

**2010/2011 Student Health Survey:
Evidence for Action**



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Executive Summary

Introduction

The Student Health Survey (SHS) is a cross-sectional survey that was administered in 2006/2007, 2008/2009, and 2010/2011 in Saskatoon Health Region. The goals of the SHS are:

- to inform Saskatoon Health Region, partners, and the public about the overall health status of children in grades 5-8;
- to determine differences or disparities in health based on neighbourhood income;
- to provide evidence that will influence policy and practice in Saskatoon Health Region and in the community; and
- to support the identification, implementation, and evaluation of programs and services aimed at addressing health issues among children in grades 5-8.

This report primarily focuses on the results from the 2010/2011 SHS.

Methods

The 2010/2011 SHS was administered for the third time to Saskatoon Public School Division and Greater Saskatoon Catholic School Division in winter/spring of 2011. In addition, schools from Horizon and Prairie Spirit School Divisions also participated for the first time. The 2010/2011 SHS contained questions which focused on mental health, physical activity, nutrition, risky behaviours (smoking and drinking), and bullying. Certain questions from both the 2006/2007 and 2008/2009 SHS were included on the 2010/2011 SHS to allow for some comparisons over time. Four thousand three hundred and fourteen students from schools in the city of Saskatoon participated in the survey with a response rate of 45.4%. The response rate of students from rural Saskatoon Health Region schools was 50.9%, with 1,469 students in grades 5-8 participating in the survey.

Results

Overall, there have been improvements in the areas of physical activity, bullying, and some mental health measures over the past few years, which is very encouraging. This may indicate that the interventions that have been introduced over the past few years in response to previous SHS findings (e.g., the Health Promoting Schools Program, programs introduced at individual schools) are creating a positive effect. However, we also found the percentage of students who are optimally active still remains low for all geographical groupings. There is also a need for improvement in nutrition levels, as a majority of the students report they do not consume the recommended servings of fruits and vegetables. These results indicate that universal approaches to improving the health of students in the areas of nutrition and physical activity across all of Saskatoon Health Region are required.

This report also shows there were significant and sometimes startling differences according to neighbourhood income and geography. These results indicate that students that attend schools in low-income neighbourhoods in Saskatoon are not faring as well as the students that attend schools in higher-income neighbourhoods. This suggests that targeted interventions are required among low-income neighbourhood schools such as the continuation of Saskatoon Health Region's Health Promoting Schools Program. However, the other social and economic factors that influence health should also be considered and acted upon. For instance, neighbourhood-level factors that contribute to poor health such as stress exacerbated by safety concerns, violence, lack of services, and access to green space all need to be considered as well. Previous research has also found that health disparity in Saskatoon is often associated with

income, so poverty reduction interventions should also be a key consideration when working to improve student health.

In terms of differences between students that attend school in Saskatoon and the rural areas of Saskatoon Health Region, there were some significant differences, but the largest difference was for having tried alcohol. Students in rural areas reported that they had tried drinking more frequently than for all three neighbourhood groupings in Saskatoon. This finding suggests that programming in rural schools should include a focus on the negative health effects of consuming alcohol. More research is also required to determine the root causes of higher drinking rates in rural Saskatoon Health Region in order to implement appropriate programming and policy changes.

Conclusion

As with previous rounds of the SHS, results from the 2010/2011 SHS have already influenced changes in individual schools, and will be an important tool for planning and decision-making. Options for future data collection on student health are currently being explored. The results indicate that a combination of intervention approaches should be used such as targeted health promotion programming in low-income neighbourhood schools, as well as policy changes that would affect the wider social determinants of health such as income.

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Introduction

The Student Health Survey (SHS) is a cross-sectional survey that was administered in 2006/2007, 2008/2009, and 2010/2011 in Saskatoon Health Region. This project was implemented with the support of a Canadian Institutes of Health Research (CIHR) grant.

The goals of the SHS are:

- to inform Saskatoon Health Region, our partners, and the public about the overall health status of children in grades 5-8;
- to determine differences or disparities in health based on neighbourhood income;
- to provide evidence that will influence policy and practice in Saskatoon Health Region and in the community; and
- to support the identification, implementation, and evaluation of interventions aimed at addressing health issues among children in grades 5-8.

The first SHS was administered in the 2006/2007 school year to obtain baseline information on the health status and behaviours of students in grades 5-8 in Saskatoon. Surveys were sent out to all schools in both the Saskatoon Public School Division and Greater Saskatoon Catholic School Division. The 2006/2007 SHS results indicated a significant disparity in physical health status and mental health status among students based on where they attended school. Students that attended low-income neighbourhood schools were significantly more likely to report experiencing a depressed mood, being inactive, drinking, and smoking in comparison to students that attended affluent neighbourhood schools. These results prompted Saskatoon Health Region, the Saskatoon Public School Division, and the Greater Saskatoon Catholic School Division to introduce changes and interventions to address health disparity among children. Important changes included opening pediatric clinics in two low-income neighbourhood schools, providing school-based Public Health Nurse support, and the provision of funding to low-income neighbourhood schools for after-school programs. SHS results also prompted individual schools to develop new programming.

The second SHS was administered in the 2008/2009 school year with a focus on physical activity, bullying, and mental health status. Some of the questions on the 2006/2007 SHS were also included in the 2008/2009 SHS. The findings from the second survey resulted in the development of physical activity promotion and mental health promotion programs in five low-income neighborhood schools, and the expansion of Saskatoon Health Region's Health Promoting Schools Program to 20 complex needs schools (further information can be found at: http://www.saskatoonhealthregion.ca/your_health/documents/Health_Promotion/Health_Promoting_Schools.pdf).

The SHS was administered for the third time in Saskatoon Public School Division and Greater Saskatoon Catholic School Division schools in the winter/spring of the 2010/2011 school year. In addition, schools from Horizon and Prairie Spirit School Divisions also participated in the 2010/2011 SHS. One hundred and nine schools participated in the survey, of which 32 were rural schools. Rural schools were considered schools outside of the City of Saskatoon. The 2010/2011 SHS contained 83 questions which focused on mental health, physical activity, nutrition, risky behaviours (smoking and drinking), and bullying (Table 1). Certain questions from both the 2006/2007 and 2008/2009 SHS were included on the 2010/2011 SHS to allow for some comparisons over time. Questions were drawn from a number of validated national and international sources.^{1,2,3,4}

Over the years, the survey has been adapted to meet the needs of stakeholders within Saskatoon Health Region and the school divisions. The 2006/2007 SHS explored a wide range of

health measures to provide insight into health inequitiesⁱ with a focus on neighbourhood income. It also provided baseline information to aid in the planning and evaluation of interventions. The 2008/2009 SHS specifically focused on the underlying factors associated with mental health, bullying, and physical activity, as these were considered priority areas by the school divisions. These underlying factors included family and peer influence over physical activity, and causes for bullying behaviour.

The scope of the SHS was broadened in 2010/2011, with the inclusion of indicators such as nutrition, risky behaviours, anxiety level, as well as the inclusion of rural schools in the Health Region. The 2010/2011 SHS was administered to observe changes in health that may be associated with the interventions implemented from 2008 to 2010. There was also a need to gather evidence to make modifications to existing programs and/or to plan new interventions.

ⁱ Differences in health that exist between groups highlight the existence of health inequalities, sometimes also referred to as disparities.⁵ When these inequalities are deemed to be unfair, unjust, and modifiable, they are considered to be health inequities.⁶

Table 1 2010/2011 Student Health Survey Topics	
<i>Demographics</i>	<i>Mental Health</i>
o Age	o Self-rated mental health status
o Grade	o Anxiety
o Gender	o Depression
o Cultural status	o Self-Esteem
o Living Arrangement	o Feeling like an outsider at school
o School Mobility	o Suicide Ideation
o Employment of father	<i>Bullying</i>
o Employment of mother	o Frequency of bullying
o Education of father	o Location of bullying
o Education of mother	o Action taken when last seen/heard bullying
o Perceived Family Income	<i>Risky Behaviours</i>
o School type	o Smoke cigarettes
<i>Relationships</i>	o Drink alcohol
o Parent relationship	<i>Physical Activity</i>
o Friend relationship	<i>Nutrition</i>
<i>Physical Health</i>	o Went hungry – Last 30 days
o Perceived weight	o Fruit and vegetable servings
o Body Mass Index (BMI)	o Milk consumption
o Self-rated physical health status	o Fast food consumption

Methods

Sample

During the winter of the 2010/2011 school year, students in grades 5-8 in the four school divisions in Saskatoon Health Region were asked to complete the survey. Data collection began in January 2011 and was completed by June 2011. There were 12,391 students registered in grades 5-8 in participating schools and the overall response rate was 46.7% (n=5783). Four thousand three hundred and fourteen students from schools in the city of Saskatoon participated in the survey with a response rate of 45.4%. The response rate of students from rural schools was 50.9% with 1,469 students in grades 5-8 participating in the survey. Response rates have steadily increased over the three rounds of the SHS (41.1% in 2006/2007, 44.8% in 2008/2009).

Procedure

Informed consent was obtained from the school divisions, school principals, and parents before the survey was administered. Ethics approval was obtained from the Behavioural Research Ethics Board at the University of Saskatchewan. Unlike the previous surveys, research assistants from Saskatoon Health Region were involved in the administration of the survey to students. The research assistant handed out the surveys during class time and students were asked to sign their consent on their survey. Completed surveys were enclosed in an envelope, sealed by the student, and returned to the research assistant.

Analysis

Analysis included generation of Z-scores and frequencies for categorical variables. Average mean score was generated for continuous variables such as anxiety, self-esteem, parent relationship, and friendship index. Z-score tests were used to determine any significant differences in categorical outcomes between geographical groupings. Independent sample t-tests were used to determine significant differences in means for indicators with continuous outcomes. Rate ratios and their confidence intervals were used to compare significant differences between 2006/2007 and 2010/2011 and 2008/2009 and 2010/2011 results. When the numerator was less than ten, the plus four method was used to compute the corresponding confidence intervals.⁷ There was found to be no violation of assumptions required to carry out the above analyses.

Results

Demographics

The demographics of the participants are presented in Table 2.

Indicator	n	Percentage (%)
<i>Age</i>		
10 and under	1070	18.80%
11	1459	25.60%
12	1446	25.30%
13 and above	1728	30.30%
<i>Grade</i>		
Grade 5	1484	25.90%
Grade 6	1533	26.70%
Grade 7	1421	24.80%
Grade 8	1299	22.60%
<i>Sex</i>		
Male	2726	47.40%
Female	3022	52.60%
<i>Cultural Status</i>		
Aboriginal	594	10.80%
Other	4918	89.20%
<i>Location of the School</i>		
Saskatoon	4314	74.60%
Rural	1469	25.40%
<i>Neighbourhood Income (Saskatoon only)</i>		
Affluent	659	15.28%
Low	136	3.15%
Middle-income	3519	81.57%
<i>School Mobility (Number of schools attended in previous year)</i>		
One	5169	92.25%

Two or more	434	7.75%
<i>School Type</i>		
Greater Saskatoon Catholic School Division	1851	32.00%
Saskatoon Public School Division	2586	44.70%
Prairie Spirit School Division	982	17.00%
Horizon School Division	364	6.30%
<i>Living Arrangement</i>		
Both parents	4306	75.30%
Single parent	1229	21.50%
Other living arrangement	183	3.20%

Table 2 Demographics of 2010/2011 Student Health Survey Respondents continued		
Indicator	n	Percentage (%)
<i>Father Employed</i>		
Yes	5192	90.50%
No	208	3.60%
I don't know	134	2.40%
I don't have or see a father	202	3.50%
<i>Mother Employed</i>		
Yes	4755	83.00%
No	847	14.80%
I don't know	86	1.50%
I don't have or see a mother	39	0.70%
<i>Father Education</i>		
Less than high school	339	3.70%
High school graduate	1360	25.30%
University/College graduate	2453	51.40%
I don't know or doesn't apply	1076	19.50%
<i>Mother Education</i>		
Less than high school	205	3.70%
High school graduate	1398	25.30%
University/College graduate	2838	51.40%
I don't know or doesn't apply	1076	19.50%
<i>Perceived Family Income</i>		
Very well off	852	15.90%
Quite well off	1554	29.00%
Average	2757	51.40%
Not very well off	178	3.30%
Not at all well off	23	0.40%

Physical Health

Physical health variables included questions related to self-perceived weight, Body Mass Index (BMI), and self-rated health status (Table 3).

Perceived Weight: The majority of students perceived their weight as normal (74%), while 17.3% felt that they were overweight/obese.

Body Mass Index: Students were asked to report their height and weight. BMI was then calculated using the Centers for Disease Control and Prevention's BMI for Age Growth Charts by taking into consideration the age and gender of the student.⁸ Overall, 21.3% of the students were found to be overweight/obese.

Self-Rated Health Status: A small proportion of students reported having poor/fair physical health status (8.1%), while a larger proportion reported very good or excellent health status (58.4%).

Indicator	n	Percentage (%)
<i>Perceived Weight</i>		
Underweight	484	8.70%
Healthy Weight	4109	74.00%
Overweight/Obese	962	17.30%
<i>Body Mass Index (BMI)</i>		
Underweight	195	5.30%
Healthy Weight	2705	73.40%
Overweight/Obese	784	21.30%
<i>Self-Rated Health Status</i>		
Poor/Fair	462	8.10%
Good	1910	33.50%
Very good/Excellent	3330	58.40%

Physical Activity

Physical activity was measured in terms of kilocalories per kilogram per day (KKD). Students were asked to report the duration of hard and/or moderate physical activity undertaken each day in the previous 7 days. Using the frequency of hard and moderate physical activity in a week, the duration of activity, and average daily energy expenditure, a KKD value for each student was computed. A KKD value of 0-3 indicated physically inactive, 3-8 indicated moderate physical activity, while a value of 8 or higher was considered optimal physical activity.ⁱⁱ Based on this criterion, only 16.4% of the students were found to be optimally physical active (Table 4).⁹ It should be noted that the majority of students completed the survey over the winter months, so this could have resulted in some students indicating less physical activity than they would have during warmer months.

