

Young people in Canada: their health and well-being

Young people in Canada: their health and well-being

William Boyce



Health Canada Santé Canada



Health Behaviour
in School-Aged Children

a World Health Organization Cross-National Study

Our mission is to help the people of Canada maintain and improve their health.

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Foreword

The status of the health and well-being of Canada's young people has serious implications for the future of the country. In recent years, research and studies increasingly and consistently tell us that experiences early on in life, particularly at key developmental stages such as, for example, during the first year of life, and adolescence, influence our health and well-being in later years. We are also coming to understand the broad range of factors that come into play to affect the health and lifestyle-related attitudes and behaviours of young people. The costs to individuals, and more broadly to society as a whole, can be substantial when young people fail to achieve their optimal development, and as a result, fail to reach adulthood as healthy, resilient, socially responsible and engaged citizens.

Interest in the health and well-being of children and youth continues to be high and many sectors have a stake in, and a responsibility to address, the needs of children. The National Children's Agenda (1997) and the Early Childhood Development Agreement (2000) demonstrate a shared commitment between federal and provincial/territorial governments to invest in children in their early years, and to build on this investment as they face the important transition into the adolescent years. More recently, interest is growing in tracking student health and monitoring the extent to which school health policies and programs are in place across the country. Furthermore, federal, provincial, and territorial Ministers of Health have endorsed the Integrated Pan-Canadian Healthy Living Strategy Framework and a set of broad actions, which is laying the foundation for promoting positive choices about personal health practices such as healthy eating, not smoking, building a circle of social contacts and staying physically active.

The Strategy will address children and youth by working on the overall conditions that create health, in part through our work with the education sector and the school setting.

The Health Behaviours in School-Aged Children (HBSC) study is a useful tool for monitoring young people's health and related behaviours and trends in the health of youth over time. While this report focuses primarily on how Canadian youth are faring, the study is based on cross-national research conducted by an international network of research teams in collaboration with the World Health Organization (WHO) Regional Office for Europe. As a result, it allows us to compare issues across the 35 countries currently involved and promote cross-disciplinary research into young people's health and lifestyles. Researchers from England, Finland and Norway started the HBSC study in 1982. Since then, a growing number of countries and regions have joined the study network. In 1983-84, the (WHO) carried out the first Cross-National Survey of Health Behaviours in School-Aged Children and five more have been carried out since then.

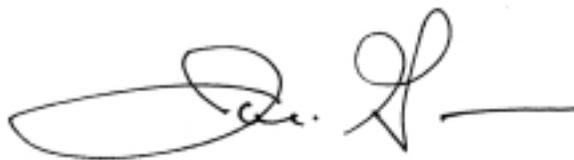
Canada participated, for the first time, in the 1989-90 HBSC Study cycle, as an associate member, along with 11 other European countries and produced the report *The Health of Canada's Youth* (1992). Canada was subsequently accepted as a full member of the HBSC study team and has participated in three further HBSC surveys in 1993-94, 1997-98 and 2001-02. The last report on Canadian findings, *Trends in the Health of Canadian Youth*, summarized Canadian data across three survey cycles (1989-90, 1993-94, and 1997-98), and on selected topics, compared Canadian findings with those of nine European countries and the United States of America. This report examines the determinants of the health of Canadian youth in 2002 and the trends in their health over time.

By using the population health approach as a framework, the study considers young people's health in the broadest sense by looking at how socioeconomic status, the family, peers and school shape the health and well-being of adolescents in three age groups (11, 13 and 15 year olds). The data brings forward many telling results such as the importance of being well-integrated socially for life satisfaction and risk-taking behaviours. It also reveals to us the strong impact certain determinants, such as gender and socio-economic status, can have on adolescent lives, and the importance of positive school experiences for securing and maintaining health and well-being. While I am pleased to report that there has been some progress in the health behaviours and attitudes of youth since the last study, such as decreased levels of smoking in certain groups of young adults and improved levels of physical activity, some results are concerning, including high rates of marijuana use, obesity and sedentary behaviour and dissatisfaction with schools, particularly among some vulnerable groups. These results indicate there is still much work to be done in the area of youth health promotion, and actions are already underway to address them.

Sharing information on youth health-related behaviours, individual capacities and coping skills, and the social and economic determinants of those behaviours in the settings where they live, learn and play, can provide useful information to support our efforts to reduce health-risk behaviour, both nationally and internationally. Research into these areas will continue to benefit many sectors, including health educators, health policy and program developers, and youth health researchers. It will enable us to compare Canadian youth to those in similar settings, such as the United States of America and Europe, and benefit from collaboration with colleagues in other countries in

research and policy-making endeavours. More importantly, studies such as this one help us learn whether we are succeeding in our own health policy and programming initiatives and achieving positive results for the health and well-being young Canadians.

Health promotion will remain a priority for international and national policies. As we strive to better understand the interactions among the social and economic determinants of health for Canadian young people and improve the health behaviour and attitudes of youth over time, we must work in cooperation with a variety of stakeholders. The knowledge of both the health and education sectors, as well as the research and studies undertaken to build our evidence base, will be valuable as we move forward. Efforts must also be made to continue to engage youth in the process, both in monitoring behavioural trends and in the policy process, as we continue to develop plans for improving their health outcomes.



Ian Green
Deputy Minister
Health Canada

Executive Summary

The Health Behaviour in School Aged-Children (HBSC) survey has been carried out in Canada every four years since 1990 by the Social Program Evaluation Group at Queen's University in partnership with Health Canada. The HBSC study is sponsored by the World Health Organization (WHO), and includes research teams from 35 countries in Europe and North America.

The HBSC 2001-2002 survey uses the population health framework, promoted by WHO and Health Canada, and recognizes the broad sets of determinants of health and health behaviours in children and youth. Three age groups (11-, 13-, and 15-year-olds) are included as being representative of critical periods of early adolescent development. More than 7000 students from five grades (6, 7, 8, 9, and 10) were selected to represent these age groups across Canada. The main purpose of the HBSC study was to examine patterns in the determinants of health of these age groups as well as selected trends in their health behaviours and attitudes. The main findings are summarized below.

Socio-economic Inequalities

Socio-economic inequalities are related to a variety of health outcomes in Canadian youth. In the HBSC sample, over half of the students surveyed indicated that their families were well off, although this decreased for students in the older grades. At the same time, on average, 13 percent of students reported at least sometimes going to bed hungry because of lack of food at home. Students whose families were relatively affluent or very affluent also reported that they were healthy and satisfied with their lives, which emphasizes the link between socio-economic factors, self-reported health, and life satisfaction among youth.

The Home

There were clear gender differences in students' relationships with their parents. Girls reported more strains in these relationships than did boys. For example, older girls reported more difficulties talking to their fathers, felt less understood by their parents, and were less satisfied with their home life than both boys their age and younger girls. Girls also reported that they had more arguments with their parents and a greater desire to leave home. Having a good relationship with parents was related to higher life satisfaction in both genders and served as a protective factor against involvement in risk-taking behaviours, such as smoking, getting drunk, and using marijuana. In addition, students with middle or high family affluence not only felt that their parents provided them with the support they needed at school but also reported being highly satisfied with their home life.

The Peer Group

Having friends is fundamental to adolescent development. Boys, especially in the lower grades, found it harder to communicate or discuss their troubles with same-sex friends than did girls. The ease of communication with members of the opposite sex improved for older students as they gained more confidence. Time spent with friends is a good indicator of adolescents' involvement with their friends. Boys tended to spend more time with peers, both after school and in the evenings, than did girls.

Students who were well integrated socially and had positive peer influence reported higher life satisfaction and fewer risk-taking behaviours than did students who had poor social integration and negative peer influence.

The School Experience

Most Canadian students in the 2002 HBSC survey liked school, but after peaking in 1994, the proportion of students who liked school has dropped steadily. Secondary students' perception of school tended to be more negative than that of elementary students, and boys had more overall negative views of school than did girls.

Being happy at school was related to the perception of having good and fair teachers, supportive relationships with teachers, and an increased sense of autonomy in the classroom. However, students in higher grades felt they had less say in how class time was used. More boys than girls reported school work to be difficult, yet boys also indicated that they spent less time doing homework and that their teachers expected too much of them at school. A major finding was that students who had positive experiences at school were less likely to be involved in health risk behaviours such as smoking, drinking, and using marijuana.

Health Risk Behaviours

It is encouraging to note a decline in 2002 daily smoking rates in older girls, and also in Grade 8 students compared with previous HBSC surveys.

Experimentation with alcohol occurred in younger students in the Canadian sample, with rates of alcohol consumption increasing significantly between the ages of 12 and 14 years. Interestingly, almost as many girls as boys reported engaging in binge drinking, which indicates that excessive alcohol use may be a feature of adolescent social events. Marijuana use was still popular among adolescents in 2002 and increased in use among Grade 10 boys. Those who used marijuana were more likely to smoke, drink, engage in sexual risk taking, and report poor relationships with parents and negative feelings about school.

Data show that slightly over one-quarter of students in Grade 10 have had sexual intercourse. However, only two-thirds of those sexually active students used condoms the last time they had sexual intercourse, and just under one-half used birth control pills.

Healthy Living

In the Canadian HBSC sample, girls ate more nutritious foods such as fruits and vegetables than did boys. However, more girls than boys skipped breakfast and reported dieting or doing something else to lose weight, especially in the higher grades. Boys, more than girls, consumed foods high in sugar, salt, and caffeine, such as soft drinks, diet soft drinks, potato chips, french fries, and cake or pastries.

Student levels of physical activity were encouraging, although surprisingly low levels of exercise were reported within schools. It is interesting to note a significant gender difference in physical activity, both in and out of school, indicating that engagement in sports is still primarily a male domain and that schools could do more to involve girls in physical activities. A high proportion of students reported that they watched several hours or more of television each day. Recreational computer use was also quite high, with more than two-thirds of older students stating that they spent at least one hour each weekday playing computer games.

Bullying and Fighting

Over 20 percent of students reported that they were both bullies and victims of bullying, although more students reported being bullied compared with those who reported bullying others. This difference indicates that young people who are victimized experience aggression differently than do bullies. Therefore, educational programs should explain the different forms of aggression and their harmful consequences. HBSC data show that sexual harassment reported by girls increased with age and peaked in Grade 9. Harassment because of race, ethnicity, and

religion is a form of bullying that was reported by more boys than girls. Also, boys reported more physical fighting, and frequent fighting, than did girls. Boys most often fought with friends or acquaintances, while girls were equally likely to fight with their siblings.

Injuries

As many as 50 percent of Canadian students reported having had an injury requiring medical attention during the past year. These injuries ranged from sprains and strains to lacerations, bruises, fractures, and head injuries. Boys consistently experienced more injuries than did girls, and the incidence of injuries peaked for both in Grade 8.

The vast majority of sports and other types of injuries happened in controlled environments, including the home, school, or sports facilities. Interestingly, the percentage of injuries that occurred during organized activities increased substantially in the older grades.

Emotional Health

The majority of students in the survey reported good emotional health. However, between 20 percent and 30 percent of students said that they had some form of emotional or physical (psychosomatic) complaint. Girls, compared with boys, reported higher levels of depression and headaches, which increased with age. An especially critical point for girls' emotional health appeared by Grade 7, at which time they may require additional support to cope with life and body changes. In general, students who reported fewer psychosomatic symptoms were more satisfied with their lives.

Adolescents with strong parental support were happier with their lives and reported being healthier. Having a strong network of peers contributed to better emotional health, but not as much as parental support did.

Implications

From a population health perspective, the most powerful determinants of youth physical and emotional health evident from the 2002 HBSC survey were gender, family affluence, school conditions, and the influence of peers on risk taking.

Clearly, broad policy responses to this range of potential determinants will be required. Federal, provincial, territorial, municipal, professional, and business sectors need to discuss the health of the next generation openly with youth themselves. Youth have had insufficient attention among these sectors, in part because of the transitional character and independence-seeking nature of adolescence. When initiatives are focused on adolescents, efforts to engage youth in policy and program development need to be strengthened. The development of an inclusive, cross-sectoral "Middle Childhood and Adolescent Agenda" in Canada would contribute to the visibility and viability of policy initiatives and may also earn widespread youth approval and participation.

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This report presents findings from the fourth cycle of the Health Behaviour in School-Aged Children (HBSC) survey in Canada. It is a culmination of collaborative efforts among research teams from 35 European countries, as well as Canada and the United States.

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The Social Program Evaluation Group, Queen's University, was responsible for collecting and analyzing the data under the supervision and organization of Matthew King. Helen Connop, Lee Fisher-Goodchild, Amanda Moir, and Beverly Coles were responsible for contacting participating schools and coordinating the administration of the survey. Angela Severson was responsible for the organization of data entry, which was carried out by a group of enthusiastic students: Andrew Burns, Amy Lang, Broze Steggles, Tanya Whittaker, and Angelina Young.

Diane Earle, Keenan Hunt, and Diane Yocum provided endless patience preparing and editing figures and updating edited and revised versions of the chapters.

Kirsteen McLeod and Charlotte Duchenne edited the manuscript and Marie Tappin designed and laid out the report. Delta Printers was responsible for the production of the report.

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1

Introduction

William Boyce and
Matthew King

The first Health Behaviour in School-Aged Children (HBSC) survey was administered in 1982 by a small group of researchers from three countries – England, Finland, and Norway – to measure a range of adolescent health behaviours and a number of social and environmental variables. Four years later, the World Health Organization (WHO) (Europe) began to sponsor the survey, which had expanded to include 11 countries. The international HBSC research group invited Queen's University, in partnership with Health Canada, to take part in the 1989-90 survey as an associate member. Canada has participated as a full member in three further HBSC surveys conducted in 1993-94, 1997-98, and 2001-02. The HBSC surveys are now administered every four years to a representative sample of 11-, 13, and 15-year-olds in 35 participating countries.¹

¹ The 2002 survey was administered in Austria, Belgium (Flemish), Belgium (French), Canada, Croatia, Czech Republic, Denmark, England, Estonia, Finland, France, Germany, Greece, Greenland, Hungary, Ireland, Israel, Italy, Latvia, Lithuania, Macedonia, Malta, the Netherlands, Norway, Poland, Portugal, Russia, Scotland, Slovenia, Spain, Sweden, Switzerland, Ukraine, United States, and Wales.



Hana Seab

The population health approach, modelled by WHO and Health Canada, is the underlying framework for the HBSC survey. It acknowledges a broad set of determinants of health behaviours that shape the health of children and youth: social, economic, and political factors; psychological, genetic, and biological factors; gender; personal health practices; community resources; and the physical environment (Health Canada, 1994; 1996). Such determinants do not act in isolation from each other. Rather, it is the complex interaction among them that has an impact on the health of individuals and communities (Health Canada, 2000). Consequently, a full range of individual, social, and environmental factors are considered both in defining population health status and in developing programming and policies to improve health.

Within the population health model and the theoretical framework that guides the design of the HBSC questionnaires, adolescence is viewed as a natural developmental phase. Accordingly, tracking the changes that accompany each stage of development is at the core of the HBSC survey. This is achieved by following a repeated cross-sectional method, rather than a longitudinal one, the latter being difficult to implement due to both financial and logistic reasons. Three age groups are identified (11-, 13-, and 15-year-olds) as being representative of critical periods of adolescent development, and national samples of these age groups are surveyed every four years. In addition, many mandatory questions on the HBSC survey have remained essentially the same over the past years, allowing researchers to examine differences at each developmental milestone, as well as trends in the health of youth over time. The periodic addition of new items, such as variables assessing sexual behaviour in the 2001-02 survey, broadens the scope of the research, incorporates currently accepted scientifically tested items, and allows researchers to examine issues from a variety of disciplines. The selection of optional HBSC item packages and Canada-only items also permits customization of the HBSC survey to meet Canada's needs.

The main objective of this report is to examine the determinants of the health of Canadian youth in 2002. A further goal is to examine trends in the health of Canadian youth over time. The HBSC study is designed not for the purpose of assessing the impact of specific changes in social, environmental, or health systems on the health of youth but only to note whether changes in the determinants and outcomes of youth health have occurred.

For example, health promotion and disease prevention efforts in Canada have expanded to embrace a broad range of age groups as well as topics such as active lifestyles, healthy eating programs, and Comprehensive School Programs. In addition, there has been an increase in anti-smoking and anti-drug campaigns that target young people. The findings in this report provide an indirect indication of the success of these initiatives.

Previous Canadian findings from the HBSC surveys have been released in four reports. The first of these reports, *The Health of Canada's Youth* (King and Coles, 1992) published by Health Canada, focused on 1990 Canadian findings compared with those from 10 other countries and discussed their relevance for Canadian policies and programs. The second report, *The Health of Youth* (King, Tudor-Smith, and Harle, 1996) published by WHO-Europe, examined the 1994 findings of 23 countries. The third report, *Trends in the Health of Canadian Youth* (King, Boyce, and King, 1999) published by Health Canada, examined trends in the health of Canadian youth from 1990 to 1998. The 1998 Canadian findings were also included in a comparative format with those from more than 25 countries. That report, *Health and Health Behaviour Among Young People*, (Currie, Hurrelman, Settertobulte, Smith, and Todd, 2000), was published by WHO-Europe.

The Questionnaires

The mandatory HBSC questionnaire is administered to students aged 11, 13, and 15 in school classrooms across the 35 HBSC countries. In Canada, most of these students are in Grades 6, 8, and 10 and their equivalent levels in Quebec. The mandatory questionnaire is augmented to include optional packages that contain groups of questions focused on particular issues (used by some, but not all, countries) and country-specific questions. The questionnaire is developed in a collaborative fashion by HBSC researchers and then ratified at biannual research meetings. A strong effort has been made to retain a core of items on each survey to facilitate the monitoring of trends over time.

The HBSC researchers come from a variety of countries, disciplines, and theoretical perspectives, but they have developed a consensus around the two main research purposes. The first is to incorporate a developmental perspective to examine changes in health attitudes and behaviours from late childhood to the middle years of adolescence. The second is to identify health indicators and factors that may influence them. These indicators include behaviours such as smoking, alcohol use, and level of physical activity; psychosocial states such as happiness and loneliness; and problems such as injuries, headaches, and being bullied. Influencing factors or determinants include the school, parents, peers, and social inequalities. Indicators and determinants may interact and may therefore be interchangeable in analyses.

For each of the four Canadian HBSC surveys, additional items were included on the questionnaire. Items related to self-esteem, relationships with parents, and drug use (Grades 9 and 10 only) have always been used. For the 2001-02 survey, Canada added optional HBSC packages to examine social capital, smoking, bullying, injuries, and school experiences in greater depth. Canada-only items that address disabilities, asthma, and medication use were also added to the survey. As well, a Canadian principal's questionnaire on school composition and policies was included.

The surveys were administered to school classes identified through systematic sampling procedures and were designed to be given during one 40-minute class. While there were one or two open-ended questions, almost all of the questions could be answered by checking off a response alternative. Students were guaranteed anonymity, and teachers were asked to closely follow a specific set of instructions regarding active consent and survey administration.

It must be remembered that fundamental differences exist among HBSC countries with regard to language and other cultural aspects. While this is most obviously manifested in dietary practices, it also has implications for concepts such as bullying, for which equivalent terminology is difficult to find. Therefore, compromises were required that influenced the appropriateness of some items for all countries. Compromises were also required to acknowledge both the desire to use the same items in each survey to enable the monitoring of change and the need to improve the quality of certain mandatory items to international standards. Wording has been altered on certain mandatory items in 2001-02 to improve their validity and reliability. Such instances are noted in the text.

Table 1.1
Distribution of students in each grade for the 2001-02 HBSC survey

	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10
Boys	980 (47.5%)	694 (49.5%)	647 (46.7%)	525 (42.8%)	511 (44.2%)
Girls	1083 (52.5%)	709 (50.5%)	738 (53.3%)	703 (57.2%)	645 (55.8%)
Total	2063 (100%)	1403 (100%)	1385 (100%)	1228 (100%)	1156 (100%)

The Sample

The sampling procedure employed for the Canadian survey was based on a systematic single-cluster procedure, with the cluster being the school class. Initially, the number of Grade 6, 7, 8, 9, and 10 classes was estimated for Canadian schools, and a list of these schools was prepared. The sample was designed to be self-weighting, which required that several characteristics of the Canadian population be considered for grouping schools on the sample list. These characteristics were province, language of instruction, geographic location, community size (urban/rural), and school type (public/Roman Catholic). The list was systematically sampled assuming 25 students per class. Approximately 80 classes per grade were selected to reach the targeted sample size of 4,600 students for the HBSC international data file, which allowed for refusals. Selected school jurisdictions, and then schools, were contacted to request their participation. Substitute schools were selected using the same criteria. The overall consent rate at the parent/student level was 74 percent.

Minor variations in the sampling procedures were employed across HBSC countries to reflect differences in school structure and availability of financial resources. However, the basic sample was essentially the same; that is, target age groups that could be compared within and across countries. For some countries, where age at first entry into school and grade promotion were standardized, almost all the targeted age group could be found in the same grade. For others, where substantial numbers of students were held back for academic reasons, the targeted age groups could be spread over two, or even three, grades.

For the 1998 and 2002 Canadian surveys, a systematic cluster sampling procedure was used with five grades (6, 7, 8, 9, 10) to represent the three age groups (11-, 13-, 15-year-olds) more accurately. The 2002 survey was conducted later in the year than were the previous two surveys – from January to May, rather than from November to March. This resulted in within-grade samples for Grades 6, 8, and 10 in 2002 being on average two months older than the comparable groups in 1994 and 1998. This difference in administration period could have had an influence on such behaviours as smoking and drug use, leisure time activities (i.e., winter versus spring sports), and injuries and must be taken into consideration when interpreting the findings.

Presentation of Findings

Most of the findings are presented in bar graphs according to grade group, gender, and survey year. It was not possible to present all the HBSC survey findings in this report, and thus it was necessary to select key issues and items. It was often possible to report only one response alternative, or combination of response alternatives, to represent an issue. The response alternative could be the proportion of students who agreed with a particular statement, such as “I like going to school”; or who checked “every day” to a question such as “How often do you smoke tobacco at present?”; or who checked “most” or “all” to an item like “My friends smoke cigarettes.” As a result, a great deal of important data had to be excluded from this report. Where appropriate, reference is made to data not shown in this report; however, the tables that include all the items and responses are available from Health Canada (<http://www.hc-sc.gc.ca/dca-dea/pdfa-zenglish.html#t18>).

When comparing across age groups and gender, little weight should be attached to differences of 3 percentage points or less. However, small differences that are clearly part of a trend are noted in the report. The sampling procedure was designed to produce confidence limits of plus or minus 3 percent at a 90 percent probability level; that is to say, 9 out of 10 times the sample will fall plus or minus 3 percentage points around the number presented. Several design factors, including the cluster sampling procedure, differences in school systems, and cultural and language differences, must also be considered in any comparative analysis. Since the school class was the cluster employed in the sampling procedure, it is possible that those who made up a cluster may have had a similar set of behaviours or attitudes; for example, they may have had access to the same cafeteria food or shared a view about a teacher or their school. On the other hand, relationships with parents or patterns of headaches or medication use were

less likely to be shared by classmates. Therefore, greater weight can be given to smaller differences on certain measures that were not likely to be influenced by the fact that students were being drawn from the same class.

Since it is desirable to examine associations between health determinants, behaviours, and outcomes, additional information has been provided in the form of Pearson Correlation Coefficients regarding the relationships between the variables in question; for example, smoking and other factors. A Correlation coefficient identified as significant, indicates a meaningful relationship between the measures exists. If the coefficient is below .20 the relationship can be described as weak, If it is between .21 and .39 the relationship is moderate, if it is equal to .40 or greater the relationship is strong.

Composite Measures

Twelve composite measures, or scale scores, have been developed to measure broad concepts in adolescent health and to facilitate the examination of relationships across these concepts. The scale scores may be previously validated standard measures, as is the case with the family affluence scale, the parent relationship scale, and the psychosomatic scale. Alternatively, the scales were developed for this research through an examination of face validity, factor analysis, and reliability analysis. Each of the composite measures are listed below. Response options to these scales are provided in the report.

The family affluence scale (alpha = .39) consists of the following variables: (a) Does your family own a car, van, or truck? (b) Do you have your own bedroom for yourself? (c) How many computers does your family own? (d) During the past 12 months, how many times did you travel away on holiday (vacation) with your family?

The parent relationship scale (alpha = .84) consists of the following variables: (a) My parents understand me; (b) I have a happy home life; (c) My parents expect too much of me; (d) My parents trust me; (e) I have a lot of arguments with my parents; (f) There are times I would like to leave home; (g) What my parents think of me is important; (h) My parents expect too much of me at school.

The social integration scale (alpha = .58) consists of the following variables: (a) How easy is it to talk to your best friend about things that bother you? (b) How easy is it to talk to friends of the same sex about things that bother you? (c) How easy is it to talk to friends of the opposite sex about things that bother you? (d) At present, how many close male friends do you have? (e) At present, how many close female friends do you have? (f) How many days a week do you usually spend time with friends after school?

The peer influence scale (alpha = .73) consists of the following variables: (a) My friends smoke cigarettes; (b) My friends like school; (c) My friends think getting good marks at school is important; (d) My friends get along with their parents; (e) My friends carry weapons, like knives; (f) My friends use drugs to get stoned; (g) My friends have been drunk.

The parent support at school scale (alpha = .86) consists of the following variables: (a) If I have a problem at school, my parents are ready to help; (b) My parents are willing to come to school to talk to teachers; (c) My parents encourage me to do well at school; (d) My parents are interested in what happens to me at school; (e) My parents are willing to help me with my homework.

The school satisfaction scale (alpha = .88) consists of the following variables: (a) How do you feel about school at present? (b) Our school is a

nice place to be; (c) I feel I belong at this school; (d) I feel safe at this school; (e) I look forward to going to school; (f) I like being in school; (g) There are many things about school that I do not like; (h) I wish I didn't have to go to school; (i) I enjoy school activities.

The school climate scale (alpha = .84) consists of the following variables: (a) The rules in this school are fair; (b) I am encouraged to express my own views in class; (c) Our teachers treat us fairly; (d) When I need extra help, I can get it; (e) My teachers are interested in me as a person; (f) Most of my teachers are friendly.

The school student autonomy scale (alpha = .72) consists of the following variables: (a) In our school, students take part in making the rules; (b) Students are allowed to work at their own pace; (c) Students choose their partners for group work; (d) Students have a say in how class time is used; (e) Students have a say in deciding what activities they do; (f) The teacher decides which students should work together.

The school student support scale (alpha = .77) consists of the following variables: (a) The students in my class(es) enjoy being together; (b) Most of the students in my class(es) are kind and helpful; (c) Other students accept me as I am; (d) When a student in my class(es) is feeling down, someone else in class tries to help.

The school achievement scale (alpha = .80) consists of the following variables: (a) In your opinion, what does your class teacher(s) think about your school performance compared with your classmates? (b) I find school work difficult; (c) I feel I am just as smart as others my age; (d) I am pretty slow in finishing my homework; (e) I do very well at my classwork; (f) I have trouble figuring out the answers in school; (g) I feel that I am pretty intelligent.

The *multiple risk behaviour index* consists of four items: (a) Have you ever had so much alcohol that you were really drunk? (b) How often do you smoke tobacco at present? (c) How often have you taken part in bullying other students in school this term? (d) How often do you use a seat belt when you ride in a car? Students' responses to these items were dichotomized into two groups: (1) *presence of the risk factor* – when the student was involved in the risk behaviour at least once, except for use of seat belts, where the risk factor is associated with rarely, never, or sometimes using a seat belt; and (2) *absence of the risk factor* – when the student was never involved in the risk behaviour, except for use of seat belts, where absence of a risk factor is associated with regular use.

The *psychosomatic scale* ($\alpha = .80$) consists of the following variables. In the past six months, how often have you had the following: (a) headache; (b) stomach ache; (c) backache; (d) feeling low (depressed); (e) irritability or bad temper; (f) feeling nervous; (g) difficulties in getting to sleep; (h) feeling dizzy.



Jad Saab

Organization of the Report

The report has been organized around the broad themes that constitute the population health perspective. The findings in each chapter are typically introduced with a brief review of relevant literature, followed by an examination of findings on individual items and trends over time. Finally, key relationships between variables and scales are reported and major findings in the chapter highlighted.

Chapter 2 deals with the theme of social inequalities, which is a broader approach than the analysis of traditional socio-economic inequities. It examines variables that relate to adolescent social inequalities, such as family affluence, occupation, and poverty, as well as perceptions of wealth. Some associations between socio-economic status and youth health outcomes are reported. Chapters 3, 4, and 5 examine the three major social systems in which an adolescent lives – the home, the peer group, and the school – and present relationships between attachments to these social systems and adolescent emotions, health behaviours, and achievement. Chapter 6 examines adolescent smoking, alcohol use, drug use, and sexual behaviours and the implications of being involved in these behaviours. Chapter 7 presents findings related to physical health issues for youth, such as eating patterns, dental hygiene, and physical and leisure activities; it also addresses asthma and common medication usage. Chapter 8 presents items concerning violence and bullying among Canadian youth and the extent of these behaviours. Chapter 9 examines common injuries and their consequences, as well as safety practices among youth in terms of seat belt and bicycle helmet use. Chapter 10 examines adolescent emotional health and factors such as self-esteem that enable young people to cope with the strains of adolescence. Problems that arise from stress, such as psychosomatic symptoms, are also presented. The report concludes with a brief chapter on the policy implications of the findings.

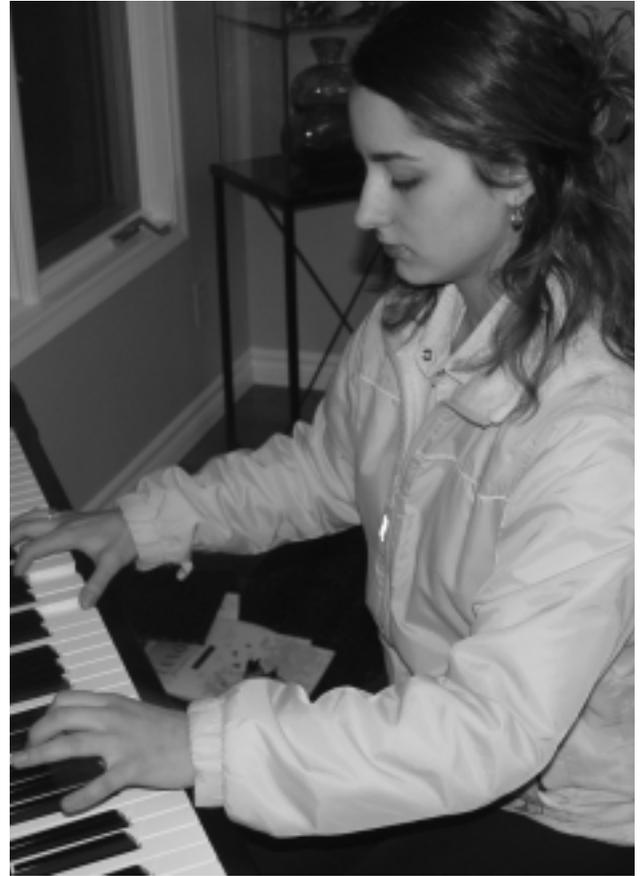
2

Socio-Economic Inequalities

Mark Lee

Social inequalities are associated with a variety of indicators including perceived health, mortality, morbidity, and psychosomatic illness (Machenbach, Kunst and Cavelaars, 1997; Kennedy, Kawachi, and Prothrow-Stith, 1998). Some inequalities, such as gender, race, and disability, represent basic life conditions and disparities in life chances.

Socio-economic inequalities are increasing throughout the world (Atkinson, Rainwater, and Smeeding, 1995) and include factors such as income, wealth, education, and prestige (Currie, Samdal, Boyce, and Smith, 2001). Although these socio-economic aspects have been associated with the well-being of children and adults, their impact on adolescents has been controversial (Bergman and Scott, 2001). For example, the relationship between socio-economic variables and family functioning has demonstrated varying results (Baer, 1999), as is shown in Chapter 3 (The Home) of this report.



Hana Saab

Within the HBSC study, measures of socio-economic status (SES) comprised parent occupation and family income as measured by material wealth, perceived family wealth, and poverty (in the form of hunger). The family affluence scale (FAS) was used as a measure to capture students' reports of their families' assets and material wealth (Currie, Todd, and Platt, 1997; Mullan and Currie, 2000).

This chapter examines aspects of social inequalities assessed by family affluence and other measures of socio-economic status and gives an account of the association between family affluence and youth health outcomes.

Figure 2.1
Employed fathers: occupation, all students (%)

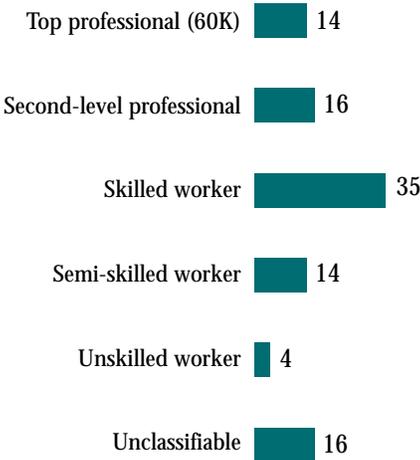
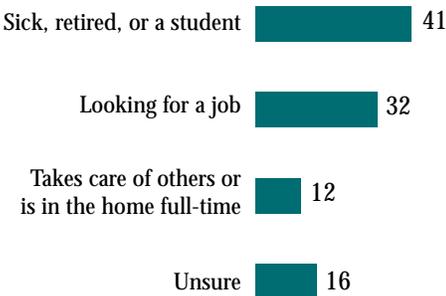


Figure 2.2
Unemployed fathers: reason for economic inactivity, all students (%)



Socio-Economic Status – Parent Occupation

Since many youth cannot accurately report family income (Duncan and Brooks-Gunn, 2000), youth socio-economic status is commonly measured instead in terms of the type of employment held by parents. The study asked students to identify their parents’ type of occupations; if parents were not employed, students were requested to give the reason for this economic inactivity.

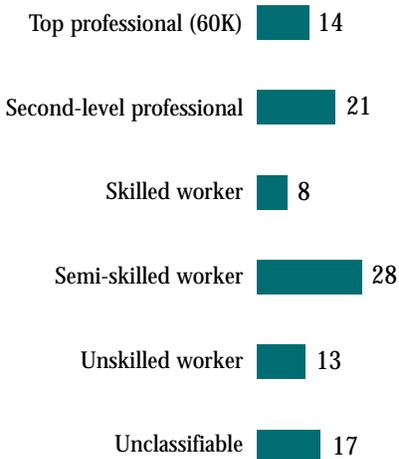
Approximately 90 percent of students across Grades 6 to 10 reported having fathers who were employed. Nearly one-third of those fathers held professional jobs, and just over one-third had skilled occupations, such as plumbers, electricians, and law enforcement officers (Figure 2.1). Only one-third of unemployed fathers were actually described as seeking employment, with 41 percent of students indicating that their fathers’ economic inactivity was due to illness, retirement, or being a student and only 12 percent stating that their fathers were taking care of others full-time in the home (Figure 2.2).



