury the result of a fall, motor vehicle collision, a physical assault, etc? (DO NOT READ LIST, MARK ONLY ONE.) 1. Motor vehicle collision-passenger 2. Motor vehicle collision-pedestrian 3. Motor vehicle collision-riding bicycle 4. Other bicycle accident 5. Fall (excluding bicycle or sports) 6. Sports (excluding bicycle) 7. Physical assault 8. Scalded by hot liquids or food 9. Accidental poisoning 10. Self-inflicted poisoning 11. Other intentionally self-inflicted injuries 12. Natural/environmental factors (ex. animal bite, sting) 13. Fire/flames or resulting fumes 14. Near drowning 15. Other 100. What is the single most important thing your child should know about smoking at this age? (RECORD ON LONG FORM)
teacsmoi	D.101 Who should teach him or her about this? (MARK ALL THAT APPLY)

	No 0 Yes 1
	Does (name of child) take any of the following prescribed medication on a regular basis? No 0 Yes 1
hitq51bi	D.82 Ritalin or other similar medications?
hitq51ci	D.83 Tranquilizers or nerve pills?
hitq51ei	D.84 Other? (Record on long answer form)
expsmoki	D.85 How many waking hours per week is (name of child) usually exposed to second-hand smoke? (Exposure is not limited to home. If R cannot think of a typical week then use the last 7 days. If R is not familiar with the term then rephrase, "...in a room with someone who is smoking." Note: maximum is about 112 hours. The following questions refer to injuries, such as a broken bone, bad cut or burn, head injury, poisoning, or a sprained ankle, which occurred in the past 12 months and were serious enough to require medical attention by a doctor, nurse, or dentist.
injurci	D.86 In the past 12 months was (name of child) injured? No (GO TO D.94) 0 Yes 1
injurnci	D.87 How many times was (name of child) injured? For the most serious injury, what type of injury did (name of child) have? (MARK ALL THAT APPLY)
injnst1i	D.88 Broken or fractured bones No 0 Yes 1
injnst2i	D.89 Burn or scald No 0 Yes 1
hitq39ai	D.90 Dislocation No 0 Yes 1
hitq39bi	D.91 Sprain or Strain No 0

	1. Parent 2. Teacher 3. Health Professional 4. Public ads or TV, billboards, etc. 5. Other
SECTION E	
aditreli	E.1 Besides yourself, how many adults or teenagers have an important relationship with your child? Please turn to page 4 of the response booklet to answer the following questions about things that [NAME OF CHILD] does and ways that you yourself as a parent react to him/her. Never 1 About once a week or less 2 More than once a week but less than once a day ... 3 One or two times a day 4 Many times each day 5
parnt13i	E.19 How often do you praise your child, by saying something like "Good for you!" or "what a nice thing you did!" "Thank you!" or "That's good going!"
parnt15i	E.20 How often do you and your child talk or play with each other, focusing attention on each other for five minutes or more, just for fun?
parnt17i	E.21 How often do you and your child laugh together?
parnt19i	E.22 How often do you tell your child that s/he is bad or not as good as others?
parnt20i	E.23 How often do you do something special with your child that he or she enjoys?
parnt21i	E.24 How often do you play sports, hobbies, or games with your child?
parnt22i	E.25 How often do you get annoyed with your child for saying or doing something he/she is not supposed to? Please turn to page 5 of the booklet. We know that when parents spend time with their children, some of the time things go well and some of the time they don't go well. I would like you to use the answers on page 5 to tell me what fraction, or proportion, of the time things turn out in different ways.

Appendix B: Interview Guides and Questionnaires

	<p>Never 1 Less than half the time 2 About half the time 3 More than half the time 4 All the time 5</p>				
parnt23i	E.26 Of all the times that you talk to your child about his or her behaviour, what proportion is praise?				
parnt24i	E.27 Of all the times that you talk to your child about his or her behaviour, what proportion is disapproval?				
parnt25i	E.28 When you give your child a command or order to do something, what proportion of the time do you make sure that your child does it?				
parnt26i	E.29 If you tell your child/s/he will get punished if s/he doesn't stop doing something, and s/he keeps doing it, how often will you punish him/her?				
parnt27i	E.30 How often does your child get away with things that you feel should have been punished?				
parnt28i	E.31 How often do you get angry when you punish your child?				
parnt29i	E.32 How often do you think that the kind of punishment you give your child depends on your mood?				
parnt30i	E.33 How often do you feel you are having problems managing your child in general?				
parnt31i	E.34 How often is your child able to get out of a punishment when s/he really sets his or her mind to it?				
parnt32i	E.35 How often when you discipline your child, does s/he ignore the punishment?				
parnt33i	E.36 How often do you have to discipline your child repeatedly for the same thing?				
parconsi	CONSISTENT PARENTING - NLSCY (SEE APPENDIX A)				
parhosti	HOSTILE-INEFFECTIVE PARENTING - NLSCY (SEE APPENDIX A)				
parposi	POSITIVE PARENT-CHILD INTERACTION - NLSCY (SEE APPENDIX A)				
parsati	PARENTAL SATISFACTION - FASTRACK (SEE APPENDIX A)				

	<p>Tension of Tension</p> <p>Go to section F.</p>				
SECTION F					
parq31Ai	F.1 Has <u>CHILD'S NAME</u> ever experienced being hungry because the family has run out of food or money to buy food?				
parq31Bi	F.2 How often? 2. Regularly, end of the month 3. More often than end of each month 4. Every few months 5. Occasionally, not a regular occurrence				
parq311i parq312i ...	F.3 How do you cope with feeding <u>CHILD'S NAME</u> when this happens? (DO NOT READ LIST. MARK ALL THAT APPLY.) 1. Parent/Guardian skips meals or eats less 2. Children skip meals or eat less 3. Cut down on variety of food family usually eats 4. Seek help from relatives 5. Seek help from friends 6. Seek help from social worker/government office 7. Seek help from food bank (emergency food program) 8. Use school meal program 9. Other				
SECTION G					
	<p>ASK QUESTIONS *G.7 - *G.25 IF R IS LIVING WITH A HUSBAND, WIFE OR PARTNER</p> <p>*G.7 All things considered, how satisfied or dissatisfied are you with your marriage or relationship with your partner? Which number from 0 to 10 comes the closest to how you feel, where 0 is completely dissatisfied and 10 is completely satisfied.</p> <p>0 1 2 3 4 5 6 7 8 9 10 Completely Completely Dissatisfied Satisfied</p> <p>No matter how well a couple gets along, there are times when they disagree, get annoyed or just have spats because they're in a bad mood or tired. They also have many different ways of trying to settle their differences. I'm going to read a list of some things people do when they have disputes. Could you tell me for each one whether you did it in the past year? (DO NOT PROBE FOR THIS SECTION)</p>				
marset2i					
conf10i	*G.8 Discussed the issue calmly				

	<p>Please turn to page 6 of the response booklet. Just about all children break the rules or do things that they are not supposed to. Also, parents reach in different ways. Please tell me how often you do each of the following when <u>NAME OF CHILD</u> breaks the rules or does things that s/he is not supposed to.</p> <p>Never 1 Rarely 2 Sometimes 3 Often 4 Always 5</p> <p>HOW OFTEN DO YOU:</p>				
parq19i	E.37 Tell him/her to stop?				
parq20i	E.38 Ignore it, do nothing?				
parq21i	E.39 Raise your voice, scold or yell at him/her?				
parq22i	E.40 Calmly discuss the problem?				
parq23i	E.41 Use physical punishment?				
parq24i	E.42 Describe alternative ways of behaving that are acceptable?				
parq25i	E.43 Take away privileges or put in room?				
tensio1i	If R is not working for pay go to E.45 and code E.44 as "NA"				
	E.44 Trying to raise children well and to do the other things we want or need to do can be demanding. How much tension would you say you feel in juggling your job, housework, family and child-rearing, and other things, on a scale where 0 means no tension and 10 means a great deal of tension?				
	0 1 2 3 4 5 6 7 8 9 10 No A Great Deal Tension of Tension				
	Go to section F.				
tensio2i	E.45 Trying to raise children well and to do the other things we want or need to do, can be demanding. How much tension would you say you feel in juggling your housework, family and child-rearing, and other things, on a scale where 0 means no tension and 10 means a great deal of tension?				
	0 1 2 3 4 5 6 7 8 9 10 No A Great Deal				

	<p>No 0 Yes 1</p>				
conf102i	*G.9 Brought in or tried to bring in someone to help settle things				
	No 0 Yes 1				
conf103i	*G.10 Sulked and/or refused to talk about it				
	No 0 Yes 1				
conf104i	*G.11 Threw something at your partner				
	No 0 Yes 1				
conf105i	*G.12 Pushed, grabbed, or shoved your partner				
	No 0 Yes 1				
conf106i	*G.13 Slapped your partner				
	No 0 Yes 1				
conf107i	*G.14 Kicked, bit, or hit with a fist				
	No 0 Yes 1				
conf108i	*G.15 Hit or tried to hit with something				
	No 0 Yes 1				
conf109i	*G.16 Beat up your partner				
	No 0 Yes 1				
	And what about (him/her)? Could you tell me whether (he/she) ever did the following in the past year?				
conf110i	*G.17 Discussed the issue calmly				
	No 0 Yes 1				
conf111i	*G.18 Brought in or tried to bring in someone to help settle things				
	No 0 Yes 1				
conf112i	*G.19 Sulked and/or refused to talk about it				
	No 0 Yes 1				

Appendix B: Interview Guides and Questionnaires

conf13i	*G.20 Threw something at you No 0 Yes 1
conf14i	*G.21 Pushed, grabbed, or shoved you No 0 Yes 1
conf15i	*G.22 Slapped you No 0 Yes 1
conf16i	*G.23 Kicked, bit, or hit with a fist No 0 Yes 1
conf17i	*G.24 Hit or tried to hit with something No 0 Yes 1
conf18i	*G.25 Beat you up No 0 Yes 1
violpi	VIOL-P (SEE APPENDIX A)
violri	VIOL-R (SEE APPENDIX A)

SECTION H

	Please turn to page 7 in your booklet. Here are some statements about families and family relationships. Families take different forms. Here I would like you to think of your experience in your own family. For each statement, please tell me whether you strongly agree, agree, disagree or strongly disagree. Strongly agree 1 Agree 2 Disagree 3 Strongly disagree 4
fad02i	H.1 In times of crisis we can turn to each other for support.
fad05i	H.2 We avoid discussing our fears and concerns.
fad07i	H.3 There are lots of bad feelings in our family.
fad08i	H.4 We feel accepted for what we are.

fad10i	H.5 We are able to make decisions about how to solve problems.
fad11i	H.6 We don't get along well together.
fad12i	H.7 We confide in each other.
fadi	FAMILY ASSESSMENT SCALE (SEE APPENDIX A)

SECTION I

	I'd like to ask you about some of your social activities. In the last month, how often did you...
social1i	I.1 Get together with friends?(RECORD # OF TIMES)
social2i	I.2 Get together with other families in your community?
social6i	I.6 Attend spiritual services for example at a church, mosque, synagogue or temple? Please turn to page 8 in your booklet. Now for the next few questions, I would like you to think back over the last year. In the last year, how often did you...
recevn1i	I.7 Attend or take part in a recreational event in the community, e.g. a sporting event or concert? Not at all 0 Occasionally 1 Frequently 2
recevn2i	I.8 Work with a children's group, club or team? Not at all 0 Occasionally 1 Frequently 2
recevn3i	I.9 Help with a neighbourhood or community social event, e.g., by organizing or making food for it? Not at all 0 Occasionally 1 Frequently 2
recevn4i	I.10 Help out a neighbour, e.g., by looking after a child, giving a ride, or helping around the house or garden? Not at all 0 Occasionally 1

	Frequently 2
recevn5i	I.11 Go to meetings dealing with community concerns? E.G., meetings of a committee you serve on or meetings called by a residents' organization? Not at all 0 Occasionally 1 Frequently 2
recevn6i	I.12 Go to neighbourhood events, e.g. picnics, meals? Not at all 0 Occasionally 1 Frequently 2
neighaci	NEIGHBOURHOOD ACTIVITIES SCALE (SEE APPENDIX A)
recevn7i	I.13 Attend a meeting of any organization or club? Not at all (GO TO J.1) 0 Occasionally 1 Frequently 2
reclub1i	I.14 How often did you get involved in making decisions in this organization or club? Not at all 0 Occasionally 1 Frequently 2
reclub2i	I.15 Have you held a position such as a committee chair or treasurer in this organization or club? No 0 Yes 1

SECTION J

	Please turn to page 9 in your booklet. Here are some statements about your relationships with others. For each, could you please tell me whether you strongly disagree, disagree, agree or strongly agree. Strongly agree 1 Agree 2 Disagree 3 Strongly disagree 4
socsup1i	J.1 If something went wrong, no one would help me
socsup2i	J.2 I have family and friends who help me feel safe, secure and happy.
socsup3i	J.3 There is someone I trust whom I could turn to for advice if I were having problems.
socsup4i	J.4 There is no one I feel comfortable talking about problems with.
socsup5i	J.5 I lack a feeling of intimacy with another person.
socsup6i	J.6 There are people I can count on in an emergency.
socsup7i	J.7 I feel part of a group of people who share my attitudes and beliefs.
socsup8i	J.8 There is no one who shares my interests and concerns.
socsupi	SOCIAL SUPPORT SCALE (SEE APPENDIX A)

SECTION K

	Could you turn to page 10 in your booklet? Now I would like you to think of how you have felt in the past week. Please tell me which best describes the last week. During the past week: Rarely or none of the time 1 Some or a little of the time 2 Occasionally or a moderate amount of time 3 Most or all of the time 4
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Appendix B: Interview Guides and Questionnaires

cesd02i	K.1 I did not feel like eating; my appetite was poor.
cesd03i	K.2 I felt that I could not shake off the blues even with help from my family or friends.
cesd05i	K.3 I had trouble keeping my mind on what I was doing.
cesd06i	K.4 I felt depressed.
cesd07i	K.5 I felt that everything I did was an effort.
cesd08i	K.6 I felt hopeful about the future.
cesd11i	K.7 My sleep was restless.
cesd12i	K.8 I was happy.
cesd14i	K.9 I felt lonely.
cesd16i	K.10 I enjoyed life.
cesd17i	K.11 I had crying spells.
cesd19i	K.12 I felt that people disliked me.
cesdi	CES DEPRESSION SCALE (SEE APPENDIX A)

SECTION L

healthi	L.1 In general, would you say your health is: 1. Excellent 2. Very good 3. Good 4. Fair OR 5. Poor?
heighti heightai heightbi	How tall are you? (RECORD IN FEET AND INCHES)
weightbi	How much do you currently weigh? (RECORD IN POUNDS) Please turn to page 11 of the booklet. Does a physical or mental condition or health problem that has lasted or is expected to last 6 months or more reduce the amount or kind of activity you can do: No 0 Yes, sometimes 1 Yes, often 2 L.4 at home?

hlaq1bi	
hlaq1ci	L.5 at work or at school?
hlaq1di	L.6 in caring for your children? Now we have some questions about your current use of tobacco, alcohol and prescription medications.
cigpacki	L.7 How many cigarettes do you currently smoke each day? (THE RESPONSE CHOICES GIVEN ON THE ANSWER SHEET ARE FOR THE NUMBER OF PACKS). None 0 Less than 1/2 pack of cig 1 More than 1/2 to 1 pack of cig 2 More than one pack of cig 3
smokersi	L.8 Do any of the other people living in your household smoke? No (GO TO L.4) 0 Yes 1
smokerni	L.9 How many? (smokers) One 1 Two 2 Three or more 3
smokerzi	Total # of smokers in the home (SEE APPENDIX A)
alcoholi	L.10 In the past 12 months, how often did you drink alcoholic beverages? Never (GO TO L.18) 0 Less than once a month 1 1 to 3 times a month 2 Once a week 3 2 or 3 times a week 4 4 to 6 times a week 5 Every day 6
hbs19i	L.11 How often do you brush your teeth? 0. Never 1. Less than once a week 2. At least once a week, but not every day 3. Once a day 4. More than once a day
hbs20i	L.12 How often do you use dental floss? 0. Seldom or never 1. At least once a week 2. Most days

hbs24i	L.13 How often do you use a seat belt when you ride in a car? 0. Rarely or Never 1. Sometimes 2. Often 3. Always 4. Usually there is no seat belt where I sit 5. Never travel by car
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SECTION M