Indicator	n	Percentage (%)
<i>Physical Activity</i>		
Inactive	515	11.40%
Moderately active	3271	72.20%
Optimally active	742	16.40%

Mental Health

Mental health variables included self-rated mental health status, depressed mood, anxiety, self-esteem, suicide ideation, and if the student felt like an outsider at school (Table 5).

Self-Rated Mental Health Status: The majority of students reported that their mental health was good/very good/excellent (92.1%), while 7.9% of the respondents reported poor/fair mental health status.

ⁱⁱ Criteria was based on the Canadian Physical Activity Guide for Children and Youth, which states that children should be performing at least 90 minutes of moderate to vigorous physical activity every day.¹⁰

Depressed Mood: The 2010/2011 SHS used a shortened version of the Centre for Epidemiological Studies Depression scale (CES-D), which is used in the National Longitudinal Study of Children and Youth (CES-D-12-NLSCY). This scale consists of 12 questions.¹⁰ Depression scores ranged from 0 to 36, where 0-11 indicated minimal depressed mood, 12-20 indicated moderate depressed mood, and 21 to 36 indicated severe depressed mood. In 2010/2011, the majority of students reported minimal depressed mood symptoms (83.1%), while 2.6% reported severe depressed mood symptoms.

Outsider at School: Over three quarters of the students rarely or never felt like an outsider at school (76%); however, 7% of the students felt like an outsider at school most of the time or all the time.

Suicide Ideation: A small proportion of students had seriously considered committing suicide in the past 12 months (6.4%); however, the majority of the students did not report suicide ideation (93.6%). A toll free Kids helpline and website were provided to all students on the survey, if the child wanted to seek help outside of their family or school. It should be noted that the SHS is not designed to be a clinical and/or diagnostic tool.

Self-Esteem: A self-esteem score was determined using a five question scale, with a total score of zero indicating very low self-esteem and 20 indicating very high self-esteem. In the 2010/2011 SHS, the self-esteem score on average was 16.10 (SD=3.74) and ranged from 0 to 20 (n=5600). 2.2% of the scores fell between 0-6, 19.5% of the scores were between 7-13, and 78.4% of scores were 14 or greater.

Anxiety: A seven question scale similar to the one used in the 2006/2007 SHS was employed to estimate anxiety in survey participants. A total score of zero indicated no anxiety and 28 indicated a very high anxiety level. The average anxiety score was 2.43 (SD=3.52) and the scores ranged from 0-21 (n=5123). 91.5% of scores fell between 0-7, 6.7% of scores were between 8-14, and 1.8% of scores were greater than 15.

Table 5 Mental Health Variables of 2010/2011 Student Health Survey Respondents		
Indicator	n	Percentage (%)
<i>Self-Rated Mental health Status</i>		
Poor/fair	442	7.90%
Good	1547	27.70%
Very good/excellent	3598	64.40%
<i>Depressed Mood</i>		
Minimal	4301	83.10%
Somewhat Elevated (moderate)	740	14.30%
Very Elevated (severe)	133	2.60%
<i>Feeling like an outsider at school</i>		
Never/rarely	4309	76.04%
Some of the time	960	16.94%
Most of the time/all of the time	398	7.02%
<i>Suicide Ideation</i>		
No	5000	93.60%
Yes	340	6.40%

Bullying

Questions related to bullying included the frequency of physical, verbal, social, and electronic bullying in the past month (Table 6). These questions were adapted from the Safe School Survey developed by the West Vancouver School District in British Columbia.¹¹

Definitions of a bully and bullying were provided on the SHS to facilitate better understanding of the questions. A bully was defined as a person/group that wants to hurt someone intentionally and do the same thing over and over again. Bullying was described as an unfair experience.

Physical Bullying: Examples of physical bullying provided on the SHS included hitting, kicking, and pushing. Overall, 3.4% of students reported being physically bullied every week or many times a week in the past four weeks.

Verbal Bullying: Examples of verbal bullying provided on the SHS were teased you, called you names, and threatened you. 10.2% of students reported being verbally bullied every week or many times a week in the past four weeks.

Social Bullying: Examples of social bullying on the SHS included left you out on purpose, refused to play with you, and said bad things behind your back. 7.5% of students reported being bullied socially every week or many times a week in the past four weeks.

Electronic Bullying: Examples of electronic bullying provided on the SHS included using the Internet, e-mail, or texting to threaten you or make you look bad. 2.3% of students reported being electronically bullied every week or many times a week in the past four weeks.

Bullying Composite: A bullying composite was computed to determine the overall frequency of being bullied physically, verbally, socially, and/or electronically. It was found that, on average, 14% of students were bullied every week or many times a week in the past four weeks.

Where Bullying Happens the Most: Students were asked to report where they thought bullying happened the most. Students thought that bullying most frequently occurred in the outdoor area outside of the school (52.4%).

Action Taken When Saw/Heard Student Being Bullied: Students were asked about the action they took when they witnessed a student being bullied. Half the students said that they did not hear or see another student being bullied. Almost 13% of students reported the incident to their parents, while nearly 12% of students reported the incident to an adult at school.

Table 6 Bullying Variables of 2010/2011 Student Health Survey Respondents		
Indicator	n	Percentage (%)
<i>Physical bullying</i>		
Never	4420	78.20%
Once or twice	1037	18.40%
Every week/many times a week	193	3.40%
<i>Verbal Bullying</i>		
Never	3360	59.70%
Once or twice	1696	30.10%
Every week/many times a week	576	10.20%
<i>Social bullying</i>		
Never	3997	71.10%
Once or twice	1202	21.40%
Every week/many times a week	419	7.50%
<i>Electronic Bullying</i>		
Never	5039	89.80%
Once or twice	445	7.90%
Every week/many times a week	127	2.30%
<i>Bullying composite in past four weeks</i>		
Did not report being bullied (any type) every week/many times per week	4820	86.0%
Reported being bullied (any type) every week/many times per week	782	14.0%
<i>Where does bullying happen the most?</i>		
Classrooms	1690	35.1%
Hallways	1761	36.6%
Library	210	4.4%
Computer Room	232	4.8%
Gym	779	16.2%
Change Rooms	991	20.6%
Washrooms	792	16.5%
On the school bus	848	17.6%
Lunch or eating area	944	19.6%
On the way to and from school	814	16.9%
Coatroom	179	3.7%
Outdoor area around school	2519	52.4%
Malls or stores	439	9.1%
On the computer or cell phone	1199	24.9%
Other	756	15.7%

Table 6 Bullying Variables of 2010/2011 Student Health Survey Respondents continued		
Indicator	n	Percentage (%)
<i>Action taken when saw/heard student being bullied</i>		
I have not seen or heard another student being bullied	2798	50.5%
I ignored it	555	10.0%
I told my parents about it	705	12.7%
I told my brother/sister about it	197	3.6%
I told an adult at school about it	661	11.9%
I told an adult outside of school about it	162	2.9%
I told another student about it	562	10.2%
At the time, I helped the person being bullied	1148	20.7%
Later on, I helped the person being bullied	397	7.2%
I stood and watched	119	2.1%
I joined in with the bully	28	0.5%
I got someone to stop it	549	9.9%
I got back at the bully later	204	3.7%

Risky Behaviour

Risky behaviour variables included questions related to smoking and drinking (Table 7).

Smoking: The majority of students reported that they had never tried smoking (96.7%), while a small proportion reported that they had tried smoking (3.3%).

Drinking: Overall, 22.7% of students reported that they had tried drinking; however, a majority of students reported never having tried drinking (77.3%).

Ever Been Drunk: A large proportion of students reported that they had never been drunk before (96.5%), while 3.5% of students reported that they had been drunk at least once.

Indicator	n	Percentage (%)
<i>Smoking</i>		
Has never smoked	5512	96.70%
Has tried smoking	189	3.30%
<i>Drinking</i>		
Has never drank alcohol	4378	77.30%
Has tried drinking	1287	22.70%
<i>Ever Been Drunk</i>		
No	5091	96.50%
Yes	184	3.50%

Nutrition

Questions related to nutrition included frequency of going hungry due to lack of food, along with the frequency of consumption of fruits/vegetables, milk, and fast food in the past 30 days (Table 8).

Ever Went Hungry in the Past Month Due to Lack of Food: A majority of the students reported that they rarely or never went to bed hungry due to lack of food (84.5%) in the past 30 days. 3.2% of students reported going hungry due to lack of food always or most of the time in the past 30 days.

Frequency of Fruit/Vegetable Consumption: Canada's Food Guide recommends that children aged 9-13 should consume six servings of fruits and vegetables per day.¹² 39.7% of students reported consumption of six or more servings of fruits and vegetables per day, while the majority of students reported consumption of less than the recommended quantity of fruits and vegetables per day over the past 30 days.

Milk Consumption: Canada's Food Guide recommends children aged 9-13 should consume three servings of milk and alternatives per day.¹² The majority of students consumed three or more servings of milk and alternatives (57.4%), while 42.6% of students consumed less than the recommended servings of milk and alternatives in the past 30 days.

Fast Food Consumption: Examples of fast food restaurants were provided on the SHS such as KFC, McDonalds, Taco Time, and Pizza Hut. The majority of students reported having fast food less than once a day (87.9%), while 12.1% reported having fast food one or more times per day in the past 30 days.

Table 8 Nutrition Variables of 2010/2011 Student Health Survey Respondents		
Indicator	n	Percentage (%)
<i>How often do you go hungry due to lack of food</i>		
Never/Rarely	4843	84.50%
Sometimes	707	12.30%
Most of the time/Always	186	3.20%
<i>Frequency of fruit/vegetable consumption</i>		
Five or less times per day	3410	60.30%
Six or more times per day	2246	39.70%
<i>Milk consumption</i>		
Two or less servings a day	2439	42.64%
Three or more servings a day	3281	57.36%
<i>Fast food consumption</i>		
Less than one time per day	4977	87.85%
One or more times per day	688	12.15%

Relationships

Relationship variables included questions pertaining to student relationships with parents and friends.

Parent Relationship: Relationship with parents was measured using an eight question scale. These questions asked about arguments with parents, whether parents trust the student, if parents expect too much, and so on. Parent relationship scores ranged from 0-32 (with zero indicating a very poor parent relationship and 32 indicating an excellent parent relationship). The average score for parent relationship was 23.43 (SD=4.97; n=5004). 1.6% of scores fell between 0-10, 28.4% were between 11-21, and 70.0% of scores were 22 or greater.

Friendship: To determine the friendship score of a student, a four question scale was employed. Questions assessed if the student felt they had many friends and got along well with their peers. This scale included two additional questions from the previous 2006/2007 and 2008/2009 surveys. Total scores could range from 0-20, with zero indicating no friends and 20 indicating a very healthy relationship with friends. The average friendship score was found to be 12.83 (SD=3.27) and overall scores ranged from 0-16 (n=5559). 5.5% of scores fell between 0-6, 43.2% of scores were between 7 and 13, and 51.3% of scores were 14 or greater.

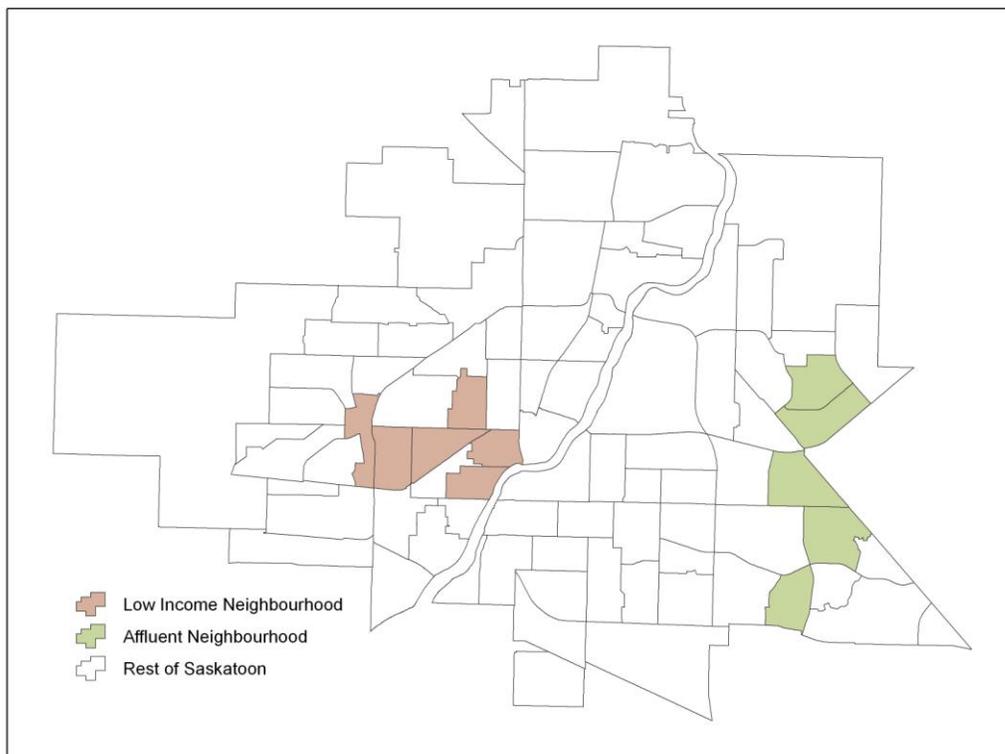
Geographical Comparisons

Neighbourhoods in Saskatoon were categorised as low-incomeⁱⁱⁱ, middle-income, and affluent^{iv} (Figure 1). Classification of neighbourhoods was based on low-income cut-offs (LICO) provided by Statistics Canada.¹³ The LICO corresponds to an income threshold below which a family is likely to spend most of its income on basic necessities such as food, shelter, and clothing.