Daniel Courtland

Figure 2.3

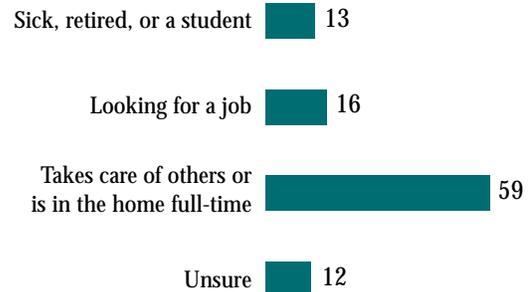
Employed mothers: occupation, all students (%)



The employment status of mothers was also questioned. About 80 percent of students reported that their mothers were employed. Mothers' patterns of occupation (Figure 2.3) indicated that a significant proportion of this population (28 percent) could be categorized within the semi-skilled workers category, 21 percent in second-level professional positions, and fewer in the skilled workers positions (8 percent) relative to fathers' occupation patterns. Students reported far more often that their mothers were unemployed because they were taking care of others in the home than for any other reason (Figure 2.4).

Figure 2.4

Unemployed mothers: reason for economic inactivity, all students (%)



Socio-Economic Status - Income

Abernathy, Webster, and Vermeulen's examination of the American National Population Health Survey data in 2002 shows that significant relationships exist between income and youth health. While children and adolescents are aware of socio-economic inequality (Jensen and Jensen, 2002), few studies examine the relationships between socio-economic inequality and adolescent health (Currie, Todd, and Platt 1997; Abernathy, Webster, and Vermeulen, 2002).

Figure 2.5
Students who responded that their family was very well off or quite well off (%)

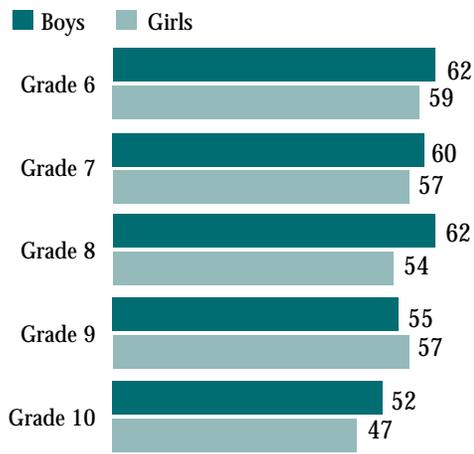


Figure 2.7
Students who had their own bedroom (%)

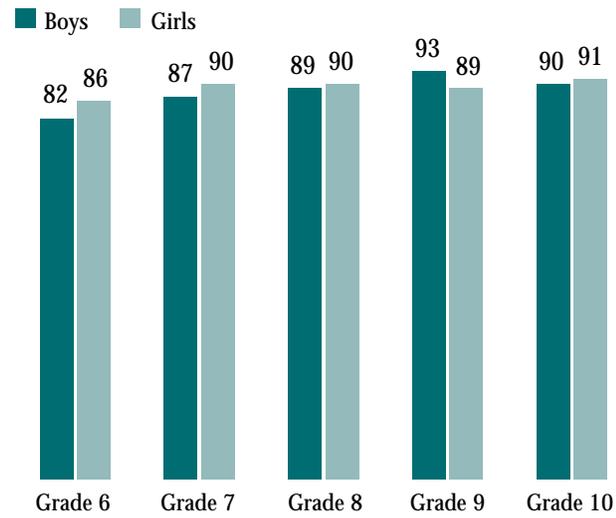
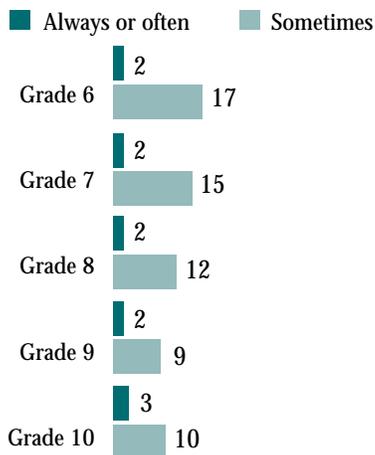


Figure 2.6
Students who went to bed hungry because there was not enough food in the house (%)



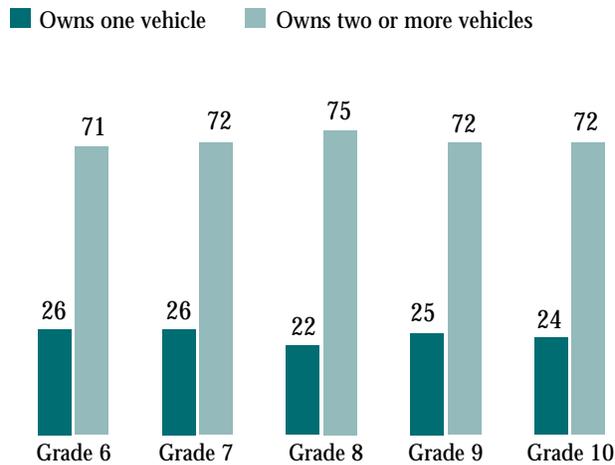
Family income level represents one important indicator of socio-economic status. The HBSC study asked students about their perception of the wealth of their families. Figure 2.5 illustrates that a little over one-half of Canadian students perceived their families to be well off or quite well off, although this number decreased for older students, perhaps as they gained a better understanding of their family’s financial limitations. Further, boys were slightly more likely than girls to report that their families were well off or quite well off.

The study also gathered information about basic poverty by asking students how often they went to bed hungry for lack of food in the house. Figure 2.6 illustrates that a significant proportion of students, especially younger ones, sometimes went to bed hungry. For example, 17 percent of Grade 6 students, compared with 10 percent of student in Grade 10, reported that they sometimes went to bed hungry. Those who indicated that they always or often went to bed hungry were in a smaller minority.

Students were also asked questions about their families’ material assets and disposable wealth as a proxy for family income. Figure 2.7 reveals that only about 10 percent of students

Figure 2.8

Students whose family owned one or more car, van, or truck (%)



reported not having their own bedroom, and the overall percentage of students who had their own bedroom increased between Grade 6 and Grade 10. Figure 2.8 shows that almost three-quarters of adolescents stated that their families owned two or more vehicles. About 4 percent of students' families did not own a vehicle. A family's ability to afford vacations was measured by asking how often students had been on holiday with their families within the previous year (Figure 2.9). Younger adolescents were more likely to report that they had travelled more than twice within the previous year. However, older students may have stayed at home and so did not report such family trips.

Computer ownership was also investigated as an indicator of family affluence. Figure 2.10 illustrates that about one-half of students reported that their families owned one computer; 41 percent of youth said that their families owned two or more computers. In addition, about 85 percent of students across all grades stated that they had access to the Internet at home (data not shown).

The four measures of wealth – (a) having own bedroom; (b) car, van, or truck ownership; (c) going on holiday/vacation; and (d) computer

Figure 2.9

Students whose families travelled or went on holidays in the previous 12 months (%)

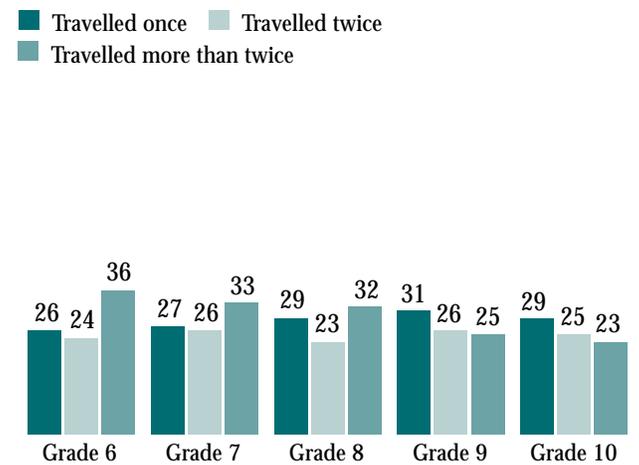
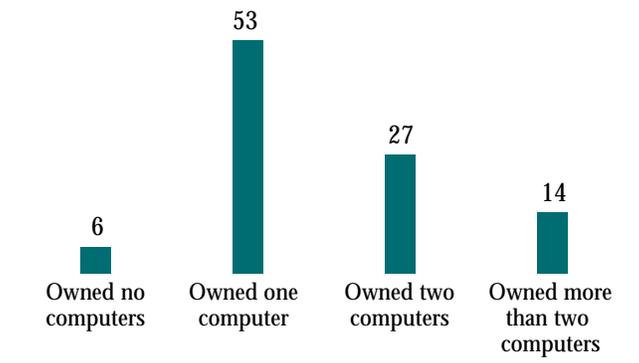


Figure 2.10

Computer ownership, all students (%)



ownership – were scaled to create a family affluence scale (FAS) (Currie, Samdal, Boyce, and Smith, 2001; Mullan and Currie, 2000). Adolescents were placed into four categories of affluence, as indicated in Figure 2.11. Family affluence was fairly stable across grades, with over 60 percent of students having a middle to high FAS score, and very few students reporting a low FAS score.

Figure 2.11
Family affluence scale (FAS) (%)

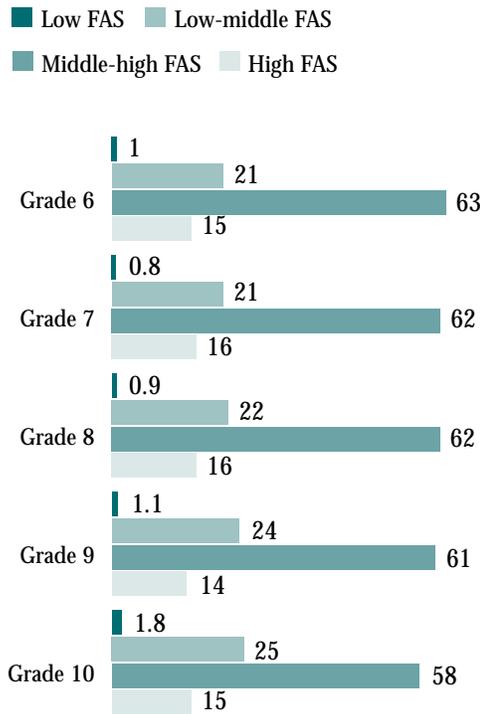


Figure 2.13
Students who reported excellent health, by FAS (%)

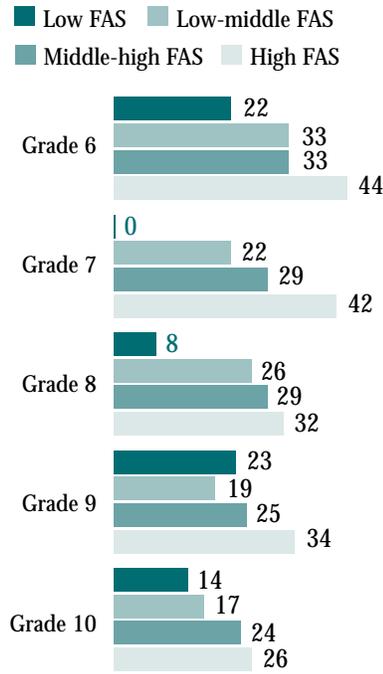
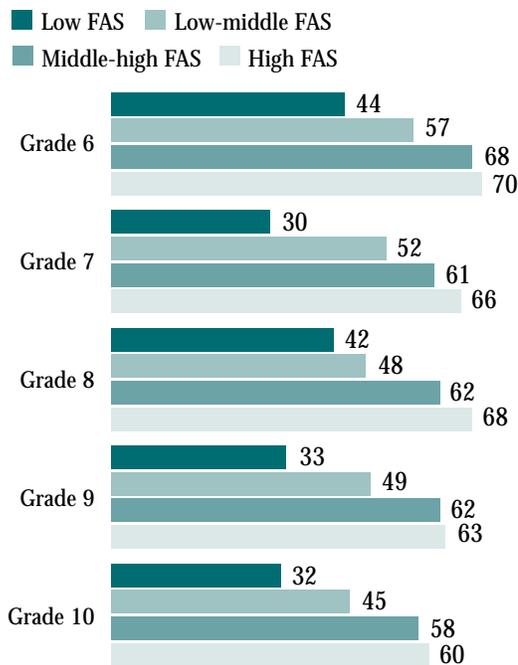


Figure 2.12
Students who rated their life satisfaction highly, by FAS (%)



Abernathy, Webster, and Vermeulen (2002) suggest that SES variables, such as family affluence measures, correlate well with certain adolescent health outcomes, such as life satisfaction and self-reported health. Relationships between family affluence and these health outcomes are presented in Figures 2.12 and 2.13.

A clear positive association exists between family affluence and important outcomes at all grade levels. As students' family affluence increased, so did the proportion of students who reported high life satisfaction. Similarly, there is a clear gradient between family affluence and excellent self-reported health.

Major Findings

- Approximately 10 percent of students' fathers and 20 percent of their mothers were not employed.
- A range of 50 to 60 percent of students reported that their families were well off, although this proportion decreased in older grades.
- Between 9 and 17 percent of students reported at least sometimes going to bed hungry because of lack of food at home.
- Almost 95 percent of students' families owned at least one computer.
- Family affluence was positively related to life satisfaction and self-reported health.

3

The Home

Hana Saab

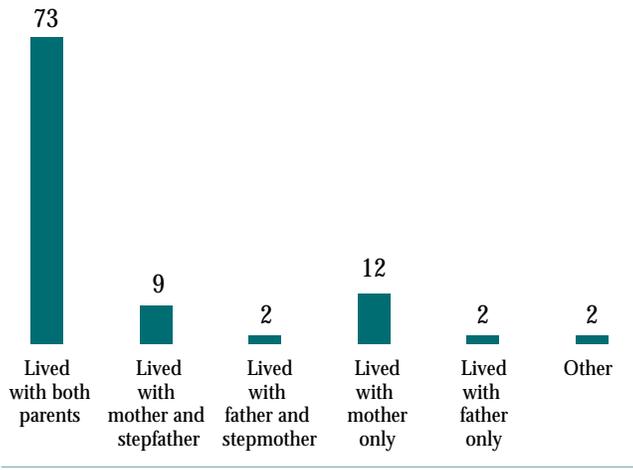


Hana Saab

Adolescence is a period during which connect-
edness, or a strong sense of closeness, to the
family decreases (Resnick, 2000) and attach-
ment to peers increases (Collins and Russel,
1991; Larson and Richards, 1991; Fulgini,
Eccles, Barber, and Clements, 2001). However,
support from parents remains vital to the posi-
tive development of adolescents (Nada-Raja,
McGee, and Stanton, 1992) and is an essential
protective factor against anti-social behaviour
and delinquency (Hawkins, Catalano, and
Miller, 1992; Nada-Raja et al., 1992; Dornbusch,
Erickson, Laird, and Wong, 2001). Such
support consists of a warm and nurturing rela-
tionship, positive bonding, and parental
monitoring of adolescent activities (Dekovic,
1999).

This chapter examines the relationships of
students to their parents across Grades 6 to 10.
They were assessed by asking adolescents
about how well they could communicate with
their parents; to what extent they felt under-
stood and trusted by their parents; as well as
conflicts that came up with their parents.

Figure 3.1
Family Structure (%)



Family Structure

It is important to note that with the change in the structure of Canadian families, not all respondents were referring to a single nuclear family. The HBSC survey findings indicate that 73 percent of students lived with both parents, 11 percent in blended families, 12 percent in single-mother households, and only 2 percent in single-father households. A further 2 percent reported that they had other living arrangements.

Communication With Parents

Effective communication is a primary feature of a good parent-child relationship (Jackson, Bijstra, Oostra, and Bosma, 1998). Higher proportions of both boys and girls in the HBSC sample found it easy to confide in their mothers than in their fathers (Figures 3.2 and 3.3), although there was a steady decline in the ease of talking to either parent in the older grades. Overall, girls experienced less ease of communication with their fathers throughout adolescence. By the time they were in Grade 10, only one-third of girls were comfortable talking to their fathers about things that bother them, compared with over 50 percent

Figure 3.2
Father was easy to talk to (%)

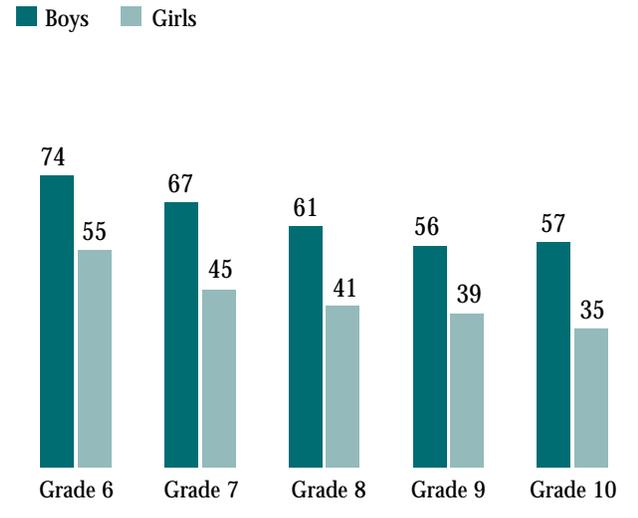
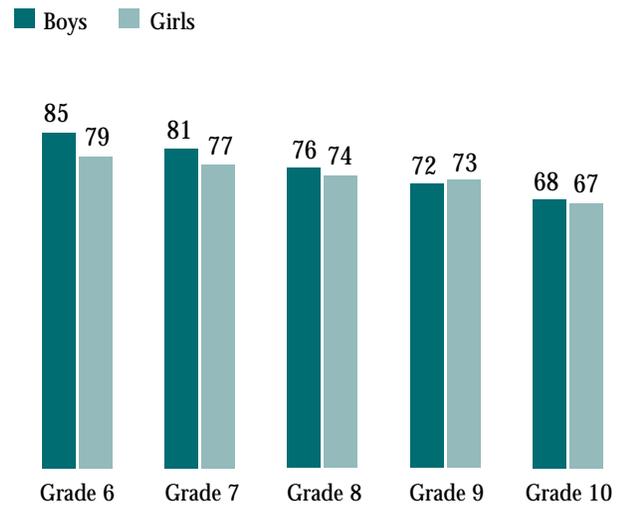


Figure 3.3
Mother was easy to talk to (%)



of boys. These findings are consistent with others in the literature that show mothers to be more comfortable conversing with their children and discussing issues of emotional relevance than are fathers (Leaper, Anderson, and Sanders, 1998; Fivush, Brotman, Buckner, and Goodman, 2000).

Figure 3.4
Students who reported having a happy home life (%)

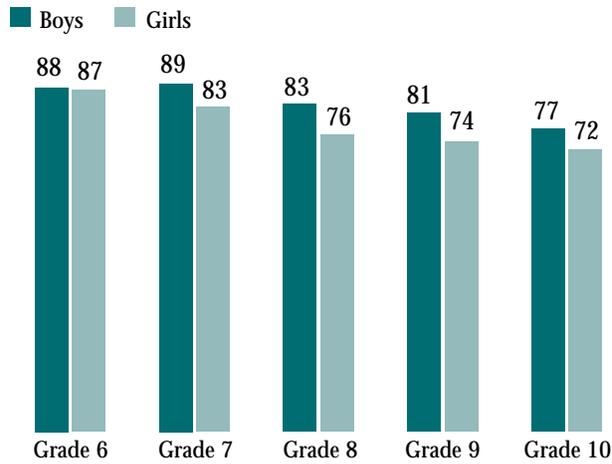
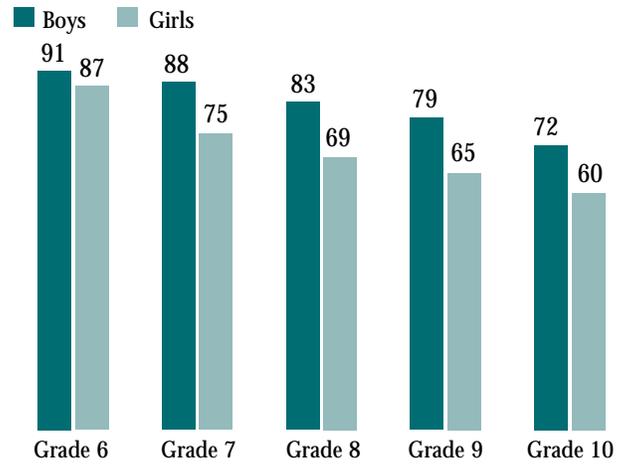


Figure 3.5
Students who reported being understood by parents (%)



Home Life and Relationship With Parents

It was clear that most students in the HBSC sample had a happy home life (Figure 3.4). Nevertheless, reports of happiness at home decreased as students moved up through the higher grades. This decline was more pronounced for girls. In Grade 10, 15 percent fewer girls than in Grade 6 said they were happy with their lives at home, compared with only an 11 percent decline for boys. The need in older adolescence for increased autonomy and independence is likely to strain relationships with parents and may result in decreased reports of happiness at home (Bergman and Scott, 2001).

A clear gender difference existed in students' relationships with their parents. Overall, more boys reported being better understood by parents across Grades 6 to 10 (Figure 3.5). The majority of students across the five grades felt trusted by their parents (Figure 3.6), although there were gender differences at the Grade 8 level. Girls in Grades 8 to 10 tended to have more arguments with their parents (Figure 3.7) and were more likely to consider leaving home at times (Figure 3.8).

Figure 3.6
Students who reported being trusted by parents (%)

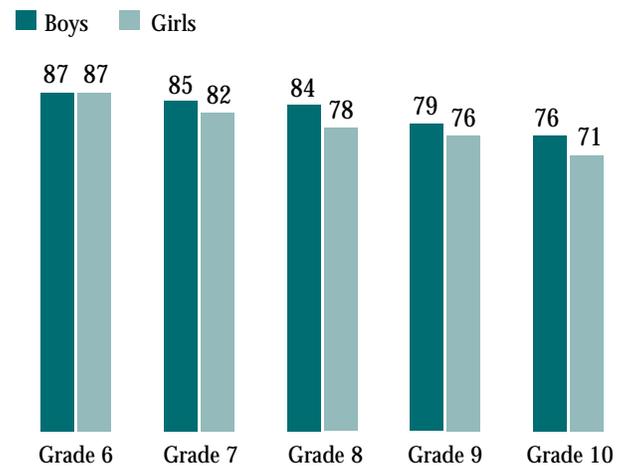


Figure 3.7
Students who had a lot of arguments with their parents (%)

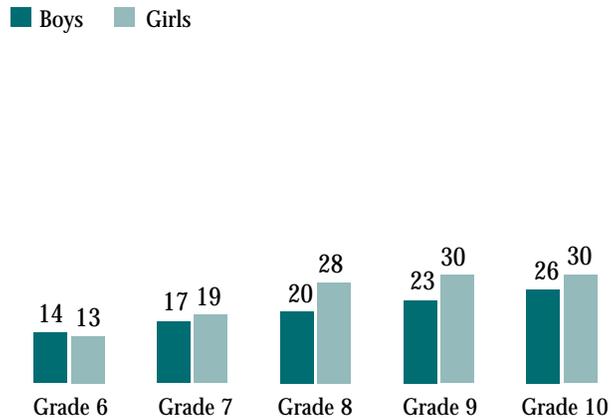


Figure 3.8
Students who wanted to leave home at times (%)

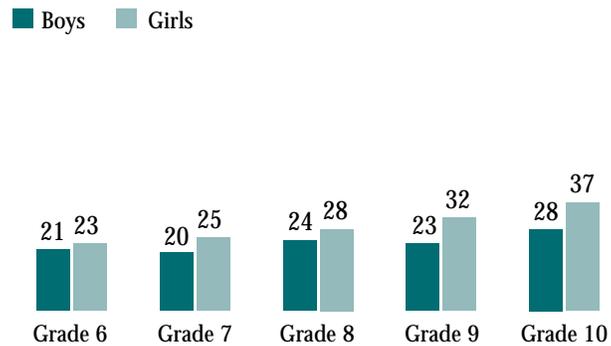
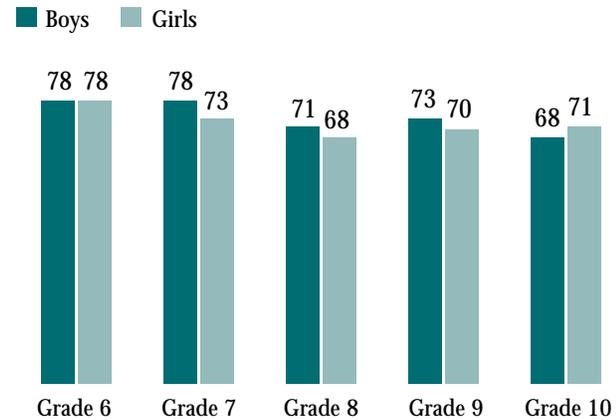


Figure 3.9
Students who reported that what their parents thought of them was important (%)



Conflict with parents appears to be a normative part of early adolescent development (Baer, 1999). Common sources of conflict between parents and adolescents are related to friends, money issues, watching television, telephone use, going out, time at homework, household chores, and fighting with siblings (Barber and Delfabbro, 2000). The gender differences in parental relationships found in the HBSC study could reflect how transitions into adolescence are handled differently for boys and girls regarding dating, curfew, and peer selection. For example, in the recent Canadian Youth Sexual Health and HIV/AIDS Study, both parents were found to be more supportive of their sons' dating relationships than those of their daughters (Boyce, Doherty, MacKinnon, and Fortin, 2003).

The majority of students valued what their parents thought of them and indicated a desire for parental approval. Students in Grade 6 were the most concerned about what their parents thought of them. By Grade 8, almost 10 percent fewer students cared about their parents' perceptions of them, with no significant change thereafter (Figure 3.9).

Figure 3.10
Students who thought parents expected too much of them (%)

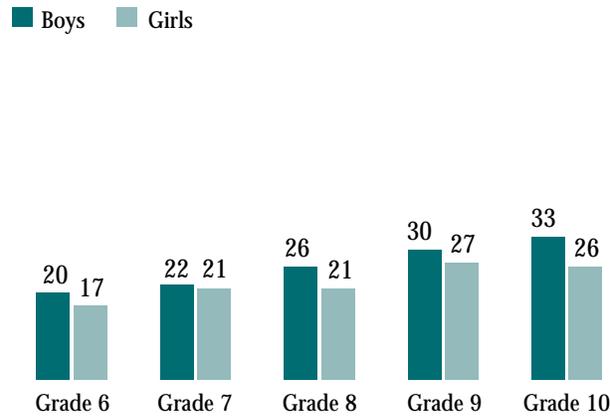
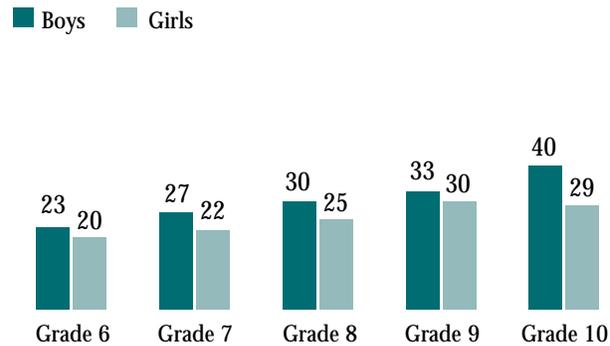


Figure 3.11
Students who thought parents expected too much of them at school (%)



Students who fail to meet their parents' expectations may experience significant strain in their relationships with their parents (Noack and Puschner, 1999). More boys than girls felt that their parents expected too much of them in general (Figure 3.10), specifically regarding school (Figure 3.11) and especially between Grades 8 and 10. Almost one-third of all students reported that their parents' expectations regarding school were too high. Research involving Canadian adolescents indicates that because girls mature earlier than boys do, they are generally more receptive to social influence and therefore tend to be more accepting of their parents' involvement in school activities compared with boys (Deslandes and Cloutier, 2002).

Barber (1997) suggests that there is a need to balance parenting styles that are too controlling and restrictive, allowing little room and opportunities for decision-making, with styles that are very lax, with no parental involvement. High expectations that are perceived as strict parental control enhance student motivation and achievement when balanced with emotional support and encouraging behaviours (Noack and Puschner, 1999).



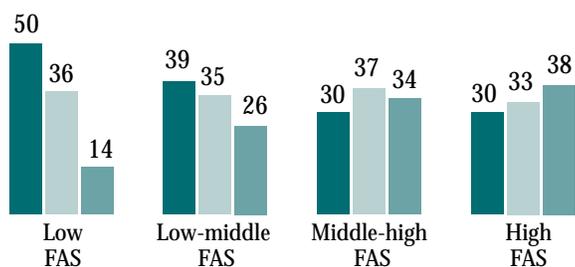
Table 3.1
Factors associated with positive parent relationship scale for Grade 10 students

Youth behaviours and life satisfaction	Correlation coefficient*
Rated life positively	0.50
Friends not involved in risk behaviour	0.44
Did not smoke	0.28
Did not drink beer	0.25
Did not drink liquor or spirits	0.29
Got drunk less often	0.29
Did not use marijuana in past 12 months	0.30
Did not have sexual intercourse	0.23

* Correlation coefficient: weak (less than or equal to 0.20); moderate (between 0.21 and 0.39); strong (equal to or greater than 0.40).

Figure 3.12
Parent relationships, by FAS, for boys (%)

■ Poor parent relationship ■ Moderate parent relationship ■ Good parent relationship



Parent Relationship Scale

A parent relationship scale was created using items in this survey. Correlations between the scale and selected variables in the HBSC survey reflect how students' relationships with their parents are linked to other issues in their lives (Table 3.1). Grade 10 students who had a more positive relationship with their parents were more likely to be satisfied with their lives. On the other hand, students with a more positive relationship with their parents were less likely to smoke, drink alcohol, use marijuana, and have friends who were involved in risk behaviours. Students with a more positive relationship with their parents were somewhat less likely to engage in sexual intercourse.

Family Affluence Scale and Relationship With Parents

The association between the family affluence scale (FAS, a measure of socio-economic status discussed in Chapter 2, Socio-Economic Inequalities) and the parent relationship scale was examined (Figures 3.12 and 3.13). Half of the students, both boys and girls, at the low end of the FAS said they had poor relationships with their parents, compared with a third of students at the high end of FAS. More students at the high end of FAS reported having good relationships with their parents.

Figure 3.13
Parent relationships, by FAS, for girls (%)

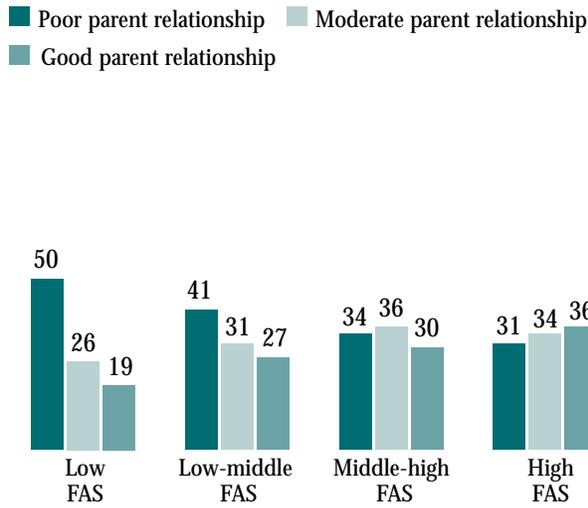
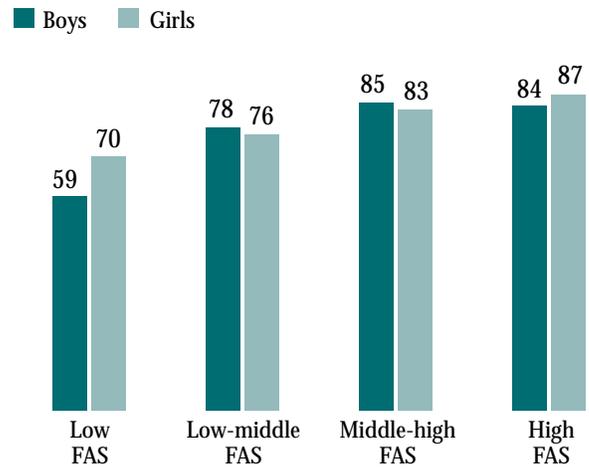


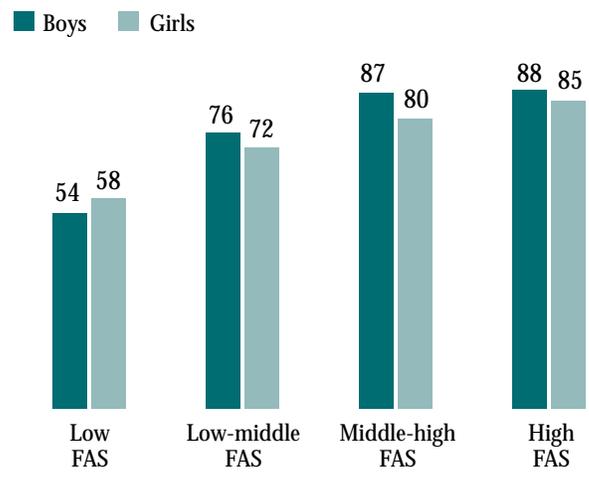
Figure 3.14
Parents who were willing to help with students' problems at school, by FAS (%)



When asked about the willingness of parents to help with problems at school, students at the low end of FAS said they received less support from their parents than did students at the high end (Figure 3.14). Interestingly, 70 percent of girls at the low end of FAS reported relatively high levels of parent support with school problems, compared with only 59 percent of boys.

There also appears to be a relationship between family affluence and having a happy home life (Figure 3.15). A little over half of students at the low end of FAS reported being happy with their home lives, compared with over 80 percent of those at the middle-high and high ends of FAS.

Figure 3.15
Students who reported having a happy home life, by FAS (%)



Major Findings

- Older youth, especially girls, reported having more difficulties in talking to their fathers.
- Older girls said they received less parental understanding and trust and were less satisfied with home life.
- Older girls reported more arguments with their parents and more desire to leave home.
- There was no difference in students, across age or gender, regarding the importance of parental approval.
- More boys than girls felt that their parents' expectations were too high.
- Good relationships with parents were related to higher life satisfaction.
- Poor relationships with parents were related to risk-taking behaviours in students.
- Family affluence affected student-parent relationships, parent support at school, and satisfaction with home life.

4

The Peer Group

Hana Saab

The establishment of friendships is fundamental to adolescent development. The transition from preadolescence to adolescence brings about a change in the nature of relationships with peers. To address their changing social needs, friendships become more intimate in nature and friends become close confidants (Buhrmester, 1996). Intimacy can be described here in terms of the ease of communication within peer relationships, as well as comfort in disclosing problems and worries with others. Having close friends is associated with positive emotional health and social adjustment. Children with close friends demonstrate better academic performance, lower rates of juvenile delinquency, and lower dropout rates, compared with children who do not have friends as sources of intimacy and social support (Parker and Asher, 1987).



Hana Saab

The type of peer relationships, number of friends, and extent of involvement in a peer group evolve over adolescence and may influence the degree to which adolescents become involved in health-promoting or health-compromising behaviours (Sieving, Perry, and Williams, 2000). This chapter explores adolescents' same-sex and opposite-sex friendships, as well as the impact of their friends' involvement in health-compromising behaviours .