	Please indicate which of the following has happened to you (or your spouse/partner) during the past 12 months:
stres01i	M.1 Stopped full-time schooling No 0 Yes 1
stres02i	M.2 Lost job or was unemployed? No (GO TO M.4) 0 Yes 1
unempli	M.3 How long have you been unemployed? (RECORD NUMBER OF MONTHS UP TO 12; USE 13 FOR MORE THAN 12 MONTHS)
stres03i	M.4 Got married No 0 Yes 1
stres04i	M.5 Someone moved into your home No 0 Yes 1
stres05i	M.6 Had financial problems No 0 Yes 1
stres06i	M.7 Got separated No 0 Yes 1
stres07i	M.8 Arrival of baby at home No 0 Yes 1
stres08i	M.9 Someone moved out of our home No 0 Yes 1

stres09i	M.10 Serious illness No 0 Yes 1
stres10i	M.11 Serious illness of someone dear No 0 Yes 1
stres11i	M.12 Quit or retired from full-time work No 0 Yes 1
stres12i	M.13 Started working or changed jobs No 0 Yes 1
stres13i	M.14 Death of someone dear No 0 Yes 1
strscari	M.15 Cared for someone with a serious chronic illness No 0 Yes 1
strscarmi	M.16 For how much of the year did you do this? (RECORD NUMBER OF MONTHS UP TO 12; USE 13 FOR MORE THAN 12 MONTHS)
stressi	OVERALL STRESS SUMMARY MEASURE (SEE APPENDIX A)
pardivi	M.17 Did your parents separate or divorce when you were under the age of 16? No 0 Yes 1

Appendix B: Interview Guides and Questionnaires

SECTION O

	Now I would like to ask some questions about your housing and the neighbourhood you live in.
	(NOTE: IF YOU ALREADY KNOW ANSWER TO Q.1 JUST RECORD IT.)
publici	Q.1 Is this dwelling in a public housing complex? No 0 Yes 1
homesati	Q.2 How happy people are with the places they live depends on a lot of things – how much space they have, how hot or cold it gets, how quiet it is, how much privacy there is, and so on. Taking everything into account, could you tell me how satisfied you are with this place, on a scale from 0 to 10, where 0 is completely dissatisfied and 10 is completely satisfied? 0 1 2 3 4 5 6 7 8 9 10 Completely Completely Dissatisfied Satisfied
ncmoveyi	Q.3 How many times has (name of child) moved in the last year, since (name of month)?
rlive2i	Q.4 Where does the R live? (Which Better Beginnings research community?) Not in a BB neighbourhood 0 Cornwall 1 Sudbury 2 Highfield 3 Guelph 4 Kingston 5 Ottawa 6 Toronto 7 Walpole Island 8 Etobicoke-Comparison 21 Ottawa-Vanier 22 Peterborough 24
	Please turn to page 12 of the response booklet. Tell me how good you think each aspect of the neighbourhood is.
nghsat1i	Q.5 First of all, how would you describe the condition of the streets and roads in this area? Excellent 1 Very Good 2 Good 3 Fair 4

Poor 5

nghsat2i	Q.6 What about the condition of other houses and buildings in your neighbourhood?
nghsat5i	Q.7 How would you describe the other people who live around here as neighbours?
nghsat7i	Q.8 How about safety from crime in your home or building?
nghsat8i	Q.9 Safety walking on the street at night?
nghsat9i	Q.10 Safety for children when they go out to play?
nghsati	Q.11 All things considered, how satisfied or dissatisfied are you with this neighbourhood as a place to live? Which number from 0 to 10 comes the closest to how you feel, where 0 is completely dissatisfied and 10 is completely satisfied? 0 1 2 3 4 5 6 7 8 9 10 Completely Completely Dissatisfied Satisfied
neighsai	NEIGHBOURHOOD SATISFACTION SCALE (SEE APPENDIX A)
safq2i	How do you feel about your neighbourhood as a place to bring children up. Is it... Excellent 1 Good 2 Average 3 Poor 4 Very poor 5
	Please turn to page 13. Could you tell me how much you agree or disagree with these statements, using the answers in the booklet. Strongly agree 1 Agree 2 Disagree 3 Strongly disagree 4
nghiv1i	O.13 I feel like I belong to this neighbourhood.
nghiv2i	O.14 If some change was going to be made in my neighbourhood that I did not like, I would try to stop it.
nghiv3i	O.15 I feel I am important to this neighbourhood.

SECTION P

nghiv4i	O.16 I would be willing to work with others on something to improve my neighbourhood.
nghiv5i	O.17 I like to think of myself as similar to the people who live in this neighbourhood.
nghiv6i	O.18 I feel that people of different cultures and races are accepted in this neighbourhood.
nghiv7i	O.19 I feel proud to be a member of this neighbourhood.
safq6Ai	O.20 If there is a problem around here, the neighbours get together to deal with it.
safq6Bi	O.21 There are adults in the neighbourhood that children can look up to.
safq6Ci	O.22 You can count on adults in this neighbourhood to watch out that children are safe and don't get in trouble.
nghiv18i	O.23 People have opportunities to express their views on issues important to the neighbourhood.
nghiv19i	O.24 I get encouragement to express my views on neighbourhood issues.
nghatti	NEIGHBOURHOOD ATTITUDE SCALE (SEE APPENDIX A) Please turn to page 14 of your booklet. I have a few more questions about your neighbourhood. Low 1 Medium 2 High 3 Very High 4
nghkw1i	O.25 From your knowledge of the neighbourhood, would you say that alcohol use is?
nghkw2i	O.26 From your knowledge of the neighbourhood, would you say that the use of marijuana or hash is?
nghkw3i	O.27 From your knowledge of the neighbourhood, would you say that the use of hard drugs such as cocaine or crack, LSD (acid), speed (amphetamines, uppers), heroin (dust, horse, junk, smack) is?
nghkw4i	O.28 From your knowledge of the neighbourhood, would you say the number of violent crimes is?
nghkw5i	O.29 Would you say the number of property crimes such as theft and vandalism is?

	I am going to read you a list of resources that people sometimes use. In the past year, have you seen or talked on the telephone with any of the following about <u>(NAME OF CHILD'S)</u> physical, emotional or mental health?
rescy01i	P.1 A general practitioner, family physician? No 0 Yes 1
rescy13i	P.2 Another medical doctor (such as a pediatrician, orthopedist, or eye specialist)? No 0 Yes 1
rescy12i	P.3 Emergency Room at Hospital No (GO TO P.8) 0 Yes 1
rescy03i	P.4 A public health nurse or nurse practitioner No 0 Yes 1
rescy04i	P.5 A dentist or orthodontist? No 0 Yes 1
rescy07i	P.6 A psychiatrist or psychologist? No 0 Yes 1
rescy14i	P.7 Child welfare worker or children's aid worker? No 0 Yes 1
rescy15i	P.8 Any other person trained to provide treatment or counsel, for example a speech therapist, a social worker? No 0 Yes 1
profi	P.9 Was there ever a time during the past 12 months when you wanted to see a professional for your child but didn't? No 0 Yes 1
servicei	P.10 Did you ever feel you were not getting as good service as other people?

Appendix B: Interview Guides and Questionnaires

	No 0 Yes 1
	Have you or your child participated in any of the following programs or activities in the last 12 months?
playgrni	P.11 A recreation/playground program
plygrnni	P.12 HOW MANY TIMES DID YOU USE IT IN THE LAST 12 MONTHS?
sportsi	P.13 SPORTS, CRAFTS, OR CLUBS (THIS QUESTION REFERS TO ORGANIZED ACTIVITIES E.G., HOCKEY TEAM, BEAVERS, BROWNIES.) No (Go to P.15)..... 0 Yes 1
sportsni	P.14 How many times in the last 12 months?
dropini	P.15 An after-school care program or drop-in centre No (Go to P.17)..... 0 Yes 1
dropinni	P.16 How many times in the last 12 months?
aftngi	P.17 After-school language instruction/cultural or heritage classes No (Go to P.19)..... 0 Yes 1
aftngni	P.18 How many times in the last 12 months?
librari	P.19 A library No (Go to P.21)..... 0 Yes 1
librarni	P.20 How many times in the last 12 months?
rescenti	P.21 A parent resource centre, parent group, etc. No (Go to next section)..... 0 Yes 1
rescntni	P.22 How many times in the last 12 months?
	THE FOLLOWING QUESTIONS ARE ONLY TO BE ASKED IF YOU ARE USING THE FRENCH LANGUAGE VERSION OF THE INTERVIEW.
	Please turn to Page 15. The possible answers go from 1 to 9 where 1 represents the use of French only, 5 represents the use of either French or English in equal parts, and 9 represents the use of English only. On this scale, please tell me which language(s) you use in the following situations.

	1 2 3 4 5 6 7 8 9 French French or English equally English only
	P.23 At home I speak..
qfran1i	P.24 Outside my family, with friends and other people, I speak..
qfran2i	P.25 The television shows I watch are..
qfran3i	P.26 I read (newspapers, magazines, books) in..
qfran4i	P.27 When I go to social activities (eg. parties), I speak..
qfran5i	P.28 When I go shopping, I speak..
qfran6i	

SECTION Z

durconhi	Z.1A DURATION OF INTERVIEW (IN HOURS AND MINUTES) TO DO CONSENT FORM AND THE FAMILY INFORMATION SHEET?	BOTH THE
durconmi		
durinthe	Z.1B DURATION OF INTERVIEW (IN HOURS AND MINUTES) TO DO THIS PARENT INTERVIEW?	
durintmi		
duratioi	DURATION OF INTERVIEW IN MINUTES (SEE APPENDIX A)	
locatioi	Z.2 WHAT WAS THE LOCATION OF THE INTERVIEW? Home 1 School 2 Community Centre, Better Beginnings office, etc. 3 Public place (e.g., restaurant) 4 Telephone 5 Other (RECORD ON LONG FORM) 6	
versioni	Z.3 WHICH VERSION OF THE INTERVIEW WAS USED? In person 1 By telephone 2 By mail 3 Other (RECORD ON LONG FORM) 4	
enum96i	Z.4 1996 ENUMERATION AREA, E.G., 1234.56? (RECORD ON COMPUTER SHEET AND LONG FORM)	
	WERE THE FOLLOWING PEOPLE PRESENT DURING THE INTERVIEW?	
spousei	Z.5 SPOUSE? No 0 Yes 1	
othrchli	Z.6 OTHER CHILDREN? No 0 Yes 1	
othradli	Z.7 OTHER ADULTS? No 0 Yes 1	
laninti	Z.8 WHAT WAS THE MAIN LANGUAGE OF THE INTERVIEW? Arabic 01 Chinese 02 English 03 French 04 German 05 Hindi 06	

	Italian 07 Ojibway 08 Polish 09 Portuguese 10 Somali 11 Urdu 12 Vietnamese 13 Punjabi 14 Other (SPECIFY ON LONG FORM) 15
hometypi	Z.9 TYPE OF HOME? Single house 1 Semi-detached/double house (side-by-side) 2 Duplex (one above the other) 3 Row/town house 4 Apartment less than 5 stories 5 Apartment with 5 or more stories 6 House attached to a non-residential structure 7 Mobile home 8 Other (Specify on Long Form) 9
smoothii	Z.10 HOW SMOOTHLY DID THE INTERVIEW PROGRESS (I.E., DID YOU HAVE TO DO A LOT OF PROMPTING, READING QUESTIONS, AND WRITING RESPONSES?) With difficulty 1 With some difficulty 2 With little difficulty 3 With no difficulty 4
unstandi	Z.11 RESPONDENT'S UNDERSTANDING OF THE QUESTIONS No difficulties 1 Minor difficulties - satisfied that respondent understood 2 Major difficulties - not satisfied that respondent always understood. (PLEASE EXPLAIN ON LONG FORM) 3
rcoopi	Z.12 RESPONDENT'S COOPERATION Cooperative 1 Indifferent 2 Uncooperative 3
qualinti	Z.13 OVERALL QUALITY OF INTERVIEW High quality 1 Adequate 2 Questionable 3
impfac1i	Z.14 IMPORTANT FACTORS THAT INTERFERED WITH THE QUALITY OF THE INTERVIEW (RECORD UP TO 3) Alcohol 1 Language 2
impfac2i	
impfac3i	

Age	3
Illness	4
Noise	5
Presence of (spouse/partner)	6
Presence of children	7
Presence of others	8
Phone calls	9
Other (SPECIFY ON LONG FORM)	10
Z.15 COMMENTS (RECORD ON LONG FORM)	

GRADE 6 FOCAL CHILD MEASURES

Teacher Report Form

(Grade 6 Focal (Older Focal & Following) / Leading Baseline)

Notes: Data were collected from the focal cohort in 2001 and 2002 (Subjudy and Ottawa's Version). Following cohort data were collected in 2002.

schldi
depychi
dattmchi
dastdchi
bdjychi
bdmitchi
bddtchi
gradeti

zezi

achn02i

immerani

immerpzi

otvringi

1. SCHOOL ID

A.4 TODAY'S DATE (YEAR)

TODAY'S DATE (MONTH)

TODAY'S DATE (DAY)

A.2 CHILD'S DATE OF BIRTH (YEAR)

CHILD'S DATE OF BIRTH (MONTH)

CHILD'S DATE OF BIRTH (DAY)

A.3 GRADE

Grade 5 _____7

Grade 6 _____8

Grade 7 _____9

A.4 CHILD'S SEX

Male _____1

Female _____2

B.1 How well do you know him/her?

Very Well _____1

Moderately Well _____2

Not Well _____3

B.2 Is the student in French Immersion program?

No (Go to B.4) _____0

Yes (Go to B.3) _____1

B.3 What percentage of this student's time is spent in the immersion language program?

49% or less (partial immersion) _____1

50% (equal amount of instruction time is given in English and French) _____2

51% to 75% _____3

more than 75% (full immersion) _____4

I don't know _____7

DOES THIS STUDENT:

B.4 Have a first language other than English or French?

mainling

achn07i

achn08i

achn09i

achn10i

achn13i

No _____0

Yes _____1

B.5 Have a limited knowledge of the main language of instruction that affects his/her classroom performance?

No _____0

Yes _____1

CURRENT SCHOOL PERFORMANCE

B.6 Reading

Far below grade _____1

Somewhat below grade _____2

At grade level _____3

Somewhat above grade _____4

Far above grade _____5

B.7 Spelling

Far below grade _____1

Somewhat below grade _____2

At grade level _____3

Somewhat above grade _____4

Far above grade _____5

B.8 Writing

Far below grade _____1

Somewhat below grade _____2

At grade level _____3

Somewhat above grade _____4

Far above grade _____5

B.9 Mathematics

Far below grade _____1

Somewhat below grade _____2

At grade level _____3

Somewhat above grade _____4

Far above grade _____5

COMPARED TO TYPICAL STUDENTS OF THE SAME AGE

B.10 How hard is he/she working?