Overall, in Saskatoon in the 2010/2011 school year, 3.1% of SHS participants attended schools located in low-income neighbourhoods, while 15.3% of students attended schools located in affluent neighbourhoods. Students that attended middle-income neighbourhood schools (81.6%) made up the majority of participants within the city.

Analysis was conducted to examine significant differences in physical health, mental health, bullying, risky behaviours, physical activity levels, and nutrition in relation to neighbourhood income. Location of the school was used as a proxy for neighbourhood income. Comparisons were made between low-income and affluent neighbourhoods, low-income and middle-income neighbourhoods, middle-income and affluent neighbourhoods, as well as between Saskatoon and rural students.

Figure 1 Neighbourhood Groupings based on LICO in Saskatoon, SK



ⁱⁱⁱ Low-income neighbourhoods include: Confederation Suburban Centre, Meadowgreen, Pleasant Hill, Westmount, Riversdale, and King George.

^{iv} Affluent neighbourhoods include: Erindale, Arbor Creek, College Park East, Briarwood, and Lakeridge.

Physical Health by Geography

Students who attended schools in low-income neighbourhoods were significantly more likely to report being underweight or overweight/obese compared to students who attended schools in affluent neighbourhoods, according to their self-reported BMI. Students from low-income neighbourhood schools were also significantly more likely to report poor/fair health status and less likely to report very good or excellent health status compared to students from affluent neighbourhood schools. The difference between students that attended low-income neighbourhood schools versus affluent neighbourhood schools for self-reported health status was large (Table 9).

Table 9 Physical Health Variables for Low-Income and Affluent Neighbourhoods				
Indicator	Low-income Neighbourhoods	Affluent Neighbourhoods	Z-Score	P-Value
<i>Perceived weight</i>				
Underweight	7.8% (4.1-13.9)	9.9% (7.6-12.2)	-0.77	0.2206
Healthy weight	76.7% (69.4-84.0)	76.7% (73.4-80.0)	0.01	0.4965
Overweight/Obese	15.5% (9.2-21.7)	13.4% (10.7-16.0)	0.65	0.2585
<i>Body Mass Index (BMI)</i>				
Underweight	13.0% (5.8-26.1)	5.6% (3.5-7.6)	2.00*	0.0229
Healthy weight	56.5% (42.2-70.8)	77.2% (73.5-81.0)	-3.12*	0.0009
Overweight/Obese	30.5% (19.0-45.0)	17.2% (13.8-20.5)	2.22*	0.0132
<i>Self-Rated Health Status</i>				
Poor/Fair	10.5% (6.3-17.0)	4.4% (2.8-6.0)	2.82*	0.0024
Good	41.4% (33.0-49.7)	28.7% (25.2-32.1)	2.88*	0.0020
Very good/Excellent	48.1% (39.6-56.6)	66.9% (63.2-70.5)	-4.10*	<0.0001

*Significant at $p < 0.05$

Students from middle-income neighbourhood schools were significantly more likely to perceive themselves as overweight/obese in comparison to students from affluent neighbourhood schools. Students from middle-income neighbourhood schools were significantly more likely than students from affluent neighbourhood schools to be overweight/obese, according to their BMI. Students from middle-income neighbourhood schools were also significantly less likely to report their overall health status as very good/excellent in comparison to students from affluent neighbourhood schools. In general, the self-reported health status of students from affluent neighbourhood schools far surpassed that of students from other neighbourhoods (Table 10).

Table 10 Physical Health Variables for Middle-Income and Affluent Neighbourhoods				
Indicator	Middle-income Neighbourhoods	Affluent Neighbourhoods	Z-Score	P-Value
<i>Perceived weight</i>				
Underweight	8.7% (7.7-9.6)	9.9% (7.6-12.2)	1.00	0.1585
Healthy weight	73.5 % (72.0-75.0)	76.7% (73.4-80.0)	1.71*	0.0435
Overweight/Obese	17.8% (16.5-19.0)	13.4% (10.7-16.0)	-2.75*	0.0030
<i>Body Mass Index (BMI)</i>				
Underweight	4.5% (3.6-5.3)	5.6% (3.5-7.6)	1.04	0.1484
Healthy weight	73.1% (71.2-75.0)	77.2 % (73.5-81.0)	1.85*	0.0318
Overweight/Obese	22.4% (20.6-24.1)	17.2% (13.8-20.5)	-2.52*	0.0058
<i>Self-Rated Health Status</i>				
Poor/Fair	8.5% (7.5-9.4)	4.4% (2.8-6.0)	-3.52*	0.0002
Good	34.7% (33.0-36.0)	28.7% (25.2-32.1)	-2.97*	0.0015
Very good/Excellent	56.8% (55.2-58.5)	66.9% (63.2-70.5)	4.76*	<0.0001

*Significant at $p < 0.05$

Students who attended schools in low-income neighbourhoods were significantly less likely to report a healthy BMI and very good/excellent health in comparison to students who attended schools in middle-income neighbourhoods (Table 11). When looking at the low-income, middle-income, and affluent neighbourhood results together, a clear gradient emerged for self-reported healthy BMI and very good/excellent self-rated health status; results for these variables steadily improved as neighbourhood income increased.

Table 11 Physical Health Variables for Low-Income and Middle-Income Neighbourhoods				
Indicator	Low-income Neighbourhoods	Middle-income Neighbourhoods	Z-Score	P-Value
<i>Perceived weight</i>				
Underweight	7.8% (4.1-13.9)	8.7% (7.7-9.6)	0.38	0.3520
Healthy weight	76.7% (69.4-84.0)	73.5% (72.0-75.0)	-0.83	0.2045
Overweight/Obese	15.5% (9.2-21.7)	17.8% (16.5-19.0)	0.67	0.2504
<i>Body Mass Index (BMI)</i>				
Underweight	13.0% (5.8-26.1)	4.5% (3.6-5.3)	-2.73*	0.0032
Healthy weight	56.5% (42.2-70.8)	73.1% (71.2-75.0)	2.50*	0.0062
Overweight/Obese	30.4% (19.0-45.0)	22.4% (20.6-24.1)	-1.29	0.0985
<i>Self-Rated Health Status</i>				
Poor/Fair	10.5% (6.3-17.0)	8.5% (7.5-9.4)	-0.84	0.2005
Good	41.3% (33.0-49.7)	34.7% (33.0-36.0)	-1.58	0.0566
Very good/Excellent	48.1% (39.6-56.6)	56.8% (55.2-58.5)	2.00*	0.0229

*Significant at $p < 0.05$

Students who attended rural schools were significantly more likely to report being underweight according to BMI in comparison to students who attended schools in the city of Saskatoon, otherwise students from rural and Saskatoon schools were fairly similar in terms of physical health (Table 12).

Indicator	Saskatoon	Rural	Z-Score	P-Value
<i>Perceived weight</i>				
Underweight	8.9% (8.0-9.7)	8.3% (6.8-9.7)	0.72	0.2365
Healthy weight	74.1% (72.7-75.4)	73.6% (71.3-75.9)	0.33	0.3695
Overweight/Obese	17.0% (15.9-18.2)	18.1% (16.1-20.1)	-0.92	0.1785
<i>Body Mass Index (BMI)</i>				
Underweight	4.8% (4.0-5.6)	6.5% (5.0-8.0)	-2.05*	0.0202
Healthy weight	73.6% (71.9-75.2)	73.0% (70.3-75.7)	0.34	0.3670
Overweight/Obese	21.6% (20.0-23.1)	20.5% (18.0-22.9)	0.75	0.2253
<i>Self-Rated Health Status</i>				
Poor/Fair	7.9% (7.1-8.7)	8.7% (7.2-10.1)	-0.97	0.1667
Good	34.0% (32.5-35.4)	32.1% (29.7-34.5)	1.29	0.0982
Very good/Excellent	58.1% (56.6-59.6)	59.2% (56.6-61.7)	-0.70	0.2416

*Significant at $p < 0.05$

Physical Activity by Geography

Students that attended low-income neighbourhood schools were significantly more likely to be physically inactive and less likely to have optimal physical activity levels in comparison to students that attended schools in affluent neighbourhoods; in fact, these differences were quite large (Table 13).

Indicator	Low-income Neighbourhoods	Affluent Neighbourhoods	Z-Score	P-Value
Inactive	30.2% (21.0-39.4)	9.5% (7.0-12.0)	5.61*	<0.0001
Moderately active	63.5% (53.9-73.2)	70.2% (66.3-74.1)	-1.30	0.0966
Optimally active	6.3% (2.7-13.3)	20.3% (16.9-23.7)	-3.29*	0.0005

*Significant at $p < 0.05$

Students that attended schools located in middle-income neighbourhoods were significantly more likely to be physically inactive and less likely to have optimal physical activity levels than students that attended affluent neighbourhood schools, although these differences were not as large as those between students from low-income and affluent neighbourhood schools (Table 14).

Table 14 Physical Activity Levels for Middle-income and Affluent Neighbourhoods				
Indicator	Middle-income Neighbourhoods	Affluent Neighbourhoods	Z-Score	P-Value
Inactive	12.2% (11.0-13.4)	9.5% (7.0-12.0)	-1.77*	0.0380
Moderately active	72.6% (70.9-74.2)	70.2% (66.3-74.1)	-1.12	0.1314
Optimally active	15.2% (13.8-16.5)	20.3% (16.9-23.7)	2.93*	0.0017

*Significant at $p < 0.05$

Students that attended low-income neighbourhood schools were significantly more likely to be physically inactive and less likely to have optimal physical activity levels in comparison to students that attended schools located in middle-income neighbourhoods. A clear gradient for the categories of inactive and optimal physical activity levels existed between students from low-income, middle-income, and affluent neighbourhood schools, with the poorest physical activity levels reported by students that attended low-income neighbourhood schools (Table 15).

Table 15 Physical Activity Levels for Low-income and Middle-income Neighbourhoods				
Indicator	Low-income Neighbourhoods	Middle-income Neighbourhoods	Z-Score	P-Value
Inactive	30.2% (21.0-39.4)	12.2% (11.0-13.4)	-5.18*	<0.0001
Moderately active	63.5% (53.9-73.2)	72.6% (70.9-74.2)	1.95*	0.0257
Optimally active	6.3% (2.7-13.3)	15.2% (13.8-16.5)	2.42*	0.0078

*Significant at $p < 0.05$

Students that attended rural schools were significantly less likely to be physically inactive and were more likely to report optimal physical activity levels in comparison to students that attended schools in Saskatoon, although these differences were not as large as those witnessed among groups of neighbourhoods in Saskatoon (Table 16). Physical activity levels among students in the rural areas were similar to those among students from the middle-income and affluent neighbourhood schools in Saskatoon.

Indicator	Saskatoon	Rural	Z-Score	P-Value
Inactive	12.3% (11.1-13.4)	8.9% (7.2-10.4)	3.23*	0.0006
Moderately active	72.0% (70.4-73.4)	73.0% (70.5-75.5)	-0.70	0.2409
Optimally active	15.7% (14.5-17.0)	18.1% (16.0-20.3)	-1.92*	0.0273

*Significant at $p < 0.05$

Mental Health by Geography

Students that attended low-income neighbourhood schools were significantly more likely than students that attended affluent neighbourhood schools to report poor/fair mental health status, moderate depressed mood symptoms, suicide ideation in the past 12 months, and feeling like an outsider at school most/all the time. Students who attended schools located in low-income neighbourhoods were also found, on average, to have significantly higher anxiety scores and lower self-esteem scores in comparison to students from affluent neighbourhood schools (Table 17).

Indicator	Low-income Neighbourhoods	Affluent Neighbourhoods	Z-Score	P-Value
<i>Self Rated Mental Health Status</i>				
Poor/Fair	17.2% (10.6-23.7)	4.8% (3.2-6.5)	5.06*	<0.0001
Good	35.9% (27.6-18.0)	21.1% (18.0-24.3)	3.61*	0.0002
Very good/Excellent	46.9% (38.2-70.7)	74.1% (70.7-77.4)	-6.11*	<0.0001
<i>Depressed Mood</i>				
Minimal	77.7% (70.0-85.4)	87.6% (84.9-90.2)	-2.78*	0.0027
Somewhat Elevated (Moderate)	18.7% (11.5-26.0)	10.3% (7.8-12.7)	2.58*	0.0050
Very Elevated (Severe)	3.6% (1.1-9.2)	2.1% (1.2-3.7)	0.91	0.1825
<i>Suicide Ideation</i>				
No	89.8% (84.4-95.3)	94.9% (93.1-96.6)	-2.13*	0.0167
Yes	10.2%	5.1%	2.12*	0.0167

	(5.8-17.1)	(3.4-6.8)		
<i>Feeling like an outsider at school</i>				
Never/rarely	69.5% (61.5-77.3)	81.0% (78.0-84.0)	-2.96*	0.0015
Some of the time	17.5% (11.0-24.1)	13.7% (11.1-16.4)	1.14	0.1276
Most of the time/all of the time	13.0% (7.2-18.7)	5.3% (3.5-7.0)	3.26*	0.0005
	Low-income Neighbourhoods Mean (Std Dev)	Affluent Neighbourhoods Mean (Std Dev)	T-Score	P-Value
Anxiety score	3.2 (4.1)	2.1 (3.1)	2.579*	0.011
Self-Esteem score	15.1 (4.5)	16.8 (3.3)	-3.991*	<0.001

*Significant at $p < 0.05$

Students that attended schools located in middle-income neighbourhoods were significantly less likely to report very good/excellent mental health status and never or rarely feeling like an outsider at school in comparison to students that attended schools in affluent neighbourhoods. Students that attended schools in middle-income neighbourhoods were significantly less likely than students that attended schools located in affluent neighbourhoods to report minimal depressed mood symptoms. On average, students from middle-income neighbourhood schools had significantly lower self-esteem scores and greater anxiety scores than students from affluent neighbourhood schools, although the differences in these scores were small (Table 18).