Figure 4.1
Boys with three or more close same-sex friends (%)

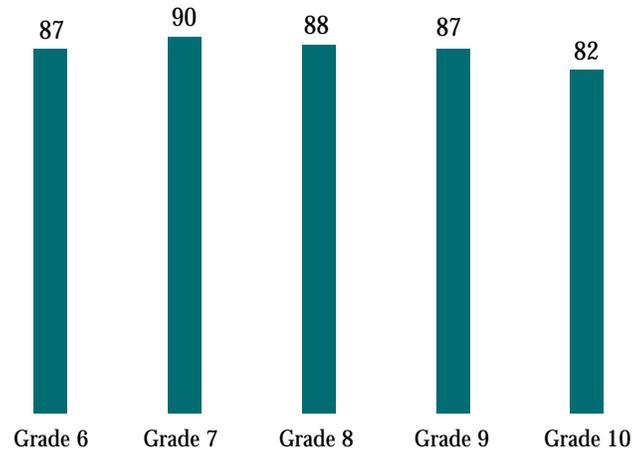


Figure 4.2
Girls with three or more close same-sex friends (%)

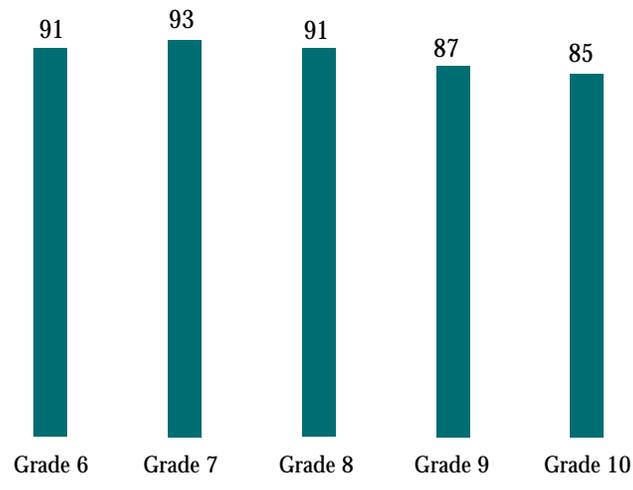
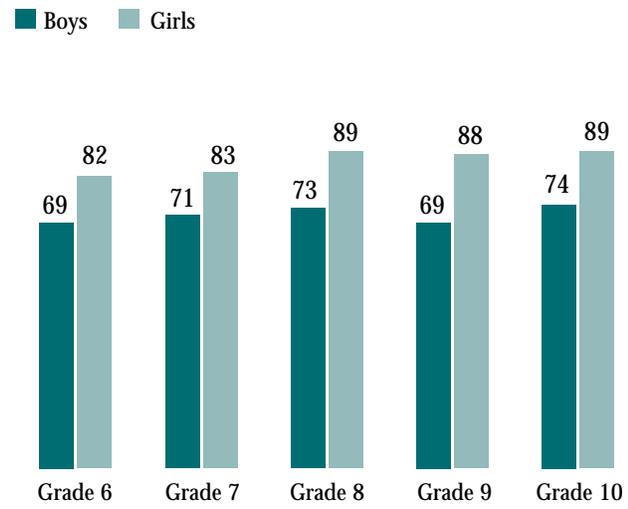


Figure 4.3
Students who found it easy or very easy to talk to same-sex friends about things that really bother them (%)



Same-Sex Friendships

Most of the students in the HBSC reported having three or more close friends, although this dropped slightly for both genders in Grade 10 (Figures 4.1 and 4.2).

Gender differences often exist in adolescent relationships with same-sex friends. Girls' interactions are usually more personal in nature,



Taylor King

involving a higher degree of self-disclosure and emotional support, whereas boys' interactions are "directed toward the enhancement of personal status" (Maccoby, 1990, p.168) and on doing things together (Wright, 1982). In the HBSC sample, more girls than boys at all ages found it easy to talk to same-sex friends about things that bother them (Figure 4.3). This is consistent with research in which boys were found to develop closeness and intimacy with friends more slowly than girls (Sharabany, Gershoni, and Hofman, 1981). As such, same-sex relationships for boys have less emphasis on the affective components and more on the instrumental aspects, such as meeting specific concrete needs and helping each other out when in trouble. In contrast, same-sex relationships for girls are centred around support, help and guidance, and exchange of intimacies.

Ease of communication with friends of the same sex declined for boys in Grades 6 and 8 across the first three cycles of the HBSC survey but rose slightly from the 1998 to the 2002 survey (Figure 4.4). For Grade 10 boys, a slight decrease was evident across the four cycles of the survey. Ease of communication with friends of the same sex was lower for Grade 6 girls in 1994 and 1998, and for Grade 10 in 2002 (Figure 4.5).

Opposite-Sex Friendships

During the developmental period of adolescence, characteristics of adult intimacy are often initiated. Opposite-sex friendships are considered a more intimate form of friendship and a learning stage for mature sexual relations compared with same-sex relationships (Sharabany et al., 1981). Establishing opposite-sex friendships is critical to the socialization of adolescents away from dependence on parents into their adult roles (Buhrmester, 1990; Kuttler, La Greca, and Prinstein, 1999).

Figure 4.4

Boys who found it easy or very easy to talk to same-sex friends about things that really bother them, by year of survey (%)

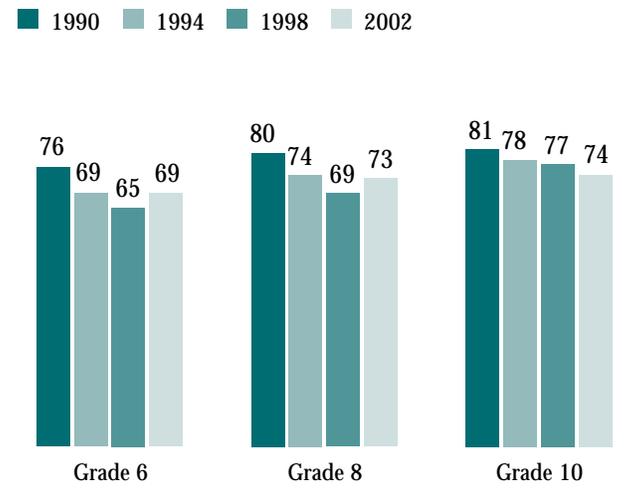


Figure 4.5

Girls who found it easy or very easy to talk to same-sex friends about things that really bother them, by year of survey (%)

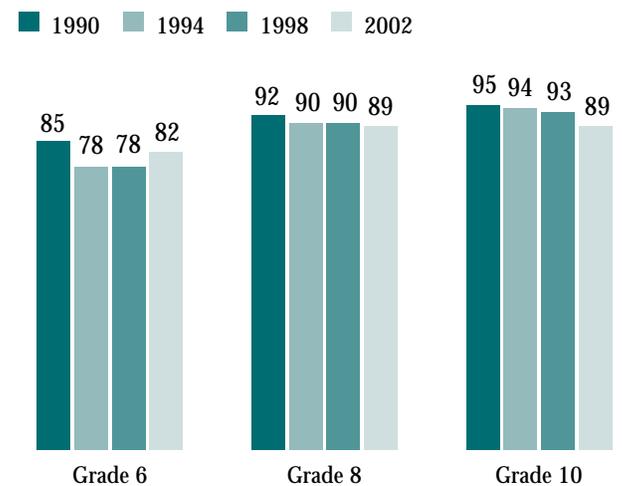
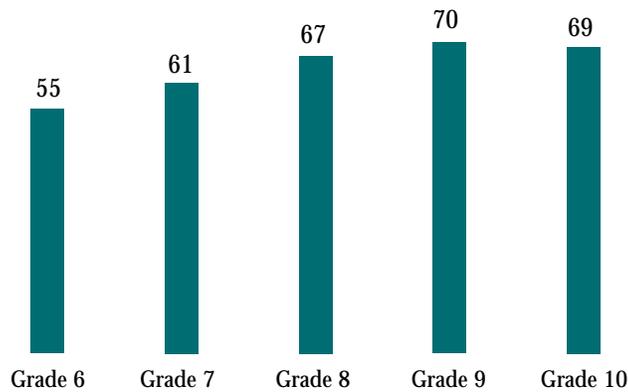
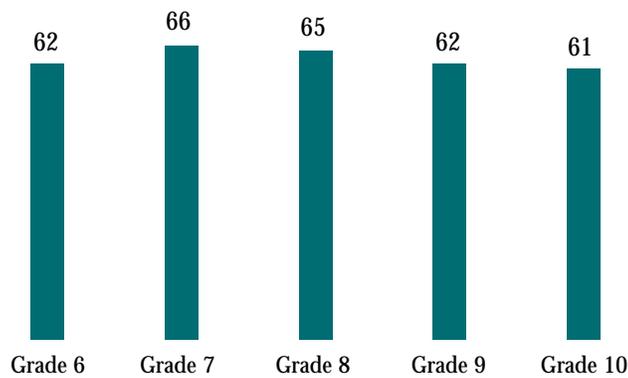


Figure 4.6

Boys with three or more close opposite-sex friends (%)

**Figure 4.7**

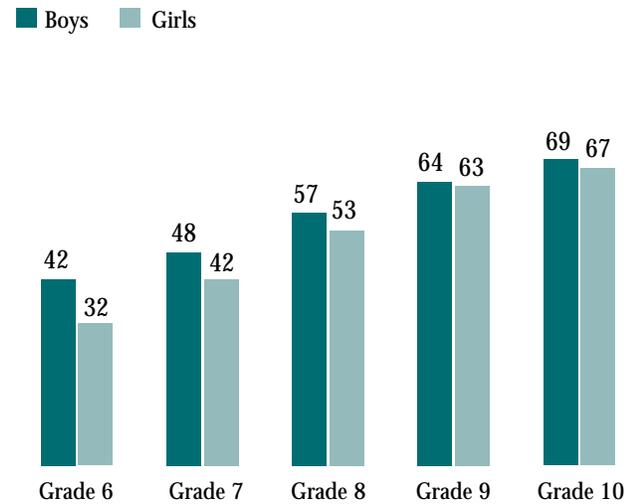
Girls with three or more close opposite-sex friends (%)



In contrast to same-sex friendships, the proportion of boys in the sample who reported having three or more close opposite-sex friends increased with age. Almost 70 percent of boys in Grades 9 and 10 had three or more close friends who were girls, compared with only 55 percent

Figure 4.8

Students who found it easy or very easy to talk to opposite-sex friends about things that really bother them (%)



of boys in Grade 6 (Figure 4.6). However, the pattern for opposite-sex friendships for girls did not demonstrate significant variation across the five grades (Figure 4.7).

It is important for adolescents to develop intimate relationships within which they learn communication skills and become more comfortable sharing their emotional joys and worries. Similar to findings in literature which shows that both boys and girls are more at ease in same-sex interactions (McBride and Field, 1997), the HBSC data show that both boys and girls were less comfortable in opposite-sex interactions (Figure 4.8) than in same-sex friendships (Figure 4.3). In particular, girls were less at ease talking to boys than to other girls about things that bothered them. Gender differences in communication with members of the opposite sex narrowed for older students. By Grades 9 and 10, almost as many boys as girls found it easy to talk to friends of the opposite sex about things that bothered them. On the other hand, as many as one-third of students in Grade 10 were not comfortable sharing their worries with members of the opposite sex. As both boys

Figure 4.9

Boys who found it easy or very easy to talk to opposite-sex friends about things that really bother them, by year of survey (%)

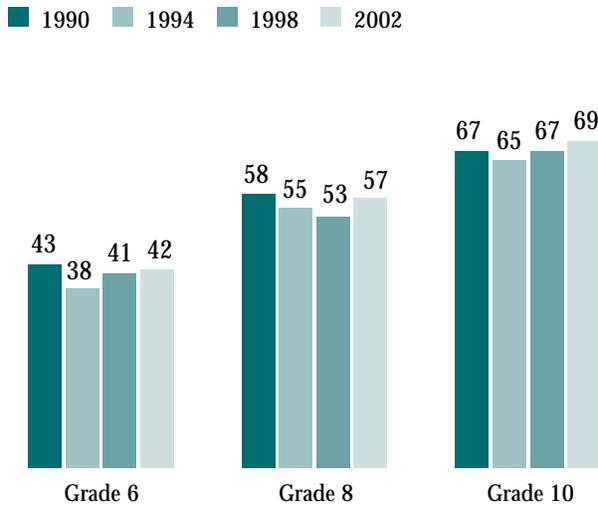
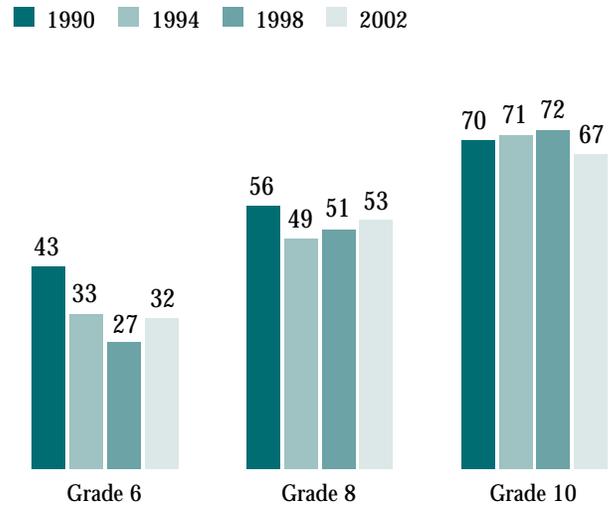


Figure 4.10

Girls who found it easy or very easy to talk to opposite-sex friends about things that really bother them, by year of survey (%)



and girls grow and gain more confidence and experience less inhibition, they become more comfortable in their relationships with the opposite sex (Lundy, Tiffany, McBride, Field, and Largie, 1998). Ease of communication with friends of the opposite sex remained consistent for boys across the four HBSC surveys (Figure 4.9) but decreased for girls in Grades 6 and 8 (Figure 4.10).

Best Friends

Talking to a best friend about worrisome issues was easier for girls than for boys (Figure 4.11). Yet ease of communication with a best friend improved for both older boys and girls. Research indicates that important changes occur in the nature and significance of friendship during adolescence. These changes are evident in a growth in the level of friendship intimacy as expressed by more frequent exchanges, personal disclosure, and provision of emotional support (Buhrmester, 1990).

Figure 4.11

Students who found it easy or very easy to talk to a best friend about things that really bother them, by year of survey (%)

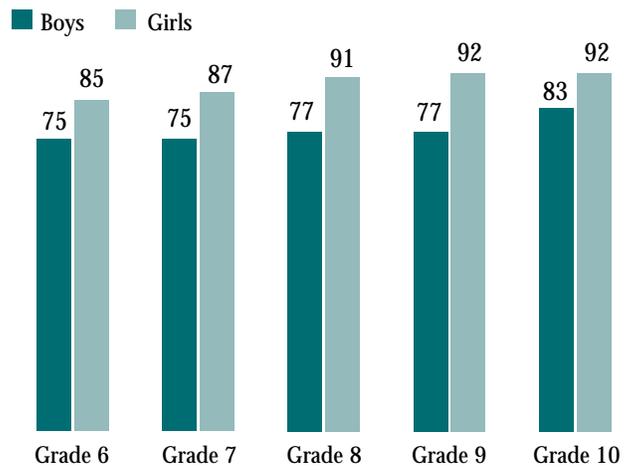


Figure 4.12
Students who spent four to five days a week with friends right after school (%)

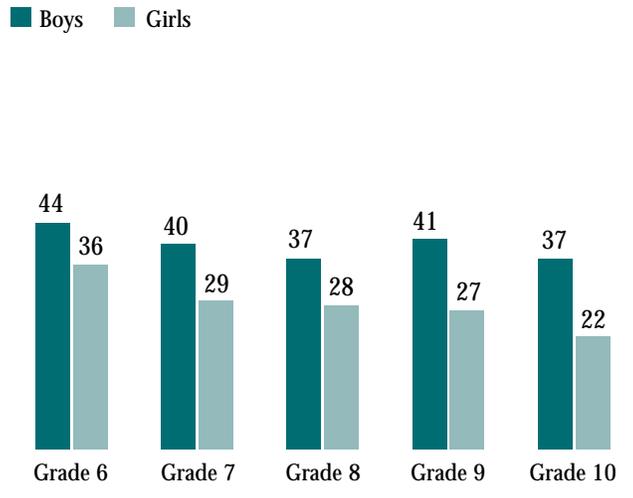


Figure 4.14
Girls who spent four to five days a week with friends right after school, by year of survey (%)

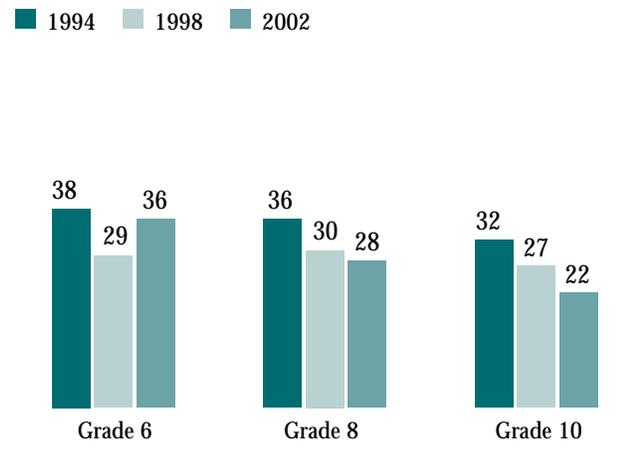
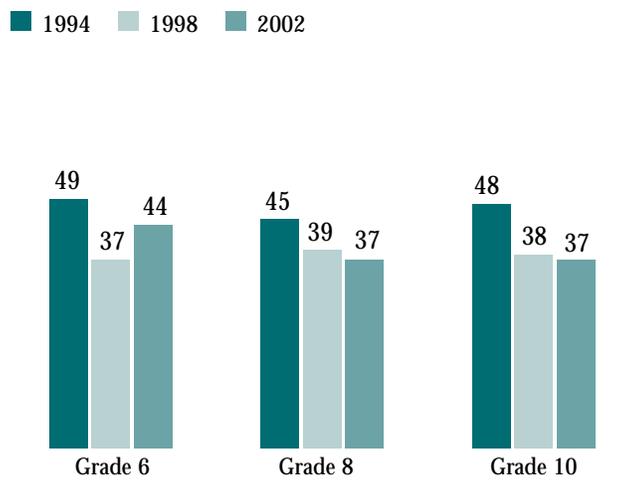


Figure 4.13
Boys who spent four to five days a week with friends right after school, by year of survey (%)



Time Spent With Friends

“Playing together,” “hanging out,” and “doing things together” are among the most important features of youth friendship (Savin-Williams and Berndt, 1990). Time spent with friends is a good indicator of adolescents’ involvement with their peer group. In the HBSC study, the time that boys spent with friends after school (Figure 4.12) or in the evenings (Figure 4.15) was stable across grades. However, girls in higher grades spent less time with their friends right after school (Figure 4.12) and fewer evenings out with friends (Figure 4.15) compared with those in lower grades. This decrease in peer contact could be attributed to parental restrictions on their daughters as they get older or to girls spending more time on schoolwork, part-time jobs or other concerns at home. There appeared to be a downward trend in the proportion of students who spent four or five days a week with friends right after school, or five or more evenings a week, since the 1994 survey, especially for girls in Grade 10 (Figures 4.13 and 4.14; Figures 4.16 and 4.17).

Figure 4.15

Students who spent five or more evenings a week out with friends (%)

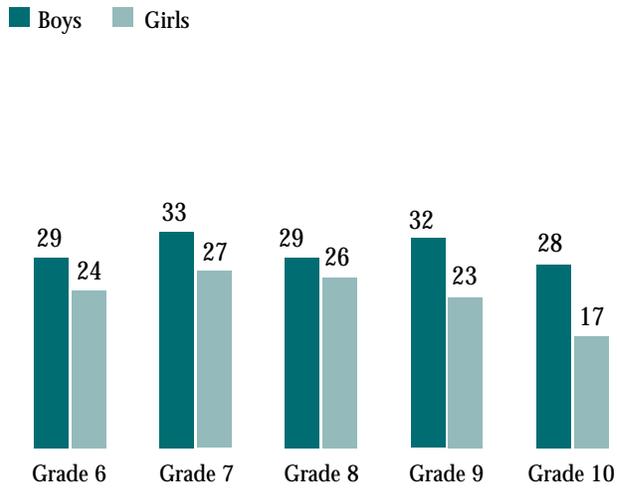
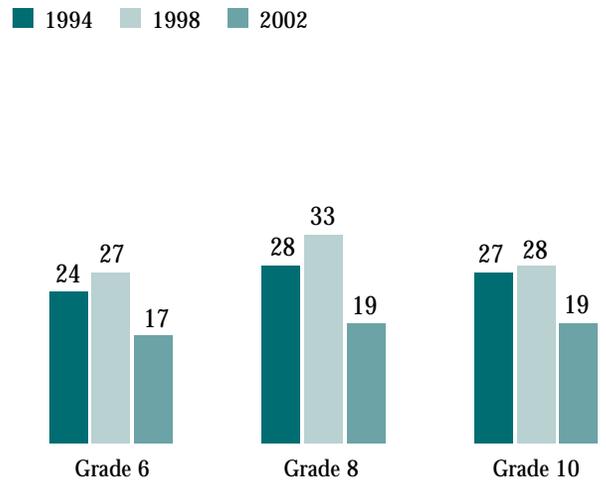


Figure 4.16

Boys who spent five or more evenings a week out with friends, by year of survey (%)



Peer Risk Behaviour and Substance Use

This section assesses the extent of peer involvement in smoking and substance use and the impact of those peer behaviours on students' own risk behaviours. Although more girls than boys in Grade 9 reported having friends who smoked, this situation reversed slightly in Grade 10 (Figure 4.18). The trend is similar for friends' use of drugs, yet the proportion of Grade 10 boys whose friends used drugs to get stoned was significantly higher than that for girls (Figure 4.19). However, the gender difference was reversed for binge drinking; marginally more Grade 10 girls than boys reported having friends who had been drunk at least once (Figure 4.20).

Figure 4.17

Girls who spent five or more evenings a week out with friends, by year of survey (%)

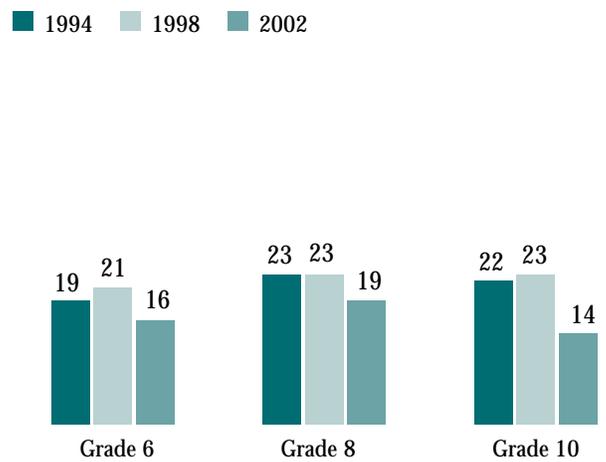


Figure 4.18

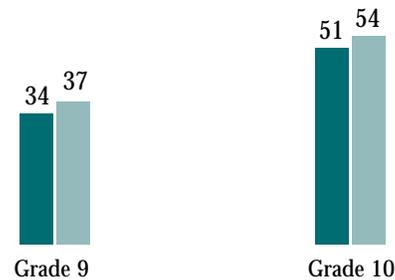
Students who reported that most or all of their friends smoke (%)

■ Boys ■ Girls

**Figure 4.20**

Students who reported that most or all of their friends have been drunk (%)

■ Boys ■ Girls

**Figure 4.19**

Students who reported that most or all of their friends use drugs to get stoned (%)

■ Boys ■ Girls



Social Integration and Peer Influence

To help explain the relationship between peer and youth health behaviours, two scales central to adolescent peer relationships were developed. The first, social integration (SI), consisted of items that assessed: (a) the number of close friends from either gender; (b) the degree of interaction, such as the number of days spent with friends after school, as well as communication over the phone or through electronic mail; and (c) the ease of communication and comfort with friends. The second scale, peer influence (PI), assessed: (a) the extent to which friends were involved in risk behaviours; and (b) friends' attitudes toward parents and school. Combinations of high and low levels on these two scales created four categories of students in Grades 9 and 10. These categories were: (1) high SI and positive PI; (2) high SI and negative PI; (3) low SI and positive PI; and (4) low SI and negative PI.

Table 4.1 presents the relationships between each of these four student groups and attitudes, emotional health, and possible health risk factors. Those students who were not well integrated socially and who had negative peer influence (Category 4) were the least satisfied with their lives, least happy with their home lives, and most likely to want to leave home. They were also least likely to enjoy being at school, or to feel they belong at school, and

more often reported being lonely and left out of things. However, having positive peer influence improved the emotional state of students who were not well integrated socially (Category 3) and enhanced their attachment to the home and school. Although 31 percent of students in this category reported feeling lonely and left out of things, almost half (47 percent) rated their lives highly on a scale from 0 to 10, and 72 percent said they had a happy home life.

Table 4.1

Factors associated with high and low levels of social integration and peer influence (%)

	Category 1 High SI Positive PI	Category 2 High SI Negative PI	Category 3 Low SI Positive PI	Category 4 Low SI Negative PI
Had a happy home life	83*	70	72	53
Rated life positively	66	52	47	32
Wanted to leave home at times	20	42	30	60
Felt they belonged at their school	70	51	54	35
Thought school was a nice place to be	74	48	53	30
Enjoyed school activities	73	55	55	39
Often felt lonely	15	20	31	47
Often felt left out of things	17	18	31	46
Had been drunk more than four times	13	40	5	34
Smoked cigarettes	34	72	21	60
Used cannabis more than three times in past 12 months	11	47	7	39
Drank beer at least once a week	8	27	5	27
Used Ecstasy more than three times	0.3	4	0	13
Used amphetamines more than five times	0.4	6	0	14
Used heroin/opium/morphine more than five times	0.6	2.8	0	10
Used medical drugs to get stoned more than five times	0.9	8	1	14
Used Cocaine more than three times	0.3	4	0	10
Used glue or sniffed solvents more than three times	0.3	4	0	11
Used Ritalin more than three times to get high	0.5	6	0.5	7
Used LSD more than three times	0.3	4	0	9
Used anabolic steroids	0.6	2	0	1.4
Had sexual intercourse	14	39	4	32

* For example, 83% of students with high SI and positive PI indicated that they had a happy home life.

Even if students were well integrated socially (Categories 1 and 2), having negative peer influence increased the likelihood of students smoking, getting drunk, and using marijuana. However, the use of hard drugs, which is regarded as a more extreme form of substance use, was higher for students who were less integrated socially and had negative peer influence (Category 4) compared with those who were well integrated socially but had negative peer influence (Category 2). This implies that smoking, drinking, and marijuana use occur more in socially integrated youth, perhaps in peer social settings such as dances and parties, and that these more common risk behaviours may create a bond between friends (Engels and ter Bogt, 2001).

Finally, having had sexual intercourse at least once was most common among Grade 9 and 10 students who reported high social integration but negative peer influence (Category 2). Having had sexual intercourse was also relatively common among students who had low social integration but were negatively influenced by their peers. Sexual intercourse was least common among students who reported positive peer influence, regardless of the degree of social integration (Categories 1 and 3).

Major Findings

- More boys than girls had difficulty in talking to their same-sex friends.
- The ease of communication between genders was less in lower grades, especially for girls.
- The ease of communication between best friends was less in boys, especially in lower grades.
- Peer contact, both after school and in the evenings, was lower for older girls.
- Social integration of students was linked to high life satisfaction.
- Positive peer influence was related to high life satisfaction.
- Negative peer influence corresponded with risk-taking behaviours in students.
- Minor risk taking occurred more in socially integrated students.
- Major risk taking (e.g., hard drugs) occurred more in students with poor social integration.
- Sexual behaviour occurred more in youth with negative peer influence, regardless of their social integration.

5

The School Experience

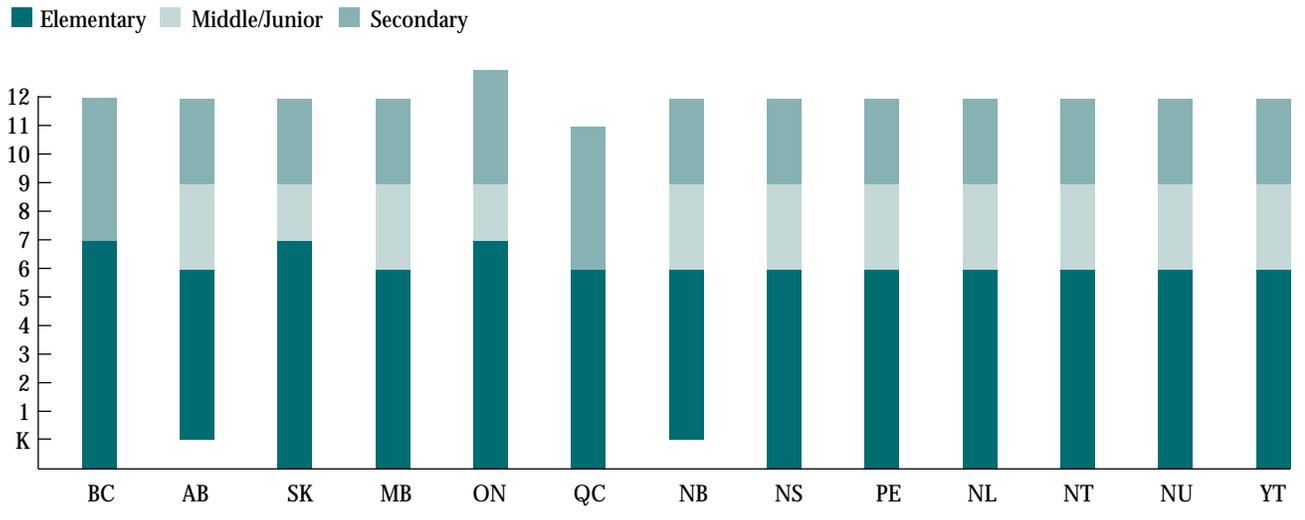
Don Klinger

Adolescents spend a substantial portion of their lives in school settings. Their experiences in such settings strongly influence their social and emotional health and their development, both positively and negatively (Wells, 2000). Specifically, students' health behaviours and their views of themselves are related to their lives in school (Anderman, 1999). In addition to the direct teaching of academic skills, schools provide opportunities for adolescents to develop social connections that often have lasting impacts on their lives. For the majority of adolescents, schools provide positive experiences with teachers and peers, helping them to develop strong emotional bonds and self-confidence. However, for some young people, school is a threatening and uninviting place. Adolescents who feel isolated or rejected in school or believe that their school's expectations are too high tend to disengage from school life. These young people are prone to becoming involved with peers sharing similar negative attitudes, which can ultimately result in increased health-risk behaviours (Connop and King, 1999).



Nathan Tappin

Figure 5.1
Organizational structure of Canadian schools, by province and territory



In Canada, education falls under provincial and territorial jurisdiction, with each province and territory establishing its own curriculum, general structure, and organization (Figure 5.1). Although a single national education system does not exist, there have been some attempts to create common curricula across jurisdictions – for example, the Western Protocol for Collaboration in Basic Education (WCP). With few exceptions, the formal education in most provinces occurs from kindergarten to Grade 12 and is separated into elementary and secondary programs. In Alberta and Ontario, kindergarten is optional; further, Ontario has a two-year kindergarten program. In Quebec, the final year of formal public education ends in Grade 11. Ontario phased out its Grade 13 year in June 2003. Provinces and territories also vary in their funding of alternative educational programs. Public education is generally considered non-denominational. However, Roman Catholic education boards are fully funded in some jurisdictions (e.g., Alberta and Ontario), partially funded in others (e.g., British Columbia), or not funded at all (e.g., the Atlantic Provinces). Newfoundland recently required all schools to be non-denominational, although religion courses are offered at all grade levels in the public system.

In elementary education, students have primarily one teacher for all of their school subjects for the entire year. Although the elementary panel includes Grade 6 in each province or territory, the final year of elementary education varies from Grades 6 to 8. In the secondary panel, students complete separate classes under the guidance of subject specialist teachers; thus, students have several teachers over the year. The secondary panel is formally or informally divided into junior and senior secondary programs. Individual school districts use different variations in order to maximize the use of buildings or to address a specific educational philosophy. It is not uncommon, therefore, to see different panels, or portions of a panel, occurring in the same building. For example, the junior secondary panel can be housed with either the elementary or the senior secondary panel. In terms of student support services, elementary schools often share counselling services with other nearby elementary schools. Some limited learning support is generally available in the school, although many of these services are provided by itinerant staff. Secondary schools are more likely to have counselling services and expanded learning support services within the school, although specialized

itinerant staff may also be used. The level of such support is often related to school or district size.

Secondary panels throughout Canada offer a variety of curriculum programs, providing students with opportunities to enrol in courses in the humanities, arts, sciences, and technical strands. Most jurisdictions also provide academic and less academic programs in foundational courses (most commonly in language arts, mathematics, and science). In an attempt to introduce students to the world of work, emphasis on career exploration and workplace experiences is growing. Within and across districts and provinces, there is also some variation in the manner in which specific education programs are offered; for example, full-year or semestered programs.

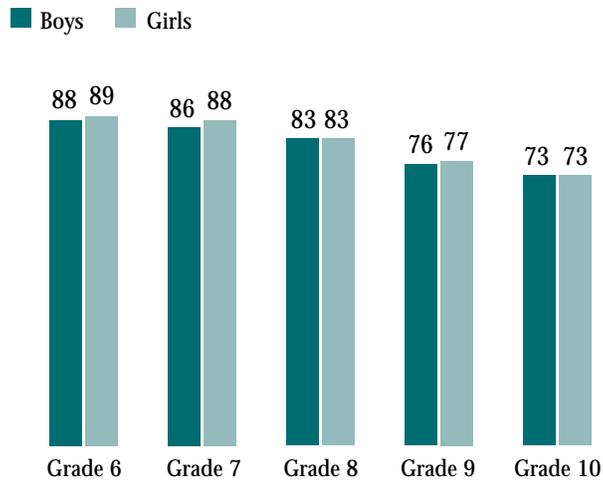
One growing trend in education in Canada is the use of large-scale assessments to monitor school effectiveness. The Council of Ministers of Education, Canada (CMEC), sponsors the national Student Achievement Indicators Program (SAIP). Canada also participates in international assessment programs, most notably in math and science, such as the Trends in Mathematics and Science Study (TIMSS) and the Programme for International Student Assessment (PISA). Many provinces test sufficient numbers of students with these assessments so that provincial results can be compared directly with those from other countries.

According to the TIMSS 1999 International Math Report, Canada placed tenth on the TIMSS test of mathematical achievement for 14-year-old students in a field of 40 countries. Canada's average scale score was 531. This score was significantly higher than the international average of 487 (Mullis and colleagues, 1999). According to the TIMSS 1999 International Science Report, Canada placed fourteenth in the TIMSS test of science achievement. Again, the Canadian average score of 533 was well above the international average of 488 (Martin and colleagues, 1999). The results from the most recent administration of PISA ranked Canada highly in comparison with 31 other countries where 15-year-old students wrote the test (Human Resources Development Canada, 2002). Canadian students averaged second in reading, sixth in mathematics, and fifth in science.

Within the context of individual students, previous research has linked academic achievement to measures of school climate and parental support (Ho and Willms, 1996; Ma and Klinger, 2000). This chapter examines six aspects of the school experience that relate to the academic and social development of school-aged youth and that have implications for the emotional and physical health of adolescents. Specifically, students were asked to give their perceptions of academic achievement, school satisfaction, school climate, teacher and parental support, and pressure to achieve at school. Where possible, results are reported by grade and gender. Trends with previous HBSC cycles are included, as are associations with health-risk measures.