Much less _____1

Somewhat less _____2

Slightly less _____3

About average _____4

Slightly more _____5

Somewhat more _____6

Much more _____7

achn14i	B.11	How appropriate is his/her behaviour? Much less.....1 Somewhat less.....2 Slightly less.....3 About average.....4 Slightly more.....5 Somewhat more.....6 Much more.....7	dayabai	Grade 8.....10 Don't know.....7 B.17 Since the beginning of school in the fall, approximately how many regular school days has this student been absent from your class? Never.....0 1 to 2 days.....1 3 to 5 days.....2 6 to 10 days.....3 11 to 20 days.....4 More than 20 days.....5
achn15i	B.12	How much is he/she learning? Much less.....1 Somewhat less.....2 Slightly less.....3 About average.....4 Slightly more.....5 Somewhat more.....6 Much more.....7	misoy1i	SINCE THE BEGINNING OF SCHOOL IN THE FALL, HAS A PARENT OR GUARDIAN OF THIS STUDENT: B.18 Participated in scheduled parent-teacher meetings or discussions in person or on the telephone? (including parent-teacher interviews and meet the teacher events) No.....0 Yes.....1 Contact not needed.....2
achn16i	B.13	How happy is he/she? Much less.....1 Somewhat less.....2 Slightly less.....3 About average.....4 Slightly more.....5 Somewhat more.....6 Much more.....7	misoy2i	B.19 Returned an unscheduled or informal call you made to discuss this student's academic performance or behaviour? No.....0 Yes.....1 Contact not needed.....2
currep1	B.14	Is this student currently repeating his or her grade? No.....0 Yes.....1 Don't know.....7	misoy3i	B.20 Contacted you in writing by phone or in any other manner to discuss this student's academic performance or behaviour? (e.g. contact made through e-mail, the student's agenda or planner) No.....0 Yes.....1 Contact not needed.....2
achn06i	B.15	Has he/she ever repeated a grade? No (Go to B.17).....0 Yes (Go to B.18).....1 Don't know (Go to B.17).....7	misoy4i	B.21 Volunteered in your class or for class activities? No.....0 Yes.....1 Contact not needed.....2
achn07i achn021	B.16	Which ones? (RECORD ALL THAT APPLY) Junior Kindergarten.....1 Senior Kindergarten.....2 Grade 1.....3 Grade 2.....4 Grade 3.....5 Grade 4.....6 Grade 5.....7 Grade 6.....8 Grade 7.....9	misoy5i	B.22 In your opinion, how involved is/are the parent(s)/ guardian(s) in this student's education? Very involved.....1 Somewhat involved.....2 Not involved.....3 I don't know/ no opinion.....7
			gfrdeapi	B.23 Looking ahead, how far do you think this student has the potential to go in school? Complete some secondary or high school.....1 Graduate from secondary or high school.....2 Learn a trade (e.g. through an

NEXT ARE DESCRIPTIONS ABOUT THIS STUDENT'S BEHAVIOUR. DECIDE HOW OFTEN THIS STUDENT DOES THE BEHAVIOUR AND FILL IN THE CIRCLE. PLEASE DO NOT SKIP ANY ITEMS. IN SOME CASES YOU MAY NOT HAVE OBSERVED THE STUDENT PERFORM A PARTICULAR BEHAVIOUR. MAKE AN ESTIMATE OF THE DEGREE TO WHICH YOU THINK THE STUDENT WOULD PROBABLY PERFORM THAT BEHAVIOUR.	
npand	<p>apprenticeship.....3</p> <p>Obtain a community college, technical college, vocational college, business school or CSEP certificate or diploma.....4</p> <p>Obtain a university degree.....5</p> <p>I do not know.....7</p> <p>Does this student live with.....</p> <p>One parent/guardian.....1</p> <p>Two parents/guardians.....2</p> <p>I do not know.....7</p> <p>As an occupational classification, we are using a modified version of the Pines-Rosen-McRoberts system, which is the most widely used system in Canadian social research. Using the categories listed below, please indicate which of the following occupational categories best describes the kind of part-time or full-time work of the student's parent(s) or guardian(s).</p> <p>Professional and semi-professional (e.g., accountant, doctor, engineer, journalist, nurse, teacher).....1</p> <p>Manager and supervisors (e.g., manager or assistant manager of a bank branch, office manager, store owner who manages his/her own staff).....2</p> <p>Technical (e.g., engineering, technologist, laboratory technician).....3</p> <p>Skilled white collar (e.g., bookkeeper, medical or legal secretary, insurance salesperson, real estate salesperson).....4</p> <p>Other white collar (e.g., cashier, home child care provider, data processing equipment operator, general office clerk or secretary, nursing assistant, receptionist, retail sales clerk, waiter).....5</p> <p>Skilled blue collar (e.g., bricklayer, carpenter, electrician, plumber). They are distinguished by having served an apprenticeship. Police and firefighters are placed here because their training involves cadetship.....6</p> <p>Other blue collar (e.g., factory assembly worker, janitor, taxi driver).....7</p> <p>Homemaker.....8</p> <p>Don't know.....7</p> <p>Not applicable.....9</p>
ppmmodm (Mother/F Guardian)	
ppmmodf (Father/M Guardian)	

NEXT ARE DESCRIPTIONS ABOUT THIS STUDENT'S BEHAVIOUR. DECIDE HOW OFTEN THIS STUDENT DOES THE BEHAVIOUR AND FILL IN THE CIRCLE. PLEASE DO NOT SKIP ANY ITEMS. IN SOME CASES YOU MAY NOT HAVE OBSERVED THE STUDENT PERFORM A PARTICULAR BEHAVIOUR. MAKE AN ESTIMATE OF THE DEGREE TO WHICH YOU THINK THE STUDENT WOULD PROBABLY PERFORM THAT BEHAVIOUR.	
mls11	C.1 Controls temper in conflict situations with peers Never.....1 Sometimes.....2 Very Often.....3
ss11121	C.2 Controls temper in conflict situations with adults Never.....1 Sometimes.....2 Very Often.....3
ss11121	C.3 Receives criticism well Never.....1 Sometimes.....2 Very Often.....3
ss11121	C.4 Accepts peers' ideas for group activities Never.....1 Sometimes.....2 Very Often.....3
ss11231	C.5 Responds appropriately when pushed or hit by other children Never.....1 Sometimes.....2 Very Often.....3
ss11301	C.6 Gets along with people who are different Never.....1 Sometimes.....2 Very Often.....3
mls121	C.7 Completes homework on time Never.....1 Rarely.....2 Sometimes.....3 Often.....4 Always.....5
mls1231	C.8 Persists with solving a problem even when things go wrong Never.....1 Rarely.....2 Sometimes.....3

nlsc44i	Often _____ 4 Always _____ 5	nlsc44i	is too fearful or nervous	D.16
	C.9 Ask questions when he/she does not understand Never _____ 1 Rarely _____ 2 Sometimes _____ 3 Often _____ 4 Always _____ 5	nlsc04i	When mad at someone, becomes friends with another as revenge	D.17
	BELOW IS A LIST OF STATEMENTS ABOUT THE FEELINGS AND BEHAVIOURS OF CHILDREN. FOR EACH STATEMENT, PLEASE FILL IN THE CIRCLE FOR THE NUMBERS THAT BEST DESCRIBES THIS STUDENT NOW OR WITHIN THE LAST SIX MONTHS. PLEASE FILL IN ONLY ONE OF THE FOUR CIRCLES FOR EACH STATEMENT.	nlsc05i	is impulsive, acts without thinking	D.18
	D.1 Shows sympathy to someone who has made a mistake Never or Not True _____ 1 Sometimes or Somewhat True _____ 2 Often or Very True _____ 3 Don't know _____ 7	nlsc44i	Tells lies or cheats	D.19
	PLEASE NOTE: FOR QUESTIONS D.3 TO D.47 PLEASE USE THE SAME SCALE AS THAT USED FOR D.1.	nlsc44i	Offers to help others (friend, brother, sister) who are having difficulty with a task	D.20
		nlsc44i	is worried	D.21
		nlsc44i	Has difficulty waiting for his/her turn in games or groups	D.22
		nlsc01i	When someone accidentally hurts him/her, he/she reacts with anger and fighting	D.23
		nlsc44i	Tends to do things on his/her own, is rather solitary	D.24
		nlsc06i	When mad at someone, says bad things behind the other's back	D.25
		nlsc44i	Physically attacks people	D.26
		nlsc44i	Comforts a child (friend, brother or sister) who is crying or upset	D.27
		nlsc07i	Cries a lot	D.28
		nlsc44i	Vandalizes	D.29
		nlsc44i	Gives up easily	D.30
		nlsc44i	Threatens people	D.31
		nlsc44i	Spontaneously helps to pick up objects which somebody has dropped (e.g. pencils, books)	D.32
		nlsc44i	Appears miserable, unhappy, fearful or distressed	D.33
		nlsc44i	Bullies or is mean to others	D.34
		nlsc44i	When mad at someone, says to others: let's not be with him/her	D.35
		nlsc44i	is nervous, high-strung or tense	D.36
		nlsc44i	Kicks or hits other children	D.37
		nlsc44i	is inattentive	D.38
		nlsc44i	Cannot settle on anything for more than a few moments	D.39
		nlsc44i	Has trouble enjoying himself/herself	D.40
		nlsc44i	Helps other children (friends, brother or sister) who are feeling sick	D.41
		nlsc44i	When mad at someone, tells that person's secrets to a third person	D.42
		nlsc44i	Helps those who do not do as well as he/she does	D.43

oectst11	D-44	Is used by other kids
oectst41	D-45	Is bullied by others
oectst51	D-46	Is teased by others
oectst51	D-47	Is taken advantage of by peers
	SINCE THE BEGINNING OF SCHOOL IN THE FALL, HOW OFTEN HAS THIS STUDENT ABUSED AT SCHOOL	
arwst11	E-1	Without the materials needed to do his/her school work (e.g., notebooks, paper) Never.....1 Rarely.....2 Sometimes.....3 Often.....4 Always.....5 Don't know.....7
	PLEASE NOTE: FOR QUESTIONS E.2 TO E.6 PLEASE USE THE SAME SCALE AS THAT USED FOR E.1	
arwst21	E-2	Inadequately dressed for the weather conditions
arwst31	E-3	Too tired to do school work
arwst41	E-4	Without a lunch/snacks
arwst51	E-5	Hungry
arwst61	E-6	Late
	PLEASE NOTE: THE ORDER OF THE QUESTIONS IN SECTION F WAS CHANGED AFTER THE 2001 DATA COLLECTION. THESE CHANGES ARE NOTED BELOW.	
	F-1	Do any of the following limit the kind or amount of activity this student can do at school? (MARK ALL THAT APPLY) Physical disability or visual or hearing impairment.....1 Speech impairment.....2 Learning disability.....3 Emotional or behavioural problem.....4 Mental disability or limitation.....5 Home environment/problems at home.....6 Other (please specify) impairment.....7 No limitations.....8
lepi1	F-2	Does the child have an "Individualized Education Plan"? No.....0 Yes.....1

isai	F.6	Is the child receiving an LSA (Intensive support amount)? No (Go to F.8).....0 Yes.....1 I do not know (Go to F.8).....7 NOTE: THIS QUESTION ASKED AS F.7 IN 2002
isapjpei	F.7	If yes, specify the type: ISA1.....1 ISA2.....2 ISA3.....3 ISA4.....4 NOTE: THIS QUESTION ASKED AS F.8 IN 2002
schunv(1) schunv(2) schunv(3) schunv(4)	F.8	During this school year, has the child received any of the following services? (MARK ALL THAT APPLY) Speech therapist.....1 Social worker.....2 Behaviour therapist.....3 Child psychiatrist.....4 Help from the special education teacher.....5 Help from an education (E.A.) or teacher assistant (T.A.) in the classroom.....6 NOTE: THIS QUESTION ASKED AS F.2 IN 2002
suspi	F.9	Has the child been suspended from school since the beginning of school this fall? No (Go to end of questionnaire).....0 Yes.....1
suspienl	F.10	If yes, how many times? Once.....1 Twice.....2 Three.....3 Four.....4 Five or more.....5

ysa11	<p>A.8 Other than your close friends, do you have anyone else in particular you can talk to about yourself or your problems?</p> <p>Yes (Go to question A.9) _____ 1</p> <p>No (Go to question A.10) _____ 2</p> <p>Mother _____ 1</p> <p>A.9.1 What is their relationship to you?</p> <p>A.9.2 What is their relationship to you?</p> <p>Father _____ 2</p> <p>A.9.3 What is their relationship to you?</p> <p>Stepmother _____ 3</p> <p>A.9.4 What is their relationship to you?</p> <p>Stepfather _____ 4</p> <p>A.9.5 What is their relationship to you?</p> <p>Brother _____ 5</p> <p>A.9.6 What is their relationship to you?</p> <p>Sister _____ 6</p> <p>A.9.7 What is their relationship to you?</p> <p>Grandparent _____ 7</p> <p>A.9.8 What is their relationship to you?</p> <p>Other Relative _____ 8</p> <p>A.9.9 What is their relationship to you?</p> <p>A friend of the family _____ 9</p> <p>A.9.10 What is their relationship to you?</p> <p>Sister or babysitter _____ 10</p> <p>A.9.11 What is their relationship to you?</p> <p>Parent's boyfriend/girlfriend _____ 11</p> <p>A.9.12 What is their relationship to you?</p> <p>Teacher _____ 12</p> <p>A.9.13 What is their relationship to you?</p> <p>Coach or leader (e.g. Scout, Guide or church leader) _____ 13</p> <p>A.9.14 What is their relationship to you?</p> <p>Other (e.g. Family doctor) _____ 14</p> <p>A.10 During the past 6 months, how well have you gotten along with other young people such as friends or classmates?</p>	<p>Very well, no problems _____ 1</p> <p>Quite well, hardly any problems _____ 2</p> <p>Pretty well, some problems _____ 3</p> <p>Not too well, many problems _____ 4</p> <p>Not well at all, constant problems _____ 5</p> <p>A.11 During the past 6 months, how well have you gotten along with your mother, stepmother, or foster mother? (Answer about the mother you spend the most time with.)</p> <p>Very well, no problems _____ 1</p> <p>Quite well, hardly any problems _____ 2</p> <p>Pretty well, some problems _____ 3</p> <p>Not too well, many problems _____ 4</p> <p>Not well at all, constant problems _____ 5</p> <p>I am not in touch with my mother _____ 6</p> <p>I don't have a mother _____ 7</p> <p>A.12 During the past 6 months, how well have you gotten along with your father, stepfather, or foster father? (Answer about the father you spend the most time with.)</p> <p>Very well, no problems _____ 1</p> <p>Quite well, hardly any problems _____ 2</p> <p>Pretty well, some problems _____ 3</p> <p>Not too well, many problems _____ 4</p> <p>Not well at all, constant problems _____ 5</p> <p>I am not in touch with my father _____ 6</p> <p>I don't have a father _____ 7</p> <p>A.13 During the past 6 months, how well have you gotten along with your brothers and sisters, step brothers and sisters, or foster brothers and sisters? (Answer about the ones you spend the most time with.)</p> <p>Very well, no problems _____ 1</p> <p>Quite well, hardly any problems _____ 2</p> <p>Pretty well, some problems _____ 3</p> <p>Not too well, many problems _____ 4</p> <p>Not well at all, constant problems _____ 5</p> <p>I am not in touch with my brothers and sisters _____ 6</p> <p>I don't have brothers and sisters _____ 7</p>
ysa12	<p>SECTION B</p> <p>School</p> <p>B.1 How do you feel about school?</p>	

ys1b1i	<p>I like school very much.....1</p> <p>I don't like it very much.....2</p> <p>I like it a little.....3</p> <p>I like it a lot.....4</p> <p>I don't like school very much.....5</p>	
ys1b2i	<p>B.2 How well do you think you are doing in your school work?</p> <p>Very well.....1</p> <p>Well.....2</p> <p>Average.....3</p> <p>Poorly.....4</p> <p>Very poorly.....5</p>	
ys1b3ai	<p>B.3a How important is it to you to do the following in school:</p> <p>a. make friends?</p> <p>Very important.....1</p> <p>Somewhat important.....2</p> <p>Not very important.....3</p> <p>Not important at all.....4</p>	
ys1b3bi	<p>B.3b How important is it to you to do the following in school:</p> <p>b. get good grades?</p> <p>Very important.....1</p> <p>Somewhat important.....2</p> <p>Not very important.....3</p> <p>Not important at all.....4</p>	
ys1b3ci	<p>B.3c How important is it to you to do the following in school:</p> <p>c. participate in extra-curricular activities?</p> <p>Very important.....1</p> <p>Somewhat important.....2</p> <p>Not very important.....3</p> <p>Not important at all.....4</p>	
ys1b3di	<p>B.3d How important is it to you to do the following in school:</p> <p>d. learn new things?</p> <p>Very important.....1</p> <p>Somewhat important.....2</p> <p>Not very important.....3</p> <p>Not important at all.....4</p>	
ys1b4i	<p>B.4 How do you like the following subjects?</p> <p>a. Math</p>	<p>I hate it.....1</p> <p>I don't like it very much.....2</p> <p>I like it a little.....3</p> <p>I like it a lot.....4</p> <p>I don't take it.....5</p>
ys1b4bi	<p>B.4 How do you like the following subjects?</p> <p>b. English</p>	<p>I hate it.....1</p> <p>I don't like it very much.....2</p> <p>I like it a little.....3</p> <p>I like it a lot.....4</p> <p>I don't take it.....5</p>
ys1b4ci	<p>B.4 How do you like the following subjects?</p> <p>c. French</p>	<p>I hate it.....1</p> <p>I don't like it very much.....2</p> <p>I like it a little.....3</p> <p>I like it a lot.....4</p> <p>I don't take it.....5</p>
ys1b5ai	<p>Read the following statements and choose the answer that best describes how you feel.</p> <p>All the time.....1</p> <p>Most of the time.....2</p> <p>Some of the time.....3</p> <p>Rarely.....4</p> <p>Never.....5</p>	
ys1b5bi	B.5a I feel safe at school.	
ys1b5ci	B.5b I feel safe on my way to and from school.	
ys1b5di	B.5c Other young people say mean things to me at school.	
ys1b5ei	B.5d I am bullied in school.	
ys1b5fi	B.5e I am bullied on my way to and from school.	
ys1b5gi	B.5f I feel like an outsider (or left out of things) at my school.	
ys1b5hi	About my teachers and homework	
ys1b5ii	B.5g In general, my teachers treat me fairly.	