Indicator	Middle-income Neighbourhoods	Affluent Neighbourhoods	Z-Score	P-Value
<i>Self-Rated Mental Health Status</i>				
Poor/Fair	8.5% (7.5-9.4)	4.8% (3.2-6.5)	-3.14*	0.0008
Good	28.3% (26.8-29.9)	21.1% (18.0-24.3)	-3.78*	<0.0001
Very good/Excellent	63.2% (61.5-64.8)	74.1% (70.7-77.4)	5.30*	<0.0001
<i>Depressed Mood</i>				
Minimal	82.7% (81.3-84.0)	87.6% (84.9-90.2)	2.98*	0.0014
Somewhat Elevated (Moderate)	14.4% (13.2-15.6)	10.3% (7.8-12.7)	-2.72*	0.0033
Very Elevated (Severe)	2.9% (2.3-3.5)	2.1% (1.2-3.7)	-1.05	0.1465
<i>Suicide Ideation</i>				
No	93.5% (92.6-94.3)	94.9% (93.1-96.6)	1.28	0.0995
Yes	6.5% (5.64-7.33)	5.1% (3.4-6.8)	-1.28	0.0995
<i>Feeling like an outsider at school</i>				
Never/rarely	76.6%	81.0%	2.44*	0.0074

	(75.2-78.0)	(78.0-84.0)		
Some of the time	16.4% (15.12-17.59)	13.7% (11.08-16.38)	-1.68*	0.0469
Most of the time/all of the time	7.0% (6.1-7.8)	5.3% (3.5-7.0)	-1.63	0.0518
	Middle-income Neighbourhoods Mean (Std Dev)	Affluent Neighbourhoods Mean (Std Dev)	T-Score	P-Value
Anxiety score	2.4 (3.6)	2.1 (3.1)	-2.22*	0.027
Self-Esteem score	16.0 (3.8)	16.8 (3.3)	5.44*	<0.001

*Significant at $p < 0.05$

Students that attended low-income neighbourhood schools were significantly less likely to report having very good/excellent mental health status and never/rarely feeling like an outsider at school than students that attended schools located in middle-income neighbourhoods. Students that attended schools located in low-income neighbourhoods were also found to have significantly lower average self-esteem scores in comparison to students who attended middle-income neighbourhood schools (Table 19). There was a gradient between students from low-income, middle-income, and affluent neighbourhood schools for very good/excellent mental health status, never/rarely feeling like an outsider at school, and self-esteem scores. The gradient for very good/excellent mental health status was particularly startling, with less than half of students from low-income neighbourhood schools indicating very good/excellent mental health status versus 63% of students from middle-income neighbourhood schools, and almost three-quarters of students from affluent neighbourhood schools indicating the same.

Indicator	Low-income Neighbourhoods	Middle-income Neighbourhoods	Z-Score	P-Value
<i>Self-Rated Mental Health Status</i>				
Poor/Fair	17.2% (10.6-23.7)	8.5% (7.5-9.4)	-3.43*	0.0003
Good	35.9% (27.6-44.2)	28.3% (26.8-29.9)	-1.86*	0.0313
Very good/Excellent	46.9% (38.2-55.5)	63.2% (61.5-64.8)	3.75*	<0.0001
<i>Depressed Mood</i>				
Minimal	77.7% (70.0-85.4)	82.7% (81.3-84.0)	1.36	0.0868
Somewhat Elevated (Moderate)	18.7% (11.5-26.0)	14.4% (13.2-15.6)	-1.27	0.1012
Very Elevated (Severe)	3.6% (1.1-9.2)	2.9% (2.3-3.5)	-0.40	0.3451
<i>Suicide Ideation</i>				
No	89.8% (84.4-95.3)	93.5% (92.6-94.3)	1.58	0.0571
Yes	10.2% (5.8-17.1)	6.5% (5.64-7.33)	-1.58	0.0571
<i>Feeling like an outsider at school</i>				

Never/rarely	69.5% (61.6-77.3)	76.6% (75.2-78.0)	1.90*	0.0288
Some of the time	17.5% (11.0-24.1)	16.4% (15.12-17.59)	-0.36	0.3585
Most of the time/all of the time	13.0% (7.2-18.7)	7.0% (6.1-7.8)	-2.60*	0.0047
Indicator	Low-income Neighbourhoods Mean (Std Dev)	Middle-income Neighbourhoods Mean (Std Dev)	T-Score	P-Value
Anxiety score	3.2 (4.1)	2.4 (3.6)	1.867	0.064
Self-Esteem score	15.1 (4.5)	16.0 (3.8)	-2.163*	0.032

*Significant at $p < 0.05$

Students that attended rural schools were significantly less likely to report severe depressed mood symptoms and having never/rarely or sometimes felt like an outsider at school than students that attended schools in Saskatoon. Otherwise, mental health results were fairly similar between rural and Saskatoon students (Table 20). Severe depressed mood symptoms amongst rural students were lower than among all neighbourhood income groups in Saskatoon.

Table 20 Mental Health Variables for Saskatoon and Rural				
Indicator	Saskatoon	Rural	Z-Score	P-Value
<i>Self-Rated Mental Health Status</i>				
Poor/Fair	8.1% (7.3-9.0)	7.2% (5.8-8.5)	1.17	0.1213
Good	27.5% (26.1-28.8)	28.3% (26.0-30.7)	-0.62	0.2662
Very good/Excellent	64.4% (62.9-65.8)	64.5% (62.0-67.0)	-0.08	0.4700
<i>Depressed Mood</i>				
Minimal	83.3% (82.1-84.5)	82.7% (80.6-84.7)	0.51	0.3040
Somewhat Elevated (moderate)	13.9% (12.7-15.0)	15.5% (13.5-17.4)	-1.42	0.0785
Very Elevated (Severe)	2.8% (2.3-3.3)	1.8% (1.1-2.6)	1.92*	0.0276
<i>Suicide Ideation</i>				
No	93.6% (92.8-94.4)	93.7% (92.4-95.0)	-0.09	0.4632
Yes	6.4% (5.6-7.1)	6.3% (5.02-7.6)	0.09	0.4632
<i>Feeling like an outsider at school</i>				
Never/rarely	77.1% (75.8-78.3)	72.9% (70.6-75.2)	3.19*	0.0007
Some of the time	16.0% (14.9-17.1)	19.7% (17.6-21.8)	-3.24*	0.0006
Most of the time/all of the time	6.9% (6.1-7.7)	7.4% (6.0-8.7)	-0.57	0.2834
Indicator	Saskatoon Mean (Std Dev)	Rural Mean (Std Dev)	T-Score	P-Value

Anxiety score	2.4 (3.6)	2.5 (3.5)	-0.601	0.548
Self-Esteem score	16.1 (3.7)	16.1 (3.7)	0.049	0.961

*Significant at p<0.05

Bullying by Geography

Overall, students who went to low-income neighbourhood schools were significantly more likely to report being bullied every week or many times a week in the past four weeks by any form of bullying than students who went to schools located in affluent neighbourhoods (Table 21); these differences were quite large for all forms of bullying.

Indicator	Low-income Neighbourhoods	Affluent Neighbourhoods	Z-Score	P-Value
<i>Physical Bullying</i>				
Never	64.6% (56.4-72.8)	83.0% (80.1-85.9)	-4.77*	<0.0001
Once or twice	27.7% (20.0-35.4)	14.7% (12.0-17.4)	3.60*	0.0002
Every week/Many times a week	7.7% (4.1-13.7)	2.3% (1.3-3.8)	3.19*	0.0007
<i>Verbal Bullying</i>				
Never	51.2% (42.5-59.8)	66.5% (62.9-70.1)	-3.32*	0.0005
Once or twice	31.0% (23.0-39.0)	25.2% (21.8-28.5)	1.38	0.0835
Every week/Many times a week	17.8% (11.2-24.4)	8.3% (6.2-10.5)	3.30*	0.0005
<i>Social Bullying</i>				
Never	63.3% (55.0-71.6)	76.1% (72.8-79.4)	-3.03*	0.0012
Once or twice	20.3% (13.3-27.3)	18.7% (15.6-21.6)	0.44	0.3298
Every week/Many times a week	16.4% (10.0-22.8)	5.2% (3.5-6.9)	4.50*	<0.0001
<i>Electronic Bullying</i>				
Never	78.6% (71.4-85.7)	93.0% (91.1-95.0)	-5.11*	<0.0001
Once or twice	15.9% (9.5-22.25)	6.2% (4.3-8.0)	3.71*	0.0001
Every week/Many times a week	5.5% (2.5-11.2)	0.8% (0.2-1.8)	3.97*	<0.0001
<i>Bullying composite</i>				
Not bullied every week/many times a week	75.4% (67.9-82.9)	88.7% (86.3-91.1)	-4.01*	<0.0001
Bullied every week or many times a week	24.6% (17.1-32.1)	11.3% (8.8-13.7)	4.01*	<0.0001

*Significant at p<0.05

Students that attended middle-income neighbourhood schools were significantly more likely to have been bullied physically and electronically every week or many times a week in the past four weeks than students that attended affluent neighbourhood schools. Students that attended schools in affluent neighbourhoods were significantly more likely to report never being bullied physically, verbally, socially, or electronically in the past four weeks than students that attended middle-income neighbourhood schools (Table 22). These differences were generally not as large as those between students from low-income and affluent neighbourhood schools though.

Table 22 Bullying Variables for Middle-Income and Affluent Neighbourhoods				
Indicator	Middle-income Neighbourhoods	Affluent Neighbourhoods	Z-Score	P-Value
<i>Physical Bullying</i>				
Never	78.3% (76.9-79.7)	83.0% (80.1-85.9)	2.67*	0.0038
Once or twice	17.9% (16.6-19.2)	14.7% (12.0-17.4)	-1.96*	0.0249
Every week/Many times a week	3.8% (3.1-4.4)	2.3% (1.3-3.8)	-1.85*	0.0320
<i>Verbal Bullying</i>				
Never	60.5% (58.9-62.1)	66.5% (62.9-70.1)	2.87*	0.0020
Once or twice	29.7% (28.1-31.2)	25.2% (21.8-28.5)	-2.33*	0.0098
Every week/Many times a week	9.8% (8.8-10.8)	8.3% (6.2-10.5)	-1.16	0.1238
<i>Social Bullying</i>				
Never	72.7% (71.2-74.2)	76.1% (72.8-79.4)	1.80*	0.0362
Once or twice	20.5% (19.1-21.9)	18.7% (15.6-21.6)	-1.09	0.1389
Every week/Many times a week	6.8% (5.9-7.6)	5.2% (3.5-6.9)	-1.45	0.0729
<i>Electronic Bullying</i>				
Never	89.7% (88.7-90.7)	93.0% (91.1-95.0)	2.59*	0.0047
Once or twice	8.0% (7.1-8.9)	6.2% (4.3-8.0)	-1.56	0.0591
Every week/Many times a week	2.3% (1.8-2.8)	0.8% (0.2-1.8)	-2.49*	0.0064
<i>Bullying composite</i>				
Not bullied every week/many times a week	86.7% (85.5-87.8)	88.7% (86.3-91.1)	1.40	0.0810
Bullied every week or many times a week	13.3% (12.1-14.4)	11.3% (8.8-13.7)	-1.40	0.0810

*Significant at $p < 0.05$

Students that attended low-income neighbourhood schools were more likely to report being physically, verbally, socially, or electronically bullied many times a week or every week in the past four weeks in comparison to students that attended schools in middle-income neighbourhoods (Table 23). There was an obvious gradient for all types of bullying and the bullying composite between the groups of neighbourhoods in Saskatoon, with bullying reported more frequently by students that attended schools in low-income neighbourhoods.

Table 23 Bullying Variables for Low-Income and Middle-Income Neighbourhoods				
Indicator	Low-income Neighbourhoods	Middle-income Neighbourhoods	Z-Score	P-Value
<i>Physical Bullying</i>				
Never	64.6% (56.4-72.8)	78.3% (76.9-79.7)	3.70*	0.0001
Once or twice	27.7% (20.0-35.4)	17.9% (16.6-19.2)	-2.84*	0.0023
Every week/Many times a week	7.7% (4.1-13.7)	3.8% (3.1-4.4)	-2.27*	0.0116
<i>Verbal Bullying</i>				
Never	51.2% (42.5-59.8)	60.5% (58.9-62.1)	2.13*	0.0165
Once or twice	31.0% (23.0-39.0)	29.7% (28.1-31.2)	-0.32	0.3740
Every week/Many times a week	17.8% (11.2-24.4)	9.8% (8.8-10.8)	-2.98*	0.0015
<i>Social Bullying</i>				
Never	63.3% (55.0-71.6)	72.7% (71.2-74.2)	2.34*	0.0096
Once or twice	20.3% (13.3-27.3)	20.5% (19.1-21.9)	0.05	0.4783
Every week/Many times a week	16.4% (10.0-22.8)	6.8% (5.9-7.6)	-4.16*	0.0001
<i>Electronic Bullying</i>				
Never	78.6% (71.4-85.7)	89.7% (88.7-90.7)	3.99*	0.0001
Once or twice	15.9% (9.5-22.2)	8.0% (7.1-8.9)	-3.16*	0.0008
Every week/Many times a week	5.5% (2.5-11.2)	2.3% (1.8-2.8)	-2.35*	0.0094
<i>Bullying composite</i>				
Not bullied every week/many times a week	75.4% (67.9-82.9)	86.7% (85.5-87.8)	3.62*	0.0001
Bullied every week or many times a week	24.6% (17.1-32.1)	13.3% (12.1-14.4)	-3.62*	0.0001

*Significant at p<0.05

Students that attended rural schools were significantly less likely to report being bullied physically every week or many times a week, but were more likely to report being bullied verbally and socially every week or many times a week in comparison to students attending schools in Saskatoon. For the bullying composite, students attending rural schools were significantly more likely to report being bullied every week or many times a week in comparison to students that attended schools in Saskatoon (Table 24). The bullying composite also shows that any type of bullying every week or many times a week was more commonly reported amongst rural students than those who attended school in middle-income or affluent neighbourhoods in Saskatoon; however, reported bullying was still less common among rural students than those who attended schools in low-income neighbourhoods.