Figure 5.2

Students who said their teachers thought their school work was good or very good, compared with others (%)



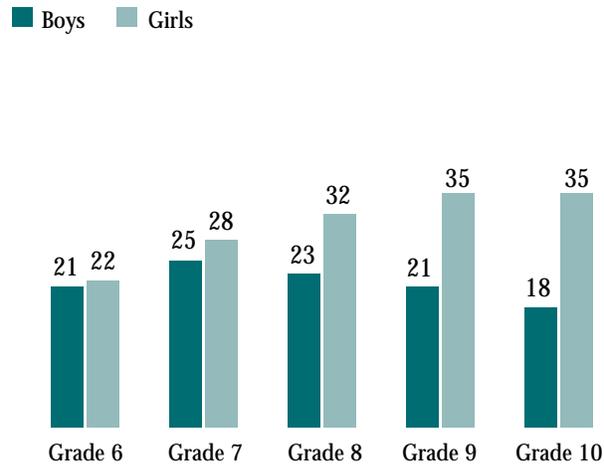
Academic Achievement

According to international assessments, Canadian youth score very well relative to their peers in other countries. Further, national and international studies have consistently found that in upper elementary and secondary schools, girls outperform boys in measures of reading and writing, while boys tend to outperform girls in science. Gender differences in mathematics are less pronounced (Robitaille, Taylor, and Orpwood, 1996).

In the 2002 administration of the HBSC, students were asked to self-report their achievement and perceived academic abilities. Figure 5.2 illustrates the proportion of students who believed their teachers thought their school work was good or very good, compared with others. Age differences existed, with more students in earlier than later grades placing themselves in one of these categories. In comparison, previous editions of the HBSC have documented higher scores on this measure, most notably for girls at all grade levels and for boys in Grade 10 (King et al., 1996; 1999). Nevertheless, the results indicate that Canadian students had positive views about the quality of their school work. Although not provided here, the results from other survey questions related to achievement support this general supposition. For example, the majority of Canadian students believed they did very well at their classwork (72 percent of boys and 81 percent of girls in Grade 10). Proportions at the younger grade levels were even higher, with less gender variation. Students considered themselves to be pretty intelligent – 82 percent of boys and 78 percent of girls in Grade 10 stated that this described them well or very well – although girls tended to be slightly less confident in their own intelligence at all grade levels (data not shown). This contrasted with girls' having equally positive attitudes about their classwork (Figure 5.2).

Figure 5.3

Students who spent two or more hours a day doing homework on weekdays (%)

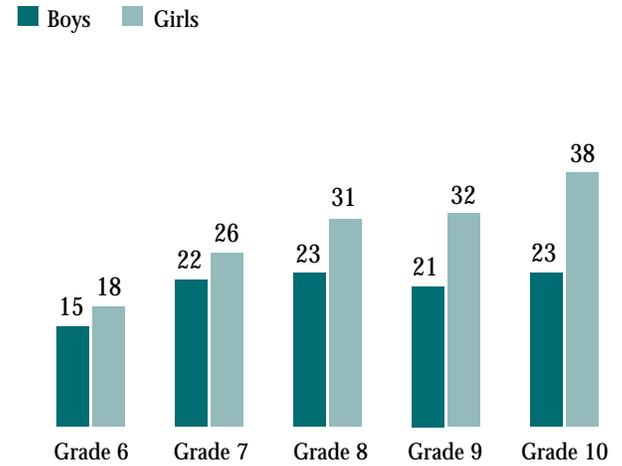


When asked about the time they spent doing homework, girls reported more time spent doing homework than did boys, especially at the older grade levels (Figures 5.3 and 5.4). Also, girls spent more time doing homework in Grades 9 and 10 than in the earlier grades, whereas boys showed no increase in the higher grades.

Table 5.1 shows correlations between a scale that measures students' perception of their school achievement with other items from the HBSC survey. Perceived achievement was significantly associated with other measures of the school experience, emotional health, and health-risk behaviours. The largest associations

Figure 5.4

Students who spent two or more hours a day doing homework on weekends (%)



were with school satisfaction and lack of pressure to achieve. Students who had higher achievement also had a better relationship with teachers. Students who reported higher perceived achievement were more likely to have higher levels of self-esteem, as well as positive relationships with parents. However, these relationships declined in higher grade levels. Achievement was also associated with positive feelings regarding health and overall life measures. Lastly, students who reported higher achievement were somewhat less likely to engage in risk behaviours or to have friends who engage in these behaviours.

Table 5.1

Factors associated with students having higher perceived academic achievement (correlation coefficients*)

	Grade 6	Grade 8	Grade 10
Satisfied with school**	0.36	0.39	0.40
Positive school/teacher relationships**	0.24	0.34	0.30
Good peer support at school**	0.22	0.21	0.17
Positive student autonomy at school**	0.08	0.11	0.12
Positive self-esteem**	0.41	0.38	0.34
Positive relationship with parents**	0.40	0.38	0.33
Involved in clubs or organizations	0.22	0.24	0.19
Felt healthy	0.26	0.28	0.25
Rated life positively	0.30	0.36	0.29
Did not feel pressure to achieve**	0.54	0.47	0.47
Did not feel lonely	0.32	0.23	0.22
Absence of psychosomatic symptoms**	0.21	0.18	0.24
Not involved in bullying	0.13	0.21	0.21
Did not have sexual intercourse	NA†	NA†	0.17
Did not smoke	0.11	0.22	0.27
Did not drink alcohol	0.15	0.19	0.21
Did not use marijuana	NA†	NA†	0.22
Did not have friends who smoke cigarettes	NA†	NA†	0.27

* Correlation coefficient: weak (less than or equal to 0.20); moderate (between 0.21 and 0.39); strong (equal to or greater than 0.40).

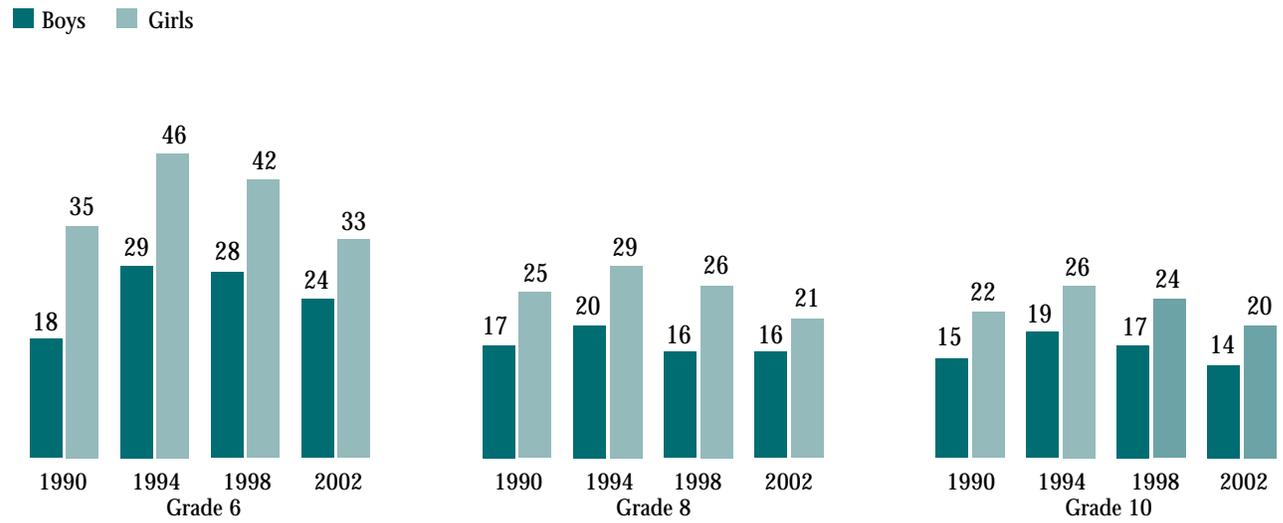
** scale scores

† NA: not applicable, questions not asked at lower grades



Figure 5.5

Students who liked school a lot, by year of survey (%)



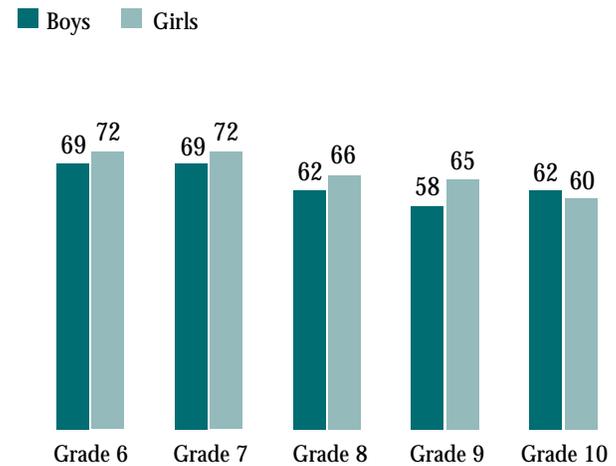
School Satisfaction

School satisfaction is an important factor in the relationship between adolescents' school experiences and their health behaviours. Students who felt the school was a safe place to be or felt they belonged in school were more likely to enjoy going to school. Students in the 2002 HBSC sample were asked how they felt about school, the choices being "I like it a lot," "I like it a little," "I don't like it very much," and "I do not like it at all." The proportion of students who responded that they liked school a lot is presented in Figure 5.5 for each of the HBSC surveys. After peaking in 1994, the proportion of students who stated that they liked school a lot steadily declined. As in previous HBSC surveys, girls liked school more than boys did at all grade levels. The Grade 8 and 10 results were similar, and both of these were lower than the results for Grade 6. Boys were also more likely to have friends who did not like school or who believed that good marks in school were not important.

This difference in liking school between elementary (Grade 6) and secondary students occurred at the same time as the shift from having a single teacher to multiple teachers. However, in Grade 8, depending on the jurisdic-

Figure 5.6

Students who enjoyed school activities (%)



tion, students may have had one or more teachers. Thus, it is not possible to determine whether the decrease in liking school was associated with the changing school structure or with factors associated with the student. In spite of the relatively low percentage of students who liked school a lot, the majority of students enjoyed school activities, with little difference found between genders and only small declines in the higher grades (Figure 5.6).

Table 5.2

Factors associated with students having higher levels of satisfaction with school (correlation coefficients*)

	Grade 6	Grade 8	Grade 10
Positive school/teacher relationships**	0.60	0.58	0.54
Good peer support at school**	0.49	0.46	0.44
Positive student autonomy at school**	0.26	0.33	0.27
Positive self-esteem**	0.37	0.35	0.36
Positive relationship with parents**	0.38	0.38	0.42
Involved in clubs or organizations	0.13	0.18	0.26
Felt healthy	0.18	0.24	0.20
Rated life positively	0.29	0.35	0.33
Did not feel pressure to achieve**	0.49	0.45	0.44
Did not feel lonely	0.25	0.25	0.27
Absence of psychosomatic symptoms	0.19	0.21	0.23
Not involved in bullying	0.20	0.26	0.20
Did not have sexual intercourse	NA†	NA†	0.20
Did not smoke	0.18	0.17	0.27
Did not drink alcohol	0.21	0.22	0.25
Did not use marijuana	NA†	NA†	0.27
Did not have friends who smoke cigarettes	NA†	NA†	0.25

* Correlation coefficient: weak (less than or equal to 0.20); moderate (between 0.21 and 0.39); strong (equal to or greater than 0.40).

** scale scores

† NA: not applicable, questions not asked at lower grades

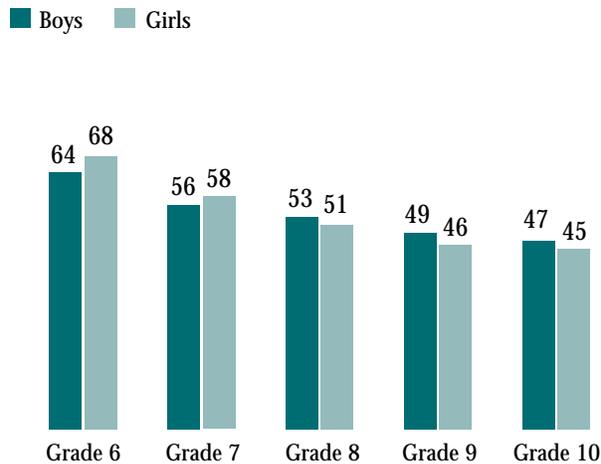
Table 5.2 shows the correlation between the created school satisfaction scale and other items from the survey. Students who were satisfied with school had relatively strong positive relationships with their teachers, peers, and parents. These associations were similar across grade levels. As with achievement, students who did not feel pressured to achieve were more likely to be satisfied with their school experience. Similarly, self-esteem, overall health, and life satisfaction were higher in students who were satisfied with school. Again, these relationships were consistent across grade levels. Grade 10 students who were satisfied with their school experience were less likely to be sexually active or involved with smoking, alcohol, or drugs.

Relationship With Teachers and Classroom Atmosphere

A large part of the school experience is affected by students' impressions of their classrooms and teachers. The 2002 HBSC results support previous research which found that teachers who created a supportive classroom environment were more likely to have students who were satisfied with school (Samdal, Nutbeam, Wold, and Kannas, 1998). The HBSC survey asked students about their perceptions of their teachers and the atmosphere in the classroom. Over three-quarters of students at all grade levels believed they could get extra help when needed. However, as students progressed through their schooling, they were less likely to believe that teachers were interested in them as persons (Figure 5.7). The results were similar for both boys and girls, although in comparison with the 1998 HBSC results, the relative proportion of girls agreeing with this statement had declined.

Figure 5.7

Students who thought their teachers were interested in them as persons (%)



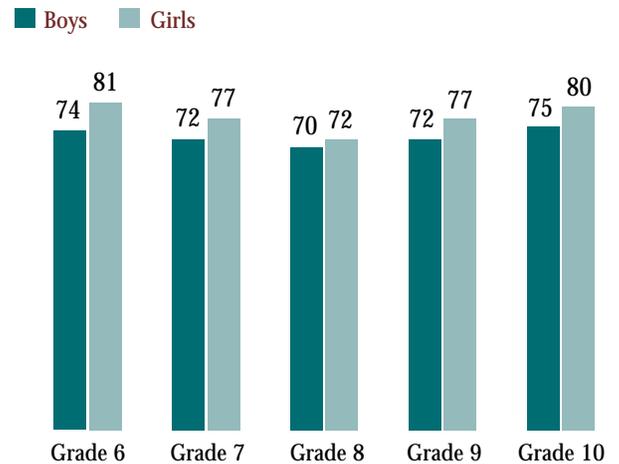
Thus, while students in 2002 perceived teachers as being less interested in them, teachers were still viewed as being friendly, especially in Grades 6 and 10. Grade 8 teachers were viewed as being the least friendly (Figure 5.8). Girls were more likely than boys to believe that their teachers were friendly.

From Grade 6 to Grade 10, many students increasingly found the classroom to be a teacher-centred place, with fewer opportunities for students to have input into how class time was used (Figure 5.9). Boys were more likely to believe that they had a say in how class time was used, which is interesting, given that they tended to have less positive views of school and the classroom overall (Figures 5.5 and 5.6).

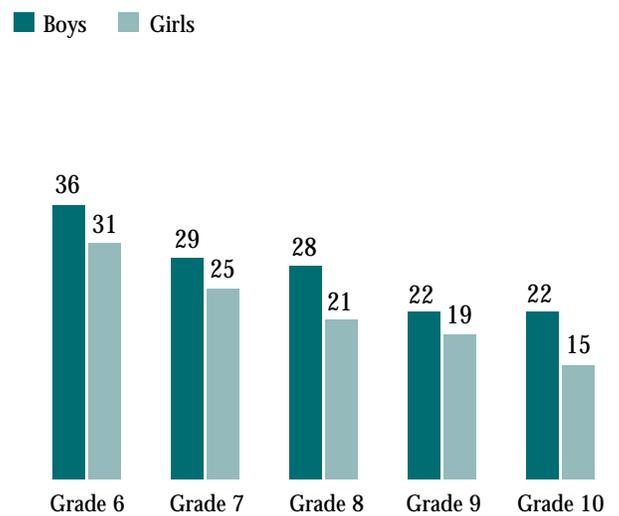
Table 5.3 provides the correlations between the scale created for student-teacher relationships and other items from the survey. Positive teacher relationships were most strongly correlated with peer and parental support, although the association decreased over time for friends and grew over time for parents. In contrast, the connection between achievement and relationship with parents decreased in the higher grade levels (Table 5.1). Not surprisingly, students who had good teacher relationships were less

Figure 5.8

Students who thought most of their teachers were friendly (%)

**Figure 5.9**

Students who thought they had a say in how class time was used (%)



likely to feel pressured to achieve at school and reported higher student autonomy. The associations between teacher relationships and risk behaviours (drugs and alcohol) were slightly stronger than were the school experience measures examined in Table 5.2. Reduced bullying behaviour was also linked to positive teacher relationships.

Table 5.3

Factors associated with students having positive relationships with their teachers (correlation coefficients*)

	Grade 6	Grade 8	Grade 10
Good peer support at school**	0.43	0.32	0.30
Positive student autonomy at school**	0.38	0.38	0.32
Positive self-esteem**	0.25	0.29	0.26
Positive relationship with parents**	0.32	0.38	0.40
Involved in clubs or organizations	0.06	0.07	0.12
Felt healthy	0.16	0.21	0.15
Rated life positively	0.25	0.30	0.28
Did not feel pressure to achieve**	0.35	0.34	0.35
Did not feel lonely	0.15	0.21	0.16
Absence of psychosomatic symptoms**	0.18	0.20	0.20
Not involved in bullying	0.18	0.26	0.25
Did not have sexual intercourse	NA†	NA†	0.14
Did not smoke	0.12	0.16	0.22
Did not drink alcohol	0.14	0.20	0.29
Did not use marijuana	NA†	NA†	0.25
Did not have friends who smoke cigarettes	NA†	NA†	0.18

* Correlation coefficient: weak (less than or equal to 0.20); moderate (between 0.21 and 0.39); strong (equal to or greater than 0.40).

** scale scores

† NA: not applicable, questions not asked at lower grades

Relationships With Other Students

Adolescence is a time during which youth experience many changes. Along with a change in schools, they also undergo physical and emotional developments. Aside from the relationships that parents and teachers have with students, peer relationships play a significant role in adolescents' lives. Being socially accepted or rejected by peers can deeply affect an adolescent's self-confidence and sense of self (Baumeister and Leary, 1995). In the 2002 HBSC survey, positive peer relationships were weakly associated with perceived achievement and more strongly associated with higher school satisfaction and positive teacher relationships (Tables 5.1, 5.2, and 5.3).

Young people need to feel accepted and supported by their parents, teachers, and peers. Figure 5.10 shows the proportion of students who felt other students in their classes were kind and helpful. Changes in the response options in the 2002 survey make it impossible to compare these results with those of the previous HBSC surveys. Figure 5.11 shows the percentage of students who agreed or strongly agreed that other students accepted them as they were. Approximately three-quarters of respondents felt accepted by their peers across grade levels. The proportions were similar across grades for both boys and girls. The proportion of students who strongly agreed with the statement that “other students accept me as I am” decreased in higher grades, suggesting that older students’ feelings of acceptance were more tenuous (data not shown). Further, at each grade level, approximately 10 percent of children did not feel accepted by their peers. These percentages were similar for both boys and girls.

Parents and School

Students’ academic performance and successes are linked to the support their parents provide to them (Ho and Willms, 1996; Steinberg, Lamborn, Sanford, and Darling, 1992). Students whose parents are involved in their school lives and who constantly encourage them to do well in school are more likely to succeed in their scholastic endeavours than are students whose parents are not encouraging or are indifferent (Wang, Wildman, and Calhoun, 1996). The role of parents is growing within educational systems as provinces create mechanisms that involve parents in educational discussions and decisions. Parent advisory councils are increasingly common, and it is not unusual to have parent representation on district and school committees.

Figure 5.10

Students who thought students in their class were kind and helpful (%)

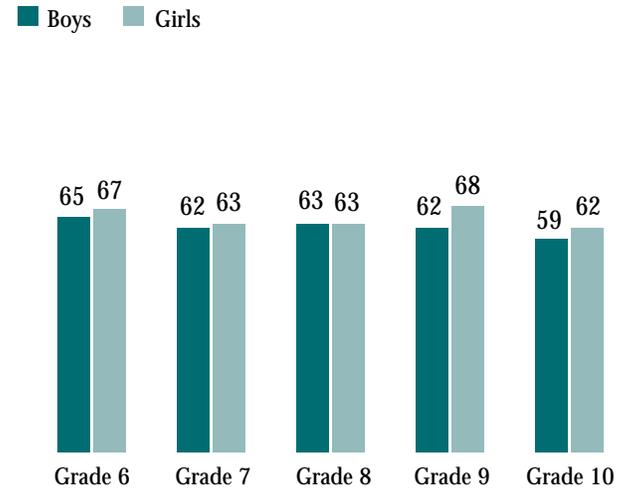


Figure 5.11

Students who felt that other students accepted them as they were (%)

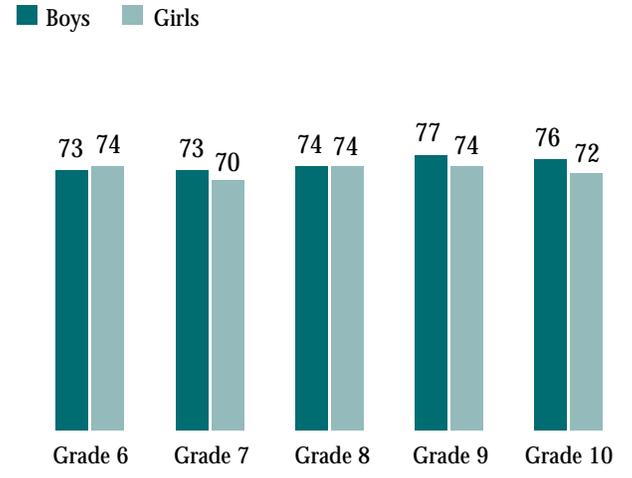
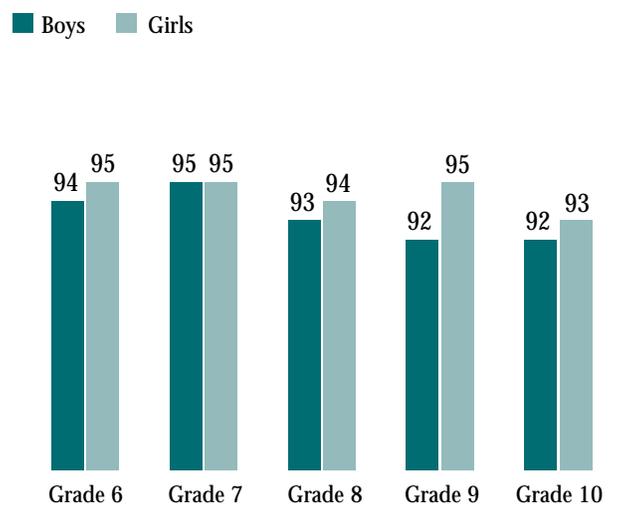


Figure 5.12

Students who reported that their parents encouraged them to do well in school (%)

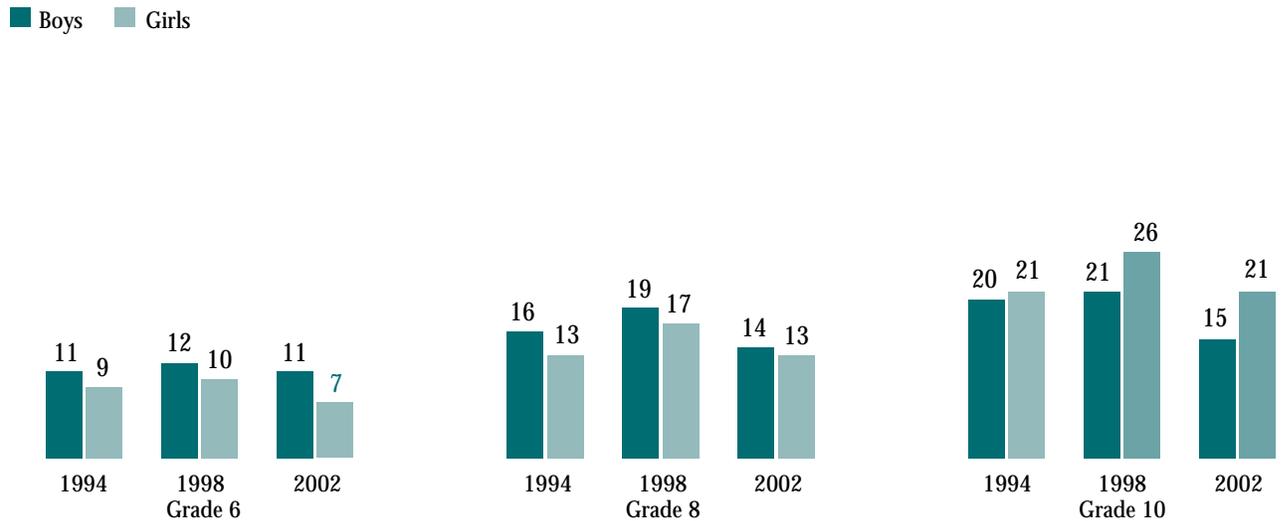


It is important that parents are able to communicate effectively with teachers and administrators at the school; schools throughout Canada have procedures to foster such discussions. This communication allows parents to discuss issues or concerns regarding their children's progress. Parents can then work with their children to support their learning and educational goals. Approximately 80 percent of the students surveyed in the 2002 HBSC agreed or strongly agreed that their parents would be willing to come to the school and talk to teachers. This proportion was consistent across grade and gender. Unfortunately, because of changes in the response options, it is not possible to compare these values directly with previous administrations of the HBSC.

Overall, students believed parents supported their education, with more than 90 percent of students agreeing or strongly agreeing that their parents encouraged them to do well in school (Figure 5.12). These results were similar for both boys and girls and also across grade levels, but as shown in Chapter 3 (The Home), parent willingness to help with school problems may be influenced by family wealth. This consistent level of support from parents is encouraging, because previous administrations of the HBSC have found lower parental support for students in the secondary panels. The results suggest that it is possible to keep parents closely involved with their children's education even after the student has entered high school. Further research is needed to determine whether this involvement can be attributed to the increasing opportunities for parents to be involved in the school community.

Figure 5.13

Students who felt a lot of pressure because of school work, by year of survey (%)



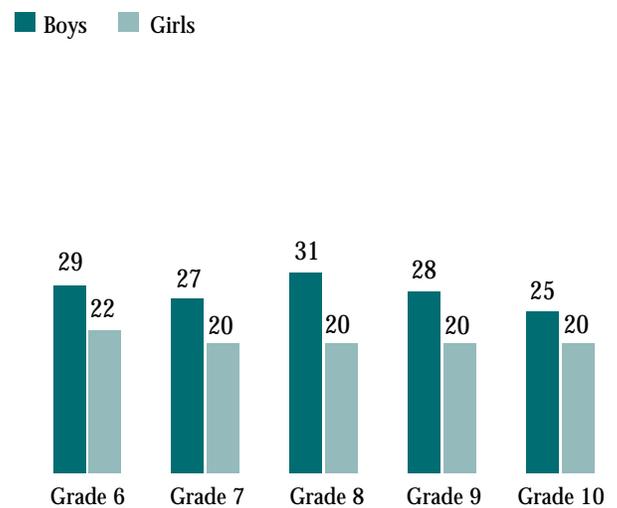
Pressure to Achieve at School

The pressure to achieve at school is a “double-edged sword” for many students. Typically, the students who say they are experiencing too much pressure from parents or teachers are the ones who are not achieving to the expectations of such authority figures. Thus, it is likely important that parents are in direct communication with the school and that parents, teachers, and students have realistic expectations. Such communication is important because, as reported previously in this chapter, higher perceived achievement and school satisfaction was found in those students who did not feel pressured by school and by high parental expectations for school.

In terms of school work, students in the 2002 HBSC sample found the work increasingly difficult in succeeding grade levels. Further, the proportion of students who agreed or strongly agreed that they had too much school work increased from Grade 6 to Grade 10. Boys at all grade levels were more likely to believe that school work was difficult or that they had too much school work (data not shown). This is an

Figure 5.14

Students who thought their teachers expected too much of them at school (%)



interesting finding, given that boys reported doing less homework than girls did and that the amount of homework they completed on weekdays decreased slightly in the older grades. It would appear that boys were finding more time constraints due to other activities (see Chapter 7, Healthy Living).

Table 5.4

Factors associated with students not feeling too much pressure to achieve at school (correlation coefficients*)

	Grade 6	Grade 8	Grade 10
Good peer support at school**	0.24	0.12	0.20
Positive student autonomy at school**	0.12	0.17	0.18
Positive self-esteem**	0.51	0.42	0.39
Positive relationship with parents**	0.58	0.50	0.49
Involved in clubs or organizations**	0.16	0.13	0.09
Felt healthy	0.19	0.16	0.16
Rated life positively	0.31	0.25	0.29
Did not feel lonely	0.41	0.27	0.30
Absence of psychosomatic symptoms**	0.31	0.31	0.36
Not involved in bullying	0.19	0.13	0.21
Did not have sexual intercourse	NA†	NA†	0.11
Did not smoke	0.10	0.10	0.18
Did not drink alcohol	0.22	0.17	0.20
Did not use marijuana	NA†	NA†	0.19
Did not have friends who smoke cigarettes	NA†	NA†	0.18

* Correlation coefficient: weak (less than or equal to 0.20); moderate (between 0.21 and 0.39); strong (equal to or greater than 0.40).

** scale scores

† NA: not applicable, questions not asked at lower grades

Along with measures of amount of school work, the survey asked students to indicate the pressure they felt regarding school work. Figure 5.13 gives the proportion of students who felt a lot of pressure because of school work. Increased pressure was associated with higher grade levels, although there was a shift in the relative pressure felt by boys and girls. In Grade 6, boys were more likely than girls to feel pressured, whereas in Grade 10, the reverse was true. The proportion of students who felt pressured in 2002 dropped in comparison with 1998 and was similar to the results found in 1994. Academic expectations and pressure can come from both teachers and parents. The expectations from teachers tended to remain constant at the different grade levels, although boys were more likely than girls to believe teachers expected too much of them (Figure 5.14). While the views of Grade 10 students remained stable over time, students in Grades 6 and 8 in 2002 were more likely to believe teachers expected too much from them, compared with the 1998 and 1994 surveys (data not shown).

Table 5.4 shows the correlations between the scale measuring students' perception of academic pressure to achieve and other items from the survey. The strongest relationships with academic pressure were self-esteem and positive parent relationships, which were higher in those students who did not feel pressured by achievement expectations. For both measures, the correlation was highest in Grade 6 and dropped in Grades 8 and 10. Not surprisingly, students who felt less pressured by school/teacher/parent expectations were less likely to exhibit psychosomatic symptoms or to feel lonely. Associations with health-risk behaviours were similar to those reported with other school experience measures.



Angela Solar

Major Findings

- Perceived achievement in students was related to lower pressure to achieve at school, satisfaction with school, good relationships with parents, and high self-esteem.
- Perceived achievement was also linked to perceived health satisfaction, lower risk-taking behaviour, and fewer risk-taking friends.
- Overall, most students liked school, but after peaking in 1994, the proportion of students who liked school dropped steadily.
- School satisfaction was related to good teacher, peer, and parent relationships, lower pressure to achieve at school, higher self-esteem, and increased student autonomy at school.
- School satisfaction was also associated with perceived health, lower risk-taking behaviour, and fewer risk-taking friends.
- Students in higher grades felt they had less say in how class time was used. Good relationships with teachers were associated with good parent relationships (especially in higher grades), lower pressure to achieve at school, good peer relationships, school autonomy, and high self-esteem.
- Good relationships with teachers were related to lower risk-taking behaviour and fewer risk-taking friends.
- A small, but worrying, minority of students did not feel accepted by their peers.
- Parent encouragement of students to do well academically increased slightly from 1998.
- More boys than girls reported school work to be difficult, yet they did less homework.
- Boys stated that they spent less time doing homework while also reporting higher levels of teacher expectations.
- Students who reported lower pressure to achieve indicated higher self-esteem and good parent relationships.
- Students reporting lower pressure to achieve also stated that they had fewer health symptoms, less loneliness, lower risk-taking behaviour, and fewer risk-taking friends.

6 Youth Health Risk Behaviours

Hana Saab



Jad Saab

The use of tobacco, alcohol, and other substances during adolescence is sometimes regarded as non-normative and anti-social. Yet youths' desire for independence and their curiosity to discover the world around them contribute to initial experimental use of tobacco, alcohol, and marijuana. Many do not venture beyond the experimentation phase, but others continue to be involved in a lifestyle that predisposes them to various health risks. Engaging in health risk behaviours is the primary cause of morbidity and mortality of adolescents.

These behaviours tend to occur together in youth, creating a health-compromising lifestyle with consequences for physical health (Pickett, Boyce, Garner, and King, 2002). This chapter explores the health risk behaviour patterns of Canadian adolescents regarding smoking, alcohol, substance use, and sexual activity and examines changes in these behaviours over the past 12 years.

Smoking

Smoking among young people is linked to increased frequency and severity of respiratory illnesses, decreased rate of lung growth and lung capacity, and higher resting heart rates that affect physical performance and endurance. Smoking is also a marker for alcohol and substance use and is associated with early sexual activity and engagement in unprotected sex

Figure 6.1
Students who smoked daily (%)

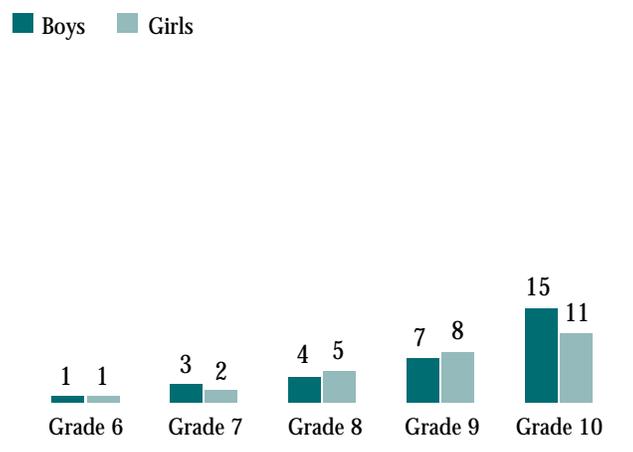
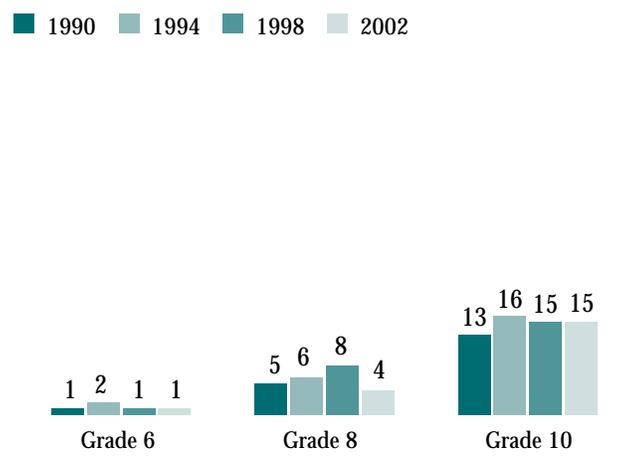


Figure 6.2
Boys who smoked daily, by year of survey (%)



(Centers for Disease Control and Prevention, 1993). In the 2002 HBSC survey, daily smoking among youth was at its highest rate in Grade 10 (Figure 6.1). Since the 1998 survey, the rates of smoking for young Canadians have remained steady, except for Grade 8 boys and girls, which have decreased slightly, and for Grade 10 girls, which have dropped considerably (Figures 6.2 and 6.3). Data from Statistics Canada indicate that in the past, smoking prevalence has been higher for girls between the ages of 15 to 19 than for boys of the same age (Health Reports, 1999). This is consistent with findings from the 1990, 1994, and 1998 HBSC surveys. However, in the 2002 HBSC sample – which looks at 12- to 16-year-olds, a slightly younger age group than that of the Statistics Canada sample – 15 percent of Grade 10 boys smoked daily, compared with only 11 percent of girls in the same grade (Figures 6.2 and 6.3). The decline in girls’ smoking daily from 21 percent in 1998 to 11 percent in 2002 in Grade 10 represents an important change and was accompanied by decreased occasional smoking (at least once a week, but not every day, and less than once a week) among girls at this age as well.