ysa6b6i	<p>Rarely_____4</p> <p>Never_____5</p> <p>B.6a If I need extra help, my teachers give it to me.</p> <p>All the time_____1</p> <p>Most of the time_____2</p> <p>Some of the time_____3</p> <p>Rarely_____4</p> <p>Never_____5</p> <p>Don't need help_____6</p> <p>B.6c I have a place at home to do homework or study.</p> <p>All the time_____1</p> <p>Most of the time_____2</p> <p>Some of the time_____3</p> <p>Rarely_____4</p> <p>Never_____5</p> <p>No homework_____6</p> <p>B.6d When my teachers give me homework, I do it.</p> <p>All the time_____1</p> <p>Most of the time_____2</p> <p>Some of the time_____3</p> <p>Rarely_____4</p> <p>Never_____5</p> <p>No homework_____6</p> <p>In the next statements, parents include guardians. They are the ones who live with you at home and influence your life.</p> <p>B.7a If I have problems at school, my parents are ready to help.</p> <p>All the time_____1</p> <p>Most of the time_____2</p> <p>Some of the time_____3</p> <p>Rarely_____4</p> <p>Never_____5</p> <p>No problems at school_____6</p> <p>B.7b My parents encourage me to do well at school.</p> <p>All the time_____1</p> <p>Most of the time_____2</p> <p>Some of the time_____3</p> <p>Rarely_____4</p> <p>Never_____5</p> <p>No problems at school_____6</p> <p>B.7c My parents expect too much of me at school.</p>
ysa6b7i	<p>All the time_____1</p> <p>Most of the time_____2</p> <p>Some of the time_____3</p> <p>Rarely_____4</p> <p>Never_____5</p> <p>No problems at school_____6</p>
<p>SECTION C</p> <p>About Me</p>	
ysa6c1a	<p>Choose the answer that best describes how you feel.</p> <p>False_____1</p> <p>Mostly false_____2</p> <p>Sometimes false Sometimes true_____3</p> <p>Mostly true_____4</p> <p>True_____5</p> <p>C.1a In general, I like the way I am.</p> <p>C.1b Overall I have a lot to be proud of.</p> <p>C.1c A lot of things about me are good.</p> <p>C.1d When I do something, I do it well.</p> <p>C.1e I like the way I look.</p> <p>C.2 Do you think your body is:</p> <p>Much too thin?_____1</p> <p>A bit too thin?_____2</p> <p>About the right size?_____3</p> <p>A bit too fat?_____4</p> <p>Much too fat?_____5</p> <p>I don't think about it_____6</p> <p>C.3 How tall are you?</p> <p>_____feet and _____inches</p> <p>OR</p> <p>_____cm</p> <p>OR</p> <p>Don't know</p> <p>C.4 How much do you weigh?</p> <p>_____pounds</p> <p>OR</p> <p>_____kilograms</p> <p>OR</p> <p>Don't know</p>
ysa6c2i	
ysa6c3i	
ysa6c4i	

SECTION D Feelings and Behaviours	
yard1ai	Read the following statements and choose the answer that best describes you. Never or not true _____ 0 Sometimes or somewhat true _____ 1 Often or very true _____ 2
yard1bi	D.1a I show sympathy to (I feel sorry for) someone who has made a mistake.
yard1ci	D.1b I can't sit still, I am restless.
yard1di	D.1c I destroy my own things.
yard1ei	D.1d I try to help someone who has been hurt.
yard1fi	D.1e I read at home.
yard1gi	D.1f I am unhappy or sad.
yard1hi	D.1g I get into many fights.
yard1ii	D.1h I offer to help clear up a mess someone else has made.
yard1ji	D.1i I am easily distracted, I have trouble sticking to any activity.
yard1ki	D.1j When I am mad at someone, I try to get others to dislike him/her.
yard1li	D.1k I am not as happy as other people my age.
yard1mi	D.1l I destroy things belonging to my family or other young people.
yard1ni	D.1m I there is an argument, I try to stop it.
yard1oi	D.1n I can't concentrate, I can't pay attention.
yard1pi	D.1o I am too fearful or nervous.
yard1qi	D.1p When I am mad at someone, I become friends with another as revenge to get back at them.
yard1ri	D.1q I am impulsive, I act without thinking.
yard1si	D.1r I tell lies or cheat.
yard1ti	D.1s I offer to help other young people (friend, brother or sister) who are having difficulty with a task.
yard1ui	D.1t I worry a lot.
yard1vi	D.1u I have difficulty waiting for my turn in games or group activities.
yard1wi	D.1v When another kid accidentally hurts me, I assume that the other kid meant to do it and I react with anger and fighting.
yard1xi	D.1w When I am mad at someone, I say bad things behind his/her back.
yard1yi	D.1x I physically attack people.
yard1zi	D.1y I comfort another young person (friend, brother or sister) who is crying or upset.
yard2ai	D.1z I cry a lot.
yard2bi	D.2a I vandalize.
yard2ci	D.2b I threaten people.
yard2di	D.2c I help to pick up things which another young person has dropped.
yard2ei	D.2d I bully or am mean to others.
yard2fi	D.2e I stare into space.
yard2gi	D.2f When I am mad at someone, I say to others: let's not be with him/her.
yard2hi	D.2g I am nervous, frightened or tense.
yard2ii	D.2h I lock or hit other people my age.
yard2ji	D.2i When I am playing with others, I invite bystanders to join in a game.
yard2ki	D.2j I read outside my home.
yard2li	D.2k I am inattentive, I have difficulty paying attention to someone.
yard2mi	D.2l I have trouble enjoying myself.
yard2ni	D.2m I help others my age (friends, brother or sister) who are feeling sick.
yard2oi	D.2n When I am mad at someone, I tell that person's secrets to a third person.

ysr100l	D.1a Do you encourage other people my age who cannot do things as well as I can.
ysr126l	During the past 12 months, about how many times... Never.....1 Once or twice.....2 3 or 4 times.....3 5 or more times.....4
ysr126l	D.2a Have you stayed out later than your parents said you should?
ysr126l	D.2b Have you stayed out all night without permission?
ysr126l	D.2c Have you skipped a day of school without permission?
ysr126l	D.2d Have you been drunk?
ysr126l	D.2e Were you questioned by the police about anything you might have done such as stealing, damaging property or anything else?
ysr126l	D.2f Have you run away from home?
ysr131	D.3 During the past 12 months were part of a group that did bad things? Yes.....1 No.....2
My Mother	SECTION E My Parent(s)
ysr11	E.1 Think of the mother you spend the most time with. Is she... (Mark one only) Your biological mother?.....1 Your adoptive mother?.....2 Your stepmother?.....3 Your foster mother?.....4 Another person?.....5 OR I am not in touch with my mother.....6 (Go to question E4)
ysr12a	E.2a Thinking of the mother you have identified in the previous question: a. How well do you feel that your mother understands you? A great deal.....1 Some.....2 Very little/Not at all or None.....3

ysr126l	A great deal.....1 Some.....2 Very little/Not at all or None.....3 E.2b Thinking of the mother you have identified in the previous question: b. How much fairness do you receive from your mother? A great deal.....1 Some.....2 Very little/Not at all or None.....3
ysr126l	E.2c Thinking of the mother you have identified in the previous question: c. How much affection do you receive from your mother? A great deal.....1 Some.....2 Very little/Not at all or None.....3
ysr13	E.3 Overall, how would you describe your relationship with your mother? Very close.....1 Somewhat close.....2 Not very close.....3
My Father	
ysr11	E.4 Now think of the father you spend the most time with. Is he... (Mark one only) Your biological father?.....1 Your adoptive father?.....2 Your stepfather?.....3 Your foster father?.....4 Another person?.....5 OR I am not in touch with my father.....6 (Go to question E7)
ysr12a	E.5a Thinking of the father you have identified in the previous question: a. How well do you feel that your father understands you? A great deal.....1 Some.....2 Very little/Not at all or None.....3
ysr126l	E.5b Thinking of the father you have identified in the previous question: b. How well do you feel that your father understands you? A great deal.....1 Some.....2 Very little/Not at all or None.....3

	<p>I don't know.....6 Not applicable.....7</p>
	<p>SECTION F Smoking, Drinking and Drugs</p> <p>In this section, we would like to ask you some questions about your experiences with smoking, drinking, and drugs.</p> <p>Some of the questions will apply to you even if you have not smoked, had a drink, or used drugs.</p> <p>Please be as honest as you can; your answers are private and Better Beginnings will make sure no one will find out who filled out each questionnaire.</p>
<p>yr1f11</p>	<p>F.1 Which of the following best describes your experiences with smoking cigarettes.</p> <p>I have never smoked.....1 I have only had a few puffs.....2 (Go to question F3) Do not smoke anymore.....3 (Go to question F2) OR I smoke..... A few times a year.....4 About once or twice a month.....5 About 1-2 days a week.....6 About 3-5 days a week.....7 About 6-7 days a week.....8 (Go to question F2)</p> <p>F.2 If you have smoked one or more cigarettes every day for at least 7 days in a row, how old were when you first did so?</p> <p>I have never done this.....1 OR I was.....years old</p> <p>The next questions are about drinking alcohol.</p> <p>A drink of alcohol is, for example: one bottle of beer or one glass of wine, or one shot of liquor.</p> <p>F.3 Have you ever had a drink of alcohol? Yes, at least one drink.....1 (Go to question F4)</p>
<p>yr1f21</p>	<p>F.4 How often do your parents get upset with one another, including times when they are mad but don't say much?</p> <p>Never.....1 Rarely.....2 Sometimes.....3 Often.....4 Always.....5 I don't know.....6 Not applicable.....7</p> <p>E.8a How often do your parents disagree about how to deal with you and your brother(s) and sister(s)?</p> <p>Never.....1 Rarely.....2 Sometimes.....3 Often.....4 Always.....5 I don't know.....6 Not applicable.....7</p> <p>E.8b How often do your parents get upset with one another, including times when they are mad but don't say much?</p> <p>Never.....1 Rarely.....2 Sometimes.....3 Often.....4 Always.....5</p>
<p>previous question b. How much fairness do you receive from your father?</p> <p>A great deal.....1 Some.....2 Very little/Not at all or None.....3</p> <p>E.5c Thinking of the father you have identified in the previous question c. How much affection do you receive from your father?</p> <p>A great deal.....1 Some.....2 Very little/Not at all or None.....3</p> <p>E.6 Overall, how would you describe your relationship with your father?</p> <p>Very close.....1 Somewhat close.....2 Not very close.....3</p> <p>Answer the following questions thinking of the father and mother you identified in the previous questions.</p> <p>E.7 How well do you think your parents get along?</p> <p>Very well.....1 Fairly well.....2 Not very well.....3 Not applicable.....4</p> <p>E.8a How often do your parents disagree about how to deal with you and your brother(s) and sister(s)?</p> <p>Never.....1 Rarely.....2 Sometimes.....3 Often.....4 Always.....5 I don't know.....6 Not applicable.....7</p> <p>E.8b How often do your parents get upset with one another, including times when they are mad but don't say much?</p> <p>Never.....1 Rarely.....2 Sometimes.....3 Often.....4 Always.....5</p>	<p>yr1f5c1</p> <p>yr1f61</p> <p>yr1f71</p> <p>yr1f8a1</p> <p>yr1f8b1</p>

yarg'i	G.1 Played computer or video games?	
yarg'hi	G.1h done odd jobs (a paper route, babysitting, etc.)	
yarg'i	G.2 On average, about how many hours a day do you watch TV or videos?	I don't watch TV or videos _____ 1 Less than one hour a day _____ 2 1 to 2 hours a day _____ 3 3 to 4 hours a day _____ 4 5 to 6 hours a day _____ 5 7 or more hours a day _____ 6
yarg'i	G.3 How often do you read for fun (not for school)?	Every day _____ 1 A few times a week _____ 2 Once a week _____ 3 A few times a month _____ 4 Less than once a month _____ 5 Almost never _____ 6
yarg'i	G.4 Do you have access to a computer in your home?	Yes _____ 1 No _____ 2

yarg'hi	H.1 How often do you have something for breakfast?	Every day _____ 1 Some days _____ 2 Rarely _____ 3 Weekends only _____ 4 Never _____ 5
	How often have you eaten any of these foods in the last seven days? For each food, please fill in the circle.	At least twice a day _____ 1 Once a day _____ 2 4 to 6 times/week _____ 3 1 to 3 times/week _____ 4 Never _____ 5
yarg'hi	H.2a Milk (alone or on cereal)	
yarg'hi	H.2b Cheese	
yarg'hi	H.2c Yogurt or frozen yogurt	

yarg'hi	I have only had a few sips _____ 2 No _____ 3 (Go to question F5)	
	F.4 How old were you when you first had a drink of alcohol?	I was _____ years old
	The next questions are about drug use. Please answer even if you do not use drugs.	
yarg'hi	F.5 Have you ever tried drugs or sniffed glue or solvents? (Drugs include marijuana, cocaine, acid, or uppers, downers, etc.)	Yes _____ 1 No (Go to section G) _____ 2
yarg'hi	F.6 If you have used drugs (marijuana, glue, solvents, cocaine, etc.), how old were you when you first did so?	I was _____ years old

	SECTION G Activities	
	During the past 12 months, how often have you...	
	Never _____ 1 Less than once a week _____ 2 1 to 3 times a week _____ 3 4 or more times a week _____ 4	
yarg'hi	G.1a played sports or done physical activities WITHOUT a coach or an instructor (e.g. biking, skateboarding, etc.)?	
yarg'hi	G.1b played sports WITH a coach or instructor other than in gym class (swimming lessons, baseball, hockey, etc.)?	
yarg'hi	G.1c taken part in dance, gymnastics, karate, or other groups or lessons, other than in gym class?	
yarg'hi	G.1d taken part in art, drama or music groups, clubs or lessons outside of class?	
yarg'hi	G.1e taken part in clubs or groups such as Guides or Scouts, 4-H club, community, church or other religious groups?	
yarg'hi	G.1f done a hobby or craft (drawing, model building, etc.)?	

	Not very healthy..... 3
Many young people get hurt or injured at places such as the street, at home, playing sports, or during a fight with other. Injuries can also include being poisoned or burned. They do not include diseases such as measles, the flu, or chicken pox.	
yrh2i	1.2 During the past 12 months, how many times were you injured and had to be treated by a doctor or nurse? I was not treated by a doctor or nurse for an injury..... 1 (Go to question 14) 1 time..... 2 2 times..... 3 3 times..... 4 4 or more times..... 5
yrh3i	1.3 Did this most serious injury cause you to miss at least one full day of school or other usual activities? Yes..... 1 No..... 2 If "Yes", how many days did you miss?..... Never..... 1 Less than once a week..... 2 At least once a week but not every day..... 3 Once a day..... 4 More than once a day..... 5
yrh4i	1.4 How often do you brush your teeth? Never..... 1 Less than once a week..... 2 At least once a week..... 3 Once a day..... 4 More than once a day..... 5
yrh5i	1.5 How often do you use dental floss? Seldom or never..... 1 At least once a week..... 2 Most days..... 3
yrh6i	1.6 How often do you use a seat belt when you ride in a car? Rarely or never..... 1 Sometimes..... 2 Often..... 3 Always..... 4 Usually there is no seat belt where I sit..... 5 Never travel by car..... 6
yrh7i	1.7 How often do you wear a helmet when you ride a bicycle?

yrh2di	H.2.d Eggs
yrh2ei	H.2.e Ice Cream
yrh2fi	H.2.f French fries
yrh2gi	H.2.g Other kinds of potatoes
yrh2hi	H.2.h Salad
yrh2ji	H.2.j Other vegetables
yrh2ji	H.2.j Beans (baked, kidney beans, lentils, tofu)
yrh2ki	H.2.k Peanut butter
yrh2li	H.2.l Fruit
yrh2mi	H.2.m Fruit juice
yrh2ni	H.2.n Bread, bagels, pizza, English muffins, crackers, tortillas
yrh2oi	H.2.o Rice
yrh2pi	H.2.p Spaghetti, macaroni, or other pasta
yrh2qi	H.2.q Pizza
yrh2ri	H.2.r Cereals, Shredded, Rice Krispies, Corn Flakes, Raisin Bread, Frosted Flakes, and other cold cereals
yrh2si	H.2.s Oatmeal, Cream of Wheat and other cooked cereals
yrh2ti	H.2.t Hamburgers, beef, pork, hot dogs, sausages, lunch meats, or other meats
yrh2ui	H.2.u Chicken, turkey, fish
yrh2vi	H.2.v Cakes, cookies, pie, doughnuts
yrh2wi	H.2.w Potato chips, tortilla or nacho chips, Cheesies, pretzels, or other snack foods
yrh2xi	H.2.x Candy, chocolate bars
yrh2yi	H.2.y Regular (non diet) soft drinks
SECTION I Your Health	
yrh1i	1.1 How healthy do you think you are? Very healthy..... 1 Quite healthy..... 2 Rarely or never..... 1 Sometimes..... 2 Often..... 3 Always..... 4 I do not ride a bicycle..... 5

Appendix B: Interview Guides and Questionnaires

Youth Interview - Section A

Youth Interview - Section A	
	<p>Please turn to page 1 of the response booklet. Please answer the following statements about your friends and others your age.</p> <p>NOTE: USE THE FOLLOWING SCALE FOR QUESTIONS A.1-A.4.</p> <p>False 1 Mostly False 2 Sometimes True/Sometimes False 3 Mostly True 4 True 5</p>
ysra1k	A.1 I have many friends
ysra2k	A.2 I get along easily with others my age.
ysra3k	A.3 Others my age want me to be their friend.
ysra4k	A.4 Most others my age like me.
nlfr1k	NLSY RELATIONSHIP WITH FRIENDS SCALE (SEE APPENDIX A)
ysra6k	<p>A.5 How many close friends do you have? By "close friends", we mean the people that you trust and confide in. (Record number)</p> <p>A.6 Please turn to page 2 of the response booklet. How many close friends do the following:</p> <p>None 0 A few 1 Most 2 All 3</p>
ysra7ak	a. smoke cigarettes?
ysra7bk	b. drink alcohol?
ysra7ek	c. break the law by stealing, hurting someone or damaging property?
ysra7ck	d. have tried marijuana?
ysra7dk	e. have tried drugs other than marijuana?
ysra7fk	f. cut or skipped a day at school without permission?
ysra7gk	g. been suspended from school?
ysra7hk	h. dropped out of school for more than one week?