Table 24 Bullying Variables for Saskatoon and Rural				
Indicator	Saskatoon	Rural	Z-Score	P-Value
<i>Physical Bullying</i>				
Never	78.6% (77.4-79.9)	77.1% (74.9-79.2)	1.25	0.1049
Once or twice	17.7% (16.5-18.9)	20.2% (18.1-22.3)	-2.14*	0.0163
Every week/Many times a week	3.7% (3.1-4.2)	2.7% (1.9-3.5)	1.70*	0.0444
<i>Verbal Bullying</i>				
Never	61.2% (59.7-62.6)	55.3% (52.9-57.8)	3.92*	<0.0001
Once or twice	29.0% (27.6-30.4)	33.3% (30.8-35.7)	-3.03*	0.0012
Every week/Many times a week	9.8% (8.9-10.7)	11.4% (9.8-13.1)	-1.76*	0.0391
<i>Social Bullying</i>				
Never	73.0% (71.6-74.3)	65.9% (63.4-68.3)	5.10*	<0.0001
Once or twice	20.2% (19.0-21.4)	24.8% (22.6-27.1)	-3.69*	0.0001
Every week/Many times a week	6.8% (6.1-7.6)	9.3% (7.8-10.8)	-3.04*	0.0012
<i>Electronic Bullying</i>				
Never	90.0% (89.0-90.8)	89.5% (87.9-91.1)	0.43	0.3345
Once or twice	7.9% (7.1-8.8)	7.9% (6.5-9.3)	0.05	0.4814
Every week/Many times a week	2.1% (1.7-2.6)	2.6% (1.8-3.4)	-0.95	0.1700
<i>Bullying composite</i>				
Not bullied every week/many times a week	86.7% (85.6-87.7)	84.2% (82.3-86.1)	2.33*	0.0098
Bullied every week or many times a week	13.3% (12.3-14.3)	15.8% (13.9-17.7)	-2.33*	0.0098

*Significant at p<0.05

Risky Behaviour by Geography

Students that attended schools in low-income neighbourhoods were significantly more likely to have tried smoking and to have been drunk at least once in comparison to students that attended schools in affluent neighbourhoods (Table 25). The differences for smoking were quite large.

Indicator	Low-income Neighbourhoods	Affluent Neighbourhoods	Z-Score	P-Value
<i>Smoking</i>				
Has never smoked	87.0% (81.3-92.8)	98.3% (97.3-99.3)	-6.34*	<0.0001
Has tried smoking	13.0% (8.2-20.0)	1.7% (0.7-2.7)	6.34*	<0.0001
<i>Drinking</i>				
Has never drank alcohol	83.3% (77.0-89.7)	78.2% (75.0-81.4)	1.32	0.0939
Has tried drinking	16.7% (10.3-23.0)	21.8% (18.6-25.0)	-1.32	0.0939
<i>Ever been drunk?</i>				
No	92.6% (87.8-97.2)	97.9% (96.7-99.0)	-3.13*	0.0009
Yes	7.4% (3.8-13.7)	2.1% (1.2-3.6)	3.13*	0.0009

*Significant at $p < 0.05$

Students that attended middle-income neighbourhood schools were significantly more likely to have tried smoking than the students that attended schools in affluent neighbourhoods, although these differences were not large (Table 26).

Indicator	Middle-income Neighbourhoods	Affluent Neighbourhoods	Z-Score	P-Value
<i>Smoking</i>				
Has never smoked	96.7% (96.1-97.3)	98.3% (97.3-99.3)	2.14*	0.0161
Has tried smoking	3.3% (2.7-3.8)	1.7% (0.7-2.7)	-2.14*	0.0161
<i>Drinking</i>				
Has never drank alcohol	79.6% (78.3-81.0)	78.2% (75.0-81.4)	-0.81	0.2085
Has tried drinking	20.4% (19.0-21.7)	21.8% (18.6-25.0)	0.81	0.2085
<i>Ever been drunk?</i>				
No	96.7% (96.0-97.3)	97.9% (96.7-99.0)	1.55	0.0602
Yes	3.3% (2.7-3.9)	2.1% (1.2-3.6)	-1.55	0.0602

*Significant at $p < 0.05$

Students that attended schools located in low-income neighbourhoods were significantly more likely to have tried smoking and to have been drunk at least once, than students that attended middle-income neighbourhood schools (Table 27). A clear and significant gradient for smoking was present, with students from affluent neighbourhood schools being the least likely to have reported trying smoking.

Indicator	Low-income Neighbourhoods	Middle-income Neighbourhoods	Z-Score	P-Value
<i>Smoking</i>				
Has never smoked	87.0% (81.3-92.8)	96.7% (96.1-97.3)	5.85*	<0.0001
Has tried smoking	13.0% (8.2-20.0)	3.3% (2.7-3.8)	-5.85*	<0.0001
<i>Drinking</i>				
Has never drank alcohol	83.3% (77.0-89.7)	79.6% (78.3-81.0)	-1.04	0.1489
Has tried drinking	16.7% (10.3-23.0)	20.4% (19.0-21.7)	1.04	0.1489
<i>Ever been drunk?</i>				
No	92.6% (87.8-97.2)	96.7% (96.0-97.3)	2.43*	0.0076
Yes	7.4% (3.8-13.7)	3.3% (2.7-3.9)	-2.43*	0.0076

*Significant at $p < 0.05$

Students that attended rural schools were significantly more likely to report having tried drinking in comparison to students that attended schools in Saskatoon (Table 28). Having tried drinking was significantly more likely amongst rural students than students in the three neighbourhood income groups in Saskatoon.

Indicator	Saskatoon	Rural	Z-Score	P-Value
<i>Smoking</i>				
Has never smoked	96.7% (96.1-97.2)	96.7% (95.8-97.6)	-0.02	0.4930
Has tried smoking	3.3% (2.8-3.85)	3.3% (2.4-4.2)	0.02	0.4930
<i>Drinking</i>				
Has never drank alcohol	79.5% (78.3-80.7)	70.7% (68.3-73.0)	6.91*	<0.0001
Has tried drinking	20.5% (19.3-21.7)	29.3% (27.0-31.7)	-6.91*	<0.0001
<i>Ever been drunk?</i>				
No	96.7% (96.2-97.3)	95.9% (94.8-96.9)	1.52	0.0643
Yes	3.3% (2.7-3.8)	4.1% (3.1-5.2)	-1.52	0.0643

*Significant at $p < 0.05$

Nutrition by Geography

Students that attended schools in low-income neighbourhoods were significantly less likely to report never/rarely going hungry due to lack of food, but significantly more likely to report sometimes going hungry due to lack of food, compared to students that attended affluent neighbourhood schools. There were also significant differences between students that attended low-income neighbourhood schools compared to students who attended affluent neighbourhood schools for consuming three or more servings of milk and alternatives per day and consuming fast food less than once a day (Table 29). The differences for fast food consumption were very large.

Table 29 Nutrition Variables for Low-Income and Affluent Neighbourhoods				
Indicator	Low-income Neighbourhoods	Affluent Neighbourhoods	Z-Score	P-Value
<i>How often do you go hungry due to lack of food</i>				
Never/rarely	78.5% (71.6-85.4)	88.2% (85.7-90.7)	-3.02*	0.0013
Sometimes	17.0% (10.7-23.4)	9.2% (6.9-11.4)	2.72*	0.0033
Most of the time/always	4.5% (1.9-9.6)	2.6% (1.6-4.1)	1.16	0.1223
<i>Frequency of fruit/vegetable consumption</i>				
Five or less times per day	61.4% (53.1-69.7)	59.2% (55.4-63.0)	0.46	0.3241
Six or more times per day	38.6% (30.3-47.0)	40.8% (37.0-44.6)	-0.46	0.3241
<i>Milk consumption</i>				
Two or less servings a day	52.7% (44.0-61.2)	38.2% (34.5-42.0)	3.07*	0.0011
Three or more servings a day	47.3% (38.7-55.9)	61.8% (58.0-65.5)	-3.07*	0.0011
<i>Fast food consumption</i>				
Less than one time a day	69.5% (61.6-77.3)	91.7% (89.6-93.8)	-7.15*	<0.0001
One or more times per day	30.5% (22.6-38.4)	8.3% (6.1-10.3)	7.15*	<0.0001

*Significant at $p < 0.05$

Students that went to schools located in middle-income neighbourhoods were significantly less likely to have never/rarely or sometimes went hungry due to lack of food, to consume three or more servings of milk and alternatives per day, and were significantly more likely to have consumed fast food one or more times per day in comparison to students who went to affluent neighbourhood schools (Table 30).

Table 30 Nutrition Variables for Middle-Income and Affluent Neighbourhoods				
Indicator	Middle-income Neighbourhoods	Affluent Neighbourhoods	Z-Score	P-Value
<i>How often do you go hungry due to lack of food</i>				
Never/rarely	83.8% (82.6-85.0)	88.2% (85.7-90.7)	2.87*	0.0020
Sometimes	12.6% (11.5-13.7)	9.2% (6.9-11.4)	-2.46*	0.0069
Most of the time/always	3.6% (3.0-4.2)	2.6% (1.6-4.1)	-1.31	0.0948
<i>Frequency of fruit/vegetable consumption</i>				
Five or less times per day	60.2% (58.5-61.8)	59.2% (55.4-63.0)	-0.45	0.3257
Six or more times per day	39.8% (38.2-41.5)	40.8% (37.0-44.6)	0.45	0.3257
<i>Milk consumption</i>				
Two or less servings a day	44.7% (43.0-46.3)	38.2% (34.5-42.0)	-3.07*	0.0011
Three or more servings a day	55.3% (53.6-56.9)	61.8% (58.0-65.5)	3.07*	0.0011
<i>Fast food consumption</i>				
Less than one time a day	86.7% (85.6-87.8)	91.7% (89.6-93.8)	3.54*	0.0002
One or more times per day	13.3% (12.1-14.4)	8.3% (6.1-10.3)	-3.54*	0.0002

*Significant at $p < 0.05$

Students that attended low-income neighbourhood schools were significantly less likely to have reported consuming three or more servings of milk and alternatives per day and more likely to consume fast food once or more than once a day in comparison to students that attended schools in middle-income neighbourhoods (Table 31). There was a gradient between the three groups of neighbourhoods for milk consumption and fast food consumption, with students from low-income neighbourhood schools reporting less frequent milk consumption and more frequent fast food consumption. In fact, the frequency of fast food consumption among students from low-income neighbourhood schools was quite a lot higher than the other neighbourhood income groups.

Table 31 Nutrition Variables for Low-Income and Middle-Income Neighbourhoods				
Indicator	Low-income Neighbourhoods	Middle-income Neighbourhoods	Z-Score	P-Value
<i>How often do you go hungry due to lack of food</i>				
Never/rarely	78.5% (71.6-85.4)	83.8% (82.6-85.0)	1.63	0.0514
Sometimes	17.0% (10.7-23.4)	12.6% (11.5-13.7)	-1.53	0.0632
Most of the time/always	4.5% (1.9-9.6)	3.6% (3.0-4.2)	-0.50	0.3071
<i>Frequency of fruit/vegetable consumption</i>				
Five or less times per day	61.4% (53.0-69.7)	60.2% (58.5-61.8)	-0.27	0.3921
Six or more times per day	38.6% (30.3-47.0)	39.8% (38.2-41.5)	0.27	0.3921
<i>Milk consumption</i>				
Two or less servings a day	52.7% (44.0-61.2)	44.7% (43.0-46.3)	-1.80*	0.0360
Three or more servings a day	47.3% (38.7-55.9)	55.3% (53.6-56.9)	1.80*	0.0360
<i>Fast food consumption</i>				
Less than one time a day	69.5% (61.6-77.3)	86.7% (85.6-87.8)	5.60*	<0.0001
One or more times per day	30.5% (22.6-38.4)	13.3% (12.1-14.4)	-5.60*	<0.0001

*Significant at $p < 0.05$

Students that attended rural schools were significantly less likely than students that attended schools in Saskatoon to report: going hungry due to lack of food most of the time/always, consuming less than three servings of milk and alternatives per day, and consuming fast food once or more than once a day (Table 32).

Table 32 Nutrition Variables for Saskatoon and Rural				
Indicator	Saskatoon	Rural	Z-Score	P-Value
<i>How often do you go hungry due to lack of food</i>				
Never/rarely	84.3% (83.2-85.4)	84.8% (82.9-86.6)	-0.37	0.3549
Sometimes	12.2% (11.2-13.2)	12.7% (11.0-14.4)	-0.55	0.2926
Most of the time/always	3.5% (2.9-4.0)	2.5% (1.7-3.3)	1.78*	0.0379
<i>Frequency of fruit/vegetable consumption</i>				
Five or less times per day	60.1% (58.6-61.5)	60.9% (58.4-63.4)	-0.59	0.2787
Six or more times per day	39.9% (38.4-41.4)	39.1% (36.5-41.6)	0.59	0.2787
<i>Milk consumption</i>				
Two or less servings a day	44.0% (42.5-45.4)	38.8% (36.3-41.3)	3.44*	0.0003
Three or more servings a day	56.0% (54.5-57.5)	61.2% (58.7-63.7)	-3.44*	0.0003
<i>Fast food consumption</i>				
Less than one time a day	87.0% (85.9-88.0)	90.5% (89.0-92.0)	-3.54*	0.0002
One or more times per day	13.0% (12.0-14.0)	9.5% (8.0-11.0)	3.54*	0.0002

*Significant at $p < 0.05$

Relationships by Geography

On average, students that attended low-income neighbourhood schools had lower parent relationship scores and friendship scores in comparison to their counterparts in affluent neighbourhood schools (Table 33).