Figure 6.3
Girls who smoked daily, by year of survey (%)

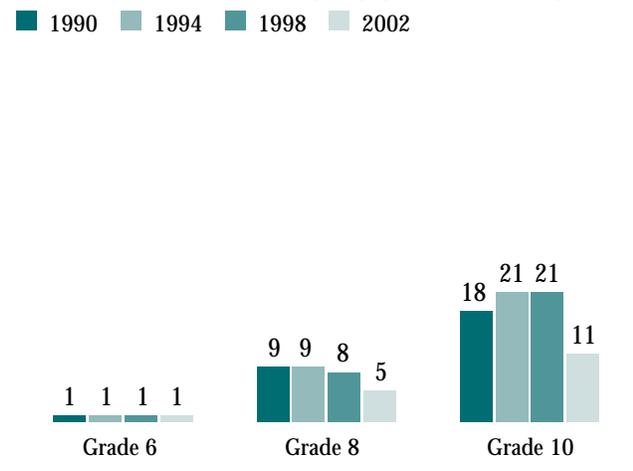
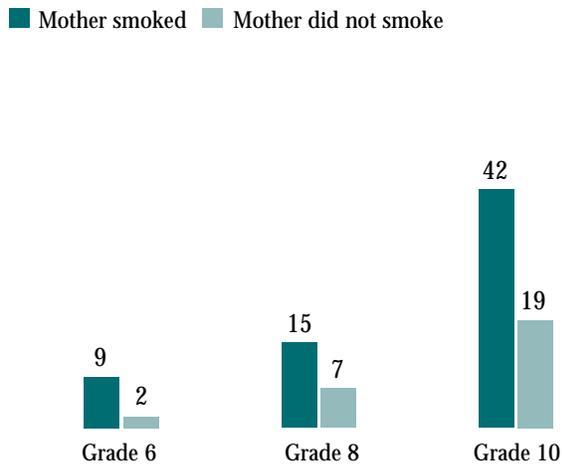
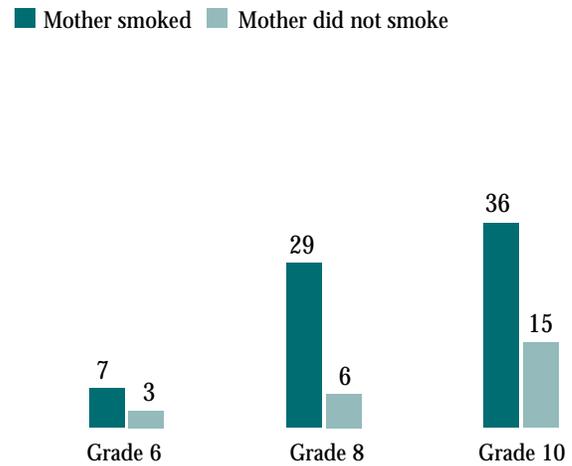


Figure 6.4

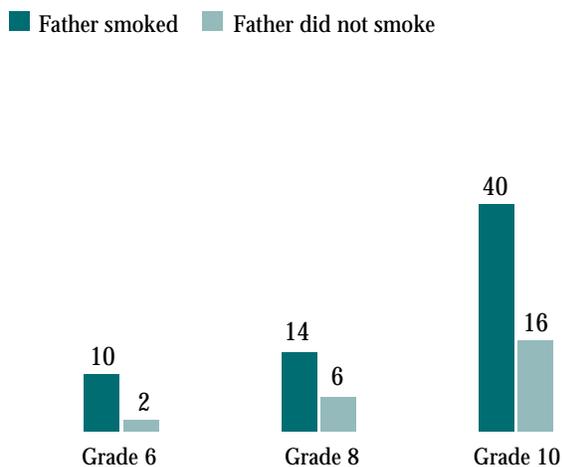
Boys who ever smoked, by whether mother smoked (%)

**Figure 6.6**

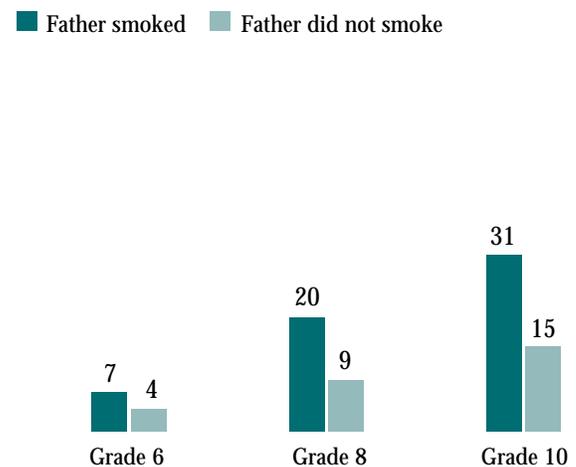
Girls who ever smoked, by whether mother smoked (%)

**Figure 6.5**

Boys who ever smoked, by whether father smoked (%)

**Figure 6.7**

Girls who ever smoked, by whether father smoked (%)



Similar declines in smoking rates among girls have been documented in the United States (Johnston, O'Malley, and Bachman, 2002), where cigarette smoking for girls in Grade 10 dropped from 16.8 percent in 1998 to 11.9 percent in 2001. Higher prices of cigarettes, reduced cigarette advertising, increased media campaigns directed at the harmful effects of smoking, and changing social attitudes toward

smoking and smokers may have contributed to this decline (Johnston et al., 2002), although these same factors have not affected smoking rates among boys in Grade 10.

Having a parent who smoked increased the chance an adolescent would smoke. Both boys and girls in Grades 6, 8, and 10 were significantly more likely to smoke if they had a parent who smoked (Figures 6.4 to 6.7). Other studies

Figure 6.8

Boys who ever smoked, by whether best friend smoked (%)

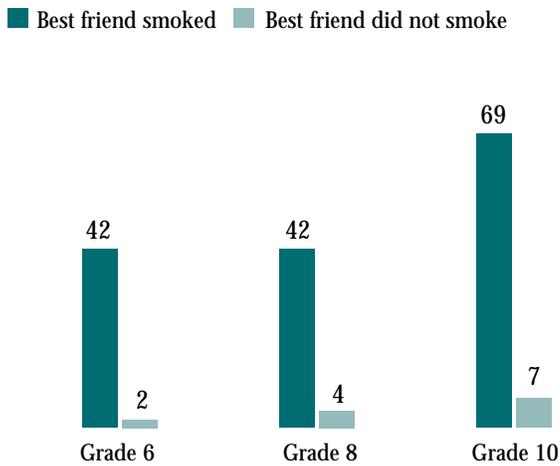


Figure 6.9

Girls who ever smoked, by whether best friend smoked (%)

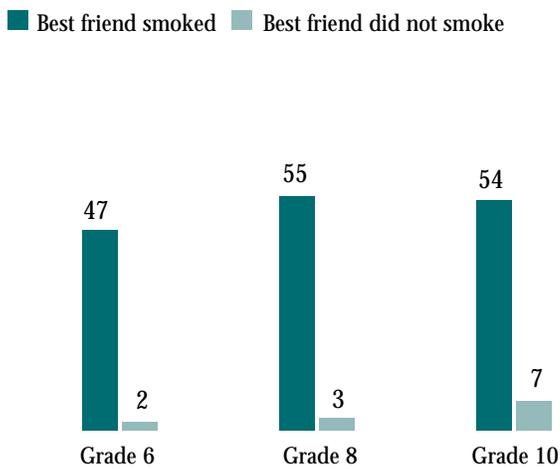
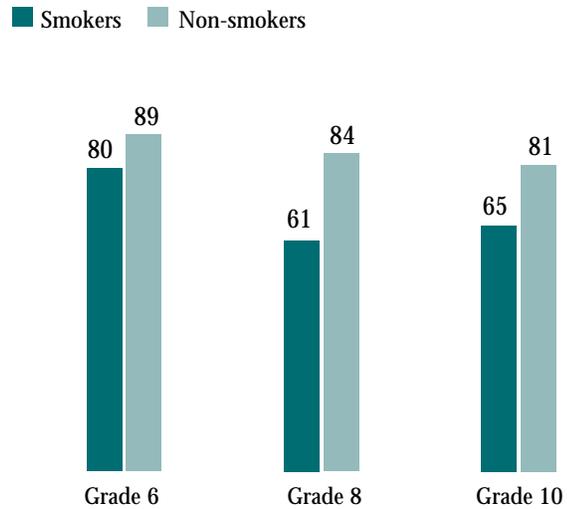


Figure 6.10

Boys who were daily smokers versus non-smokers who were happy with their lives (%)



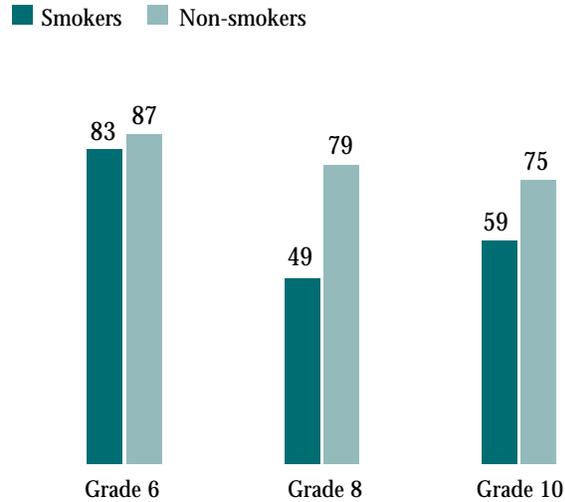
have found maternal, compared with paternal, smoking to be a stronger determinant of adolescent smoking (Kandel and Wu, 1995; Griffin et al., 1999; Key and Marsh, 2002). This was true only for girls in Grades 8 and 10 in the HBSC sample. In addition, having a best friend who smoked was highly associated with being a smoker for all students in the HBSC surveys (Figures 6.8 and 6.9).

Students who smoke are more likely than their counterparts to experience underlying emotional or psychological problems (Centers for Disease Control and Prevention, 1993) and reduced life satisfaction (Zullig, Valois, Huebner, Oeltmann, and Drane, 2001). Figures 6.10 and 6.11 show that in the HBSC sample, non-smokers, both boys and girls, seemed to be happier with their home lives than were daily smokers.

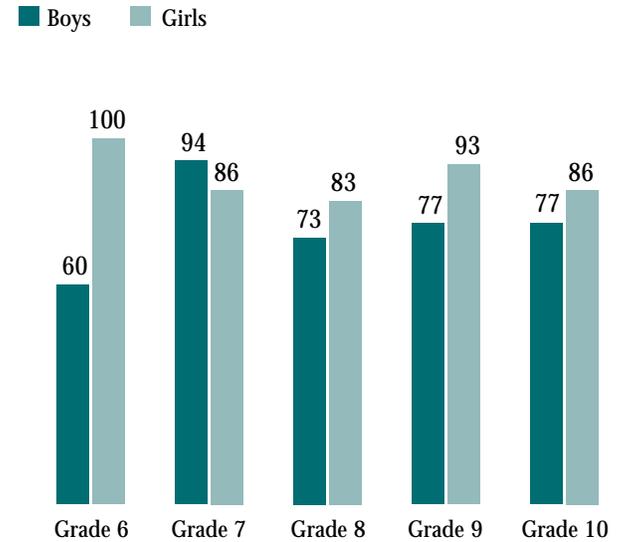
Smoking with friends may become socially functional and symbolic of peer group belonging (Connop and King, 1999). In the HBSC sample, the majority of daily smokers, especially girls, often smoked with friends (Figure 6.12), perhaps indicating a peer support function of smoking.

Figure 6.11

Girls who were daily smokers versus non-smokers who were happy with their lives (%)

**Figure 6.12**

Daily smokers who often smoked with friends (%)



Alcohol

All students surveyed in the 2002 HBSC study were below the legal age for the purchase and consumption of alcoholic beverages in all jurisdictions in Canada.

Alcohol consumption is one of a cluster of adolescent risk behaviours that tend to occur together. Alcohol use can compromise performance at school and result in psychological impairment, drunk-driving risks, and diminished ability to think clearly and make judgments (Johnston et al., 1998). Adolescents cite five main reasons for drinking alcohol: to have a good time with friends; to experiment and see what it's like; to feel good or high; to experience its taste; and to relax and relieve tension (Johnston et al., 1998).

Among adolescents, alcohol tends to be the substance of choice and is often the first one they try (Andrews, Hops, Ary, Lichtenstein, and Tildesley, 1991; Johnston et al., 1994). Heavy alcohol use is associated with increased smoking and the use of illicit substances over time.

Figure 6.13

Students who had an alcoholic drink at least once a week (%)

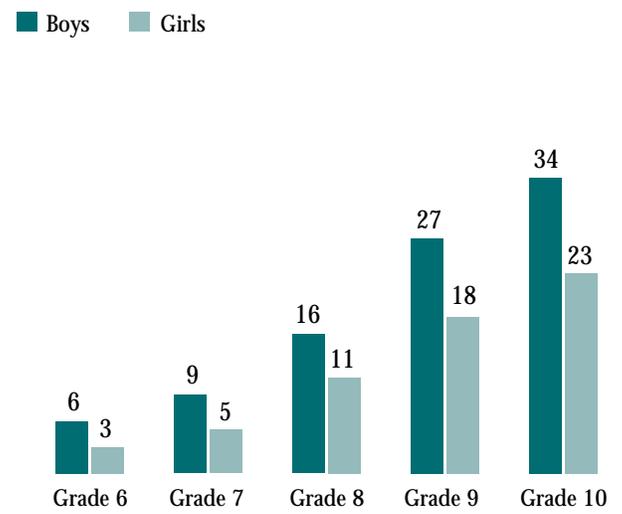


Figure 6.14
Students who drank beer at least once a week, by year of survey (%)

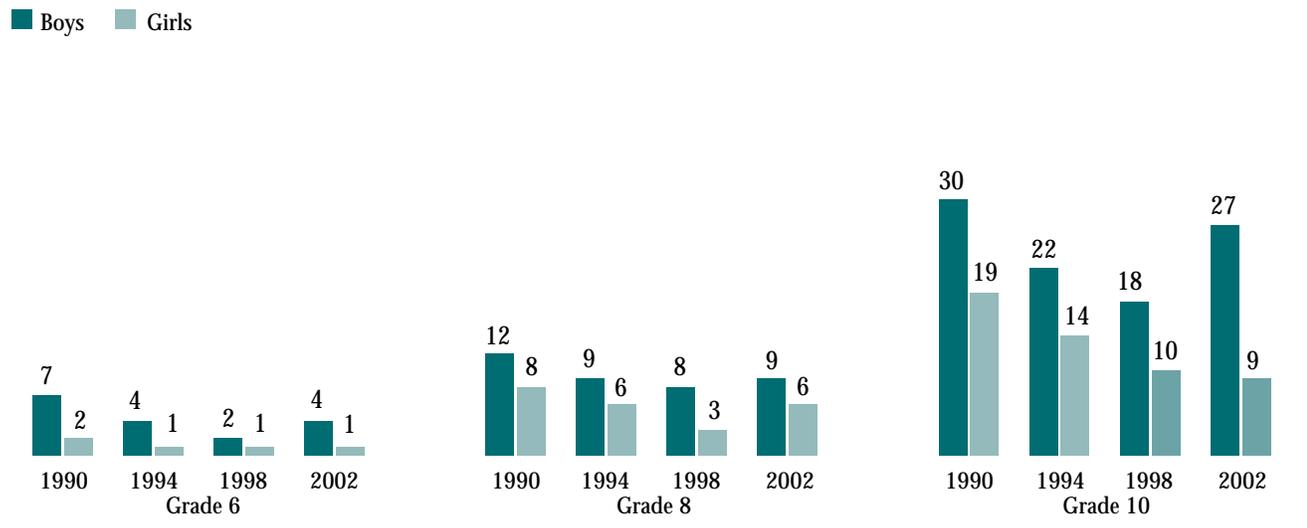
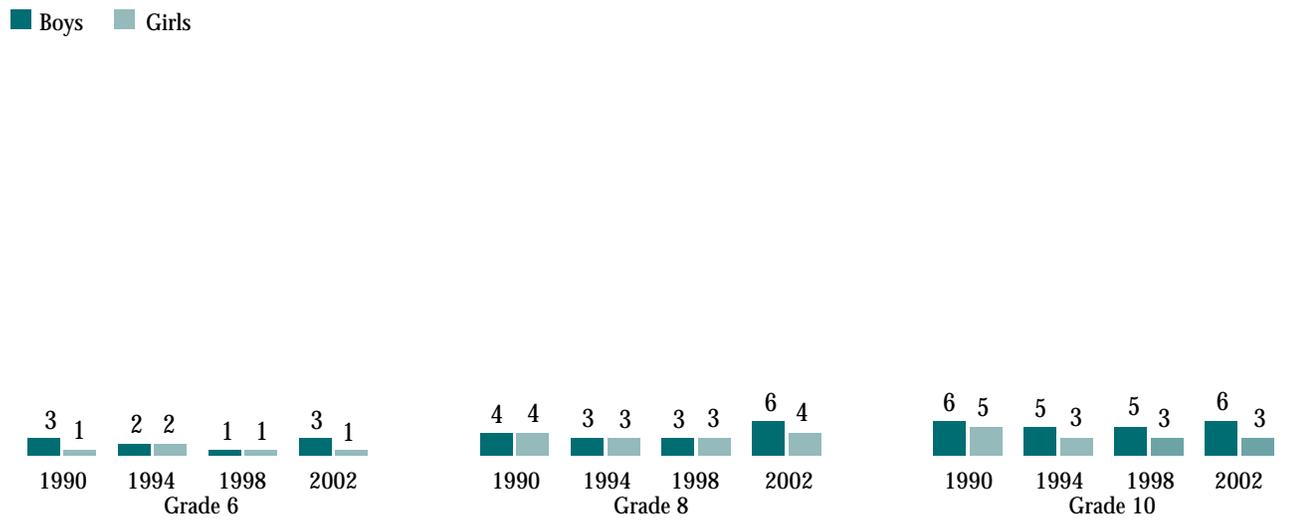


Figure 6.15
Students who drank wine at least once a week, by year of survey (%)



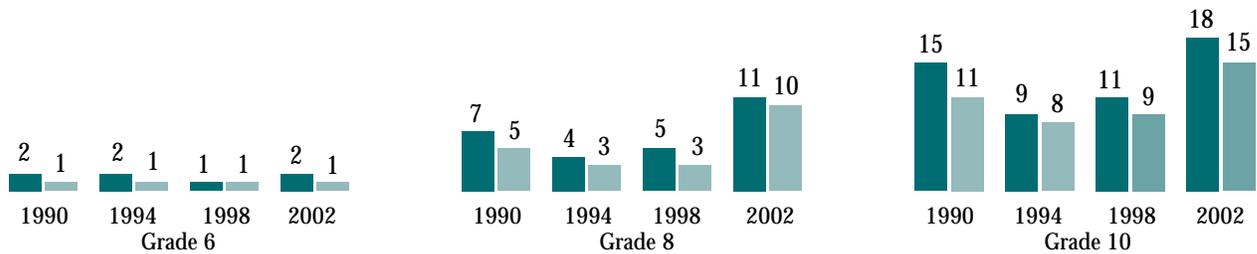
In the 2002 HBSC survey, the rate of weekly alcohol use by youth rose steadily between Grade 6 and Grade 10, from 3 percent to 23 percent for girls and from 6 percent to 34 percent for boys (Figure 6.13).

As expected, rates of drinking, particularly of beer and liquor, were substantially higher among students in Grade 10. In 2002, drinking liquor rather than beer or wine appeared to be gaining popularity, especially among younger teenagers (Figures 6.14 to 6.16). This increase may be partly explained by the promotion of

Figure 6.16

Students who drank liquor and spirits at least once a week, by year of survey (%)

■ Boys ■ Girls



sweet-tasting alcoholic beverages such as coolers or “alcopops,” which are especially appealing to girls; the advertising industry capitalizes on appealing images of designer containers for such alcoholic beverages (The National Center on Addiction and Substance Abuse, 2003).

The use of alcohol to get drunk rose sharply by mid-adolescence (Grades 9 and 10). A significant proportion (16 percent) of Grade 8 students reported being really drunk at least twice, and by Grade 9, the proportion was almost one-third (Figure 6.17). Similarly, 44 percent of Grade 10 students reported being drunk at least twice. However, 23 percent of girls and 34 percent of boys in Grade 10 reported drinking alcohol at least once a week (Figure 6.13). This pattern is consistent with other Canadian research which has found that young Canadians drink infrequently but tend to drink excessively when they do (Hewitt, Vinje, and MacNeil, 1995). It is interesting to note that there were no substantial gender differences with respect to getting drunk.

Figure 6.17

Students who were “really drunk” at least twice (%)

■ Boys ■ Girls

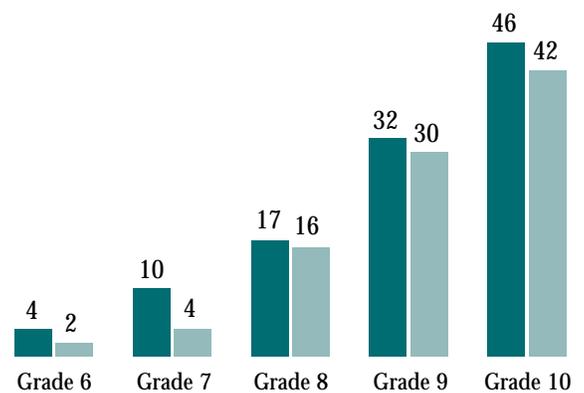


Figure 6.18
Grade 10 students who ever tried marijuana, by year of survey (%)

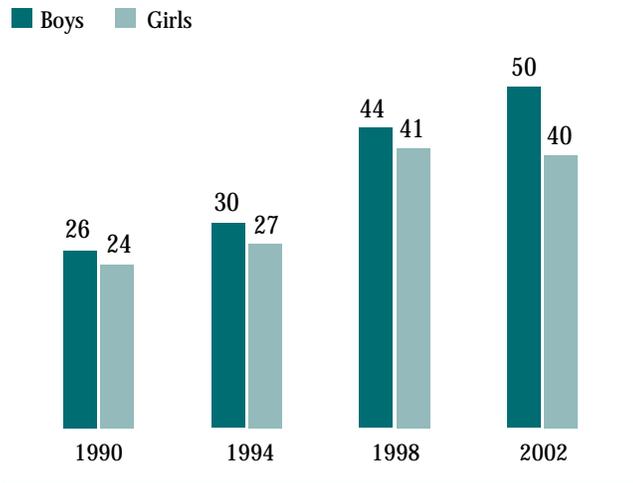


Figure 6.20
Frequency of marijuana use among Grade 10 students in the past 12 months (%)

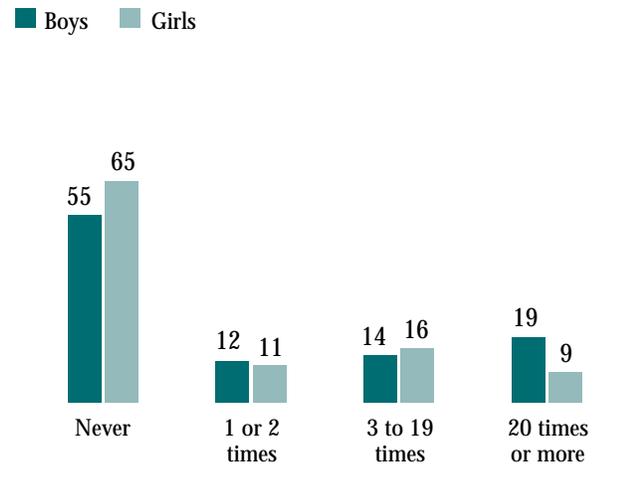
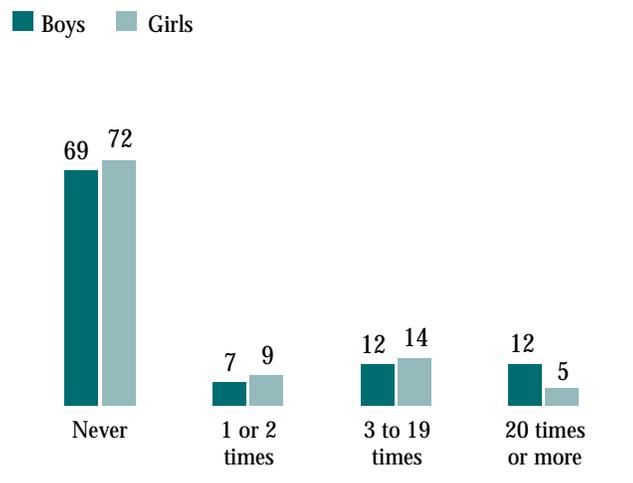


Figure 6.19
Frequency of marijuana use among Grade 9 students in the past 12 months (%)



use of marijuana (Tashkin, 1993; Zapert, Snow, and Tebes, 2002). Questions related to the use of drugs were addressed only to students in Grades 9 and 10 of the 2002 HBSC sample.

HBSC data over the past 12 years suggest that experimentation with marijuana has continued to rise for Grade 10 boys (50 percent) but has levelled off for girls (40 percent) (Figure 6.18). Earlier regional studies in Canada indicate that approximately 40 percent of adolescents have tried marijuana by the age of 15 (The McCreary Centre Society, 1999). Some authors suggest that the popularity of marijuana as a social drug among adults is contributing to the availability and acceptance of its use as a safe recreational activity by adolescents (Tonkin, 2002). However, data on the impact of long-term marijuana use on adolescent health are not yet available. Data derived from clinical reports has demonstrated an association between marijuana use and declining performance in school, decreased motivation, and increased absenteeism (Tonkin, 2002). Figures 6.19 and 6.20 show increasing use of marijuana by grade. One-third of boys and one-quarter of girls in Grade 10 had used marijuana three or more times in the past year.

Substance Use

Substance abuse during adolescence may have long-term implications for the well-being of youth and their involvement and contribution to society. It is generally recognized that smoking cigarettes and drinking alcohol precedes the use of marijuana among adolescents; similarly, the use of other drugs like cocaine, heroin, or LSD is almost always preceded by the regular

Table 6.1

Factors associated with marijuana use in the past 12 months for Grade 10 students

	Correlation coefficients*
Got drunk more often	0.64
Drank beer	0.55
Drank liquor or spirits	0.55
Smoked tobacco	0.50
Friends involved in risk behaviour	0.52
Had sexual intercourse	0.46
Did not use condom last time had sexual intercourse	0.45
Spent more evenings out with friends per week	0.31
Negative relationship with parents**	0.30
Did not rate life positively	0.24
Did not like school	0.23

* Correlation coefficient: weak (less than or equal to 0.20); moderate (between 0.21 and 0.39); strong (equal to or greater than 0.40).

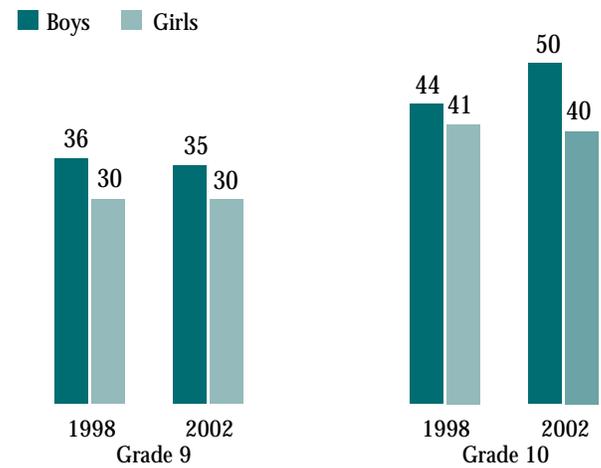
** scale score

Table 6.1 illustrates the strong relationship between marijuana use and getting drunk, drinking beer, liquor, or spirits, smoking cigarettes, and other psychosocial factors. The use of marijuana was related to having friends who engaged in risk behaviours and also to having unprotected sexual intercourse, which increases the risk for pregnancy and for sexually transmitted diseases (STDs), including HIV/AIDS. The use of marijuana was also moderately associated with having poor relationships with parents, with negative feelings toward school, and with dissatisfaction with life. Other research has shown that students who have started using marijuana are twice as likely to drop out of high school, compared with those who have not (Bray, Zarkin, Ringwalt, and Junfeng, 2000).

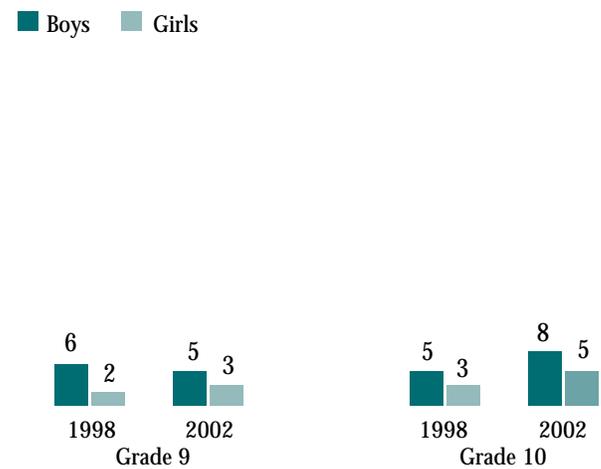
Figures 6.21 to 6.30 examine adolescent drug use over the past two HBSC surveys (1998 and 2002). Marginally more boys than girls used drugs. The use of marijuana was much more prevalent than was the use of other drugs, such as LSD, cocaine, and heroin/opium/morphine.

Figure 6.21

Grade 9 and 10 students who used marijuana, by year of survey (%)

**Figure 6.22**

Grade 9 and 10 students who used Ecstasy, by year of survey (%)



However, little change was evident in marijuana use, except among Grade 10 boys, over the two surveys.

Ecstasy is a synthetic drug with stimulant and hallucinogenic properties that is principally used as a recreational or club drug, especially at raves. The use of Ecstasy in Grade 10 increased only very slightly, by 3 percent for boys and by

Figure 6.23

Grade 9 and 10 students who used amphetamines, by year of survey (%)

■ Boys ■ Girls

**Figure 6.25**

Grade 9 and 10 students who used heroin/opium/morphine, by year of survey (%)

■ Boys ■ Girls

**Figure 6.24**

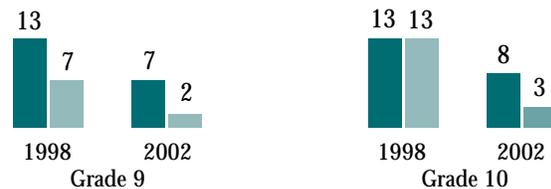
Grade 9 and 10 students who used cocaine, by year of survey (%)

■ Boys ■ Girls

**Figure 6.26**

Grade 9 and 10 students who used LSD, by year of survey (%)

■ Boys ■ Girls



2 percent for girls since 1998. Ecstasy use appears to be on the rise in the United States, the United Kingdom, Germany, the Netherlands, and Spain (Community Epidemiology Work Group, 2001).

Amphetamines and cocaine are classified as stimulants that produce a rapid, yet temporary, increase in energy. From 1998 to 2002, amphetamine use decreased by half for Grade 10 girls. Both amphetamine and cocaine use dropped slightly for Grade 9 boys and girls. A significant

gender difference was evident in the use of amphetamines and cocaine by Grade 10 students, with twice as many boys using these substances.

The proportion of students who used heroin/opium/morphine remained unchanged from 1998, and fewer girls than boys used this group of drugs.

A downward trend in the use of LSD, a hallucinogen, was apparent from 1998 to 2002. Only half as many boys and a quarter as many

girls reported using LSD in 2002. A similar trend in LSD use has been reported among adolescents in the United States (National Institute on Drug Abuse, 2002).

Solvents are present in many office and household products, such as nail polish remover, paint thinner, glue, gasoline, and spray paints. These products are legal, relatively inexpensive, and easy to hide and may be readily available for younger adolescents to get a quick high (Johnston et al., 2001). Inhalants produce an anesthetic effect on the body and a potential loss of consciousness. In addition to damage to the heart, kidney, brain, liver, bone marrow, and other organs, chronic exposure to inhalants results in long-lasting damage to the brain and other parts of the nervous system. Sudden Sniffing Death Syndrome has also been reported as a result of inhalant use (Johns Hopkins Bloomberg School of Public Health, 2001). In the 2002 HBSC survey, the use of glue or solvents dropped slightly, compared with 1998.

Evidence from the United States suggests an increase in the use of prescription drugs for non-medical purposes by adolescents, especially among young girls (National Institute on Drug Abuse, 2001). These drugs include dextromethorphan (a cough medicine), pain relievers, stimulants such as ephedrine and Ritalin, barbiturates, tranquilizers, and legal narcotics (National Institute on Drug Abuse, 2001). However, in the HBSC surveys, the use of medical drugs by students to get stoned showed little change between 1998 and 2002.

Figure 6.27

Grade 9 and 10 students who sniffed glue or solvents, by year of survey (%)

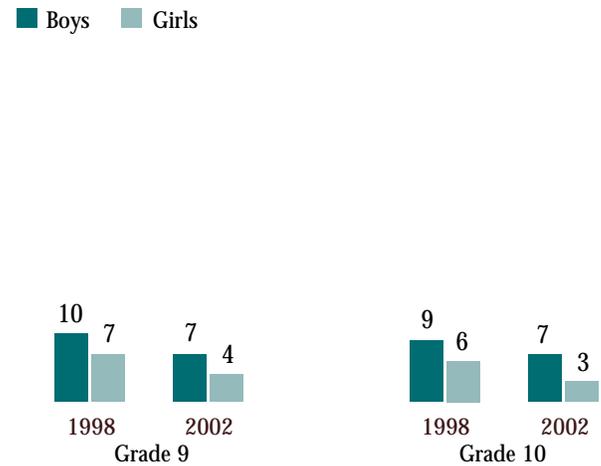
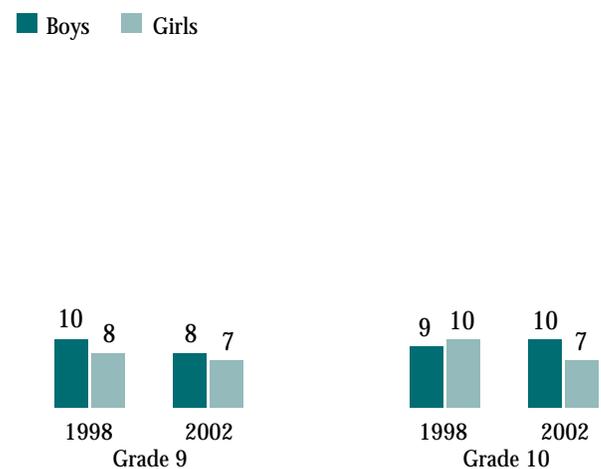


Figure 6.28

Grade 9 and 10 students who used medical drugs to get stoned, by year of survey (%)

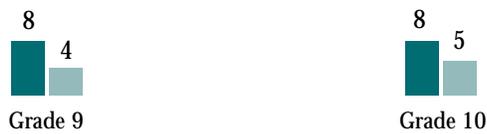


Ritalin is a central nervous system stimulant prescribed to hyperactive children for its calming effect. However, some adolescents take Ritalin as a recreational drug to stay awake, to increase attentiveness, to suppress appetite, and to produce a feeling of euphoria. A question about the use of the drug Ritalin was added to the HBSC survey in 2002. The proportion of students

Figure 6.29

Grade 9 and 10 students who used Ritalin to get high (%)

■ Boys ■ Girls

**Figure 6.30**

Grade 9 and 10 students who used anabolic steroids, by year of survey (%)

■ Boys ■ Girls



using it to get high was slightly higher for boys across both Grades 9 and 10 (8 percent) than it was for girls (5 percent), as illustrated in Figure 6.29. Other research findings in Atlantic Canada indicate that 8.5 percent of children in Grades 7 to 12 have taken Ritalin for non-medical purposes, compared with 5.3 percent who have been prescribed the drug for medical reasons. Seven percent of children using Ritalin for medical reasons reported having given some of their medication to someone else (Poulin, 2001).