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Youth Interview - Section A

YOUTH REPORTED DELINQUENT FRIENDS SCALE (SEE APPENDIX A)	
ysra8k	A.7 Other than your close friends, how many people do you have that you can talk to about yourself or your problems? (Record number)
ysra8ak	<p>A.8 Please turn to page 3 of the response booklet. For each of the following statements, choose the number that best corresponds to your situation with <u>your close friends</u>.</p> <p>Rarely or Never 0 Some of the Time 1 Most of the Time 2 All the Time 3</p>
ysra8bk	a. My close friends push me to succeed and to do interesting things that I would not do by myself.
ysra8ck	b. When I make a decision, I take my close friends' opinion into account.
ysra8dk	c. My close friends push me to do foolish or stupid things.

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Youth Interview- Section B

Youth Interview- Section B	
ysrbx1k	<p>B.1 Are you currently in high school? Include junior high school, trade or alternative schools, adult high schools, upgrading, high school work experience programs, home schooling or correspondence courses. Include students on break between semesters or school years.</p> <p>Yes 1 No (GO TO B.3) 0</p>
ysrbx2k	B.2 What grade are you currently in? _____
ysrbx3k	<p>B.3 Have you received or completed the requirements for a high school diploma or its equivalent?</p> <p>Yes (GO TO B.5) 1 No 0</p>
ysrbx4k	<p>B.4 What is the highest level of education that you have attained?</p> <p>No schooling 1 Some elementary 2 Completed elementary 3 Some secondary 4 Completed secondary 5 Some post-secondary (university/community/technical/teacher's college, CEGEP or nurse's training) 6 Completed university or teacher's college 7 Master's degree 8 Doctorate or medical degree 9 Other education or training 10</p>
ysrbx5k	<p>B.5 For your last or most recent year of high school, what was your average mark? If you aren't sure, please give your best estimate.</p> <p>90% to 100% 1 80% to 89% 2 70% to 79% 3 60% to 69% 4 55% to 59% 5 50% to 54% 6 Less than 50% 7</p>

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Youth Interview- Section B

ysrbx6k	<p>B.6 What type of courses did you/are you taking at high school?</p> <p>University preparation courses 1 University/college preparation courses 2 College preparation courses 3 Workplace preparation courses (course for direct entry into workplace or apprenticeship programs) 4 Open courses (not linked to any specific post-secondary destination) 5</p>
ysrbx7k	<p>B.7 Did you receive special education services in high school?</p> <p>Yes 1 No 0</p>
ysrbx8k	<p>B.8 In the past 2 years, have you failed a course?</p> <p>Yes 1 No (GO TO B.10) 0</p>
ysrbx9k	<p>B.9 In the past 2 years, how many courses have you failed? (Record number)</p>
ysrbx10k	<p>B.10 In the past 2 years did you ever drop out of school for more than a week?</p> <p>Yes 1 No 0</p>
ysrbx11k	<p>B.11 Have you ever been suspended from high school?</p> <p>Yes 1 No (GO TO B.13) 0</p>
ysrbx12k	B.12 How many times? (Record number)
ysrb_5k	<p>B.13 How far do you expect you will go in school?</p> <p>Not graduate high school 1 Secondary or high school graduation 2 Technical, trade or vocational school (above the high school level) 3 Community college, CEGEP or apprenticeship program 4 University degree 5 More than one university degree 6</p>
ysrbx14k	<p>B.14 Are you currently taking some education towards a diploma, certificate or degree above the high school level?</p> <p>Yes 1 No (GO TO SECTION C) 0</p>

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Appendix B: Interview Guides and Questionnaires

Youth Interview – Section B

ysrbx15k	B.15 What level or type of school is it?
	Technical/ trade/ vocational school..... 1
	Community college 2
	CEGEP 3
	Private business school or training institute (above high school level)..... 4
	University 5
	Other (above high school level)..... 6
ysrbx16k	B.16 What program are you taking? Read categories to respondent. Mark one.
	Science or technology (e.g., chemistry, engineering, computer science)..... 1
	Social science (e.g., social work, political science, economics)..... 2
	Commerce/administration (e.g., management, marketing, accounting)..... 3
	General arts (e.g., literature, linguistics, communication, journalism)..... 4
	Fine arts (e.g., sculpture, music, theatre)..... 5
	Vocational trade (e.g., auto mechanics, electronics, hairdressing)..... 6
	Other 7

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Youth Interview – Section C

Youth Interview - Section C

	C.1 Please turn to page 4 of the response booklet. Choose the answer that best describes how you feel.
	NOTE: USE THE FOLLOWING SCALE FOR QUESTIONS C.1a-e:
	False 0
	Mostly false 1
	Sometimes false/Sometimes true 2
	Mostly true 3
	True 4
ysrc1ak	a. In general, I like the way I am.
ysrc1bk	b. Overall I have a lot to be proud of.
ysrc1ck	c. A lot of things about me are good.
ysrc1dk	d. When I do something, I do it well.
ysrc1ek	e. I like the way I look.
nlsgsek	NLSCY GENERAL SELF ESTEEM SCALE (SEE APPENDIX A)
	C.2 During the past 2 years, have you personally been through any of these events?
	NOTE: USE THE FOLLOWING SCALE FOR QUESTIONS C.2a-g:
	Yes 1
	No 0
ysrc4ak	a. A painful break-up with your boyfriend/girlfriend.
ysrc4bk	b. A serious problem in school or at work.
ysrc4ck	c. The death of someone close to you.
ysrc4dk	d. The illness of someone close to you.
ysrc4ek	e. The divorce or separation of your parents.
ysrc2fk	f. A serious money problem.
ysrc4fk	g. Another difficult event.
stressy2k	YOUTH REPORTED STRESS INDEX (SEE APPENDIX A)

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Youth Interview – Section C

	C.3 Please turn to page 5 of the response booklet. How often have you been bullied in the past month in the way listed below?
	NOTE: USE THE FOLLOWING SCALE FOR QUESTIONS C.3 a-f
	I have not been bullied in this way..... 1
	Only once or twice..... 2
	3 times a month 3
	About once a week 4
	Several times a week 5
ysrc3ak	a. I was called mean names, was made fun of, or teased in a hurtful way.
ysrc3bk	b. I was left out of things on purpose, excluded from a group of friends, or completely ignored.
ysrc3ck	c. I was kicked, pushed, shoved around or locked indoors.
ysrc3dk	d. Someone told lies or spread false rumours about me and tried to make others dislike me.
ysrc3ek	e. I was made fun of because of my race or colour.
ysrc3fk	f. Someone made sexual jokes, comments, or gestures to me.
victimyk	YOUTH REPORTED VICTIM OF BULLYING SCALE (SEE APPENDIX A)
	C.4 Please turn to page 6 in the response booklet. How often have you bullied others in the past month in the ways listed below?
	NOTE: USE THE FOLLOWING SCALE FOR QUESTIONS C.4 a-f
	I have not been bullied in this way..... 1
	Only once or twice..... 2
	3 times a month 3
	About once a week 4
	Several times a week 5
ysrc4ak	a. I called another student(s) mean names, and made fun of, or teased him or her in a hurtful way.
ysrc4bk	b. I kept him or her out of things on purpose, excluded him or her from my group of friends, or completely ignored him or her.

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Youth Interview – Section C

ysrc4xck	c. I hit, kicked, pushed, shoved around or locked him or her indoors.
ysrc4xdk	d. I spread false rumours about him or her and tried to make others dislike him or her.
ysrc4xek	e. I made fun of him or her because of his or her race or colour.
ysrc4xfk	f. I made sexual jokes, comments, or gestures to another student.
bullyyk	YOUTH REPORTED BULLYING SCALE (SEE APPENDIX A)
	I am now going to ask you some questions about your involvement with the criminal justice system. Your answers will be kept confidential.
ysrc7k	C.5 Have you ever been arrested or questioned by the police?
	No, never (GO TO C.46)..... 0
	Yes 1
ysrc7nk	C.6 How many times? (Record number)
ysrc_17k	C.7 Have you ever participated in a diversion program so you could avoid being charged and going to court?
	No, never (GO TO C.9)..... 0
	Yes 1
ysrc17nk	C.8 How many times? (Record number)
ysrc9k	C.9 Have you ever been charged by the police?
	No, never (GO TO C.11)..... 0
	Yes 1
ysrc9nk	C.10 How many times? (Record number)
ysrc_10k	C.11 Have you ever gone to court because you were charged with a criminal offence?
	No, never (GO TO C.46)..... 0
	Yes 1

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Appendix B: Interview Guides and Questionnaires

Youth Interview – Section C		
ysrc10nk	C.12 How many times? (Record number)	
	COURT CASE #1	
ysrc13k	C.13 Were you held in pre-trial detention (also known as dead time, on remand) for a bail hearing?	
	No (GO TO C.15)..... 0	
	Yes..... 1	
ysrc14k	C.14 Approximately how long were you in pre-trial detention before your bail hearing? (Record number of days)	
ysrc15k	C.15 How many court appearances did you have until there was a finding regarding your case (e.g. not guilty, guilty, charges withdrawn, etc.)? (Record number of court appearances)	
ysrc16k ysrc16ok	C.16 What was the outcome of your case?	
	Not Guilty (on all charges) (GO TO C.24)..... 0	
	Guilty (on one or more of the charges)..... 1	
	Charges were dismissed/withdrawn after I participated in a program (GO TO C.21)..... 2	
	Charges were dismissed/withdrawn without any participation in a program 3	
	Other (Record answer)..... 4	
ysrc17k	C.17 What were you found guilty of?	
ysrc18k	C.18 What was the sentence you received? (Record sentence e.g. custody)	
ysrc19k	C.19 Where did you serve your sentence (e.g. name of jail or secure custody facility)	
ysrc20wk ysrc20mk ysrc20yk	C.20 Approximately how long were you in there?	
	weeks or months or years	
	(GO TO C.24)	
ysrc21k	C.21 What program did you participate in? (Record name of program)	

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Youth Interview – Section C		
ysrc22wk ysrc22mk ysrc22yk	C.22 Approximately how long were you in the program?	
	weeks or months or years	
ysrc23k	C.23 How many times did you have to meet with a probation officer during your participation in the program? (Record number of times)	
	COURT CASE #2	
	IF MORE THAN ONE COURT CASE GO TO C.24, IF NOT GO TO C.46	
ysrc24k	C.24 Were you held in pre-trial detention (also known as dead time, on remand) for a bail hearing?	
	No (GO TO C.26)..... 0	
	Yes..... 1	
ysrc25k	C.25 Approximately how long were you in pre-trial detention before your bail hearing? (Record number of days)	
ysrc26k	C.26 How many court appearances did you have until there was a finding regarding your case (e.g. not guilty, guilty, charges withdrawn, etc.)? (Record number of court appearances)	
ysrc27k ysrc27ok	C.27 What was the outcome of your case?	
	Not Guilty (on all charges) (GO TO C.35)..... 0	
	Guilty (on one or more of the charges)..... 1	
	Charges were dismissed/withdrawn after I participated in a program (GO TO C.32)..... 2	
	Charges were dismissed/withdrawn without any participation in a program 3	
	Other (Record answer)..... 4	
ysrc28k	C.28 What were you found guilty of?	
ysrc29k	C.29 What was the sentence you received? (Record sentence e.g. custody)	
ysrc30k	C.30 Where did you serve your sentence (E.g. Name of jail or secure custody facility)	
ysrc31wk ysrc31mk ysrc31yk	C.31 Approximately how long were you in there?	
	weeks or months or years	
	(GO TO C.35)	

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Youth Interview – Section C		
ysrc32k	C.32 What program did you participate in? (Record name of program)	
ysrc33wk ysrc33mk ysrc33yk	C.33 Approximately how long were you in the program?	
	weeks or months or years	
ysrc34k	C.34 How many times did you have to meet with a probation officer during your participation in the program? (Record number of times)	
	COURT CASE #3	
	IF MORE THAN TWO COURT CASES GO TO C.35. IF NOT GO TO C.46	
ysrc35k	C.35 Were you held in pre-trial detention (also known as dead time, on remand) for a bail hearing?	
	No (GO TO C.37)..... 0	
	Yes..... 1	
ysrc36k	C.36 Approximately how long were you in pre-trial detention before your bail hearing? (Record number of days)	
ysrc37k	C.37 How many court appearances did you have until there was a finding regarding your case (e.g. not guilty, guilty, charges withdrawn, etc.)? (Record number of court appearances)	
ysrc38k ysrc38ok	C.38 What was the outcome of your case?	
	Not Guilty (on all charges) (GO TO C.46)..... 0	
	Guilty (on one or more of the charges)..... 1	
	Charges were dismissed/withdrawn after I participated in a program (GO TO C.43)..... 2	
	Charges were dismissed/withdrawn without any participation in a program 3	
	Other (Record answer)..... 4	
ysrc39k	C.39 What were you found guilty of?	
ysrc40k	C.40 What was the sentence you received? (Record sentence e.g. custody)	
ysrc41k	C.41 Where did you serve your sentence (E.g. Name of jail or secure custody facility)	
ysrc42wk ysrc42mk ysrc42yk	C.42 Approximately how long were you in there?	
	weeks or months or years	
	(GO TO C.46)	

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Youth Interview – Section C		
ysrc43k	C.43 What program did you participate in? (Record name of program)	
ysrc44wk ysrc44mk ysrc44yk	C.44 Approximately how long were you in the program?	
	weeks or months or years	
ysrc45k	C.45 How many times did you have to meet with a probation officer during your participation in the program? (Record number of times)	
	Please turn to page 7 of the response booklet. These next questions ask about things which may have happened to you during the past 12 months. Please include acts committed by both family and non-family members.	
	NOTE: USE THE FOLLOWING SCALE FOR QUESTIONS C.46-52	
	No 0	
	Yes, once 1	
	Yes, twice 2	
	Yes, three times 3	
	Yes, four times or more 4	
	DURING THE PAST 12 MONTHS...	
ysrc46k	C.46 Did anyone deliberately damage or destroy any property belonging to you?	
ysrc47k	C.47 Was anything of yours stolen from your place of work, from school, or from a public place such as a restaurant?	
ysrc48k	C.48 Did anyone steal or try to steal a vehicle you were using (or owned) or part of a vehicle such as a battery, hubcap or radio?	
ysrc49k	C.49 Did anyone illegally break into, or attempt to break into, your residence?	
ysrc50k	C.50 Did anyone take or try to take something from you by force or threat of force?	
ysrc51k	C.51 Did anyone threaten to hit or attack you or threaten you with a weapon? (an 'attack' can be anything from being hit, slapped, pushed or grabbed to being shot or beaten).	
ysrc52k	C.52 Were you attacked by anyone? (an 'attack' can be anything from being hit, slapped, pushed or grabbed to being shot or beaten).	
crimactk	YOUTH REPORTED VICTIM OF CRIMINAL/ILLEGAL ACTIVITIES INDEX (SEE APPENDIX A)	