Table 33 Relationship Variables for Low-Income and Affluent Neighbourhoods				
Indicator	Low-income Neighbourhoods Mean (Std Dev)	Affluent Neighbourhoods Mean (Std Dev)	T-Score	P-Value
Parent relationship score	21.0 (5.8)	24.3 (4.5)	-5.675*	<0.001
Friendship score	11.8 (4.0)	13.4 (3.0)	-4.167*	<0.001

*Significant at $p < 0.05$

Students that attended middle-income neighbourhood schools, on average, had significantly lower parent relationship and friendship scores in comparison to students that attended affluent neighbourhood schools (Table 34).

Indicator	Middle-income Neighbourhoods Mean (Std Dev)	Affluent Neighbourhoods Mean (Std Dev)	T-Score	P-Value
Parent relationship score	23.3 (4.9)	24.3 (4.5)	4.872*	<0.001
Friendship score	12.8 (3.2)	13.4 (3.0)	4.117*	<0.001

*Significant at p<0.05

Students that attended low-income neighbourhood schools were significantly more likely to report lower average parent relationship and friendship scores than students that attended middle-income neighbourhood schools (Table 35). A gradient existed for both parent relationship and friendship scores, with students from low-income neighbourhood schools reporting the poorest scores for these variables.

Indicator	Low-income Neighbourhoods Mean (Std Dev)	Middle-income Neighbourhoods Mean (Std Dev)	T-Score	P-Value
Parent relationship score	21.0 (5.8)	23.3 (4.9)	-4.778*	<0.001
Friendship score	11.8 (4.0)	12.8 (3.2)	-2.835*	0.005

*Significant at p<0.05

Students that attended rural schools reported significantly lower average friendship scores than students that attended schools in Saskatoon, although the difference was small (Table 36).

Indicator	Saskatoon Mean (Std Dev)	Rural Mean (Std Dev)	T-Score	P-Value
Parent relationship score	23.4 (4.9)	23.4 (5.0)	-0.147	0.883
Friendship score	12.9 (3.2)	12.6 (3.3)	2.888*	0.004

*Significant at p<0.05

Covered Population Analysis

The Chi-Square Goodness of Fit test was used to examine the distribution of the SHS sample in comparison to the distribution of the overall Covered Population of children aged 10 to 13. The Covered Population refers to every person in Saskatchewan registered for provincial health coverage. Comparisons were made with respect to neighbourhood income, age, and sex. Comparisons were not made between the SHS sample and the Covered Population according to cultural status because these groups were not directly comparable. The Covered Population only captures those with Registered Indian Status (RIS), whereas the SHS also included First Nations, Métis and Inuit under Aboriginal status.

We found there was an underrepresentation of students from low-income neighbourhood schools, and an overrepresentation of students from affluent and middle-income neighbourhood schools in the sample (Table 37).

Neighbourhood income	SHS Observed	SHS Expected based on Covered Population	Covered Population Observed	Chi-square statistic	df	p-value
Low-income Neighbourhood	136	347	885	273.3*	3	<0.0001
Affluent Neighbourhood	659	502	1281			
Middle-income Neighbourhood	3519	3155	8042			
Rural	1469	1779	4535			
Total	5783	5783	14743			

*Significant at $p < 0.05$

Students aged ten who typically are in the fifth grade were found to be underrepresented in the sample, while students aged 13 were found to be overrepresented in the sample (Table 38). It should be noted that the 10-year-old group for the SHS also included those who indicated they were 10 and under; conversely, the 13-year-old age group included those students who indicated they were 13 and older.

Age	SHS Observed	SHS expected based on Covered Population	Covered Population Observed	Chi-square statistic	df	p-value
10	1070	1409	3643	141.4*	3	<0.0001
11	1459	1448	3742			
12	1446	1409	3642			
13	1728	1437	3716			
Total	5703	5703	14743			

*Significant at $p < 0.05$

The surveyed population was representative of the Covered Population with respect to gender (Table 39).

Table 39 Student Health Survey Versus Covered Population By Gender						
Gender	SHS Observed	SHS expected based on Covered Population	Covered Population Observed	Chi-square statistic	df	p-value
Female	2726	2799	7178	3.66	1	0.0555
Male	3022	2949	7565			
Total	5748	5748	14743			

*Significant at $p < 0.05$

Trend Analysis

Trend analysis between the three rounds of the SHS was completed for students in Saskatoon since rural students only participated in the 2010/2011 SHS. Several variables were consistent from the 2008/2009 to 2010/2011 SHS, including: demographics, self-report physical health, self-report mental health, bullying, school mobility, physical activity, and the parent relationship score.

There were a few significant differences in demographic composition from the 2008/2009 to 2010/2011 SHS (Table 40). There were significant differences in the percentage of respondents aged 12, in grades 5 and 7, and from affluent and middle-income neighbourhood schools. A significant increase in Aboriginal participation in the 2010/2011 SHS was observed.

Table 40 Demographic Variables by Survey Year			
Indicator	2008/2009	2010/2011	Rate Ratio (95%CI)
<i>Gender</i>			
Male	48.8% (46.7-50.9)	47.8% (46.3-49.3)	1.02 (0.98-1.07)
Female	51.2% (49.0-53.4)	52.2% (50.7-53.9)	0.98 (0.94-1.02)
<i>Age</i>			
10 and under	21.6% (20.2-23.0)	21.5% (20.3-22.7)	1.01 (0.93-1.09)
11	25.1% (23.6-26.6)	26.2% (24.9-27.5)	0.96 (0.89-1.03)
12	27.0% (25.4-28.6)	24.9% (23.6-26.2)	1.08 (1.01-1.16)*
13 and above	26.3% (24.7-27.8)	27.4% (26.0-28.7)	0.96 (0.89-1.03)
<i>Grade</i>			
Grade 5	23.3% (21.9-24.8)	26.4% (25.1-27.7)	0.88 (0.82-0.95)*
Grade 6	25.4% (23.9-27.0)	25.9% (24.6-27.2)	0.98 (0.91-1.06)
Grade 7	27.6% (26.0-29.2)	25.2% (23.9-26.5)	1.10 (1.02-1.18)*
Grade 8	23.7% (22.1-25.1)	22.5% (21.3-23.8)	1.05 (0.97-1.13)
<i>School neighbourhood</i>			
Low-Income Neighbourhoods	3.9% (3.3-4.5)	3.2% (2.6-3.7)	1.24 (0.99-1.55)
Middle-Income neighbourhoods	78.7% (76.0-81.3)	81.6% (80.4-82.7)	0.96 (0.94-0.99)*
Affluent Neighbourhoods	17.4% (16.2-18.7)	15.3% (14.2-16.3)	1.14 (1.04-1.26)*
<i>Cultural status</i>			
Aboriginal	10.3% (9.3-11.3)	12.5% (11.5-13.5)	0.83 (0.73-0.93)*
Non-Aboriginal	89.7% (88.8-90.6)	87.5% (86.5-88.5)	1.02 (1.01-1.04)*
<i>School Mobility</i>			
One	91.4% (88.5-94.3)	91.5% (90.6-92.3)	0.99 (0.98-1.01)
Two or more	8.6% (7.7-9.5)	8.5% (7.7-9.4)	1.01 (0.88-1.16)

*Significant at p<0.05

A significant increase in the percentage of students who reported fair/poor physical health from 2008/2009 to 2010/2011 was observed. There was a significant decrease from 2008/2009 to 2010/2011 in the percentage of participants who reported very good or excellent physical health status. There were no significant changes over time in terms of BMI (Table 41).

Table 41 Self-Report Physical Health Variables by Survey Year			
Indicator	2008/2009	2010/2011	Rate Ratio (95%CI)
<i>Self-report health</i>			
Fair/poor	4.8% (4.1-5.5)	7.9% (7.1-8.7)	0.61 (0.51-0.72)*
Good	20.0% (18.7-21.4)	34.0% (32.5-35.4)	0.59 (0.55-0.64)*
Excellent/very good	75.2% (72.5-77.8)	58.1% (56.7-59.6)	1.29 (1.25-1.33)*
<i>BMI</i>			
Normal weight	79.3% (76.5-82.2)	78.4% (76.8-80.0)	1.01 (0.99-1.04)
Overweight/Obese	20.7% (19.2-22.1)	21.6% (20.0-23.2)	0.96 (0.87-1.06)

*Significant at p<0.05

For self-report mental health status, excellent/very good decreased and fair/poor increased. Suicide ideation decreased over the two survey years. Feeling like an outsider all of the time or most of the time also decreased over time. There was a significant decrease in the percentage of participants that reported moderate or severe depressed mood symptoms from 2008/2009 to 2010/2011 (Table 42).

Table 42 Self-Report Mental Health Variables by Survey Year			
Indicator	2008/2009	2010/2011	Rate Ratio (95%CI)
<i>Self-report mental health</i>			
Fair/poor	6.3% (5.5-7.0)	8.2% (7.3-9.0)	0.77 (0.66-0.90)*
Good	19.4% (18.1-20.8)	27.4% (26.1-28.8)	0.71 (0.65-0.77)*
Excellent/very good	74.3% (71.7-76.9)	64.4% (62.9-65.8)	1.15 (1.12-1.19)*
<i>Suicide Ideation</i>			
No	92.1% (89.1-95.1)	93.6% (93.0-94.3)	0.98 (0.97-0.99)*
Yes	7.9% (7.1-8.8)	6.4% (5.7-7.0)	1.25 (1.07-1.44)*
<i>Feel like an outsider</i>			
All the time/most of the time	8.4% (7.5-9.3)	6.9% (6.1-7.7)	1.22 (1.05-1.42)*
Some of the time	15.2% (14.0-16.4)	16.0% (14.9-17.1)	0.95 (0.86-1.05)
Rarely/Never	76.4% (73.7-79.0)	77.1% (75.8-78.4)	0.99 (0.97-1.01)
<i>Depressed Mood</i>			
Minimal	77.9% (75.2-80.7)	83.3% (82.1-84.5)	0.94 (0.92-0.96)*
Moderate to Severe	22.1% (20.6-23.5)	16.7% (15.5-17.9)	1.32 (1.20-1.45)*

*Significant at p<0.05

There was a marginal but significant increase from 2008/2009 to 2010/2011 in the proportion of students who reported never being bullied physically. There was also a significant decrease in students who reported being bullied every week/many times a week verbally and electronically (Table 43). Overall, there was a significant decrease in the percentage of students that reported being bullied from 2008/2009 to 2010/2011 (Table 43).

Table 43 Bullying Variables by Survey Year			
Indicator	2008/2009	2010/2011	Rate Ratio (95%CI)
<i>Physical Bullying</i>			
Never	75.9% (73.2-78.6)	78.6% (77.4-79.9)	0.97 (0.94-0.99)*
Once or twice	19.7% (18.3-21.0)	17.7% (16.6-18.9)	1.11 (1.01-1.21)*
Every week/many times a week	4.4% (3.8-5.1)	3.7% (3.1-4.2)	1.21 (0.98-1.49)
<i>Verbal bullying</i>			
Never	56.1% (53.8-58.4)	61.2% (59.7-62.6)	0.92 (0.88-0.95)*
Once or twice	31.8% (30.1-33.6)	29.0% (27.7-30.4)	1.10 (1.03-1.17)*
Every week/many times a week	12.1% (11.0-13.1)	9.8% (8.9-10.7)	1.23 (1.09-1.39)*
<i>Social bullying</i>			
Never	68.4% (65.8-70.9)	73.0% (71.6-74.3)	0.94 (0.91-0.96)*
Once or twice	23.1% (21.6-24.6)	20.2% (19.0-21.4)	1.14 (1.05-1.24)*
Every week/many times a week	8.5% (7.6-9.4)	6.8% (6.1-7.6)	1.25 (1.08-1.45)
<i>Electronic bullying</i>			
Never	89.1% (86.2-92.0)	89.9% (89.0-90.8)	0.99 (0.98-1.01)
Once or twice	8.0% (7.1-8.9)	7.9% (7.1-8.8)	1.01 (0.87-1.16)
Every week/many times a week	2.9% (2.4-3.4)	2.1% (1.7-2.6)	1.35 (1.03-1.77)*
<i>Bullying Composite</i>			
Did not report bullying	82.6% (79.8-85.5)	86.7% (85.6-87.7)	0.95 (0.94-0.97)*
Reported bullying	17.4% (16.1-18.6)	13.3% (12.3-14.4)	1.30 (1.17-1.44)*

*Significant at p<0.05

There was a significant increase in optimal physical activity levels from 2008/2009 to 2010/2011. There was also a significant decrease in the percentage of participants who reported being physically inactive (Table 44).

Table 44 Physical Activity Levels by Survey Year			
Indicator	2008/2009	2010/2011	Rate Ratio (95%CI)
Inactive	19.9% (18.5-21.2)	12.3% (11.2-13.4)	1.62 (1.45-1.80)*
Moderately active	72.5% (69.9-75.1)	72.0% (70.4-73.5)	1.01 (0.98-1.04)
Optimally active	7.6% (6.8-8.5)	15.7% (14.5-17.0)	0.49 (0.43-0.56)*

*Significant at $p < 0.05$

There was a significant decrease in average parent relationship score from 2008/2009 to 2010/2011 (Table 45).