Steroid use has long been popular among male athletes for improving sports performance. However, other studies have also shown an increase in the number of young boys using steroids to enhance their physical appearance (Boston University School of Public Health, 2002). In the HBSC study, anabolic steroids were more popular among boys than girls, but their use remained at low levels and unchanged from 1998 to 2002.

Experimentation with any kind of intoxicating substance during early adolescence increases the likelihood of becoming a heavy smoker later in life (Griffin et al., 1999). In the HBSC study, the sharpest increases in daily smoking and regular drinking occurred between Grades 8 and 10 (Figures 6.1 and 6.13), corresponding with the transition from middle school to high school in many provinces. Table 6.2 shows the association between drunken episodes and smoking for the sample. For instance, 40 percent of Grade 9 and 10 students who had been drunk more than 10 times reported smoking daily, compared with only 1.4 percent of those who had never been drunk.

Table 6.2
Prevalence of smoking with frequencies of being drunk, Grades 9 and 10 (%)

	Number of times been really drunk (%)			
	0	1 to 3	4 to 10	>10
Never smoked	96.5	77.5	58.8	40.0
Smoked sometimes	2.0	13.0	18.5	20.0
Smoked daily	1.4	9.5	22.7	40.0

Sexual Behaviour

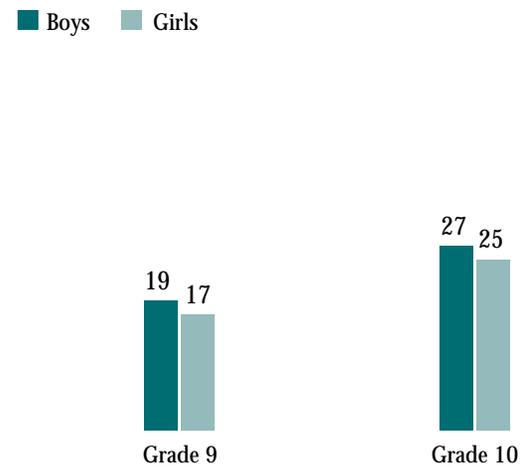
Sexual attitudes and behaviours are established during adolescence. It is important to understand and identify risk-taking behaviours that predispose adolescents to pregnancy and sexually transmitted infections, including HIV/AIDS.

Chlamydia and gonorrhea are sexually transmitted bacterial infections, treatable with antibiotics. However, these infections are often asymptomatic in young women. Left untreated, these infections are an important cause of pelvic inflammatory disease and subsequent infertility. The presence of a sexually transmitted bacterial infection also increases the risk of contracting and transmitting HIV (Health Canada, 2002). Of the 32,869 cases of chlamydia reported among Canadian girls in 2000, 40 percent were among young women between 15 and 19 years old. In



Angela Solar

Figure 6.31
Grade 9 and 10 students who had sexual intercourse (%)

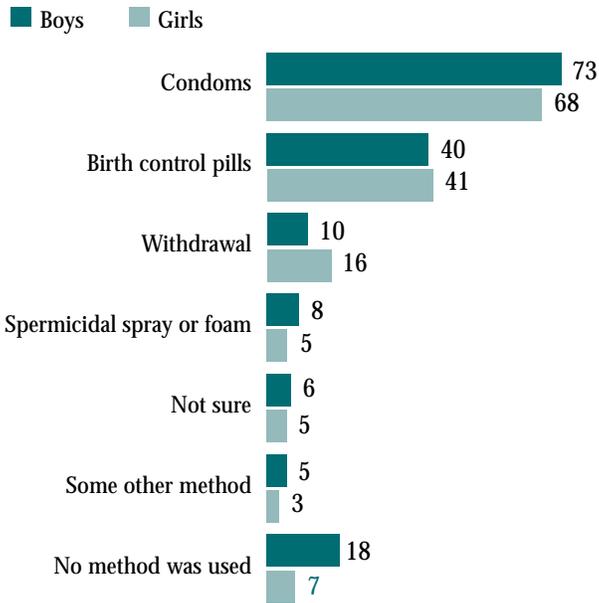


this age group, the reported rates of chlamydia in girls increased from 1,063 cases per 100,000 in 1998 to 1,236 cases per 100,000 in 2000. Of the 2,368 cases of gonorrhea reported in the same time period, 41 percent were among women between the ages of 15 and 19.

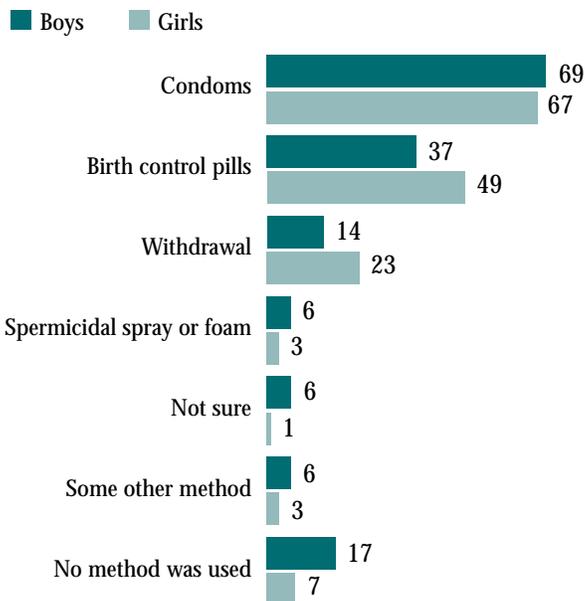
For the 2002 HBSC study, sexual health questions were addressed only to students in Grades 9 and 10. Just under one-fifth of Grade 9 students reported having had sexual intercourse. In Grade 10, approximately one-quarter of students reported having had sexual intercourse (Figure 6.31). These numbers are much lower than those reported in the United States. Data from the National Youth Risk Behavior Study indicate that 36.9 percent of U.S. students in Grade 9 and 66.4 percent of those in Grade 12 reported having had sexual intercourse (American Academy of Pediatrics, 1999). A recent large-scale Canadian study found that among Grade 9 students, 23 percent of boys and 19 percent of girls have had sexual intercourse; and among Grade 11 students, 40 percent of boys and 46 percent of girls have had sexual intercourse (Boyce, Doherty, MacKinnon, and Fortin, 2003).

Figure 6.32

Contraceptive measures used by sexually active Grade 9 students the last time they had intercourse (%)

**Figure 6.33**

Contraceptive measures used by sexually active Grade 10 students the last time they had intercourse (%)



The ability of adolescents to make responsible sexual choices is essential to their development into healthy adults. To estimate adolescent risk-taking practices, students were asked to identify the type of protection/contraception they used the last time they had sexual intercourse (Figures 6.32 and 6.33).

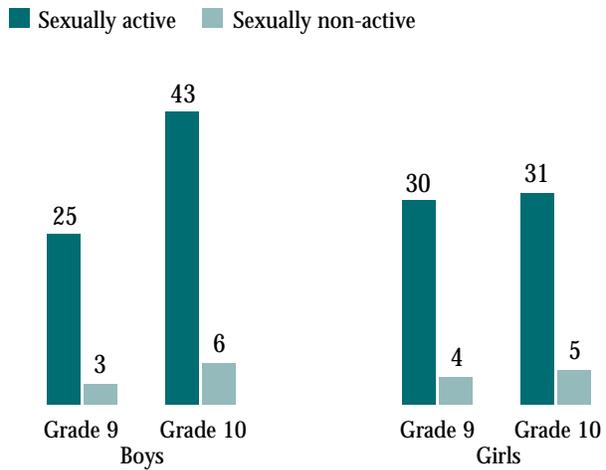
The condom and the birth control pill are reported to be the most commonly used methods of protection and contraception among young women (Polaneczky, 1998). In the HBSC survey, condoms appeared to be the contraceptive measure of choice for both boys and girls. Close to 70 percent of students in both grades and genders reported using condoms the last time they had sexual intercourse. However, the proportion of students who consistently used condoms was not assessed in this study.

Oral contraceptives, when taken regularly, have a 1 percent failure rate in preventing pregnancy. However, the failure rate among adolescents may be as high as 15 percent through inconsistent use, since girls taking birth control pills miss an average of three pills a month (American Academy of Pediatrics, 1999). In addition, oral contraceptives offer no protection against sexually transmitted infections and HIV. In the HBSC sample, girls in Grade 10 reported higher use of birth control pills (49 percent), compared with girls in Grade 9 (41 percent). It is interesting to note that the same proportion of boys and girls in Grade 9 reported the use of birth control pills; this is encouraging because it implies that some boys may be taking responsibility for being informed about the type of contraception used by their partners. However, a lower proportion of boys than girls in Grade 10 stated that they used birth control pills.

Surprisingly, withdrawal appeared to be a common practice among students in both grades, with more girls than boys in both indicating that they relied on withdrawal as a method of contraception the last time they had sexual intercourse (Figure 6.32 and 6.33). This

Figure 6.34

Sexually active and sexually non-active
Grade 9 and 10 students who smoked daily (%)



causes concern because of the high failure rate of withdrawal in preventing pregnancy and in providing protection against sexually transmitted infections (American Academy of Pediatrics, 1999).

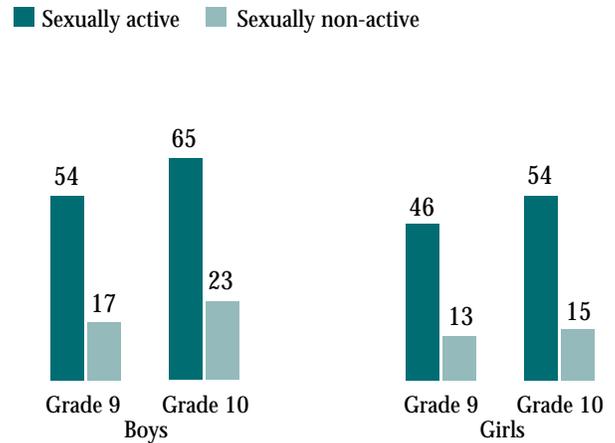
A small proportion of students (between 1 and 6 percent) in both grades indicated that they were not sure what method they used the last time they had sexual intercourse. However, a significant proportion of boys in both grades (18 percent), and to a lesser extent girls (7 percent), indicated that they had not used any method of protection/contraception the last time they had sexual intercourse.

Sexually active (have had sexual intercourse at least once) and sexually non-active students (have never had sexual intercourse) can be distinguished with respect to adolescent risk behaviours. Between a quarter to a half of sexually active Grade 9 and 10 students smoked every day, compared with less than 6 percent of students who were not yet sexually active (Figure 6.34).

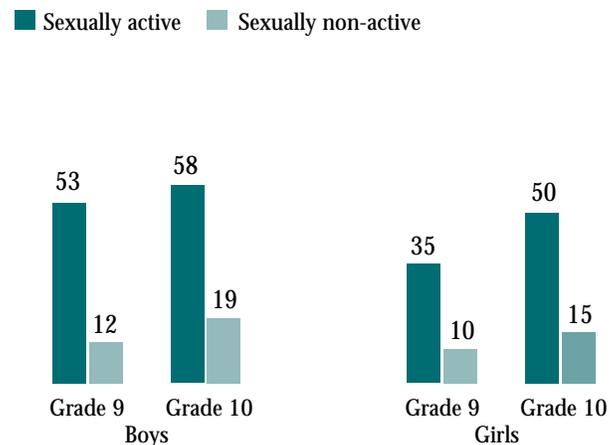
Comparable patterns were evident for the use of marijuana among Grade 9 and 10 students in the sample (Figure 6.35). More sexually active than sexually non-active students in Grades 9

Figure 6.35

Sexually active and sexually non-active
Grade 9 and 10 students who used marijuana
more than three times (%)

**Figure 6.36**

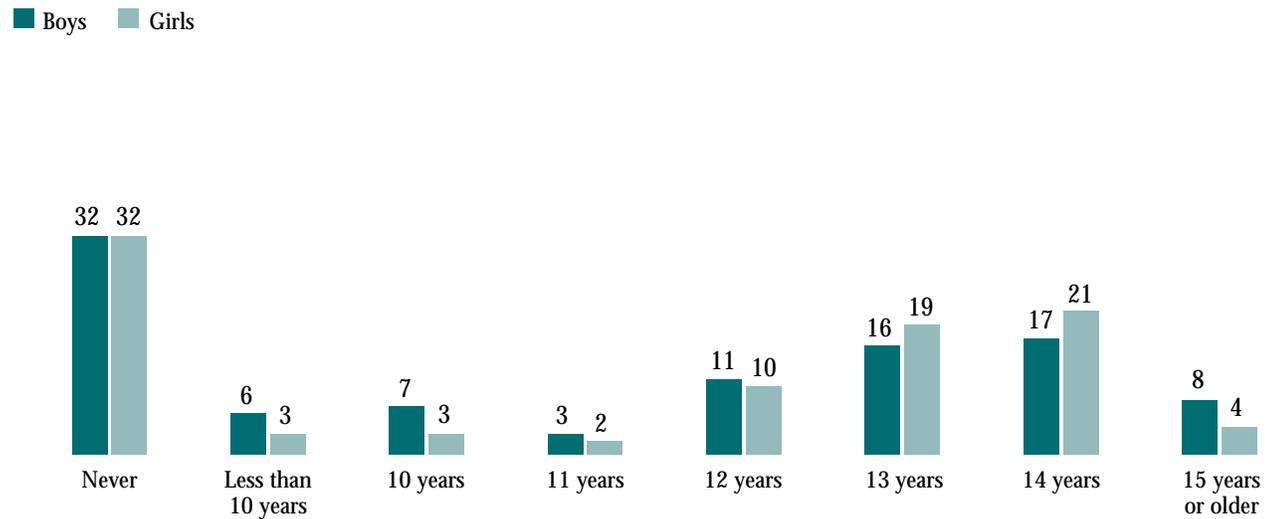
Sexually active and sexually non-active
Grade 9 and 10 students who had been drunk
more than four times (%)



and 10 reported at least moderate marijuana use (more than three times).

Similarly, more sexually active than sexually non-active boys had been drunk frequently (Figure 6.36). Unplanned sexual intercourse under the influence of alcohol has been associated with inconsistent condom use and having multiple sexual partners (Poulin and Graham, 2001; Boyce et al., 2003). It was apparent in the

Figure 6.37
Age that students in Grades 9 and 10 first tried alcohol (%)



HBSC sample that a large proportion of sexually active adolescents were at risk of teenage pregnancy and sexually transmitted infections due to excessive alcohol use.

Initiation to Risk

Initiation of health risk behaviours is generally derived from retrospective reports by students. Ages of initiation vary with the age of the sample surveyed, with older students having a larger age span over which they can report initiation. Having alcohol for the first time appeared to occur particularly early in the HBSC study. Peak years for alcohol initiation, especially for girls, were ages 13 and 14 (Figure 6.37). This finding supports adolescent health research which shows that alcohol is the initial substance of choice by adolescents (Duncan, Duncan, and Hops, 1998). Alcohol use is typically regarded as socially acceptable among adults when compared with smoking and drug use and is routinely served with meals at home. In addition, many parents are tolerant of underage drinking at certain social, religious, or cultural events. The peak years for first getting drunk were between 13 and 14, with more girls than

boys being drunk for the first time at those ages. A greater proportion of boys had been drunk before age 13 (Figure 6.38).

Figure 6.39 illustrates the distribution of age for smoking initiation. About one in 10 students tried smoking cigarettes before the age of 12. Small proportions of both boys and girls experienced sexual intercourse before age 14. However, the vast majority of Grade 9 and 10 students who had experienced sexual intercourse did so when they were 14 years or older (Figure 6.40).



Figure 6.38

Age that students in Grades 9 and 10 first got drunk (%)

Boys Girls

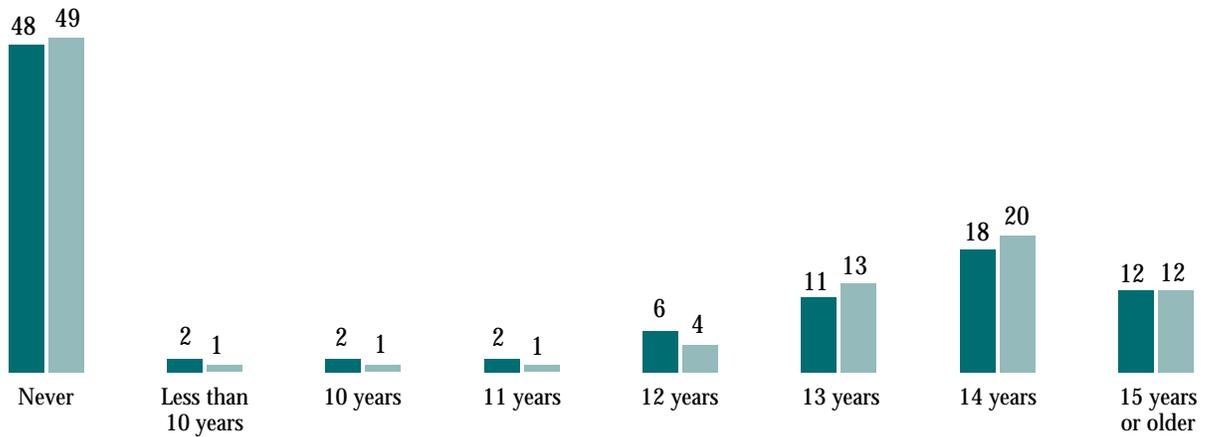


Figure 6.39

Age that students in Grades 9 and 10 first tried smoking (%)

Boys Girls

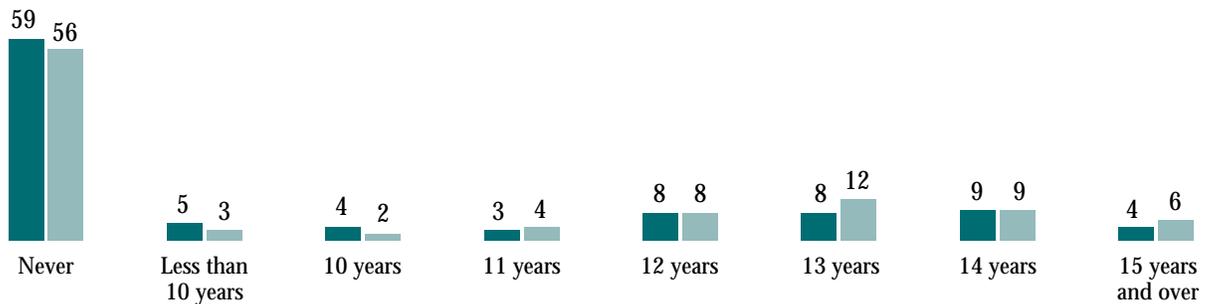
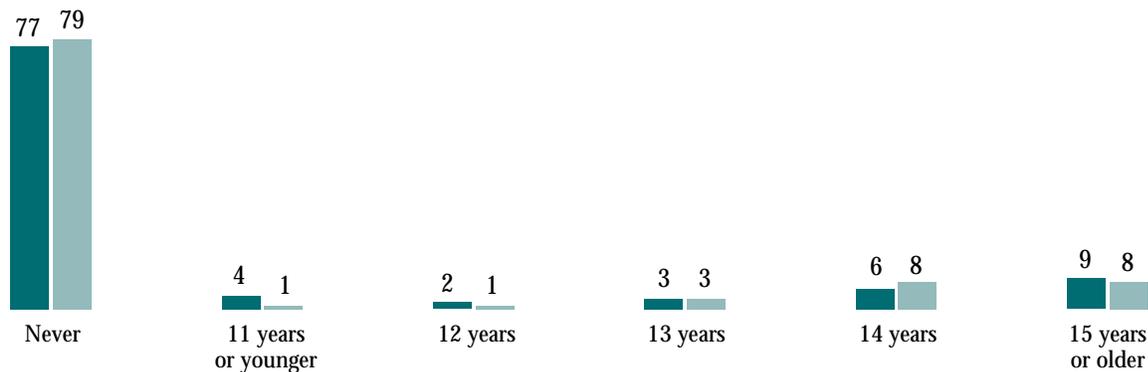


Figure 6.40

Age that students in Grades 9 and 10 first had sexual intercourse (%)

■ Boys ■ Girls



Major Findings

- There was a decrease in smoking in older girls and also in Grade 8 students, by year of survey.
- A slight increase in drinking liquor by younger adolescents was evident, by year of survey.
- Two out of five Grade 10 students reported being drunk at least twice.
- Drug use was fairly stable, except for increased marijuana use in Grade 10 boys and decreased use of LSD for both boys and girls since 1998.
- The use of marijuana was associated with smoking, drinking, sexual risk taking, poor relationships with parents, and negative feelings about school.
- Frequent drunkenness was strongly related to daily smoking.
- Almost 25 percent of Grade 9 and 10 students reported having had sexual intercourse.
- Condom use reported by these students was frequent but not consistent.
- Use of birth control pills was reported to be frequent but not consistent.
- Having had sexual intercourse was associated with daily smoking, marijuana use, and frequent drunkenness.

7

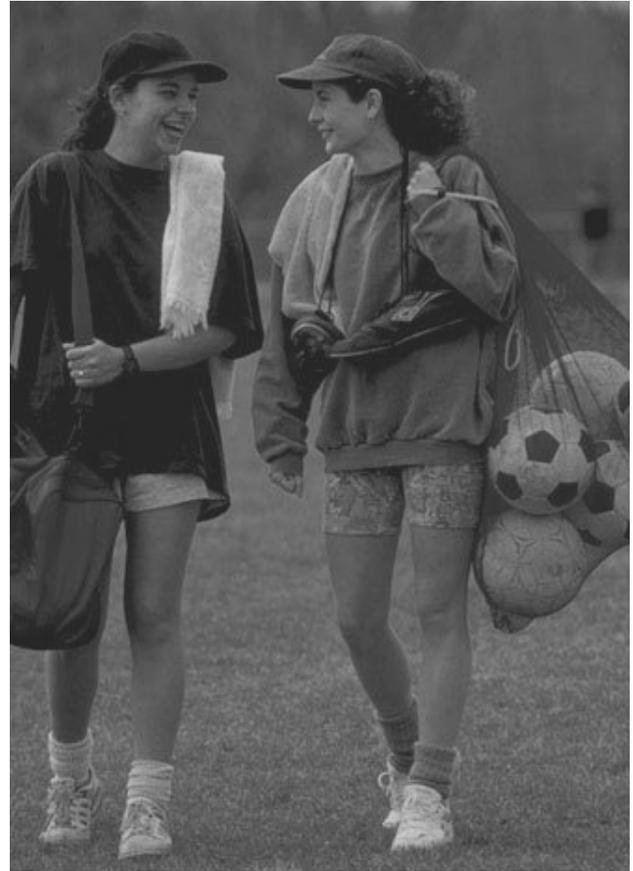
Healthy Living

Mark Lee

Healthy eating habits, good dental hygiene, and involvement in physical activity contribute to the physical and emotional health and well-being of youth. Some of those behaviours might be compromised in adolescents, because they are less dependent on their parents for some meals, spend more time away from home, and consume greater quantities of fast foods and snacks (Neumark-Sztainer et al., 1998; 2003).

It is recognized that dietary patterns in childhood and adolescence not only influence the immediate well-being of children but may also have an impact on their long-term health. In addition, dieting behaviour may have a bearing on the health status of adolescents; widespread concern about excessive dieting among young girls in Canadian society accompanies the awareness of the effects of obesity on long-term health.

Physical activity may be defined both in terms of organized sports and pursuits, as well as unstructured activities related to active living. Active living has been described as an integrated lifestyle that brings about a general state of physical, mental, spiritual, and emotional well-being (Frankish, Milligan, and

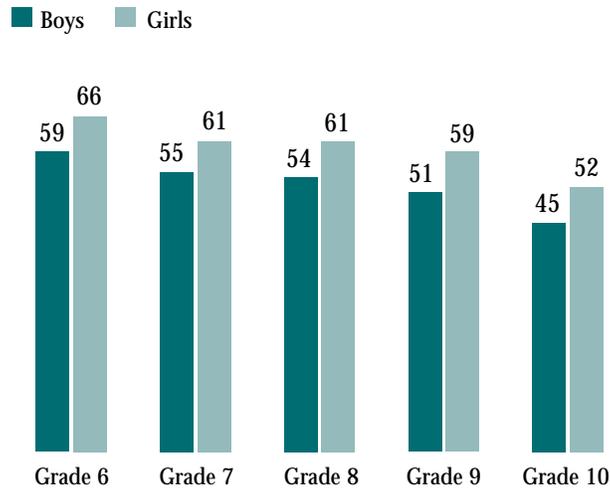


Health Canada

Reid, 1998). Under this concept, individuals interact with their environment through relatively unstructured physical activities, such as playing outdoors, skating, skiing, skateboarding, and bicycling (Stewart, 1995). Regular physical activity can benefit adolescents in many ways: the achievement and maintenance of a healthy weight; the promotion of skeletal health; the improvement of sleep quality; and the enhancement of self-esteem. Inappropriate physical activity may also, however, result in injuries. Lack of, or limited, physical activity is a result of more time spent in passive leisure pursuits, such as watching television or playing video games. The duration and type of sedentary leisure time influences the extent of social integration and has been linked to some risk behaviours.

Figure 7.1

Students who ate fruits five days a week or more (%)



The first section of this chapter describes healthy and unhealthy eating patterns, dieting behaviours, and dental hygiene practices of Canadian youth. Next is a description of the physical activity and leisure behaviours of students, followed by an outline of the prevalence of asthma and patterns of medication used among Canadian adolescents.

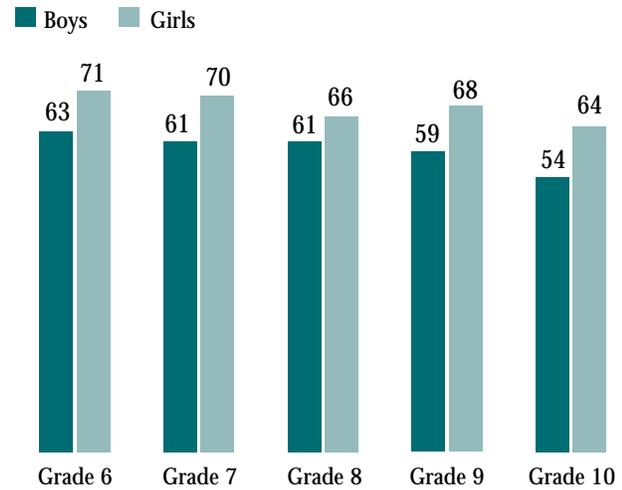
Eating Patterns

A healthy diet is one that includes a variety of foods and emphasizes cereals, breads and other grain products, vegetables and fruit, and low-fat products. Following a healthy diet and exercising are crucial to achieving and maintaining a healthy body weight (Health Canada, 1990).

Questions that asked students about their eating habits were included in the HBSC survey. It is important to note that the items focused on the frequency, rather than the quantity, of food intake. While frequent consumption of certain foods may be related to the overall volume eaten, this relationship cannot be inferred directly through the results of this study.

Figure 7.2

Students who ate vegetables five days a week or more (%)



Fruits and Vegetables

It has been suggested that home availability of fruits and vegetables influences taste preferences and increases the consumption of these foods (Neumark-Sztainer, Wall, Perry, and Story, 2003). A series of questions addressed the consumption of nutritious foods, such as fruits and vegetables, cereals and breads, low-fat milk and others, by using a range of response options, from “never” to “everyday more than once.”

In Grades 6 to 8, over half of boys and about two-thirds of girls ate fruits five days a week or more. The proportion of students of both genders who ate fruits frequently decreased in the higher grades (Figure 7.1). Although significantly more girls than boys in all grades consumed vegetables five days a week or more, vegetable consumption for both genders decreased in Grade 10 (Figure 7.2). Despite the decline in the consumption of both fruits and vegetables among students in Grade 10, vegetables were more popular than fruits among those students.

Figure 7.3
Students who drank low-fat or skim milk five days a week or more (%)

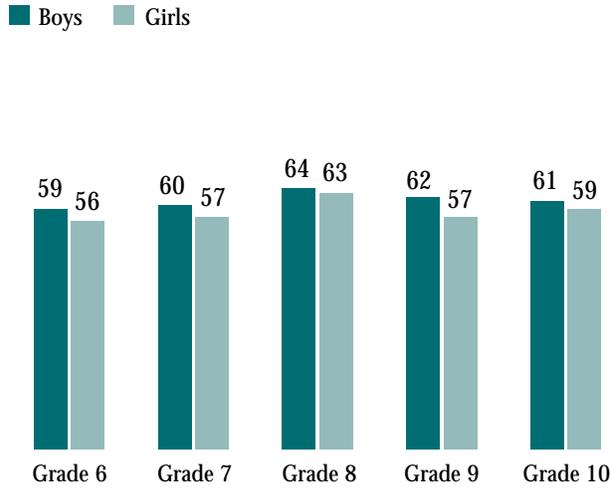
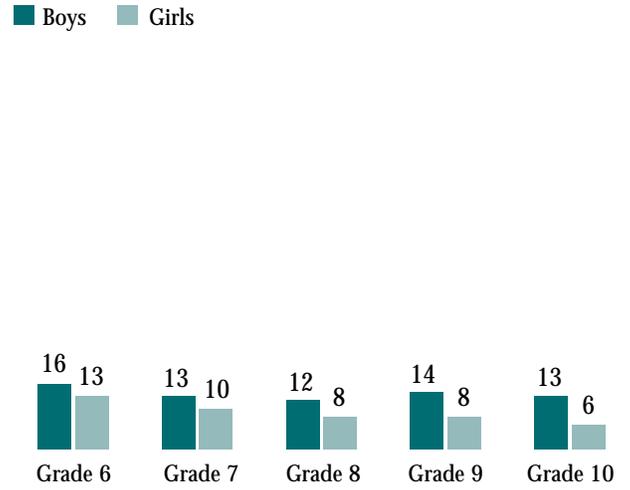


Figure 7.4
Students who drank whole milk five days a week or more (%)



Milk Products

Generally, about two-thirds of students across the five grades drank low-fat or skim milk five days a week or more, with no significant gender differences (Figure 7.3). Less than one-fifth of students drank whole milk five days a week or more, yet significantly more boys than girls in Grades 8 to 10 frequently drank whole milk.

On average, a third of all students across the five grades reported eating cheese five days a week or more (Figure 7.5).

Figure 7.5
Students who ate cheese five days a week or more (%)

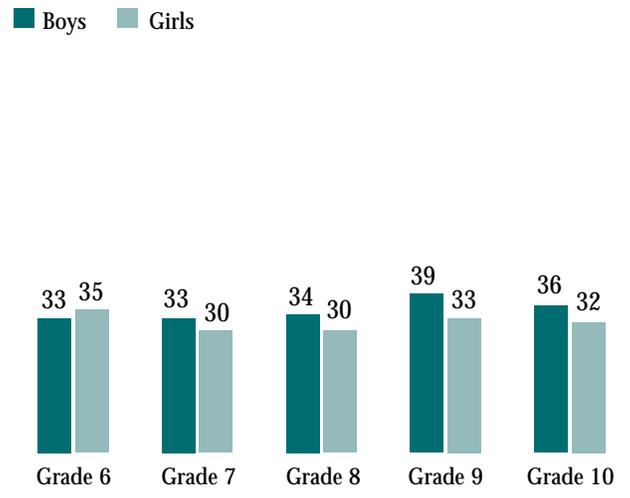


Figure 7.6
Students who ate brown bread five days a week or more (%)

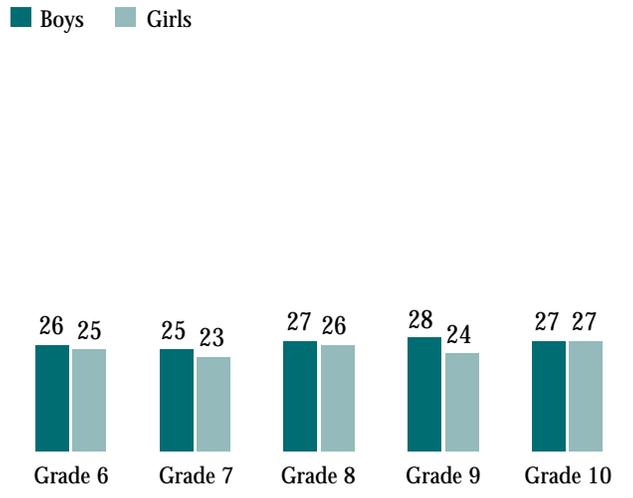


Figure 7.8
Students who ate cereal five days a week or more (%)

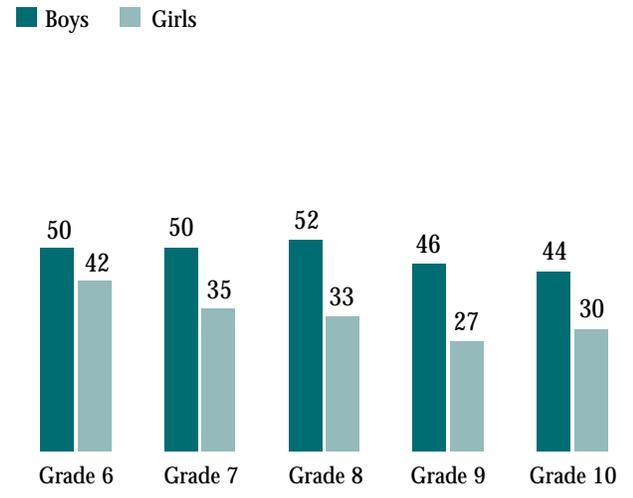
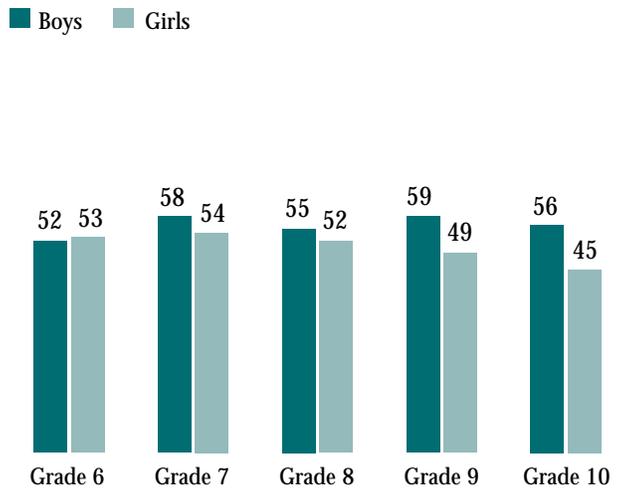


Figure 7.7
Students who ate white bread five days a week or more (%)



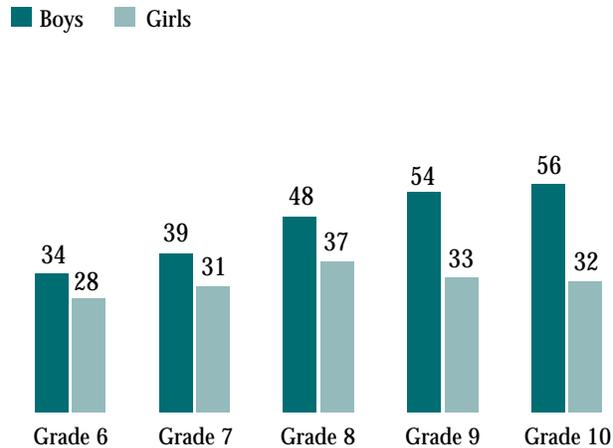
Grains and Cereals

A quarter of students in all grades reported eating brown bread five days a week or more (Figure 7.6). Over half of students between Grades 6 and 8 indicated that they ate white bread five days a week or more. In Grades 9 and 10, significantly more boys than girls reported eating white bread (Figure 7.7).