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Appendix B: Interview Guides and Questionnaires

Youth Interview – Section C

ysrc53k	C.53	How many of the attacks were minor (hit, slapped, or pushed – no injuries beyond minor bruising)? (Record number).
ysrc54k	C.54	How many of the attacks were more serious (e.g. cuts, bleeding or injuries requiring medical attention)? (Record number).
These next questions ask about things which you may have done during the past 12 months. Please use page 7 of the response booklet. NOTE: USE THE FOLLOWING SCALE FOR QUESTIONS C.55-64 No 0 Yes, once 1 Yes, twice 2 Yes, three times 3 Yes, four times or more 4		
ysrc55k	C.55	Did you deliberately damage or destroy any property belonging to someone else?
ysrc56k	C.56	Did you take anything from your place of work, from school, or from a public place such as a restaurant that did not belong to you (excluding shoplifting from stores)?
ysrc57k	C.57	Did you shoplift anything from a store?
ysrc58k	C.58	Did you use public transportation without paying for it?
ysrc59k	C.59	Did you steal or try to steal a vehicle that did not belong to you, or part of a vehicle such as a battery, hubcap or radio?
ysrc60k	C.60	Did you break or sneak into, or attempt to break or sneak into, a building with the idea of taking something?
ysrc61k	C.61	Did you take, or try to take, something from someone using force or threat of force?
ysrc62k	C.62	Did you threaten to hit someone?
ysrc63k	C.63	Did you assault anyone by pushing, slapping or grabbing them – (where there were no injuries beyond minor bruising)?
ysrc64k	C.64	Did you assault someone which resulted in injuries to the person such as cuts, bleeding or injuries requiring medical attention?
cract_20k		YOUTH REPORTED INVOLVEMENT IN CRIMINAL/ILLEGAL ACTIVITIES INDEX (SEE APPENDIX A)
cract_f20k		FREQUENCY OF YOUTH REPORTED INVOLVEMENT IN CRIMINAL/ILLEGAL ACTIVITIES (SEE APPENDIX A)

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Youth Interview – Section C

rbasoffk	YOUTH REPORTED ROBBERY AND ASSAULT OFFENSES INDEX (SEE APPENDIX A)
propofyk	YOUTH REPORTED PROPERTY OFFENSES INDEX (SEE APPENDIX A)
drugofyk	YOUTH REPORTED DRUG OFFENSES INDEX (SEE APPENDIX A)

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Youth Interview- Section D

Youth Interview- Section D

	D.1	Please turn to page 8 in your response booklet. Now I would like you to think of how you have felt in the past week. From the answers in the booklet, please tell me which best describes the last week. During the past week: NOTE: USE THE FOLLOWING SCALE FOR QUESTIONS D.1a-k: Rarely or none of the time (less than 1 day)..... 1 Some or little of the time (1 to 2 days)..... 2 Occasionally or a moderate amount of the time..... 3 Most or all of the time (3 to 7 days)..... 4
ycesd02k	A.	I did not feel like eating, my appetite was poor.
ycesd03k	B.	I felt I could not shake off the blues even with help from my family or friends.
ycesd05k	C.	I had trouble keeping my mind on what I was doing.
ycesd06k	D.	I felt depressed.
ycesd07k	E.	I felt that everything I did was an effort.
ycesd08k	F.	I felt hopeful about the future.
ycesd11k	G.	My sleep was restless.
ycesd12k	H.	I was happy.
ycesd14k	I.	I felt lonely.
ycesd16k	J.	I enjoyed life.
ycesd17k	K.	I had crying spells.
ycesd19k	L.	I felt people disliked me.
cesdy_12k		YOUTH REPORTED CESD SCALE (SEE APPENDIX A)
	D.2	PLEASE TURN TO PAGE 9 IN THE RESPONSE BOOKLET.

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Youth Interview- Section D

		During the past 12 months, about how many times... NOTE: USE THE FOLLOWING SCALE FOR QUESTIONS D.2 a-d: Never..... 0 Once or twice..... 1 Three or four times..... 2 Five times or more..... 3
yerd_2gk	a.	Have you attacked someone with the idea of seriously hurting him/her
yerd_2hk	b.	Have you carried a weapon for the purpose of defending yourself or using it in a fight?
yerd_2ik	c.	Have you sold any drugs?
yerd_2jk	d.	Have you attempted to touch anyone in any sexual way while knowing that they would probably object to this?
yerdx3k	D.3	During the past 12 months, were you part of a gang that broke the law by stealing, hurting someone, damaging property, etc.? Yes 1 No 0
yerc11k	D.4	How many of your close friends were arrested or taken to the police station because they did something wrong? None..... 0 One or two..... 1 Many..... 2 Almost all..... 3

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Appendix B: Interview Guides and Questionnaires

Youth Interview - Section E

Youth Interview - Section E		
ysrf1k	E.1	Which of the following best describes your experiences with smoking cigarettes: I have never smoked (GO TO E.4)..... 1 I only tried once or twice (GO TO E.4)..... 2 Do not smoke anymore (GO TO E.3)..... 3 OR I smoke... A few times a year 4 About once or twice a month 5 About 1-2 days a week 6 About 3-5 days a week 7 About 6-7 days a week 8
ysrf1k	E.2	On days that you smoke, about how many cigarettes do you usually smoke? (Number of cigarettes per day) Record number.
ysrf2k	E.3	How old were you when you first smoked? (I was ___ years old) Record number.
		The next questions are about drinking alcohol. A drink of alcohol is, for example: • One bottle of beer, or • One glass of wine, or • One shot of liquor.
ysrf3k	E.4	Which of the following statements best describes your experiences with drinking alcohol: I have never had a drink of alcohol (GO TO E.7).... 1 I have only had a few sips (GO TO E.7)..... 2 I only tried once or twice (at least one drink) (GO TO E.5) 3 I do not drink alcohol anymore (GO TO E.6)..... 4 OR I drink (at least one drink)... A few times a year 5 About once or twice a month 6 About 1-2 days a week 7 About 3-5 days a week 8 About 6-7 days a week 9

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Youth Interview - Section E

ysrf5k	E.5	Please turn to page 10 of the response booklet. <u>During the past 12 months</u> , how often have you been drunk? Never 0 A few times 1 About once or twice a month 2 About 1-2 days a week 3 About 3-5 days a week 4 About 6-7 days a week 5
ysrf4k	E.6	How old were you when you first had a drink of alcohol? (I was ___ years old) Record number. The next questions are about drug use. Please answer even if you do not use drugs.
ysrf7k	E.7	Which of the following statements best describes your experience with using marijuana and cannabis products (also known as a joint, pot, grass or hash) <u>during the past 12 months</u> ? I have never done it 0 I have done it, but not during the past 12 months 1 OR During the past 12 months, I have used marijuana... A few times 2 About once or twice a month 3 About 1-2 days a week 4 About 3-5 days a week 5 About 6-7 days a week 6
	E.8	Please turn to page 11 of the response booklet. Which best describes your experience with the following drugs <u>during the past 12 months</u> ? NOTE: USE THE FOLLOWING SCALE FOR QUESTIONS E.10a-d: I have never done it 0 I have done it, but not during the past 12 months 1 OR During the past 12 months I have used it... 1 or 2 times 2 3 to 5 times 3 6 to 9 times 4 10 times or more 5
ysrf5ak	a.	Hallucinogens like LSD/acid, magic mushrooms
ysrf5bk	b.	Glue or solvents
ysrf5ck	c.	Drugs without a prescription or advice from a doctor: downers, uppers, tranquilizers, Ritalin, etc.

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Youth Interview - Section E

ysrf5dk	d.	Other drugs like ecstasy, crack, cocaine, heroin or speed, etc.
drugsyk		YOUTH REPORTED CURRENT USE OF DRUGS INDEX (SEE APPENDIX A)
ysrf6k	E.9	If you have used drugs (marijuana, glue, solvents, cocaine, etc.), how old were you when you first did so? I was ___ years old (Record number) OR I have never done it 0
ysrf8ak	E.10	<u>During the past 12 months</u> , how many times have you operated a vehicle (e.g., car, motorcycle, boat) after you have been drinking alcohol or taking drugs? Never 0 Once or twice 1 3 or 4 times 2 5 times or more 3
ysrf8k	E.11	<u>During the past 12 months</u> , how many times have you been a passenger in a vehicle when the driver has been drinking alcohol or taking drugs? Never 0 Once or twice 1 3 or 4 times 2 5 times or more 3

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Youth Interview - Section F

Youth Interview - Section F		
ysrhftk ysrhink hghtysrak	F.1	How tall are you? (Please estimate if you are not sure.) ___ feet and ___ inches OR ___ cm
ysrwlbk wghtysrak	F.2	How much do you weigh? (Please estimate if you are not sure.) ___ pounds OR ___ kilograms
bmick		YOUTH BODY MASS INDEX (SEE APPENDIX A)
ysri_1k	F.3	In general, would you say your health is: Excellent 1 Very good 2 Good 3 Fair 4 Poor 5
sexysrk	F.4	What is the sex of the respondent? Male..... 1 Female..... 2
bdyyark bdysrk bddysrk	F.5	When were you born? ___ year ___ month ___ day
	F.6	Please turn to page 12 of the response booklet. The next few questions deal with any health limitations which affect your daily activities. In these questions, a difficulty, condition or health problem is one that has lasted or is expected to last 6 months or more. Does a physical or mental condition or health problem reduce the amount or kind of activity you can do. NOTE: USE THE FOLLOWING SCALE TO ANSWER F.6 a-b Yes, sometimes 1 Yes, often 2 No 0
ysri_4hk	A.	At home ?
ysri_4wk	B.	At work or school?
climty2k		YOUTH REPORTED: LIMITED BY HEALTH PROBLEMS INDEX (SEE APPENDIX A)

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Appendix B: Interview Guides and Questionnaires

Youth Interview - Section F		
	F.7	Has a doctor ever told you that you have:
		Yes..... 1
		No..... 0
ysrallek	01	An allergy
ysrobek	02	Obesity
ysremodk	03	An emotional disorder
ysraethk	04	Asthma
ysarathk	05	Arthritis or rheumatism
ysrbhpk	06	High blood pressure
ysrbrnck	07	Chronic bronchitis or emphysema
ysrdiabk	08	Diabetes
ysrbeark	09	Heart disease
ysrocnck	10	Cancer
ysrstdk	11	A sexually transmitted disease (such as herpes, syphilis, gonorrhoea)
ysrothek	12	Any other long term condition (Specify _____)
ysrotpck		
chroconyk		YOUTH REPORTED NUMBER OF CHRONIC HEALTH CONDITIONS (SEE APPENDIX A)
ysrexerk	F.8	In the past month, have you done regular exercise? Regular exercise means on average once a week. "Exercise" is anything that got your heart beating a bit faster or got you breathing a bit faster for 15 to 20 minutes. For example brisk walking.
		No (GO TO F.10)..... 0
		Yes..... 1
ysrexenk	F.9	On average, how often did you exercise per week?
		1. 1-3 times per week
		2. 4-6 times per week
		3. Once a day or more
		Many young people get hurt or injured at places such as the Street, at home, playing sports, or during a fight with others. Injuries can also include being poisoned or burned. They do not include diseases such as measles, the flu, or chicken pox.

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Youth Interview - Section F		
ysri2k	F.10	During the past 12 months, how many times were you injured, and had to be treated by a doctor or nurse?
		I was not treated by a doctor or nurse for an injury (GO TO F.12)..... 0
		1 time 1
		2 times 2
		3 times 3
		4 or more times 4
ysri_7k ysri_7nk	F.11	Did any of your injuries require you to stay overnight at the hospital?
		Yes 1
		No 0
		If "Yes", how many nights were you in the hospital? (Record number).
		I am going to read you a list of resources that people sometimes use. In the past year, have you seen any of the following about your physical, emotional, or mental health?
ysrmdk ysrmdnk	F.12	Family Physician
		0. No 1. Yes →
ysrspeck ysrspekn	F.14	Medical Specialist
		0. No 1. Yes →
ysrerck ysrerkn	F.16	Emergency room at hospital
		0. No 1. Yes →
ysrwalkk ysrwalkn	F.18	Walk-in or after hours clinic
		0. No 1. Yes →
ysrnurck ysrnurnk	F.20	A public health nurse or nurse practitioner
		0. No 1. Yes →
ysrdentk ysrdennk	F.22	A dentist or orthodontist
		0. No 1. Yes →
ysrpsack ysrpsaynk	F.24	A psychiatrist or psychologist
		0. No 1. Yes →

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Youth Interview - Section F		
ysrrehak ysrrehnk	F.26	Drug rehab/treatment program or addictions counsellor
		0. No 1. Yes →
ysrresik ysrresnk ysrresik	F.28	Residential or inpatient treatment program
		0. No 1. Yes →
ysrothek ysrothnk	F.31	Any other person trained to provide treatment or counselling, for example a speech therapist, a social worker
		0. No 1. Yes →
hlthseeryk		YOUTH REPORTED HEALTH CARE AND SOCIAL SERVICE UTILIZATION INDEX (SEE APPENDIX A)
	F.27	Number of times _____
	F.29	Number of times _____
	F.30	How long were you there? _____
	F.32	Number of times _____

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Youth Interview - Section G		
	G.1	In the past 12 months, which of the following activities have you been involved with?
		NOTE: USE THE FOLLOWING SCALE FOR QUESTIONS G1-a-g:
		Yes.....1
		No.....0
ysrsuppk	a.	Supporting a cause (such as a food bank, environmental group, political group)?
ysrfundk	b.	Fund raising (for example, for a charity)?
ysrocmk	c.	Helping in your community (for example, hospital volunteering, work in a community organization or coaching)?
ysrreliek	d.	Religious and cultural activities (e.g. participated in a church-connected group, in an ethnic club or organization, participated in a choir or theatre group)?
ysrspork	e.	Organized sports (e.g., participated as a team member in a sports league or club)?
ysrneigk	f.	Helping neighbours or relatives (for example, cutting grass, babysitting or shovelling snow)?
ysrvoluk	g.	Doing another volunteer activity?
comminvyk		YOUTH REPORTED COMMUNITY INVOLVEMENT INDEX (SEE APPENDIX A)
ysrg_2k	G.2	During the past 12 months, how often have you volunteered or helped without pay?
		Everyday 1
		A few times a week 2
		Once a week 3
		A few times a month 4
		Once a month 5
		Less than once a month 6
ysrg_3k	G.3	In any of your activities, at school or outside school, do you have special responsibilities such as team leader, captain or secretary?
		Yes 1
		No 0

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Appendix B: Interview Guides and Questionnaires

Youth Interview - Section G

ysrg_4k	G.4	In high school were/are you required to volunteer or do community service to get your diploma? Yes 1 No (GO TO SECTION H) 0
ysrg_5k	G.5	How much of your requirement did you/have you managed to complete? All of it 1 Most of it 2 About half 3 Only a small portion 4
ysrg6k		How much of the community service that you did/are doing in high school was done to satisfy your graduation requirement? Which of the following statements comes closest to your experience? I only did enough community service to satisfy my high school requirement 1 I did a bit more community service than my high school requirement 2 I did about as much community service on my own as I did for my requirement 3 I did a lot more community service than was required 4

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Youth Interview - Section H

Youth Interview - Section H

		Now I would like to ask you some questions about the neighbourhood you live in. Please turn to page 13 of the response booklet. Tell me how good you think each aspect of the neighbourhood is. Excellent 1 Very Good 2 Good 3 Fair 4 Poor 5
ysrnh1k	H.1	How would you describe the condition of other houses and buildings in your neighbourhood?
ysrnh2k	H.2	How would you describe the other people who live around here as neighbours?
ysrnh3k	H.3	How about safety from crime in your home or building?
ysrnh4k	H.4	Safety walking on the street at night?
ysrnh5k	H.5	Safety for children when they go out to play?
ysrnh6k	H.6	Please turn to page 14 of the response booklet. All things considered, how satisfied are you with this neighbourhood as a place to live? Which number from 0 to 10 comes the closest to how you feel, where 0 is completely dissatisfied and 10 is completely satisfied? 0 1 2 3 4 5 6 7 8 9 10 Completely Dissatisfied Completely Satisfied
ngheatyk		YOUTH REPORTED NEIGHBOURHOOD SATISFACTION SCALE (SEE APPENDIX A)
ysrnh7k	H.7	How do you feel about your neighbourhood as a place to bring up children. Is it... Excellent 1 Good 2 Average 3 Poor 4 Very poor? 5 Please turn to page 15 of your response booklet. I have a few more questions about your neighbourhood. Low 0 Medium 1 High 2 Very High 3