Table 45 Relationship Variables by Survey Year			
Indicator	2008/2009 Mean (Std Dev)	2010/2011 Mean (Std Dev)	T-Test (p value)
Parent Relationship Score	23.0 (5.20)	23.4 (5.0)	4.04 (<0.001)*

*Significant at $p < 0.05$

Indicators related to risky behaviours, nutrition, and anxiety were measured in the 2006/2007 and 2010/2011 SHS, but not in 2008/2009. Hence, comparisons for these indicators were made using survey results from the 2006/2007 SHS.

From 2006/2007 to 2010/2011, there was a significant increase in the proportion of participants who reported having tried alcohol (Table 46). The percentage of participants that reported having been drunk significantly decreased from 2006/2007 to 2010/2011 (Table 46).

Table 46 Risky Behaviour Variables by Survey Year			
Indicator	2006/2007	2010/2011	Rate Ratio (95%CI)
<i>Smoking</i>			
Has never smoked	96.4% (93.3-99.4)	96.7% (96.1-97.2)	0.99 (0.98-1.00)
Has tried smoking	3.6% (3.1-4.2)	3.3% (2.8-3.9)	1.10 (0.87-1.38)
<i>Drinking</i>			
Has never drank alcohol	84.6% (81.8-87.4)	79.5% (78.3-80.7)	1.06 (1.04-1.09)*
Has tried drinking	15.4% (14.2-16.6)	20.5% (19.3-21.7)	0.75 (0.68-0.83)*
<i>Ever been drunk?</i>			
No	93.6% (90.6-96.5)	96.7% (96.2-97.3)	0.97 (0.96-0.98)*
Yes	6.4% (5.6-7.2)	3.3% (2.7-3.8)	1.97 (1.60-2.42)*

*Significant at $p < 0.05$

A significant decrease in the percentage of participants who reported never/rarely going hungry due to lack of food was observed from 2006/2007 to 2010/2011. There were no significant changes over the years in consumption of fruits and vegetables (Table 47).

Table 47 Nutrition Variables by Survey Year			
Indicator	2006/2007	2010/2011	Rate Ratio (95%CI)
How often do you go hungry due to lack of food			
Never/rarely	89.1% (86.1-92.0)	84.3% (83.2-85.4)	1.06 (1.04-1.07)*
Sometimes	7.8% (6.9-8.7)	12.2% (11.2-13.2)	0.64 (0.56-0.73)*
Most of the time/always	3.1% (2.6-3.7)	3.5% (2.9-4.0)	0.90 (0.71-1.14)
Frequency of fruit/vegetable consumption			
Five or less times per day	58.7% (56.3-61.0)	60.1% (58.6-61.5)	0.98 (0.94-1.01)
Six or more times per day	41.3% (39.4-43.3)	39.9% (38.5-41.4)	1.04 (0.98-1.09)

*Significant at $p < 0.05$

There was a significant decrease in the average anxiety score from 2006/2007 to 2010/2011 (Table 48).

Table 48 Anxiety Score by Survey Year			
Indicator	2006/2007 Mean (Std Dev)	2010/2011 Mean (Std Dev)	T-Test (p value)
Anxiety Score	3.0 (4.0)	2.4 (3.5)	-6.64(<0.001)*

*Significant at $p < 0.05$

Policy Implications

As shown in this report, there have been improvements in the areas of physical activity, bullying, and some mental health measures over the past few years, which is very encouraging. This may indicate that the interventions that have been introduced over the past few years in response to previous SHS findings (e.g., the Health Promoting Schools Program, programs introduced at individual schools) are creating a positive effect. However, we also found the percentage of students who are optimally active still remains low for all geographical groupings. There is also a need for improvement in nutrition levels, as a majority of the students do not consume the recommended servings of fruits and vegetables. These results indicate that universal approaches to improving the health of students in the areas of nutrition and physical activity across all of Saskatoon Health Region are required.

This report also showed there were significant and sometimes startling differences according to neighbourhood income and geography. In Saskatoon, clear gradients based on neighbourhood income were present for the following variables: healthy weight, self-reported very good/excellent physical health, physical activity levels, very good/excellent self-reported mental health status, never/rarely feeling like an outsider at school, self-esteem, fast food consumption, bullying, and smoking. These results all indicated that students that attend schools

in low-income neighbourhoods are not faring as well as the students that attend schools in higher-income neighbourhoods. These findings suggest that targeted interventions are required among these low-income neighbourhood schools such as the continuation of the Health Promoting Schools Program that focuses on nutrition, mental health, and physical activity issues.

The wider determinants of health should also be considered and acted upon. For instance, neighbourhood-level factors that contribute to poor health such as stress exacerbated by safety concerns, violence, lack of services, and green space all need to be considered. Previous research has found that health disparity in Saskatoon is often associated with income¹⁴⁻¹⁷, so poverty reduction interventions should also be a key consideration when working to improve student health.

In terms of differences between students that attend school in Saskatoon and the rural areas of Saskatoon Health Region, the main finding that stands out is having tried alcohol. Students in rural areas reported that they had tried drinking more frequently than for all three neighbourhood groupings in Saskatoon. This finding suggests that programming in rural schools should include a focus on the adverse health effects of consuming alcohol. More research is also required to determine the root causes of higher drinking rates in rural Saskatoon Health Region in order to implement appropriate programming and policy changes.

The findings of the 2010/2011 SHS, as well as previous rounds of the SHS, suggest that a matrix approach to designing interventions should be considered. In other words, there needs to be an appropriate balance between population-based and targeted interventions. All students are at risk of adverse health outcomes, however, there needs to be special emphasis placed on students that attend schools located in low-income neighbourhoods due to the much higher likelihood of self-reported poor health outcomes seen there. Further research is also required to probe whether targeting is required in terms of gender, age, and cultural status. Cultural status will be particularly important to explore since Aboriginal peoples in Canada are more likely to report poor health outcomes and live in poverty due to a history of colonialism and systemic discrimination.¹⁸ Culturally appropriate interventions are also fundamental for promoting change.

Student Health Survey in Action in the Schools

Results from previous rounds of the SHS have been influential in guiding decisions internally within Saskatoon Health Region, as well as among key external stakeholders. Further details about changes in Saskatoon Health Region prompted by SHS findings can be found in other documents.^{19,20} However, after three years of the SHS, there was a need to systematically capture how the schools have used the results. Therefore, a Knowledge Translation Survey (Appendix B) was designed using Fluid Surveys and administered online in late May 2012. Knowledge translation (KT) is a process that involves the synthesis, release, and exchange of knowledge to improve health.²¹

The KT Survey was administered after all of the schools that had participated in the survey had received their 2010/2011 individual school results. The overall 2010/2011 results had also been disseminated to all of the school divisions and to the Public Health Nurses through presentations and fact sheets prior to the KT Survey.

The KT Survey was sent via e-mail to 143 participants, and 43 participants completed the survey for a response rate of 33%. Participants comprised Principals, Public Health Nurses, School Community Council Presidents, and Directors of Education. Both qualitative and quantitative questions were incorporated into the KT Survey.

More than half the respondents (67%) reported that they had used SHS results. According to respondents, SHS results were used to assess the health status of students in schools and then to plan programs based on specific areas identified in the SHS such as physical activity, bullying, nutrition, social skills, and health. Some schools planned to set goals using the SHS results as baseline information.

Our staff studied the results of the survey. We were especially interested in areas whereby our students didn't quite measure up. The classroom teachers took the information and planned to address areas in their Health class and/or Physical Ed. classes.

Respondents also used the information to develop and implement new programs and policies within the school. One of the respondents developed a program to reduce bullying through student and staff engagement. There was a noticeable drop thereafter in the rate of complaints related to bullying in change rooms.

We talked about the results as a staff and noticed that much of our bullying was taking place in the change rooms. We took this back to our middle years students and had them suggest solutions to this. Each class came up with a solution that worked for them: having a two minute time limit for changing (teacher sets watch), having students change in other change rooms (not all in the same room), etc. Teachers have noticed a difference in changing room complaints. We still need to check with students to see if their suggestions worked.

Some of the respondents reported that they shared SHS results with staff members, parents/community members, and School Community Councils to engage them in existing programs, to provide options for future programs, and to raise awareness about issues of concern in schools.

We identified a common report of high anxiety among students. We held P.D. for staff providing information regarding what to look for and what to do when students with anxiety are of high concern.

Three main themes emerged when KT Survey respondents discussed the outcomes of using the SHS results, including: new programming, increased awareness, and improved behaviours. First, there was the introduction of new In Motion programs, social skills programs, active indoor recess programs, and the provision of new physical activity equipment in schools as a result of program and policy planning.

To support social skills programming as identified from the survey results and teacher input we have purchased a new social skills program that addresses specific needs for our students.

Some schools also reported increased awareness among staff, parents, and School Community Councils about general student health issues, bullying, nutrition, and physical activity. Parent information evenings and the involvement of parents and community in addressing health issues were considered instrumental in increasing awareness.

Our School Community Council is very involved in having parents and community look at bullying issues within the community. They have already sponsored two parent information evenings and are planning a third before the end of the school year. Our student engagement goal for next year will reflect our policy on bullying.

Finally, some KT survey participants noted improvements in positive behaviours among students after the implementation of new programs. For example, participants reported increased attendance in students whose families attended parenting groups. Other examples included students making healthier nutrition choices and the increased involvement of students in physical activity breaks, In Motion activities, and intramurals.

Limitations

There are some limitations associated with the SHS that deserve note. First, responses that are socially desirable can be a potential source of bias.²² An attempt was made to reduce socially desirable response bias by informing the students that individual answers would not be disclosed to parents or the school administration.

A potential drawback with regard to self-reporting is the ability of students to interpret and answer survey questions. A similar bias could be experienced with regards to literacy. To address any bias that may have resulted due to these problems, a research assistant was present when the student filled out the survey to answer any questions and to provide clarification.

Since the analysis was conducted using a convenience sample instead of a random sample, the generalizability of results should be approached with some caution. However, since the sample size captured by the SHS was quite large, the results will be an important tool for program planning.

Conclusion

This report provides an overview of student health status in Saskatoon Health Region, and evidence for informed decision-making and planning. As with previous rounds of the SHS, results from the SHS 2010/2011 have already influenced changes in individual schools, and will be an important tool for planning and decision-making. Options for future data collection on student health are currently being explored. The results indicate that a combination of intervention approaches should be used such as targeted health promotion programming in low-income neighbourhood schools, as well as policy changes that would affect the social determinants of health such as income. Universal interventions are also required since in some areas (e.g., nutrition, physical activity) most of the students in Saskatoon Health Region are not reporting health outcomes and behaviours that would lead to optimal health in adulthood.

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Appendix A-Student Health Survey Instrument

Student Health Survey (2010/2011)

You are being asked to take part in a research project. This is not part of your regular class work, so taking part is optional.

This is a survey with questions about you and your health. Your answers will help the Saskatoon Health Region and your School Board plan programs and services for young people like yourself. The survey will take about 45 minutes to complete.

This is not a test and there are no right or wrong answers. If you need help with any question, you may ask the researcher in your class. We encourage you to answer each question, but you can skip any question that makes you feel uncomfortable. No one will be upset or angry if you do not fill out the survey.

When you answer these questions, fill in the circle like this

Remember that the KIDS HELP PHONE is available to help you any time if you would like to talk to someone about a problem. **1-(800)-668-6868**

The Saskatoon Health Region will keep your answers PRIVATE. No one from your home or your school will see what you write.

THANK YOU FOR YOUR HELP!

I understand the study. I understand that taking part is optional. I agree to take part.

(Sign your name here)

Should you wish to talk about the survey in more detail, you may contact Dr. Jennifer Cushon at the Saskatoon Health Region at 655-4634. As well, you may contact the Ethics Office at the University of Saskatchewan at 966-2084.

Section A: Me and My Family

A1. First Name: _____
(Print)

A2. Last Name: _____
(Print)

A3. What is your gender? Male Female

A4. What grade are you in?
 Grade 5 Grade 6 Grade 7 Grade 8

A5. What is your birthday?

(Day) _____
(Month) _____
(Year)

A6. Please write your Street Address (e.g., 123 Main Street): _____

Please write your Postal Code (e.g., S7L 1E6): _____

This information will only be used to confirm your neighbourhood.

A7. How many schools did you attend last year?
 1 2 3 4 5 or more

A8. Do you identify yourself as an Aboriginal person (First Nations, Métis, or Inuit)?
 Yes No

A9. How many years have you lived in Canada?
 All my life Part of my life, for _____ years

A10. Who do you live with most of the time?
 Both my mother and father
 Mother only
 Father only
 Half with my mother/half with my father
 Guardian (grandparent, aunt, uncle, etc.)
 Foster Care or group home
 Other

A11. How well off do you think your family is (or how much money does your family make)?
 Very well off
 Quite well off
 Average
 Not very well off
 Not at all well off

A12. Does your father have a job?
 Yes No I don't know I don't have or see a father

A13. If yes, where does he work? (for example: hospital, bank, restaurant)

A14. Please write down exactly what job he does there (for example: teacher, bus driver).

A15. Does your mother have a job?
 Yes No I don't know I don't have or see a mother

A16. If yes, where does she work? (for example: hospital, bank, restaurant)

A17. Please write down exactly what job she does there (for example: teacher, bus driver).

(Print)

A18. What is your father's education level?
 Did not finish high school
 Finished high school (graduated)
 Some College or University but did not finish
 Finished College or University (e.g., graduated from SIAST or from a University)
 Don't know or doesn't apply

A19. What is your mother's education level?
 Did not finish high school
 Finished high school (graduated)
 Some College or University but did not finish
 Finished College or University (e.g., graduated from SIAST or from a University)
 Don't know or doesn't apply

A20. Please show how much you agree or disagree with the following statements. (Please mark one circle for each line).