The consumption of cereal decreased for both genders in Grade 10 compared with Grade 6, and significantly more boys than girls across the five grades reported having cereal five days a week or more (Figure 7.8). This difference could be because more boys than girls ate breakfast on all five weekdays (Figure 7.15).

Figure 7.9

Students who drank coke or other soft drinks that contain sugar and caffeine five days a week or more (%)



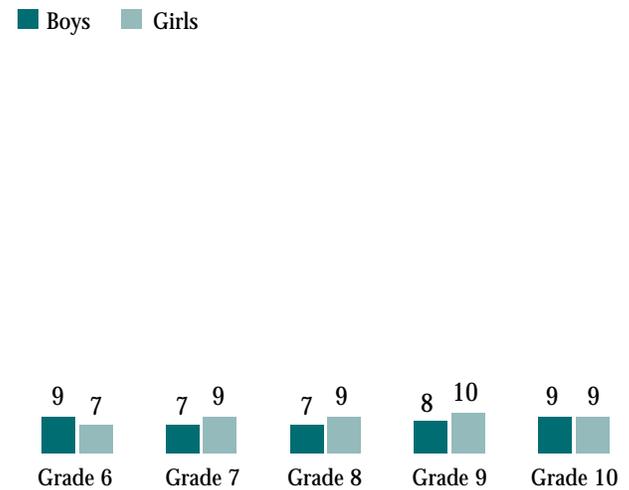
Foods High in Sugar, Salt, and Caffeine

Students were also asked about their intake of foods high in sugar, salt, and caffeine. A sharp increase in the consumption of coke or other soft drinks that contain sugar and caffeine was evident for boys between Grades 6 and 10, whereas soft drink consumption peaked for girls in Grade 8 but dropped again in Grades 9 and 10 (Figure 7.9). In general, the frequency of diet soft drink consumption was quite low for both genders, with less than a tenth of students across the five grades drinking diet soft drinks five days a week or more (Figure 7.10).

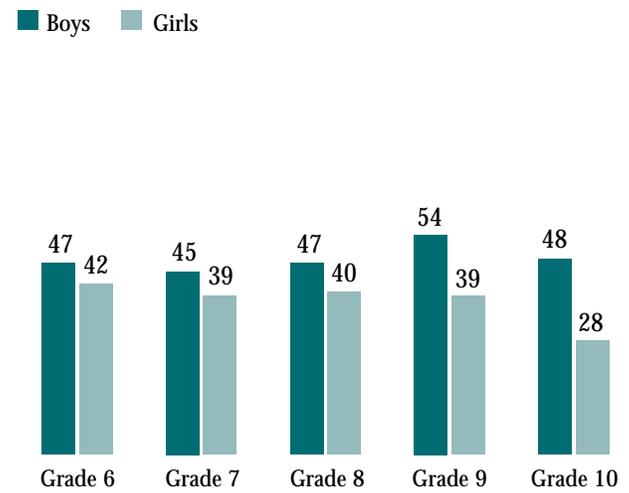
Potato chips and french fries form a central part of youth food culture. Health Canada's dietary guidelines recommend choosing lower-fat and lower-salt snack foods (Health Canada, 2003). The consumption of potato chips and french fries was examined using a lower threshold of twice a week or more, rather than five days a week or more. Figures 7.11 and 7.12 indicate that boys ate potato chips and french fries more often than did girls; by Grade 10, the gender difference for both food items was quite pronounced. The consumption of sweets (candy

Figure 7.10

Students who drank diet coke or other diet soft drinks five days a week or more (%)

**Figure 7.11**

Students who ate potato chips twice a week or more (%)

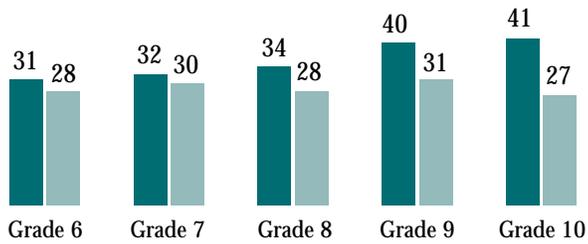


or chocolate) five days a week or more increased gradually to peak by Grade 9 but dropped again for Grade 10 students (Figure 7.13). The consumption of cake and pastries was much less for both genders and across grades than intake of sweets. Significantly more boys than girls in the higher grades frequently ate cake or pastries (Figure 7.14).

Figure 7.12

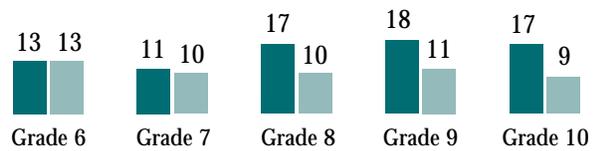
Students who ate french fries twice a week or more (%)

Boys Girls

**Figure 7.14**

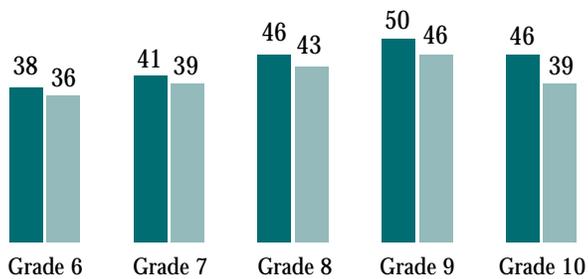
Students who ate cake or pastries five days a week or more (%)

Boys Girls

**Figure 7.13**

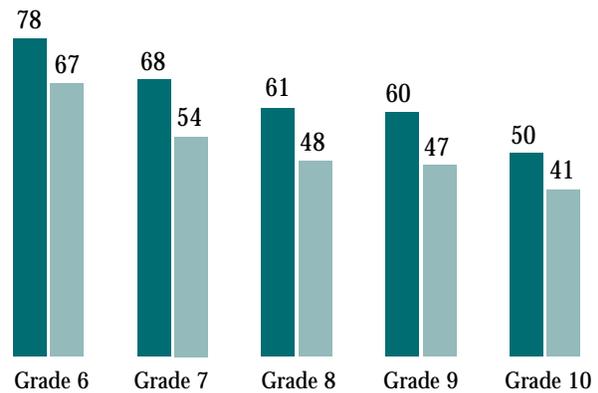
Students who ate sweets (candy or chocolate) five days a week or more (%)

Boys Girls

**Figure 7.15**

Students who ate breakfast (more than a glass of milk or fruit juice) on all five weekdays (%)

Boys Girls



Health Canada



Dietary Habits and Body Weight

Young people are showing a growing tendency to eat at various times during the day, rather than to eat meals at set times (Anderson, Macintyre, and West, 1993). While frequent snacking may not necessarily be an indicator of poor diet and nutrition (Drummond, Crombie, and Kirk, 1996), skipping meals has been associated with the intake of high-fat snacks among youth and with difficulties in concentration at school (Miles and Eid, 1997). Figure 7.15 outlines adolescent patterns of breakfast consumption on weekdays. Older students, especially girls, tended to skip breakfast more often.

While adolescents often go on diets to achieve desired body weight, dieting in youth has been associated with risk factors such as anorexia and bulimia nervosa. Figure 7.16 illustrates trends among students who responded to an item about being on a diet or doing something to lose weight. A far greater proportion of older girls than boys indicated that they were on a diet or that they needed to lose weight. By comparison, boys across grades were more likely than girls were to indicate that they needed to gain weight rather than lose it.

Figure 7.16

Students who reported being on a diet or doing something else to lose weight (%)

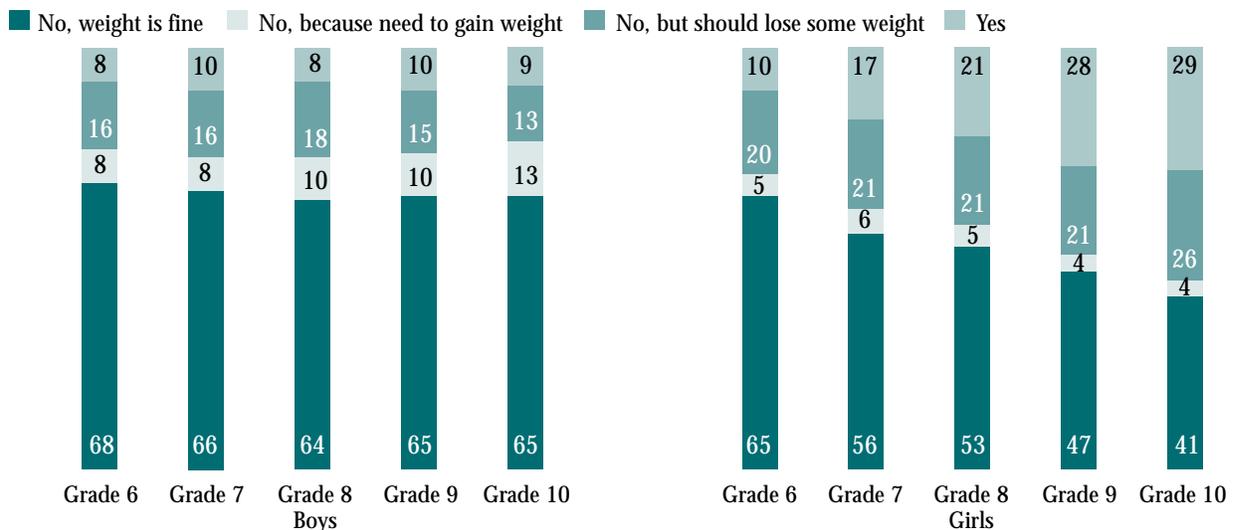


Figure 7.17

Students who reported going on a diet, changing their eating habits, or doing something else to control their weight in the past 12 months (%)

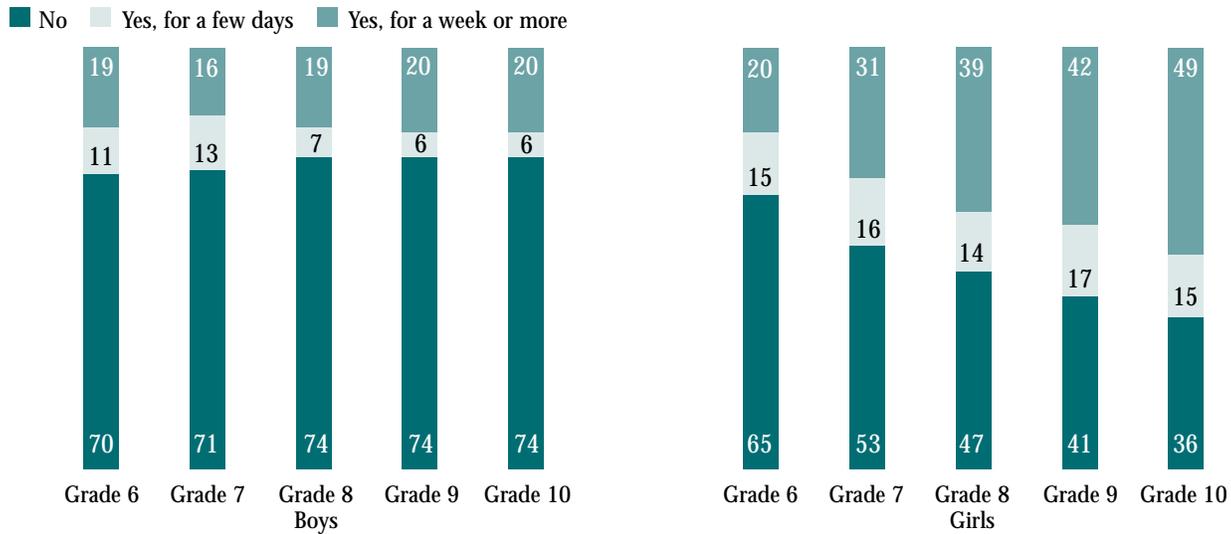


Figure 7.18

Body Mass Index results for boys (%)

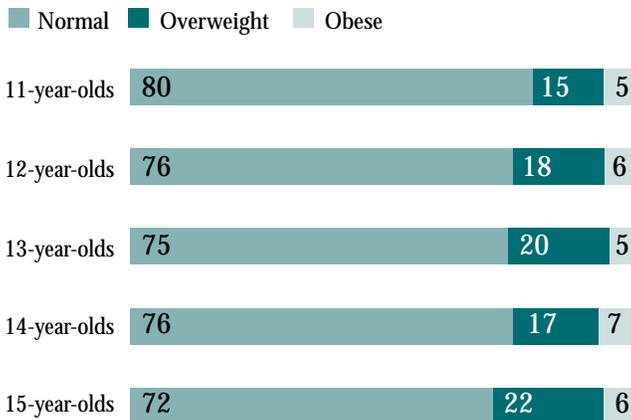
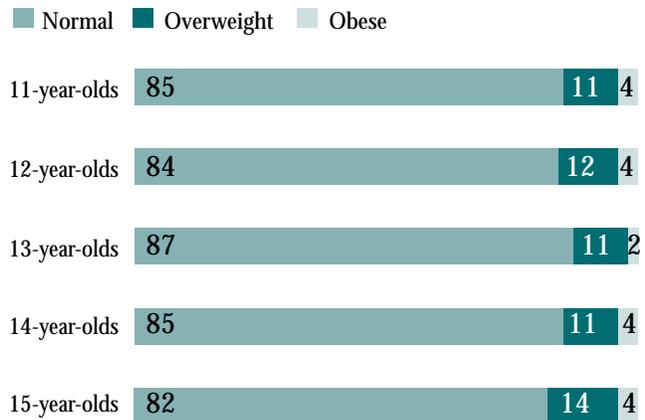


Figure 7.19

Body Mass Index results for girls (%)



The total proportion of girls who made the attempt to lose weight over a period of at least a week increased from Grades 6 to 10 (Figure 7.17). Girls in the higher grades were also much more diligent in their efforts to control weight. Almost two-thirds of girls in Grade 10 reported some measure of weight control in the past 12 months. Research indicates that the increased proportion

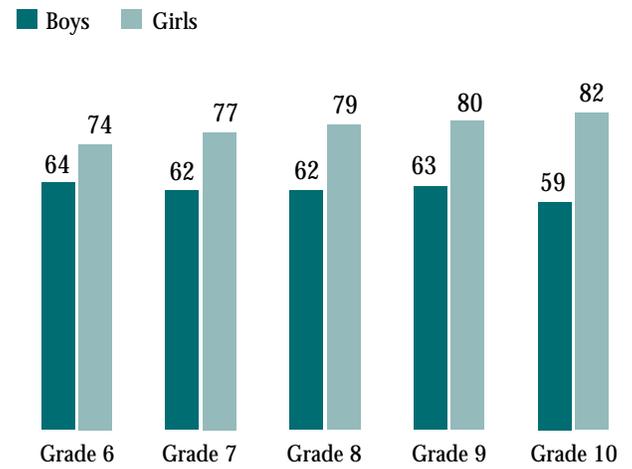
of body fat in early adolescence among girls, along with their preoccupation with body image, influences their dieting behaviours (Chapman, 1994).

To gain information about obesity, students were asked to report their height and weight. Eighty percent of students provided data on these two measures. The height and weight data were standardized to metric measurements, and a

Body Mass Index (BMI) score was calculated as weight (kg) / height² (m²). International age- and gender-specific cut-offs were employed to determine normal weight, overweight, and obese categories as defined by the Childhood Obesity Working Group of the International Obesity Task Force* (Cole, Bellizzi, Flegel, and Deitz, 2000). Since the cut-off points are age-specific, the results are presented in Figures 7.18 and 7.19 by age group, rather than by grade. Between one-fifth and one-quarter of boys in each age group were classified as overweight or obese; the obese group ranged from 5 to 7 percent across the age groups. Proportionately fewer girls than boys were overweight or obese, with less than one-fifth being overweight or obese in each of the age groups. Similar to boys, the girls' BMI scores did not differ significantly across age groups.

Figure 7.20

Students who brushed their teeth twice a day or more (%)



Dental Hygiene

Honkala and colleagues (2000) indicate there is evidence to suggest that the incidence of dental caries in industrialized countries is decreasing, yet poor dental health remains a problem among some adolescents and may be linked to decreased social opportunities, fewer life choices, and diminished life satisfaction (Currie, Samdal, Boyce, and Smith, 2001). Figures 7.20 and 7.21 illustrate that significantly more girls than boys across the five grades brushed their teeth at least twice a day. This dental hygiene practice by girls grew by grade and year of survey. More boys in Grades 6 and 8 reported brushing their teeth twice a day or more in the 2002 survey compared with boys of the same grades in the previous three surveys.

* Classification of weight in children and adolescents is complicated, because height and body composition are continually changing. These changes in adolescence occur at different rates in different populations and therefore are more variable compared with adult populations and are subject to different types of error and validity concerns (Cole, Bellizzi, Flegel, and Deitz, 2000).

Figure 7.21

Students who brushed their teeth twice a day or more, by year of survey (%)

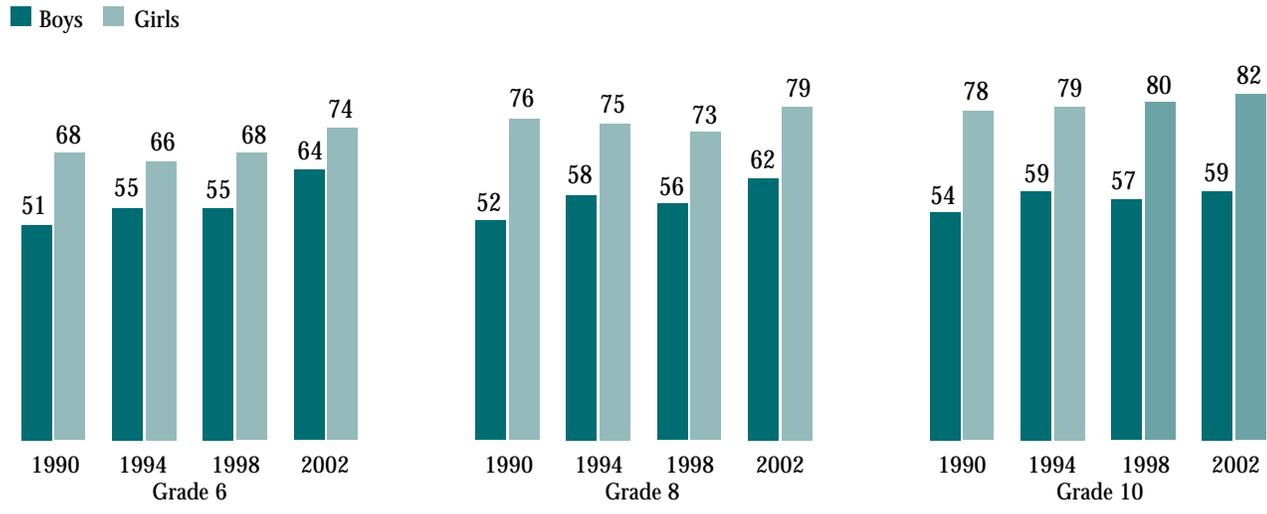
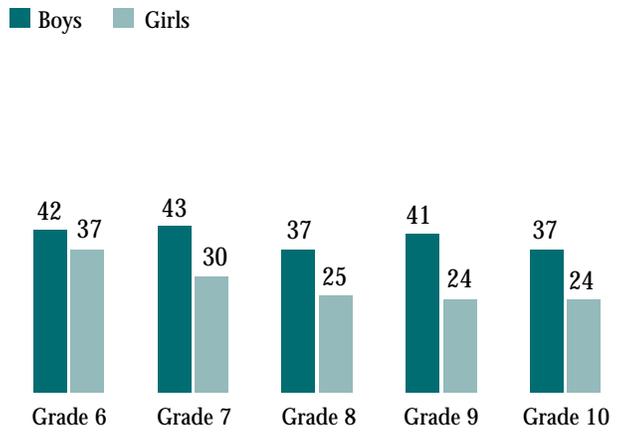


Figure 7.22

Students who were physically active five days or more over the past seven days for a total of at least 60 minutes a day (%)



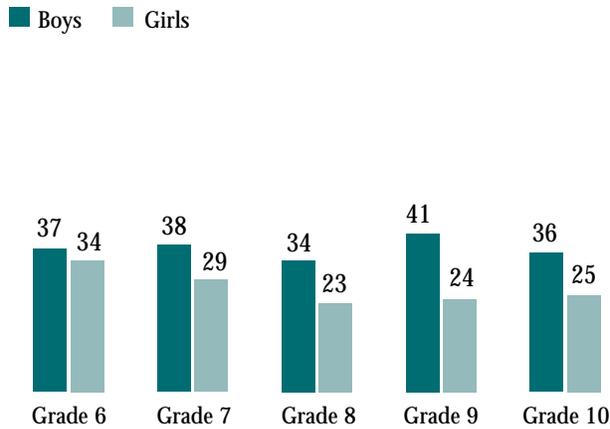
Physical Activity and Leisure

The benefits of physical activity to the physical and psychological status of adolescents are well documented. Sallis, Prochasaka, and Taylor (2000) have suggested that physical activity is necessary for optimal growth and development and also improves adolescent aerobic fitness, blood pressure, self-efficacy, and self-image. With the increased demands of school work and a decrease in physical education programming within schools, over half of Canadian youth aged 5 to 17 are not active enough, according to Health Canada’s physical activity guidelines (Andersen, 2000).

Students in the HBSC sample were asked about their physical activities both in and out of school. Physical education in schools is crucial to establishing lifelong patterns of physical activity among students. Far more boys than girls reported they were physically active at least 60 minutes each day for five days or more over the past seven days and over a typical week (Figures 7.22 and 7.23).

Figure 7.23

Students who were physically active five days or more over a typical week for a total of at least 60 minutes a day (%)

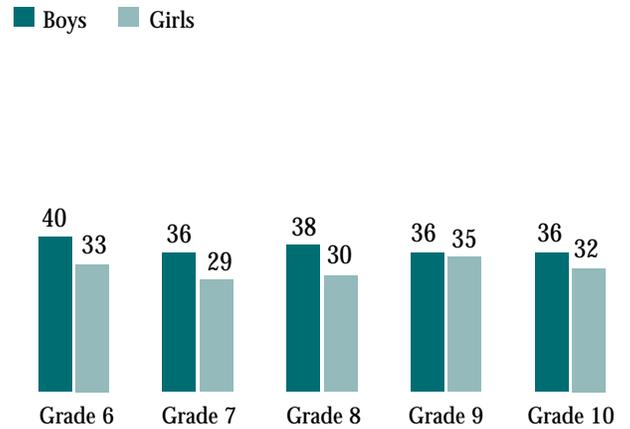


The gender difference for physical activity was less observable for students in Grades 9 and 10, where over a third of both boys and girls reported spending five or more hours a week doing vigorous physical activity as part of their class time (Figure 7.24). This change may reflect an increased emphasis on physical education courses, as well as increased opportunities for participation, at the secondary level. Although spending five or more hours being physically active during free time at school was similar for both boys and girls in the lower grades, activity levels decreased significantly for girls in the upper grades, who may be less inclined to be active outdoors during their free time (Figure 7.25).

An analysis of data from the 1996-1997 National Population Health Survey (NPHS) of Canadian youth 12 to 24 years old indicates that boys were more physically active than girls were and that physical activity decreased with age for both genders (Higgins, Gaul, Gibbons, and Van Gyn, 2003). Findings from a study in Ontario also point to the decline in the participation of daily vigorous physical activity for girls in

Figure 7.24

Students who spent five or more hours a week doing vigorous physical activity in their class time at school (%)

**Figure 7.25**

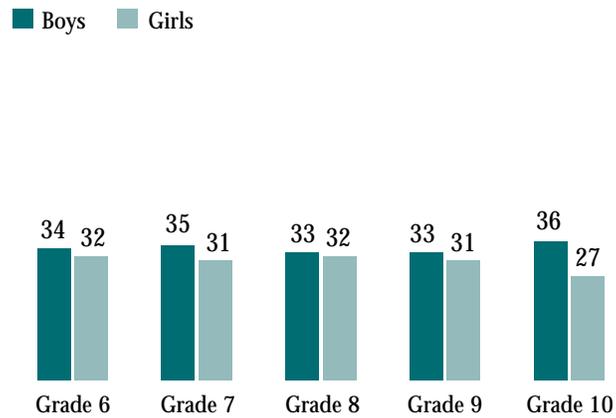
Students who spent five or more hours a week doing vigorous physical activity in their free time at school (%)



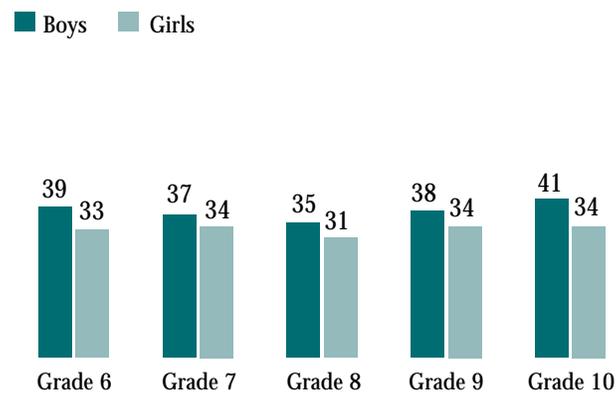
Grades 7 to 11 and for boys in Grade 11 between 1997 and 2001, which suggests that interventions and policies to promote participation of these groups should be addressed (Irving, Adlaf, Allison, Paglia, Dwyer, and Goodman, 2003).

Figure 7.26

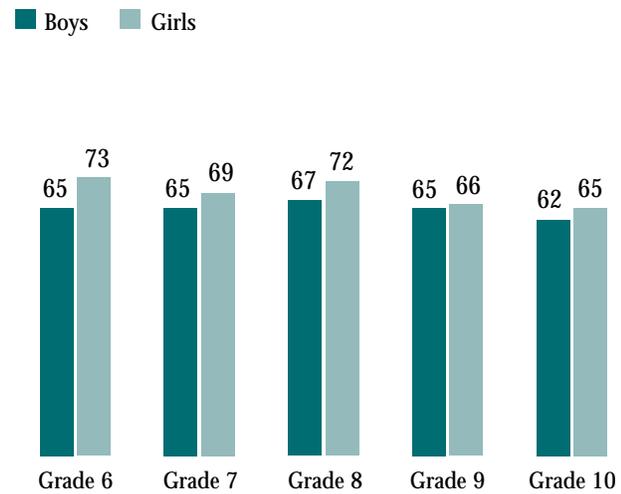
Students who spent five or more hours a week doing vigorous physical activity while participating in lessons or team sports outside of school (%)

**Figure 7.27**

Students who spent five or more hours a week doing vigorous physical activity while participating in informal activities outside of school (%)

**Figure 7.28**

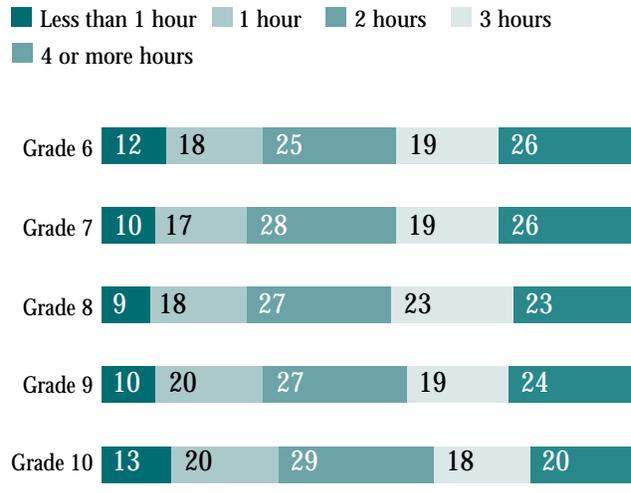
Students who spent at least one day a week involved in a club or organization (%)



A third of adolescents, both boys and girls, indicated that they spent five or more hours a week engaging in vigorous exercise in structured activities outside of school (Figure 7.26). Figure 7.27 shows that similar proportions spent five or more hours doing unstructured physical activity outside of school, the boys slightly more. Garcia, Broda, Frenn, Coviak, Pender, and Ronis (1995) suggest that girls perceive themselves as less athletic than boys do, which affects their participation in leisure time exercise activities.

McHale, Crouter, and Tucker (2001) and Mahoney and Stattin (2000) suggest that youth who reported participating in structured sports and hobbies were more likely to exhibit superior patterns of adjustment. Figure 7.28 illustrates that about two-thirds of boys across grades said that they took part in some type of structured club or organization at least one day a week. On average, over 70 percent of younger girls in elementary school were involved in such organizations, but their numbers declined in the higher grades.

Figure 7.29
Hours per day that students watched television during the school week (%)



Adolescents in the HBSC sample were also asked about their participation in sedentary activities, such as watching television, doing homework, and using the Internet to chat with friends, play games, or surf websites. Over 40 percent of younger students (in Grades 6 to 9) reported that they spent three or more hours a day watching television during the school week (Figure 7.29). Almost two-thirds of students reported this level of watching television on weekends (data not shown). Findings from research done in the United States show that watching television may also be a cue for eating in some children and that children who watch five or more hours of television a day consume 175 calories more daily than those who watch television no more than an hour a day (Crespo, Smit, Troiano, Bartlett, Macera, and Andersen, 2001).

Across all grades, boys were less likely than girls to spend one or more hours doing homework on weekdays, and this difference increased over the grades (Figure 7.30). However, Figure 7.31 shows that over a quarter of students across grades spent two or more hours doing homework on school days.

Figure 7.30
Students who spent one or more hours a day doing homework on weekdays (%)

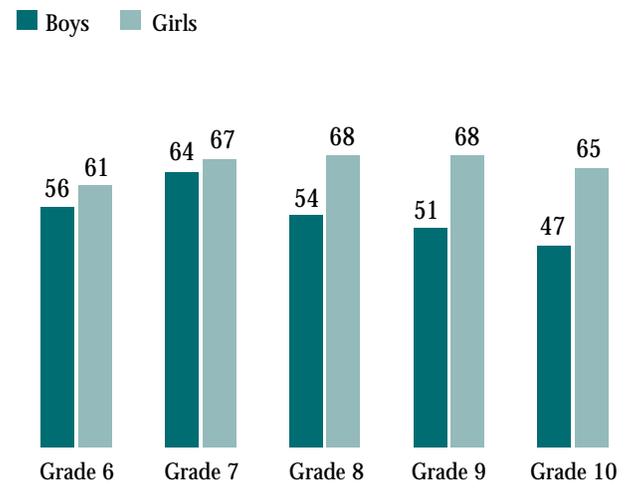
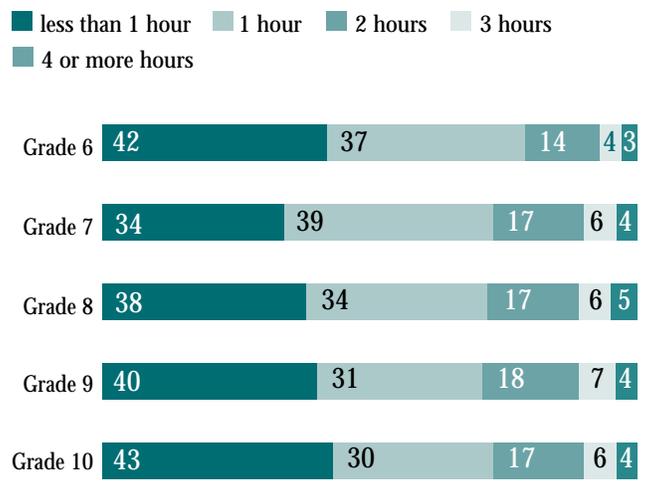


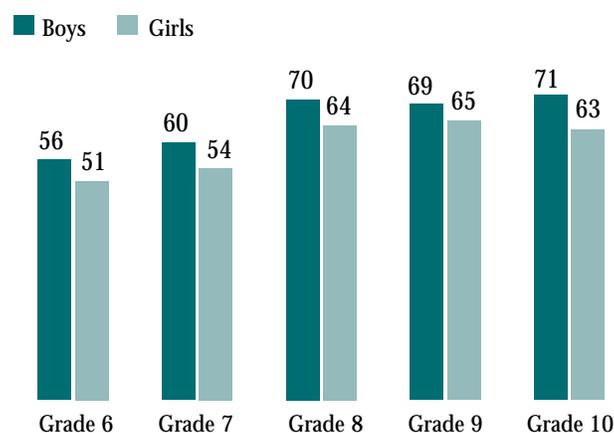
Figure 7.31
Hours per day that students did homework on weekdays (%)



Over four-fifths of Grade 10 students indicated that they had first used the Internet between the ages of 9 and 13 (data not shown). Half of younger students (Grades 6 and 7) surveyed and two-thirds of older students reported spending one or more hours a day playing on the computer during the school week. Boys were more likely than girls to be involved in this leisure activity (Figure 7.32).

Figure 7.32

Students who spent one or more hours a day playing on the computer on weekdays (%)



Factors Associated With Physical Activity

Table 7.1 refers to factors associated with students of both genders in Grades 6, 8, and 10 being typically physically active for a total of at least 60 minutes a day over the past seven days.

The results indicate that along with being involved in clubs or organizations, and being well integrated socially (except for Grade 10 girls), physical activity increased with feeling healthy and rating one's life positively, as well as consuming a healthy diet of fruits, and of vegetables (except for Grade 8 boys).

Table 7.1

Factors associated with being physically active for 60 minutes a day over the past seven days (correlation coefficients*)

	Grade 6		Grade 8		Grade 10	
	Boys	Girls	Boys	Girls	Boys	Girls
Lived in two-parent household	NS†	NS†	NS†	NS†	NS†	NS†
Family affluence**	NS†	.08	NS†	.12	.13	.19
Positive relationship with parents**	NS†	.09	NS†	NS†	.17	NS†
Socially well integrated with peers**	.20	.22	.24	.12	.10	NS†
Felt healthy	.14	.17	.30	.20	.40	.30
Rated life positively	.13	.11	.13	.08	.22	.13
Absence of psychosomatic symptoms**	NS†	NS†	NS†	.11	NS†	NS†
Satisfied at school**	.09	NS†	NS†	.15	NS†	.15
Ate breakfast on weekdays	NS†	NS†	.08	.08	.12	NS†
Ate fruits	.11	.21	.11	.17	.18	.23
Ate vegetables	.08	.15	NS†	.17	.12	.21
Ate less potato chips	NS†	NS†	.11	NS†	NS†	NS†
Ate less french fries	NS†	NS†	.15	NS†	NS†	.08
Had an average weight (as estimated by BMI)	.10	NS†	.21	.10	NS†	NS†
Involved in clubs and organizations	.26	.18	.26	.27	.30	.39
Friends involved in risk behaviour			NA††		.16	.11
Watched less TV on weekdays	NS†	NS†	NS†	.12	.10	.12
Watched less TV on weekends	NS†	NS†	NS†	.14	NS†	NS†
Did less homework on weekdays	.10	NS†	NS†	NS†	NS†	NS†
Did less homework on weekends	.10	NS†	NS†	NS†	NS†	NS†
Used a computer less frequently during free time on weekdays	NS†	NS†	NS†	NS†	.10	NS†
Used a computer less frequently during free time on weekends	NS†	NS†	.09	NS†	.13	NS†

* Correlation coefficient: weak (less than or equal to 0.20); moderate (between 0.21 and 0.39); strong (equal to or greater than 0.40); ** scale score; † NS: no significant relationship; †† NA: Not applicable, questions not asked at lower grades

The relationship between physical activity and the other factors examined appeared to be weaker or absent. Living in a two-parent household, for example, did not seem to have a connection with physical activity levels, yet family affluence was associated with an increase in physical activity for girls in Grades 6, 8, and 10 and for boys in Grade 10. Positive relationships with parents were related to increased physical activity only for Grade 6 girls and Grade 10 boys. Being satisfied at school was linked to physical activity to some degree, but only for boys in Grade 6 and for girls in Grades 8 and 10. Weight, as assessed by BMI, was tied to physical activity levels for boys in Grade 6 and boys and girls in Grade 8.