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Youth Interview - Section H

ysrkn1k	H.8	From your knowledge of the neighbourhood, would you say that alcohol use is?
ysrkn2k	H.9	From your knowledge of the neighbourhood, would you say that the use of marijuana or hash is?
ysrkn3k	H.10	From your knowledge of the neighbourhood, would you say that the use of hard drugs such as cocaine or crack, LSD (acid), speed (amphetamines, uppers), heroin (dust, horse, junk, smack) is?
ysrkn4k	H.11	From your knowledge of the neighbourhood, would you say the number of violent crimes is?
ysrkn5k	H.12	Would you say the number of property crimes such as theft and vandalism is?
perdevyk		YOUTH REPORTED PERCEIVED DEVIANCE IN NEIGHBOURHOOD SCALE (SEE APPENDIX A)
ysrliv2k	H.13	Where does R live? (Which Better Beginnings Research Community?) Not in a BB neighbourhood 0 Cornwall 1 Sudbury 2 Highfield 3 Guelph 4 Kingston 5 Ottawa 6 Toronto 7 Halifax 8 Etobicoke-Comparison 21 Ottawa-Vanier 22 Peterborough 24 Hamilton 25

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Youth Interview - Section I

Youth Interview - Section I

ysrmark	I.1	Are you now or have you ever been married? Yes 1 No (GO TO I.4) 0
ymaragek	I.2	How old were you when you got married? _____
ylivspok	I.3	Are you currently living with your husband/wife? Yes (GO TO I.6) 1 No 0
ylivpark	I.4	Are you living with a partner or in a common-law relationship? Yes (GO TO I.6) 1 No 0
ylivwhok ylivtohk	I.5	Who are you presently living with? (Record answer that best fits) My parent(s) in their home 1 University or college residence 2 Other students in a shared apartment 3 A friend (or friends) 4 A relative or family friend 5 On my own 6 Other (please specify) 7
ysrmpgk	I.6	<u>If youth is male</u> Have you ever gotten someone pregnant? Yes 1 No (GO TO I.18) 0
ympragek	I.7	How old were you the first time you got someone pregnant? _____ (age)
ympregnk	I.8	How many times have you gotten someone pregnant? _____
ysrj7k	I.6	<u>If youth is female</u> Have you ever been pregnant? Yes 1 No (GO TO I.18) 0
ysrj8k	I.7	How old were you at the time of your first pregnancy? _____ (age)
ysrnpgk	I.8	How many times have you been pregnant? _____

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Youth Interview – Section I

yerj9k	I.9 How many children do you have? _____
	I.10 Please give me the birthdates and birth weight for each of your children (Record for every child)
	<u>Child 1:</u>
bldobyk bldobmk bldobdk bldwtlbk bldwtokk bldwtgk	Birthdate _____ Birthweight _____ year / month / day pounds ounces or kg
	<u>Child 2:</u>
b2dobyk b2dobmk b2dobdk b2bwtlbk b2bwtokk b2bwtgk	Birthdate _____ Birthweight _____ year / month / day pounds ounces or kg
	<u>Child 3:</u>
b3dobyk b3dobmk b3dobdk b3bwtlbk b3bwtokk b3bwtgk	Birthdate _____ Birthweight _____ year / month / day pounds ounces or kg
yerstayk	I.11 Did you child/children ever stay somewhere other than at home or live with someone other than yourself for longer than one month? No (GO TO I.18)..... 0 Yes 1
	Where did your child/children stay?
ystarelk	I.12 With a relative (i.e. grandparent)? No 0 Yes 1
ystafokk	I.13 With a foster family? No 0 Yes 1
ystainak	I.14 Institutional care (i.e. group home, treatment centre or hospital)? No 0 Yes 1

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Youth Interview – Section I

ystaohk ystoohrk	I.15 Other kind of care (please record) _____
ystingyk ystingmk	I.16 What was the longest time your child/children spent in one of these arrangements? (Record years and months) _____
ystawhrk ystwhrok	I.17 Which one was it? With a relative 1 With a foster family 2 In institutional care 3 Other (please record)..... 4
	I'd now like to ask you some questions about your family's involvement with the Children's Aid Society (CAS).
yerca1k	I.18 When you were a child, was the Children's Aid Society ever involved with your family? No (GO TO SECTION J)..... 0 Yes 1
yerca2k	I.19 Did you or your siblings spend any time in the care of CAS such as a foster home or group home? No (GO TO SECTION J)..... 0 Yes 1
lngca1k lngca2k lngca3k lngca4k	I.20 Approximately how long were you and your siblings in care? (If R not sure, ask for an estimate) Self (number of months) Sibling #1 (number of months) Sibling #2 (number of months) Sibling #3 (number of months)

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Youth Interview - Section J

Youth Interview - Section J

The next questions are about paid jobs. Ask everyone J.1. Skip J3 if R has any kind of job.

yftimerk	J.1 Do you have a paid full time job? No 0 Yes (GO TO J4)..... 1
yptimerk	J.2 Do you have a part-time job? No 0 Yes (GO TO J4)..... 1
yjserchk	J.3 Are you looking for paid work? (Do not ask if respondent has any kind of job) No 0 Yes 1
	For all respondents, ask J.4. If R is not currently working, ask about his/her most recent job if it has been in the past year.
ykindwkk	J.4 What kind of work are/were you doing? (Probe if necessary: What is your job title?) _____
ydtlesk	What does/did this job involve? (Identify most important duties or activities) _____
ykindbak	What kind of business or organization do/did you work in? (Probe if necessary: What does it do or make?) _____
	If youth lives alone or with roommates, go to J.5. If youth lives at home with parents, go to J.17. If youth lives with a partner, go to J.23.
	<u>YOUTH LIVES ALONE OR WITH ROOMMATES:</u>
ylinc1k ylinc1k ylinc2k	J.5 What is your current total monthly income from all sources before taxes or other deductions? Only include youth's own income (not friends'). Record full amount, e.g. "eighty-five" as 00850. Use 3 month average if R says it changes. Probe. If R is unable to answer then say: "Could you give me a range?". \$ _____ or \$ _____ to \$ _____

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Youth Interview - Section J

yloworkk	J.6 Are you receiving financial assistance or Ontario Works payments? (If R is not clear, you can clarify by saying social assistance or welfare payments). No (GO TO J.8)..... 0 Yes 1
y1wrkank	J.7 What is your monthly payment before deductions such as the national child benefit supplement, rent direct payment and pension? If R says it varies the ask for last month. If R is unclear as to the amount then ask "What is your entitlement before deductions? It appears on the left-hand column of your Ontario Works stub." \$ _____
	Do you receive the following:
y1rsbk	J.8 Rent Subsidy? No 0 Yes 1
y1csbk	J.9 Child Care Subsidy? No 0 Yes 1
y1esbk	J.10 Employment Subsidy (For example, wardrobe or transportation allowance)? No 0 Yes 1
y1odspk	J.11 Do you receive payments from the Ontario Disability Support Program? No (GO TO J.13)..... 0 Yes 1
y1odsamk	J.12 How much do you receive each month? \$ _____
y1cpcwk	J.13 Do you receive payments from CPP or Worker's Compensation? No (GO TO J.15)..... 0 Yes 1
y1cpcamk	J.14 How much do you receive each month? \$ _____
y1mfoodk	J.15 How much do you pay for food each month? Do not include non-food items. Record full amount, e.g. "three seventy-five" as 375. \$ _____

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Appendix B: Interview Guides and Questionnaires

Youth Interview - Section J

y1mrentk	J.16 How much do you pay for rent or in mortgage payments plus utilities and taxes each month? Record full amount, e.g. "six hundred" as 600. Include gas, oil and telephone. \$ _____ (GO TO SECTION K) YOUTH LIVES WITH PARENTS
y2inc1k y2inc1k y2inc2k	J.17 What is your current total monthly household income from all sources before taxes or other deductions? Record full amount, e.g. "eight-fifty" as 00850. Use 3 month average if R says it changes. Probe: If R is unable to answer then say: "Could you give me a range?" \$ _____ or \$ _____ to \$ _____
y2oworkk	J.18 Are you or your parents receiving financial assistance or Ontario Works payments? (If R is not clear, you can clarify by saying social assistance or welfare payments). No (GO TO J.20) 0 Yes 1
y2wrkamk	J.19 What is your monthly payment before deductions such as the national child benefit supplement, rent direct payment and pension? If R says it varies then ask for last month. If R is unclear as to the amount then ask "What is your entitlement before deductions? It appears on the left-hand column of your Ontario Works stub." \$ _____ Do you or your parents receive the following:
y2rsubk	J.20 Rent Subsidy? No 0 Yes 1
y2csubk	J.21 Child Care Subsidy? No 0 Yes 1
y2esubk	J.22 Employment Subsidy (For example, wardrobe or transportation allowance)? No 0 Yes 1

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Youth Interview - Section J

y2odspk	J.23 Do you or your parents receive payments from the Ontario Disability Support Program? No (GO TO J.25) 0 Yes 1
y2odsamk	J.24 How much does your family receive each month? \$ _____
y2cppwck	J.25 Do you or your parents receive payments from CPP or Worker's Compensation? No (GO TO J.27) 0 Yes 1
y2cppamk	J.26 How much does your family receive each month? \$ _____
y2mfoodk	J.27 How much does your household pay for food each month? Do not include non-food items. Record full amount, e.g. "three seventy-five" as 375. \$ _____
y2mrentk	J.28 How much does your household pay for rent or in mortgage payments plus utilities and taxes each month? Record full amount, e.g. "six hundred" as 600. Include gas, oil and telephone. \$ _____ (GO TO SECTION K) YOUTH LIVES WITH A PARTNER
y3inc1k y3inc1k y3inc2k	J.29 What is your current total monthly household income from all sources before taxes or other deductions? Youth should include his/her own income plus his/her partner's. Record full amount, e.g. "eight-fifty" as 00850. Use 3 month average if R says it changes. Probe: If R is unable to answer then say: "Could you give me a range?" \$ _____ or \$ _____ to \$ _____
y3oworkk	J.30 Are you or your parents receiving financial assistance or Ontario Works payments? (If R is not clear, you can clarify by saying social assistance or welfare payments). No (GO TO J.32) 0 Yes 1
y3wrkamk	J.31 What is your monthly payment before deductions such as the national child benefit supplement, rent direct payment and pension? If R says it varies then ask for last month. If R is unclear as to the amount then ask "What is your entitlement before deductions? It appears on the left-hand column of your Ontario Works stub." \$ _____

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Youth Interview - Section J

y3rsubk	Do you receive the following: J.32 Rent Subsidy? No 0 Yes 1
y3csubk	J.33 Child Care Subsidy? No 0 Yes 1
y3esubk	J.34 Employment Subsidy (For example, wardrobe or transportation allowance)? No 0 Yes 1
y3odspk	J.35 Do you receive payments from the Ontario Disability Support Program? No (GO TO J.37) 0 Yes 1
y3odsamk	J.36 How much do you receive each month? \$ _____
y3cppwck	J.37 Do you receive payments from CPP or Worker's Compensation? No (GO TO J.39) 0 Yes 1
y3cppamk	J.38 How much do you receive each month? \$ _____
y3mfoodk	J.39 How much does your household pay for food each month? Do not include non-food items. Record full amount, e.g. "three seventy-five" as 375. \$ _____
y3mrentk	J.40 How much does your household pay for rent or in mortgage payments plus utilities and taxes each month? Record full amount, e.g. "six hundred" as 600. Include gas, oil and telephone. \$ _____

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Youth Interview - Section K

Youth Interview - Section K

ysre1k	K.1 Think of the mother you spend the most time with. Is she ... Your biological mother? 1 Your adoptive mother? 2 Your stepmother? 3 Your foster mother? 4 Another person? 5 OR I am not in touch with my mother (GO TO K.4) 6
ysre2ak	K.2 Please turn to page 16 of the response booklet. Thinking of the mother you have identified in the previous question: NOTE: USE THE FOLLOWING SCALE FOR QUESTIONS K.2 a-c: A great deal 1 Some 2 Very little/Not at all 3
ysre2bk	A. How well do you feel that your mother understands you?
ysre2ck	B. How much fairness do you receive from your mother?
ysre3k	C. How much affection do you receive from your mother?
relmonk	K.3 Overall, how would you describe your relationship with your mother? Very close 1 Somewhat close 2 Not very close 3
ysre4k	RELATIONSHIP WITH MOTHER SCALE (SEE APPENDIX A) K.4 Now think of the father you spend the most time with. Is he ... Your biological father? 1 Your adoptive father? 2 Your stepfather? 3 Your foster father? 4 Another person? 5 OR I am not in touch with my father (GO TO K.7) 6

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Appendix B: Interview Guides and Questionnaires

Youth Interview - Section K

		<p>K.5 Please use page 16 of the response booklet. Thinking about the father you have identified in the previous question:</p> <p>NOTE: USE THE FOLLOWING SCALE FOR QUESTIONS K.5 a-c:</p> <p>A great deal 1 Some 2 Very little/Not at all 3</p>
ysre5ak	A.	How well do you feel that your father understands you?
ysre5bk	B.	How much fairness do you receive from your father?
ysre5ck	C.	How much affection do you receive from your father?
ysre6k	K.6	Overall, how would you describe your relationship with your father? Very close 1 Somewhat close 2 Not very close 3
reldadk		RELATIONSHIP WITH FATHER SCALE (SEE APPENDIX A)
		Answer the following questions thinking of the father and mother you have identified in the previous questions.
ysre7k	K.7	How well do you think your parents get along with each other? Very well 1 Fairly well 2 Not very well 3 My parents are not in touch with each other 4
ysre14k	K.8	Overall, how would describe your relationship with your brother(s) and sister(s) (include step or foster siblings)? Very close 1 Somewhat close 2 Not very close 3 I am not in touch with my brother(s) and sister(s) 4 I don't have brothers and sisters 5
ysre8ak	K.9	Please turn to page 17 in the response booklet. How often do your parents disagree about how to deal with you and your brother(s) and sister(s)? Never 1 Rarely 2 Sometimes 3 Often 4 Always 5 I don't know 6 My parents are not in touch with each other 7

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Youth Interview - Section K

ysre8bk	K.10	How often do your parents get upset with one another, including times when they are mad but don't say much? Never 1 Rarely 2 Sometimes 3 Often 4 Always 5 I don't know 6 My parents are not in touch with each other 7
parconfk		PARENT CONFLICT SCALE (SEE APPENDIX A)
ysrk11k	K.11	When you were in Grade 9, were you living with one parent or with two? _____ with one parent _____ with two
ysrk12k	K.12	As of now, is the same parent married or living with someone? Yes 1 No 0
ysrk13k	K.13	Are they still living together? Yes 1 No 0
ysrk14k	K.14	How often did you see adults or teenagers in your house physically fighting or trying to hurt others? Often 3 Sometimes 2 Seldom 1 Never 0

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Youth Interview - Section L

Youth Interview - Section L

		<p>Please turn to page 18 in the response booklet. Here are some statements about your relationships with others. For each, could you please tell me whether you strongly agree, agree, disagree or strongly disagree?</p> <p>NOTE: USE THE FOLLOWING SCALE FOR QUESTIONS L.1-8:</p> <p>Strongly agree 1 Agree 2 Disagree 3 Strongly disagree 4</p>
ysocsu1k	L.1	If something went wrong, no one would help me.
ysocsu2k	L.2	I have family and friends who help me feel safe, secure and happy.
ysocsu3k	L.3	There is someone I trust whom I could turn to for advice if I were having problems.
ysocsu4k	L.4	There is no one I feel comfortable talking about problems with.
ysocsu5k	L.5	I lack a feeling of closeness with another person.
ysocsu6k	L.6	There are people I can count on in an emergency.
ysocsu7k	L.7	I feel part of a group of people who share my attitudes and beliefs.
ysocsu8k	L.8	There is no one who shares my interests and concerns.
ysocsupk		YOUTH REPORTED SOCIAL SUPPORT SCALE (SEE APPENDIX A)