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a. My parents understand me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. I have a happy home life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. My parents expect too much from me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. My parents trust me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. I have a lot of arguments with my parents	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. There are times when I would like to leave home	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. What my parents think of me is important	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. My parents expect too much from me at school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section B: Physical Activities

Physical Activity is any activity that increases your heart rate and makes you out of breath some of the time.

HARD physical activities are jogging, team sports, fast dancing, jump rope and any other physical activities that increase your heart rate and make you breathe hard and sweat.

B1. Mark how many minutes of **HARD** physical activity you did on each of the last 7 days. This includes physical activity during gym class, lunch, recess, after school, evenings and spare time.

Monday	<input type="radio"/> 0 min	<input type="radio"/> 15 min	<input type="radio"/> 30 min	<input type="radio"/> 45 min	<input type="radio"/> 60 min	<input type="radio"/> More than 60 min
Tuesday	<input type="radio"/> 0 min	<input type="radio"/> 15 min	<input type="radio"/> 30 min	<input type="radio"/> 45 min	<input type="radio"/> 60 min	<input type="radio"/> More than 60 min
Wednesday	<input type="radio"/> 0 min	<input type="radio"/> 15 min	<input type="radio"/> 30 min	<input type="radio"/> 45 min	<input type="radio"/> 60 min	<input type="radio"/> More than 60 min
Thursday	<input type="radio"/> 0 min	<input type="radio"/> 15 min	<input type="radio"/> 30 min	<input type="radio"/> 45 min	<input type="radio"/> 60 min	<input type="radio"/> More than 60 min
Friday	<input type="radio"/> 0 min	<input type="radio"/> 15 min	<input type="radio"/> 30 min	<input type="radio"/> 45 min	<input type="radio"/> 60 min	<input type="radio"/> More than 60 min
Saturday	<input type="radio"/> 0 min	<input type="radio"/> 15 min	<input type="radio"/> 30 min	<input type="radio"/> 45 min	<input type="radio"/> 60 min	<input type="radio"/> More than 60 min
Sunday	<input type="radio"/> 0 min	<input type="radio"/> 15 min	<input type="radio"/> 30 min	<input type="radio"/> 45 min	<input type="radio"/> 60 min	<input type="radio"/> More than 60 min

MODERATE physical activities are lower intensity activities such as walking, biking to school and swimming for fun.

B2. Mark how many minutes of **MODERATE** physical activity you did on each of the last 7 days. This includes physical activity during physical education class, lunch, recess, after school, evenings and spare time.

Monday	<input type="radio"/> 0 min	<input type="radio"/> 15 min	<input type="radio"/> 30 min	<input type="radio"/> 45 min	<input type="radio"/> 60 min	<input type="radio"/> More than 60 min
Tuesday	<input type="radio"/> 0 min	<input type="radio"/> 15 min	<input type="radio"/> 30 min	<input type="radio"/> 45 min	<input type="radio"/> 60 min	<input type="radio"/> More than 60 min
Wednesday	<input type="radio"/> 0 min	<input type="radio"/> 15 min	<input type="radio"/> 30 min	<input type="radio"/> 45 min	<input type="radio"/> 60 min	<input type="radio"/> More than 60 min
Thursday	<input type="radio"/> 0 min	<input type="radio"/> 15 min	<input type="radio"/> 30 min	<input type="radio"/> 45 min	<input type="radio"/> 60 min	<input type="radio"/> More than 60 min
Friday	<input type="radio"/> 0 min	<input type="radio"/> 15 min	<input type="radio"/> 30 min	<input type="radio"/> 45 min	<input type="radio"/> 60 min	<input type="radio"/> More than 60 min
Saturday	<input type="radio"/> 0 min	<input type="radio"/> 15 min	<input type="radio"/> 30 min	<input type="radio"/> 45 min	<input type="radio"/> 60 min	<input type="radio"/> More than 60 min
Sunday	<input type="radio"/> 0 min	<input type="radio"/> 15 min	<input type="radio"/> 30 min	<input type="radio"/> 45 min	<input type="radio"/> 60 min	<input type="radio"/> More than 60 min

B3. How tall are you?

_____feet _____inches **OR** _____metres _____centimetres

B4. How much do you weigh?

_____pounds **OR** _____kilograms

B5. This next question is about your weight. Choose the answer that is the closest to how you feel:

- I think I'm overweight (by about 5 pounds or more)
- I think I'm underweight (by about 5 pounds or more)
- I think my weight is okay

Section C: Nutrition

C1. During the past month (30 days), how often did you go hungry because there was not enough food?

- Never
- Rarely
- Sometimes
- Most of the time
- Always

C2. During the past month (30 days), how many times per day did you usually eat fruit?

- I did not eat fruit during the past 30 days
- Less than one time per day
- 1 time per day
- 2 times per day
- 3 times per day
- 4 times per day
- 5 or more times per day

C3. During the past month (30 days), how many times per day did you usually eat vegetables?

- I did not eat vegetables during the past 30 days
- Less than one time per day
- 1 time per day
- 2 times per day
- 3 times per day
- 4 times per day
- 5 or more times per day

C4. In the past month (30 days), how many times per day did you drink milk (including soy milk and rice milk)?

- I did not drink milk during the past 30 days
- Less than one time per day
- 1 time per day
- 2 times per day
- 3 times per day
- 4 times per day
- 5 or more times per day

C5. In the past month (30 days), how many times per day did you drink pop, fruit drinks or energy drinks?

- I did not drink pop, fruit drinks, or energy drinks in the past 30 days
- Less than one time per day
- 1 time per day
- 2 times per day
- 3 times per day
- 4 times per day
- 5 or more times per day

C6. In the past month (30 days), how many times per day did you eat from a fast food restaurant, including food that you ordered as take out (e.g., McDonalds, KFC, Taco Time, Pizza Hut, etc.)?

- I did not eat fast food in the past 30 days
- Less than one time per day
- 1 time per day
- 2 times per day
- 3 times per day
- 4 times per day
- 5 or more times per day

Section D: Health and Feelings

D1. In general, would you say your health is :

- Poor Fair Good Very good Excellent

D2. In general, would you say your mental health is:

- Poor Fair Good Very good Excellent

D3. How often have you felt or behaved this way during the past week (7 days)?

	Rarely or none of the time (less than 1 day)	Some or little of the time (1 to 2 days)	Occasionally or a moderate amount of time (3 to 4 days)	Most or all of the time (5 to 7 days)
a) I did not feel like eating; my appetite was poor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b) I felt I could not shake off the blues even with help from my family and friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c) I had trouble keeping my mind on what I was doing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d) I felt depressed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e) I felt that everything I did was an effort	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f) I felt hopeful about the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g) My sleep was restless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h) I was happy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i) I felt lonely	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j) I enjoyed life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k) I had crying spells	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l) I felt people disliked me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m) I am unhappy, sad or depressed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
n) I am not as happy as other children	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
o) I am too fearful or anxious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
p) I am worried	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
q) I cry a lot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
r) I am nervous, highstrung or tense	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
s) I have trouble enjoying myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

D4. Choose the answer that best describes how you feel:

	False	Mostly False	Sometimes True Sometimes False	Mostly True	True
a) In general, I like the way I am	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b) Overall I have a lot to be proud of	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c) A lot of things about me are good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d) I like the way I look	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e) When I do something, I do it well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

D5. In the past year (12 months), did you seriously consider suicide? No Yes

Section E: Smoking and Drinking

In this section, we would like to ask you some questions about your experience with smoking and drinking. Some of the questions will apply to you even if you have not smoked or had a drink.

Please be as honest as you can – your answers are private and the Saskatoon Health Region will make sure that no one will find out who filled out each questionnaire.

E1. In the last year (12 months), how often did you smoke cigarettes?

- I have never smoked cigarettes
- I have not smoked cigarettes in the last year
- I have only had a few puffs
- Once a month or less often
- 2 or 3 times a month
- Once a week
- 2 or 3 times a week
- 4 or 5 times a week
- Almost everyday – 6 or 7 times a week

E2. Think about the last month (30 days). On the days that you smoked, how many cigarettes did you usually smoke?

- I did not smoke at all
- A few puffs in a day
- 1-2 cigarettes in a day
- 3-5 cigarettes in a day
- 6-10 cigarettes in a day
- 11-19 cigarettes in a day
- 20 or more cigarettes in a day

E3. Where do you usually get your cigarettes? (check all that apply)

- I do not smoke
- I buy them from a vending machine
- I buy them myself at a store
- I buy them from someone
- I ask someone to buy them for me
- I get them from friends
- I get them from my parent(s)
- I get them from my brother/sister
- Other (specify): _____

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. For these questions, drinking alcohol does not include drinking a few sips of wine for religious purposes.

E4. In the last year (12 months), how often did you drink alcohol?

- I have never drank alcohol
- I have not drank alcohol in the last year
- I have only had a sip of alcohol
- Once a month or less often
- 2 or 3 times a month
- Once a week
- 2 or 3 times a week
- 4 or 5 times a week
- Almost everyday – 6 or 7 times a week

E5. Have you ever been drunk? No Yes

E6. During the past 30 days, how did you usually get the alcohol you drank? (Check all that apply)

- I did not drink alcohol during the past 30 days
- I buy it in a store such as a liquor store, or off-sale
- I buy it at a restaurant, bar, or club
- I buy it at a public event such as a concert or sporting event
- I give someone else money to buy it for me
- I get it from friends
- I get it from my parent(s)
- I get it from my brother/sister
- I take it from a store or family member
- I get it some other way (specify): _____

Section F: Bullying

This section asks about bullying. There are many ways to bully someone. A bully wants to hurt the other person (it's not an accident). A bully does or says the same thing over and over again. Bullying is UNFAIR. Sometimes a group of students will bully another student.

F1. In the past month (4 weeks) at school, how often have you been bullied by other students...

	Never	Once or twice	Every week	Many times a week
a) physically? Examples: hit, kicked, pushed, slapped, spat on or hurt in any physical way	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b) verbally? Examples: said mean things to you, teased you, called you names, threatened you or tried to hurt your feelings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c) socially? Examples: left you out on purpose, refused to play with you, said bad things behind your back, got other students to not like you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d) electronically? Examples: used Internet, e-mail, phone or cellular phone text messages to threaten you or make you look bad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

F2. How often do you feel like an outsider (or left out of things) at school?

Never Rarely Some of the time Most of the time All of the time

F3. Please answer the following statements about your friends and others your age.

	False	Mostly False	Sometimes True Sometimes False	Mostly True	True
a) I have many friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b) I get along easily with others my age	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c) Others my age want me to be their friend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d) Most others my age like me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

F4. Where does bullying happen the most? (Check as many as you want)

- | | |
|-------------------------------------------------------------------|-----------------------------------------------------|
| <input type="radio"/> Classrooms | <input type="radio"/> On the school bus |
| <input type="radio"/> Hallways | <input type="radio"/> Lunch or eating area |
| <input type="radio"/> Library | <input type="radio"/> On the way to and from school |
| <input type="radio"/> Computer Room | <input type="radio"/> Coatroom |
| <input type="radio"/> Gym | <input type="radio"/> Outdoor areas around school |
| <input type="radio"/> Change Rooms | <input type="radio"/> Malls or stores |
| <input type="radio"/> Washrooms | <input type="radio"/> On the computer or cell phone |
| <input type="radio"/> Other places (please describe where): _____ | |

F5. Think of the last time that you saw or heard another student being bullied. What did you do? (Check as many as you want)

- I have not seen or heard another student being bullied
- I ignored it
- I told my parents about it
- I told my brother/sister about it
- I told an adult at school about it
- I told an adult outside of school about it (e.g., babysitter, coach, neighbour, etc.)
- I told another student about it
- At the time, I helped the person being bullied
- Later on, I helped the person being bullied
- I stood and watched
- I joined in with the bully
- I got someone to stop it
- I got back at the bully later

THANK YOU FOR DOING THE SURVEY...

You are helping the Saskatoon Health Region and your School Board plan programs and services for young people like yourself.



Please seal the survey and hand it to the researcher.

If you would like help from someone who is not part of your school, you can call the Kids Help Phone at 1-800-668-6868 (FREE from a payphone, no money needed)

You can check out their website at: www.kidshelpphone.ca

Appendix B-Knowledge Translation Survey

**The Student Health Survey:
How did you use the results and what could we improve?**

1a) Have you used your Student Health Survey results?

Yes No (Note – will automatically skip to question 2 if no is answered)

1b) How have you used your Student Health Survey results (e.g. to develop physical activity programs, to develop mental health programs, to develop anti-bullying policies, etc.)?

1c) What were the outcomes of using these results?

1d) Can your responses to 1b and 1c be shared in future publications?

Yes No

2a) Do you have any suggestions for how we could improve the sharing of Student Health Survey results?

Yes No (Note – will automatically skip to question 3 if no is answered)

2b) What are your suggestions for how we could improve the sharing of Student Health Survey results?

3a) The Student Health Survey relies on parent consent for students to complete the survey. Do you have any suggestions for improving our consent form return rates?

- Yes No (Note – will automatically skip to question 4 if no is answered)

3b) What are your suggestions for improving our consent form return rates?

4a) Along with providing school results, we tried to provide resources for schools to improve student health (for example, nutrition or mental health resources). Did you use any additional resources?

- Yes No (Note – will automatically skip to question 5 if no is answered)

4b) Did you find the resources useful?

- Yes No (Note – will automatically skip to question 5 if no is answered)

4c) What additional resources did you use and how did you use them?

5a) Along with providing school results, we tried to provide additional breakdown of results if helpful (for example, male vs. female, or grade breakdowns). Did you request further breakdown of information?

- Yes No (Note – will automatically skip to question 6 if no is answered)

5b) Did you find the additional information useful?

- Yes No (Note – will automatically skip to question 6 if no is answered)

5c) What additional information did you request and how did you use this information?

6) Please provide any additional comments or suggestions you may have regarding the Student Health Survey (for example, ways to improve our survey):



Thank you for taking the time to complete our survey!