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Youth Interview - Section Z

Youth Interview - Section Z

ydurocnk	Z.1A	Duration to do both the consent form and the youth information sheet?
yduzrnk	Z.1B	Duration of interview (in hours and minutes) to do this youth interview?
ylcoatk	Z.2	What was the location of the interview? Home 1 School 2 Community Centre, Better Beginnings office, etc. 3 Public place (e.g., restaurant) 4 Telephone 5 Other (SPECIFY) 6
yversak	Z.3	Which version of the interview was used? In person 1 By telephone 2 By mail 3 Other (SPECIFY) 4
	Z.4	NOT ASKED IN THIS VERSION
		Were the following people present during the interview?
yspousek	Z.5	Spouse/partner? No 0 Yes 1
yothrchk	Z.6	Children? No 0 Yes 1
yothradk	Z.7	Other adults? No 0 Yes 1
ylanintk	Z.8	What was the main language of the interview? Arabic 01 Chinese 02 English 03 French 04 German 05 Hindi 06 Italian 07 Ojibway 08 Polish 09 Portuguese 10 Somali 11 Urdu 12 Vietnamese 13 Punjabi 14 Other (SPECIFY) 15

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Appendix B: Interview Guides and Questionnaires

Youth Interview - Section Z

yhomtypk	2.9	Type of home?	
yhomothk		Single house	1
		Semi-detached/double house(side-by-side)	2
		Duplex (one above the other)	3
		Row/town house	4
		Apartment less than 5 stories	5
		Apartment with 5 or more stories	6
		House attached to a non-residential structure	7
		Mobile home	8
		Other (SPECIFY)	9
ysmoothk	2.10	How smoothly did the interview progress (i.e., did you have to do a lot of prompting?)	
		With difficulty	1
		With some difficulty	2
		With little difficulty	3
		With no difficulty	4
yunstank	2.11	Respondent's understanding of the questions	
		No difficulties	1
		Minor difficulties - satisfied that respondent understood	2
		Major difficulties - not satisfied that respondent always understood	3
yrcoopk	2.12	Respondent's cooperation	
		Cooperative	1
		Indifferent	2
		Uncooperative	3
yquaintk	2.13	Overall quality of interview	
		High quality	1
		Adequate	2
		Questionable	3
yimpfalk	2.14	Important factors that interfered with the quality of the interview (RECORD UP TO 3)	
yimpfak		Alcohol	1
yimpfask		Language	2
yimpfack		Age	3
yimpfok		Illness	4
		Noise	5
		Presence of (spouse/partner)	6
		Presence of children	7
		Presence of others	8
		Phone calls	9
		Other (SPECIFY)	10
ycomentk	2.15	Comments	

Ministry of Education

Ministry of Education (MOE)

moelink	MOE AUTO NUMBER
moedatak	MOE DATA COLLECTED (0 = NO, 1 = YES)
gl2moewts	SAMPLE WEIGHTS FOR MOE DATA
moemarkk	MOE: AVERAGE MARKS OBTAINED
moelstmrkk	MOE: AVERAGE MARKS OBTAINED IN MOST RECENT YEAR
moetotfailk	MOE: TOTAL NUMBER OF COURSES FAILED
moescomk	MOE: HIGH SCHOOL COMPLETED
moespedk	MOE: RECEIVED SPECIAL EDUCATION/SERVICES
moecinvhrsk	MOE: COMMUNITY INVOLVEMENT HOURS
moelitk	MOE: STATUS OF GRADE 10 EQAO LITERACY

APPENDIX C: FINAL REGRESSION MODELS

Model:	LSP			HSP			OOWS		
	6LSP	9LSP	12LSP	6HSP	9HSP	12HSP	600	900	1200
Valid N	564	372	439	559	426	425	509	461	490
0	345	235	335	411	274	230	337	325	401
1	219	137	104	148	152	195	172	136	89
number of predictors	7	5	8	6	4	7	6	4	6
EPV	31	27	13	25	38	28	29	34	15
% R^2 improved	8.6%	18.9%	3.4%	9.2%	16.2%	5.5%	4.6%	3.6%	5.0%
-2 Likelihood (Step 0)	753.48	489.59	480.69	646.177	555.128	586.289	651.158	559.264	464.383
-2 Likelihood (Step Final)	688.781	396.82	464.40	586.818	465.324	553.925	621.296	539.342	440.990
Cox and Snell R^2	0.108	0.221	0.036	0.101	0.190	0.073	0.057	0.042	0.047
Nagelkerke R^2	0.147	0.302	0.055	0.147	0.261	0.098	0.079	0.060	0.076
Hosmer-Lemeshow χ^2	4.517	3.423	5.617	2.966	2.732	5.396	5.300	0.000	1.630
df	7	8	6	7	4	7	7	2	5
sig	0.719	0.905	0.467	0.888	0.604	0.612	0.623	1.000	0.898
Percent Correct (0)	84.9%	84.7%	99.7%	100.0%	66.1%	62.6%	95.5%	100.0%	99.3%
Percent Correct (1)	38.4%	58.4%	3.8%	0.0%	71.7%	62.6%	8.7%	0.0%	3.4%
Percent Correct (Overall)	66.8%	75.0%	77.0%	73.5%	68.1%	62.6%	66.2%	70.5%	81.8%
SchlPerf6_Lower	D								
SchlPerf9_Lower		D							
SchlPerf12_Lower			D						
SchlPerf6_Higher				D					
SchlPerf9_Higher					D				
SchlPerf12_Higher						D			
WtStatus6_OO							D		
WtStatus9_OO								D	
WtStatus12_OO									D
Gr 6 Failing									
Gr 6 Low									
Gr 6 High									
Gr 6 Highest									
Gr 9 Failing									
Gr 9 Low									
Gr 9 High									
Gr 9 Highest									
Gr 12 Failing									
Gr 12 Low									
Gr 12 High									
Gr 12 Highest									
Gr6 Under									
Gr6 Over									
Gr6 Obese									
Gr9 Under									
Gr9 Over									
Gr9 Obese									
Gr 12 Under			x						
Gr 12 Over			x						
Gr 12 Obese			x						

Model:	LSP			HSP			OOWS		
	6LSP	9LSP	12LSP	6HSP	9HSP	12HSP	600	900	1200
BBBFi									
BBBFj									
BBBFk									
immi									
immj									
immk									
selfesteemi (2 dum vars)				2					
selfesteemj (2 dum vars)									
selfesteemk (2 dum vars)						2			2
friendsi (3 dum vars)	3								
friendsj (3 dum vars)									
friendsk (3 dum vars)			3						
emoi									
emoj									
emok									
eduparentsi (2 dum vars)	2			2	2				
eduparentsj (2 dum vars)		2							
eduparentsk (2 dum vars)									
EduParentsEx (2 dum vars)									
LICOii							1		
LICOj									
LICOk									
bmirsti (3 dum vars)							3		
bmirstj (3 dum vars)								3	
bmirstk (3 dum vars)						3			3
singpari							1		
singparj									
singpark			1			1			
Tiredi	1			1					
Tiredj		1			1				
PhysActi									
PhysActj									
DietQualityi									
DietQualityj									
Breakfasti									
Breakfastj		1							

A	AL	AO	AP	A'	AX	AZ	BB	B'	BK	BO	BQ
D = Dependent Variable X = covariate (yellow) = significant	LSP - Long			HSP - Long			OOWS - Long				
Model:	69LSP	912LSP fwd	612LSP	69HSP	912HSP	612HSP	69OOWS	912OO	612OO		
Valid N	324	289	331	346	272	387	406	371	451		
0	206	218	261	224	145	210	278	304	361		
1	118	71	70	122	127	177	128	67	90		
number of predictors	9	9	10	6	12	6	4	10	4		
EPV	13	8	7	20	11	30 [#]	32	7	23		
% R ² improved	18.5%	27.7%	18.5%	13.8%	27.3%	17.8%	32.1%	39.2%	24.5%		
-2 Likelihood (Step 0)	424.955	322.254	341.533	449.137	375.880	533.679	506.082	350.440	450.808		
-2 Likelihood (Step Final)	346.375	233.096	278.281	386.944	273.401	438.602	343.645	213.106	340.440		
Cox and Snell R ²	0.215	0.265	0.174	0.165	0.314	0.218	0.330	0.309	0.217		
Nagelkerke R ²	0.294	0.395	0.270	0.226	0.419	0.291	0.463	0.506	0.343		
Hosmer-Lemeshow X ²	9.254	3.788	8.449	1.024	3.908	1.703	0.000	3.493	0.000		
df	8	8	8	7	8	5	2	7	2		
sig	0.321	0.876	0.391	0.994	0.865	0.888	1.000	0.836	1.000		
Percent Correct (0)	85.0%	89.4%	95.8%	87.1%	75.9%	89.0%	84.2%	96.1%	92.2%		
Percent Correct (1)	48.3%	57.7%	28.6%	44.3%	76.4%	48.0%	75.0%	50.7%	48.9%		
Percent Correct (Overall)	71.6%	81.7%	81.6%	72.0%	76.1%	70.3%	81.3%	87.9%	83.6%		
SchIPerf6_Lower											
SchIPerf9_Lower	D										
SchIPerf12_Lower		D	D								
SchIPerf6_Higher											
SchIPerf9_Higher				D							
SchIPerf12_Higher					D	D					
WtStatus6_OO											
WtStatus9_OO							D				
WtStatus12_OO								D	D		
Gr 6 Failing	+		x	x		-					
Gr 6 Low	+		x	x		x					
Gr 6 High	x		x	x		+					
Gr 6 Highest	-		-	+		+					
Gr 9 Failing		+			x						
Gr 9 Low		+			x						
Gr 9 High		x			+						
Gr 9 Highest		x			+						
Gr 12 Failing											
Gr 12 Low											
Gr 12 High											
Gr 12 Highest											
Gr6 Under			x				x		x		
Gr6 Over			-				x		x		
Gr6 Obese			x				x		x		
Gr9 Under		x			x			x			
Gr9 Over		x			x			+			
Gr9 Obese		x			-			+			
Gr 12 Under											
Gr 12 Over											
Gr 12 Obese											

D = Dependent Variable X = covariate (yellow) = significant	OOWS			LSP - Long			HSP - Long		
Model:	600	900	1200	69LSP	912LSP fwd	612LSP	69HSP	912HSP	612HSP
BBBFi									
BBBFj									
BBBFk									
immi									
immj									
immk									
selfesteemi (2 dum vars)				2					
selfesteemj (2 dum vars)									
selfesteemk (2 dum vars)			2						
friendsi (3 dum vars)									
friendsj (3 dum vars)									
friendsk (3 dum vars)									
emoi									
emoj									
emok									
eduparentsi (2 dum vars)									
eduparentsj (2 dum vars)								2	
eduparentsk (2 dum vars)									
EduParentsEx (2 dum vars)									
LICOii	1					1			
LICOj								1	
LICOk									
bmirsti (3 dum vars)	3								
bmirstj (3 dum vars)		3							
bmirstk (3 dum vars)			3						
singpari	1								
singparj									
singpark									
Tiredi				1		1	1		1
Tiredj					1			1	
PhysActi									
PhysActj									
DietQualityi									
DietQualityj									
Breakfasti				1					
Breakfastj									

D = Dependent Variable X = covariate (yellow) = significant	LSP - Long 69&12	HSP - Long 69&12	OOWS - Long 69&12
Model:	69&12 LSP12	69&12 HSP12 fwd	69&12 OO12
Valid N	274	232	393
0	206	125	309
1	68	107	84
number of predictors	7	15	8
EPV	10	7	11
% R ² improved	27.5%	27.6%	26.2%
-2 Likelihood (Step 0)	307.056	320.222	407.83
-2 Likelihood (Step Final)	222.517	231.837	300.837
Cox and Snell R ²	0.265	0.317	0.238
Nagelkerke R ²	0.394	0.423	0.369
Hosmer-Lemeshow χ^2	2.705	1.66	2.504
df	7	8	6
sig	0.911	0.990	0.868
Percent Correct (0)	91.7%	80.8%	92.2%
Percent Correct (1)	48.5%	73.8%	46.4%
Percent Correct (Overall)	81.0%	77.6%	82.4%
SchlPerf6_Lower			
SchlPerf9_Lower			
SchlPerf12_Lower	D		
SchlPerf6_Higher			
SchlPerf9_Higher			
SchlPerf12_Higher		D	
WtStatus6_OO			
WtStatus9_OO			
WtStatus12_OO			D
Gr 6 Failing		x	x
Gr 6 Low		x	x
Gr 6 High		x	x
Gr 6 Highest		x	x
Gr 9 Failing	x	x	
Gr 9 Low	x	x	
Gr 9 High	x	x	
Gr 9 Highest	x	x	
Gr 12 Failing			
Gr 12 Low			
Gr 12 High			
Gr 12 Highest			
Gr6 Under			x
Gr6 Over			x
Gr6 Obese			x
Gr9 Under		x	
Gr9 Over		x	
Gr9 Obese		x	
Gr 12 Under			
Gr 12 Over			
Gr 12 Obese			

D = Dependent Variable X = covariate (yellow) = significant	LSP - Long 69&12	HSP - Long 69&12	OOWS - Long 69&12
Model:	69&12 LSP12	69&12 HSP12 fwd	69&12 OO12
BBBFi			
BBBFj			
BBBFk			
immi			
immj			
immk			
selfesteemi (2 dum vars)			
selfesteemj (2 dum vars)			
selfesteemk (2 dum vars)			
friendsi (3 dum vars)			
friendsj (3 dum vars)			
friendsk (3 dum vars)			
emoi			
emoj			
emok			
eduparentsi (2 dum vars)			
eduparentsj (2 dum vars)			
eduparentsk (2 dum vars)			
EduParentsEx (2 dum vars)			
LICOii		1	
LICOj			
LICOk			
bmirsti (3 dum vars)			
bmirstj (3 dum vars)			
bmirstk (3 dum vars)			
singpari			
singparj			
singpark			
Tiredi	1	1	
Tiredj	1	1	
PhysActi			
PhysActj			
DietQualityi			
DietQualityj			
Breakfasti			
Breakfastj			

	Optimal	Final	Optimal	Final
D = Dependent Variable	SP %	SP %	BMI %	BMI %
X = covariate	all	all	all	all
(yellow) = significant	6912	6912	6912	6912
Model: 6912allSP% 6912allSP% 6912allBMI% 6912allBMI%				
BMIcentile_6				
BMIcentile_9				
BMIcentile_12			D	D
acafuni				
SchoolPerformance_9				
moemarkk	D	D		
SchIPerf6_Lower				
SchIPerf9_Lower				
SchIPerf12_Lower				
SchIPerf6_Higher				
SchIPerf9_Higher				
SchIPerf12_Higher				
WtStatus6_OO				
WtStatus9_OO				
WtStatus12_OO				
Gr 6 Failing	x	x	x	x
Gr 6 Low	x	x	x	x
Gr 6 High	x	x	x	x
Gr 6 Highest	x	x	x	x
Gr 9 Failing	x	x	x	x
Gr 9 Low	x	x	x	x
Gr 9 High	x	x	x	x
Gr 9 Highest	x	x	x	x
Gr 12 Failing			x	x
Gr 12 Low			x	x
Gr 12 High			x	x
Gr 12 Highest			x	x
Gr6 Under	x		x	x
Gr6 Over	x		x	x
Gr6 Obese	x		x	x
Gr9 Under	x	x	x	x
Gr9 Over	x	x	x	x
Gr9 Obese	x	x	x	x
Gr 12 Under	x			
Gr 12 Over	x			
Gr 12 Obese	x			

	Optimal	Final	Optimal	Final
D = Dependent Variable	SP %	SP %	BMI %	BMI %
X = covariate	all	all	all	all
(yellow) = significant	6912	6912	6912	6912
Model: 6912allSP% 6912allSP% 6912allBMI% 6912allBMI%				
BBBFi	x		x	
BBBFj	x		x	
BBBFk	x	x	x	x
immi	x		x	
immj	x		x	
immk	x		x	
selfesteemi	x	x	x	
selfesteemj	x		x	
selfesteemk	x		x	
friendsi	x		x	
friendsj	x		x	
friendsk	x		x	
emoi	x		x	x
emoj	x		x	
emok	x		x	
eduparentsi	x		x	
eduparentsj	x		x	
eduparentsk				
EduParentsEx	x		x	
LICOii	x		x	
LICOj	x	x	x	
LICOk	x		x	
bmirstj	x		x	x
bmirstk	x		x	
singpari	x		x	
singparj	x		x	
singpark	x		x	
Tiredi	x		x	
Tiredj	x	x	x	
PhysActi	x		x	
PhysActj	x		x	
DietQualityi	x		x	x
DietQualityj	x		x	x
Breakfasti	x		x	
Breakfastj	x		x	