Other factors examined had an inverse relationship with physical activity. For example, having friends involved in risk behaviours was associated with decreased physical activity for Grade 10 boys and girls. Physical activity also declined with the following pursuits: watching television during weekdays for Grade 10 boys and girls and Grade 8 girls; watching television during weekends for Grade 8 girls; doing homework during weekdays and weekends for Grade 6 boys; and using a computer (for playing games, emailing, chatting, or surfing the Internet) during free time on weekdays for Grade 10 boys, and on weekends for boys in Grades 8 and 10.

Asthma

Some of the behaviours discussed in this chapter, such as exercising and eating healthy foods, may influence physical health outcomes. Asthma represents a common chronic condition that may also affect an adolescent's health, because the disorder may have a bearing on the ability to exercise. About 20 percent of both boys and girls in Grades 7 to 10 reported that they had been diagnosed with asthma by a doctor (Figure 7.33). However, girls generally showed a higher prevalence of asthma-related symptoms. For example, Figure 7.34 illustrates

Figure 7.33

Students who were told by a doctor that they had asthma (%)

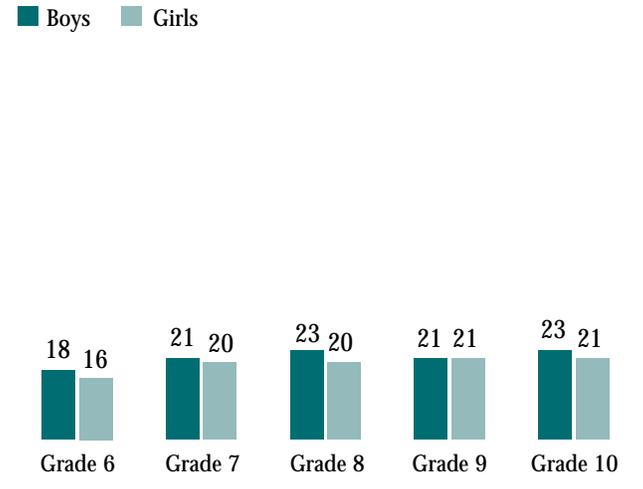
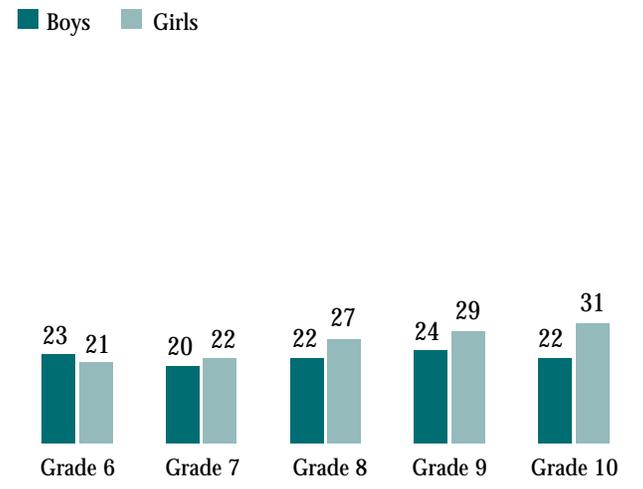


Figure 7.34

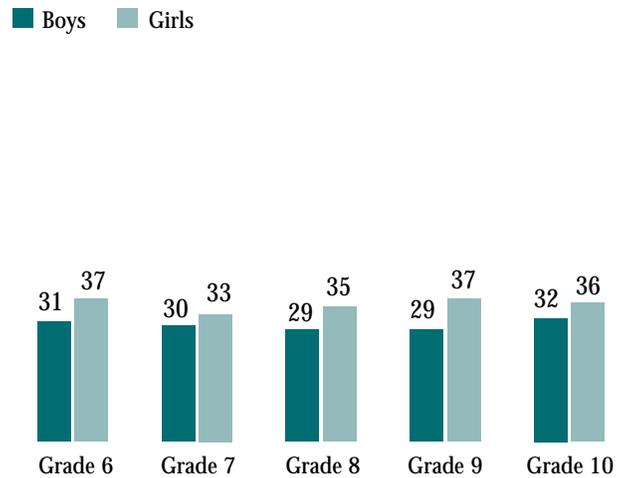
Students who had episodes of wheezing in the past 12 months (%)



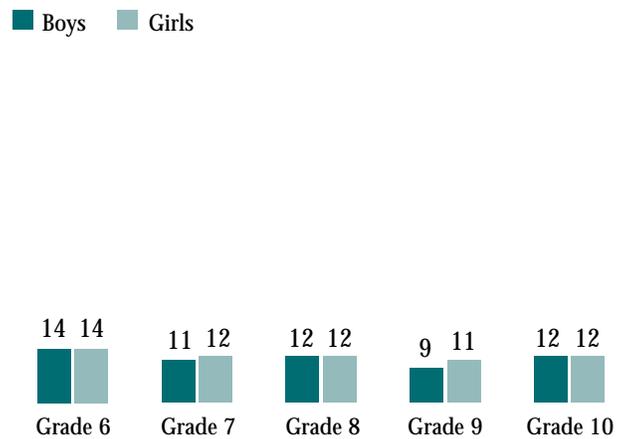
that older girls reported more episodes of wheezing than did boys over the past 12 months. Girls were also more likely than boys to report having dry coughs during the night (Figure 7.35). It was interesting to note, though, that roughly equal proportions of girls and boys within grades reported that they went to the doctor or emergency room for wheezing within the past year (Figure 7.36).

Figure 7.35

Students who had a dry cough during the night, other than a cold, in the past 12 months (%)

**Figure 7.36**

Students who had been to the doctor or emergency room for wheezing in the past month (%)



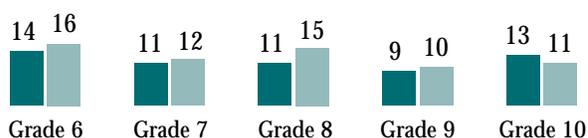
Medication Use

Measures of emotional health used in the HBSC study (see Chapter 10, Emotional Health) included a host of physical and somatic complaints: headache, stomach ache, backache, depression, irritability, nervousness, difficulty sleeping, and dizziness. The type and extent of medication used to manage these ailments serve as indicators of health and well-being. Students were asked about medications which they took to alleviate such problems. Figure 7.37 illustrates that less than a fifth of students reported weekly use of cough medicine within the previous month, whereas Figure 7.38 suggests that taking medicine for headaches was more prevalent, especially among older girls. Between a quarter to a third of girls in Grades 7 to 10 reported taking medicine for headaches once a week or more. Taking medications for sleeping and nervousness was very low, with less than a tenth of students of both genders and across grades reporting the use of medicine for these symptoms (Figures 7.39 and 7.40).

Figure 7.37

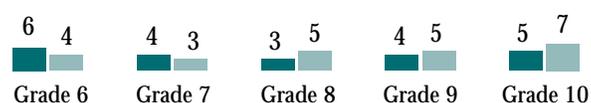
Students who took medicine for cough once a week or more in the past month (%)

■ Boys ■ Girls

**Figure 7.39**

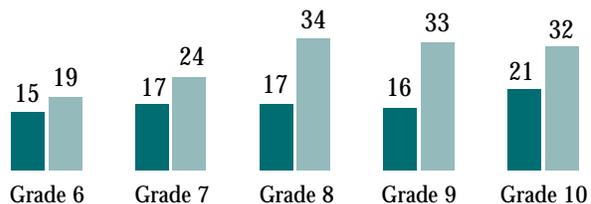
Students who took medicine for difficulty sleeping once a week or more in the past month (%)

■ Boys ■ Girls

**Figure 7.38**

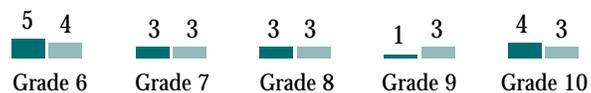
Students who took medicine for headache once a week or more in the past month (%)

■ Boys ■ Girls

**Figure 7.40**

Students who took medicine for nervousness once a week or more in the past month (%)

■ Boys ■ Girls



Major Findings

- Girls ate more nutritious foods, fruits and vegetables, than did boys.
- More girls than boys skipped breakfast, and the trend was greater in older students.
- Boys, more than girls, consumed foods high in sugar, salt, and caffeine, such as soft drinks, diet soft drinks, potato chips, french fries, and cake or pastries.
- Dieting or doing something else to control weight was most prevalent in older girls, who also did so for longer periods of time than did younger girls.
- Boys were more physically active outside of school than were girls.
- Girls were more active than boys were in clubs and organizations.
- Playing computer games during weekdays was quite frequent, especially among boys.
- Although boys and girls were equally diagnosed with asthma, girls, particularly in the higher grades, reported asthma symptoms more often.
- Girls reported more use of medications for headaches, but there were no gender differences in the use of medications for sleeping difficulties and nervousness.



Jad Saab

8

Bullying and Fighting

Wendy Craig

Bullying is a relationship problem – it is the assertion of interpersonal power through aggression (Pepler and Craig, 2000). Bullying has been defined as negative physical or verbal actions that have hostile intent, cause distress to victims, are repeated over time, and involve a power differential between bullies and their victims (Olweus, 1991; Pepler, Craig, and Connolly, 1995). Bullying is a subset of aggressive behaviours characterized by a power imbalance. With repeated bullying, the power relations between bullies and their victims become consolidated: bullies increase in power, and victims lose power. In such a relationship, young people who are being bullied become increasingly powerless to defend themselves. All aggressive behaviours are not bullying because there may or may not be a power imbalance, but all bullying involves aggressive behaviours.



Hana Saab

Pepler and Craig (2000) have examined bullying from a developmental perspective and argue that this type of aggressive behaviour merits attention because it underlies many problems related to interpersonal violence in Canada. From this perspective, the lessons learned in bullying within peer relationships can be applied to other developmentally significant relationships. The use of power and aggression found in playground bullying is an indicator of future sexual harassment, dating aggression, workplace harassment, marital aggression, child abuse, and elder abuse (Pepler, Craig, Connolly, and Henderson, 2002). Thus, understanding and preventing bullying early may reduce such problems later on.

Concerns About Bullying

Researchers, educators, and parents have come to recognize that all young people involved in bullying are affected by it. Bullying most frequently occurs at school and under conditions where there is little adult supervision (Craig and Pepler, 1997). Youth who bully are at increased risk for perpetrating other forms of aggression, sexual harassment, and dating violence in adolescence (McMaster, Connolly, Pepler, and Craig, 2002; Pepler et al., 2002) as well as for engaging in illegal activities, such as delinquency and substance use (Pepler et al., 2002).

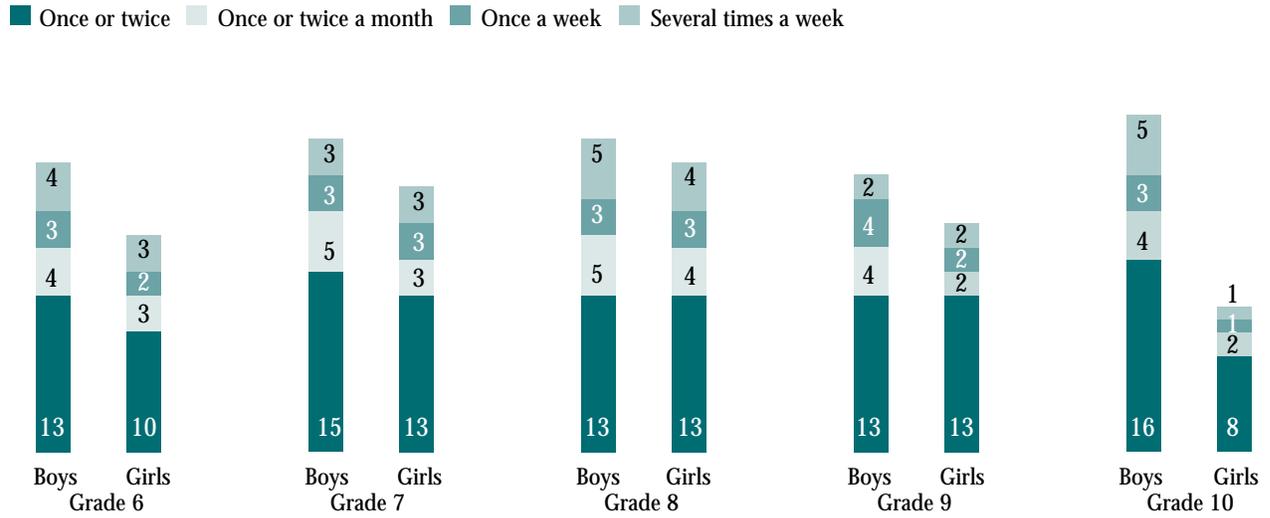
Victims of bullying also experience a range of problem behaviours, such as depression and anxiety; in extreme cases, suicide has occurred (Craig, 1998; Olweus, 1991). Some victimized youth become so frustrated and angry at the continuing abuse that they become aggressive and start to bully others (Goldbaum, Craig, Pepler, and Connolly, in press). Young people who bully others and are victimized by others (bully/victims) are at the most risk for both internalizing and externalizing behaviour problems (Craig, 1998). Even those who observe bullying may be affected (Pepler, Craig, Ziegler, and Charach, 1994), because they are often drawn into bullying and can play a major role in exacerbating or terminating bullying interactions (Hawkins, Pepler, and Craig, 2001; O'Connell, Pepler, and Craig, 1999).

Longitudinal research indicates that childhood bullying is associated with adult anti-social behaviour, such as criminality, as well as with limited opportunities to attain socially desired objectives (Farrington, 1993). Victimized youth are at risk for a variety of negative outcomes: they are more anxious and insecure (Olweus, 1991); have lower self-esteem (Craig, 1998); are lonely (Boulton and Underwood, 1992); are more likely to be rejected by their peers and are more depressed (Craig, 1998) than non-victimized young people. For elementary-aged youth, there is a stable propensity to be victimized. Using retrospective reports, Olweus (1978) found that adolescent boys who were victimized at age 13 were also victimized at age 16. Peers also suffer from bullying behaviour by feeling group pressure to join in the bullying. Merely observing bullying may lead to distress (El-Sheikh, Cummings, and Goetsch, 1989).

The price of involvement in bullying is high, generating lifelong costs in multiple systems, such as mental health, juvenile justice, special education, and social services. Interrupting this pattern of behaviour is a critical issue. The prevalence and seriousness of bullying and victimization compels researchers to examine this phenomena in order to improve the health of children and young people. Improving our current understanding can yield knowledge to provide direction for social policy and to design effective interventions that could eliminate or at least curtail this dilemma.

Figure 8.1

Students who were victimized but did not bully others (%)



The Size of the Bullying Problem in Canada

Bullying is a problem that transcends national boundaries. Data from the 1998 HBSC indicate that Canadian students reported levels of bullying that fell in the mid-range for 11 countries (King, Boyce, and King, 1999), so Canadian rates for bullying and victimization were not among the highest but were by no means the lowest. This report examines the issue of bullying in three categories mutually exclusive of one another: being bullied, bullying others, and engaging in both of these behaviours.

Figure 8.1 presents the prevalence of students in the past couple of months in Grades 6 to 10 who were victimized by others but did not themselves bully others. There were several noteworthy findings. Overall, boys reported significantly more victimization than did girls (25 percent versus 21 percent). Second, the prevalence of victimization for boys peaked in Grade 10 (28 percent), while the peak for girls was in Grade 8 (24 percent). Third, a fairly consistent proportion of students, both boys and girls, reported being victimized about once or twice a term (from 8 to 16 percent). Finally, between 2 and 8 percent of students reported being victimized once a week or more. As previously discussed, these are the youth who require the most support in our schools and communities.

Figure 8.2
Students who bullied others but were not victimized (%)

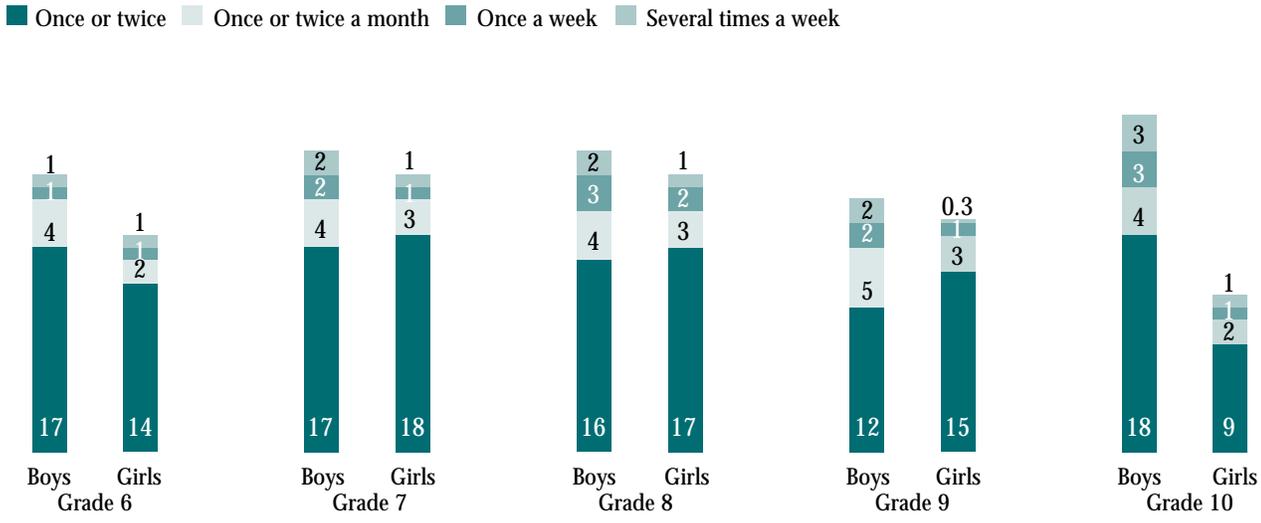
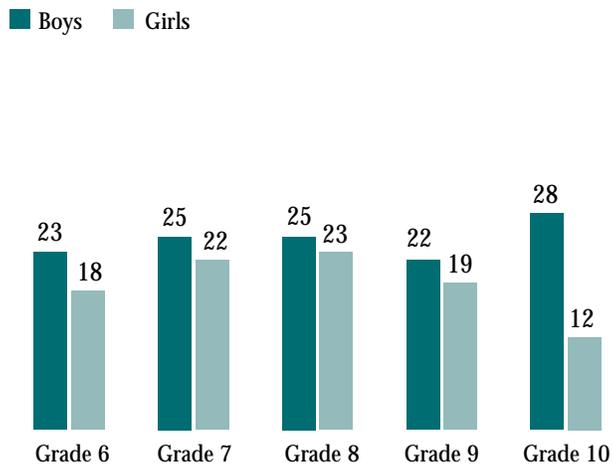


Figure 8.3
Students who were both bullies and victims (%)



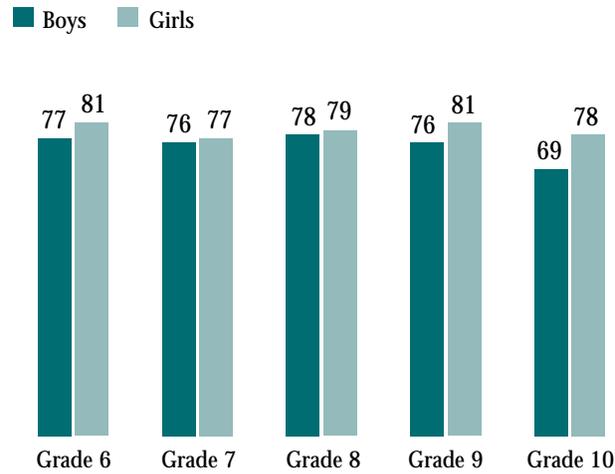
When asked about bullying others (e.g., perpetrating the bullying behaviours), approximately 23 percent of Canadian students from Grade 6 to 10 reported that they bullied others (Figure 8.2). Boys reported bullying others significantly more than did girls (25 percent versus 18 percent). For boys, the behaviour peaked in

Grade 10, while it peaked for girls in Grades 7 and 8. As girls aged, a decrease in bullying behaviour was evident; this trend was not true for boys. Similar to the victimization scenario in Figure 8.1, the majority of students indicated that they engaged in the behaviour infrequently. However, a small minority of students (2 to 8 percent, depending on the grade) engaged in this form of aggressive behaviour regularly. It is this group of young people who likely require a more intensive intervention than those who engage in the behaviour infrequently. The proportion of students who reported bullying others was less than that of students who indicated that they were victimized. This suggests that young people who bully may be targeting their aggression against more than one individual.

In contrast to other studies in the literature, a substantial number of students in the HBSC sample reported that they were both bullies and victims (Figure 8.3). Although other studies may have used a different threshold for examining the overlap between bullying and victimization, this proportion was still very high. Significantly

Figure 8.4

Bullied students who said they were teased (%)



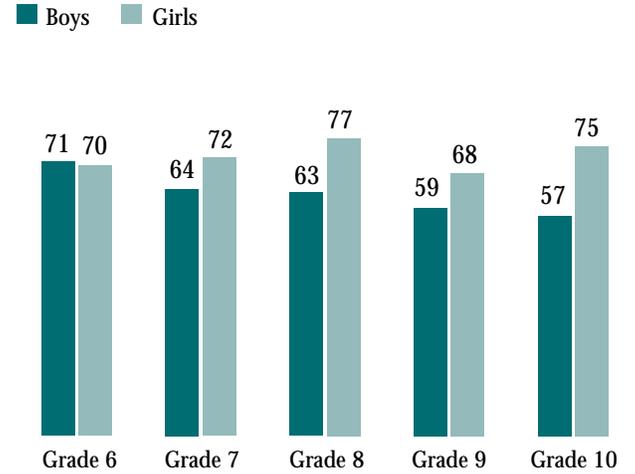
more boys than girls across grades reported engaging in both types of behaviour (24 percent versus 19 percent). The prevalence was particularly high for boys in Grade 10 (28 percent); in contrast, the highest rate for girls (23 percent) was in Grade 8. As in the case of victimization, this behaviour for girls tended to decrease with age, but did not for boys. Young people who are bully/victims are at the most risk for problems, as they report problems associated with both behaviours (Craig, 1998). This group of youth and the high proportion they represent should be of particular concern.

How Young People Bully Others

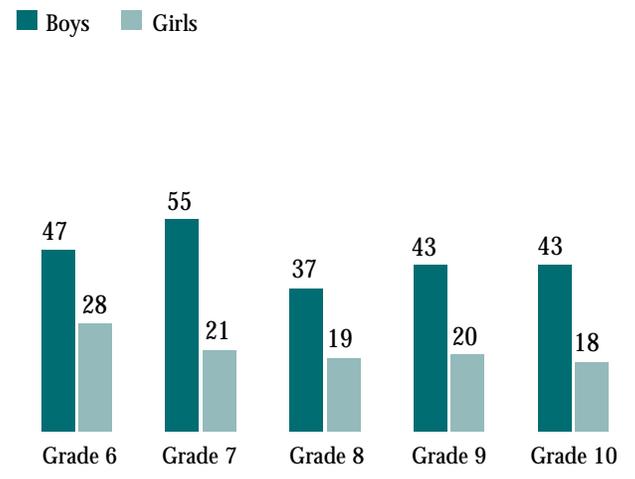
Bullying took many forms, with the most common being teasing, excluding, or spreading lies about the victim. The HBSC survey examined the types of aggression perpetrated against students who reported being bullied. Figures 8.4 and 8.5 illustrate that significantly more girls than boys across grades reported being teased (79 percent versus 67 percent) and having rumours spread about them (72 percent and 63 percent, respectively). The prevalence of these

Figure 8.5

Bullied students who said they were excluded or had rumours or lies spread about them (%)

**Figure 8.6**

Bullied students who said they were victimized physically (%)



behaviours did not decrease substantially with age. In contrast, Figure 8.6 shows that significantly more boys (about 45 percent) reported physical victimization, compared with girls (about 21 percent). For both boys and girls, the reported rates of physical victimization decreased with age; this trend was consistent with the literature on aggressive behaviour (Moffitt, Caspi, Rutter, and Silva, 2001).

Figure 8.7
Bullied students who said they were victimized by sexual jokes, comments, or gestures (%)

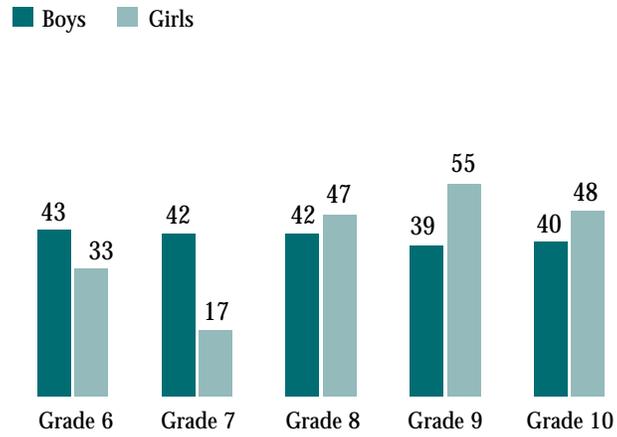


Figure 8.9
Bullied students who said they were victimized because of their religion (%)

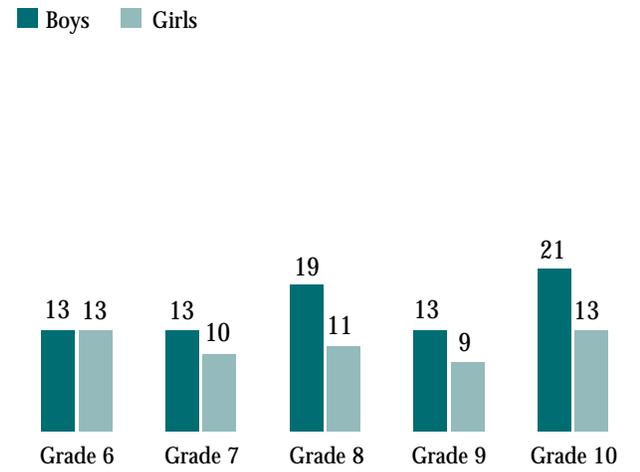
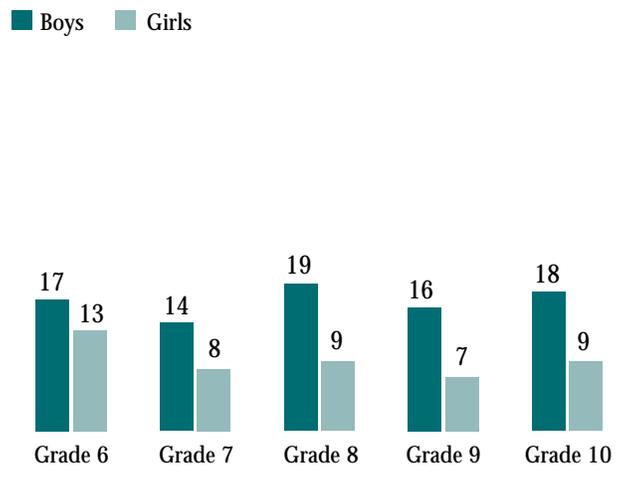


Figure 8.8
Bullied students who said they were victimized because of their race or colour (%)



Because bullying refers to behaviours that combine power and aggression and involve understanding others' vulnerabilities, the HBSC survey asked about sexual harassment and bullying based on race and religion. Reports of sexual harassment increased with age for girls, but not for boys; and on average, about 43 percent of students reported experiencing sexual harassment (Figure 8.7). However, boys were more likely than girls were to report being bullied because of their race (Figure 8.8). Finally, on average, about 14 percent of students stated that they were bullied because of their religion (Figure 8.9). Bullying because of race and religion occurred less frequently than did all the other types of bullying.

Figure 8.10

Bullies who said they victimized others by teasing (%)

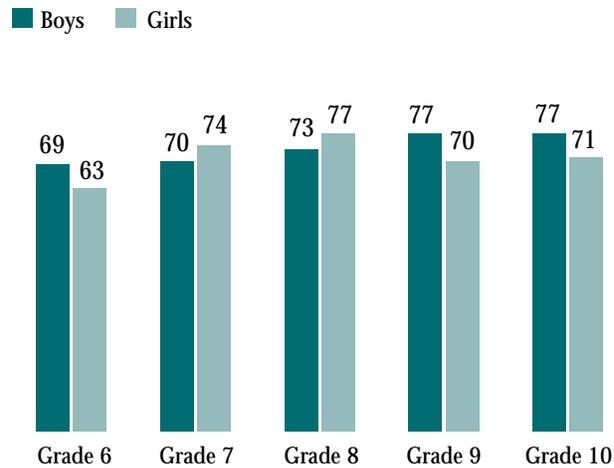
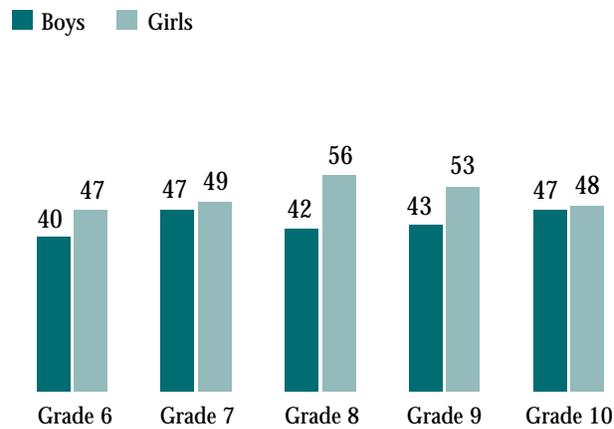


Figure 8.11

Bullies who said they victimized others by excluding them or spreading rumors or lies about them (%)



The HBSC survey also asked students who said they bullied how they victimized others (Figures 8.10 to 8.15). In general, they reported engaging in lower rates of teasing, spreading rumours, physical aggression, sexual harassment, and racial or religious harassment than were reported experienced by victims. The gender differences for those who reported how they

Figure 8.12

Bullies who said they victimized others physically (%)

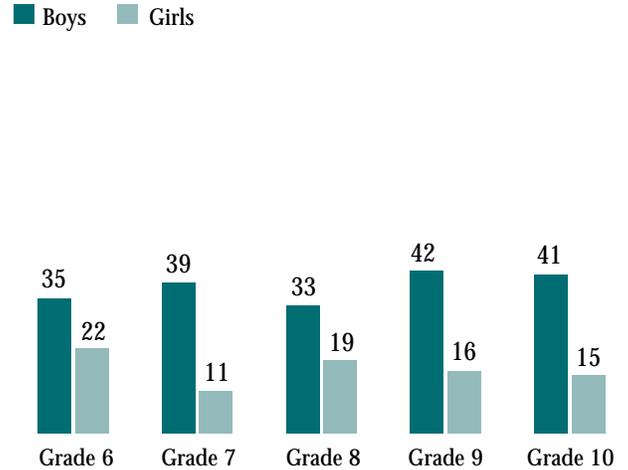
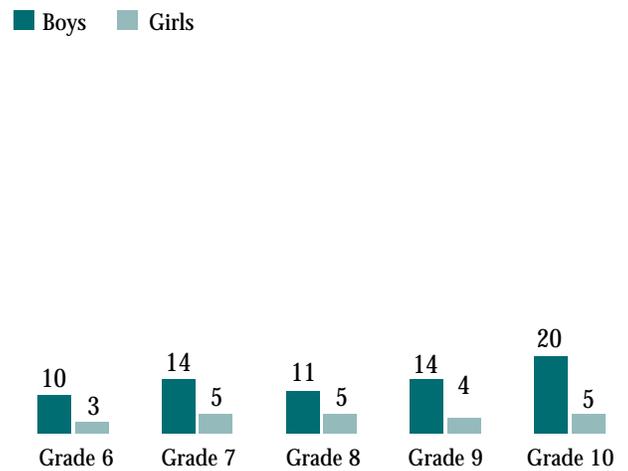


Figure 8.13

Bullies who said they victimized others because of their race or colour (%)



bullied others and for those who reported how they were victimized were similar, with the exception of sexual harassment. In the case of the victims, boys and girls reported relatively similar levels of sexual harassment, with levels for girls increasing with their age. In contrast, for bullies, boys consistently reported perpetrating more sexual harassment than did girls, and

Figure 8.14
Bullies who said they victimized others because of their religion (%)

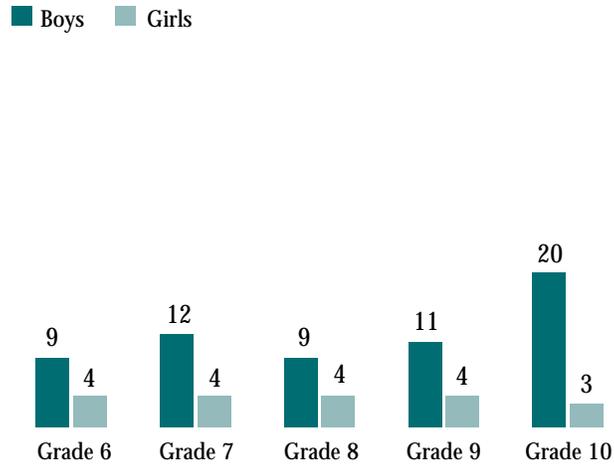
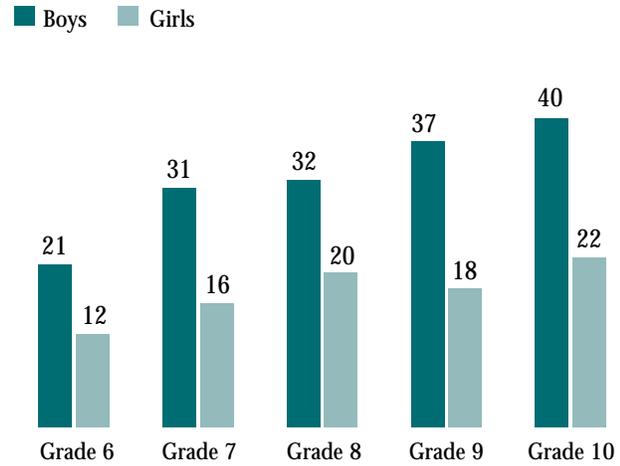


Figure 8.15
Bullies who said they victimized others by making sexual jokes, comments, or gestures (%)



this behaviour increased with age. The difference in the reported rates of specific types of aggression between victims and bullies suggests that they interpreted and experienced behaviours differently. For example, the behaviour that victims experience as aggression may not be what bullies define as aggression. Hence, an educational component in intervention programs needs to specifically address the different forms of aggression and their harmful consequences.

Figure 8.16

Frequency with which students were in a physical fight in the past 12 months (%)

Once Twice Three times Four or more times

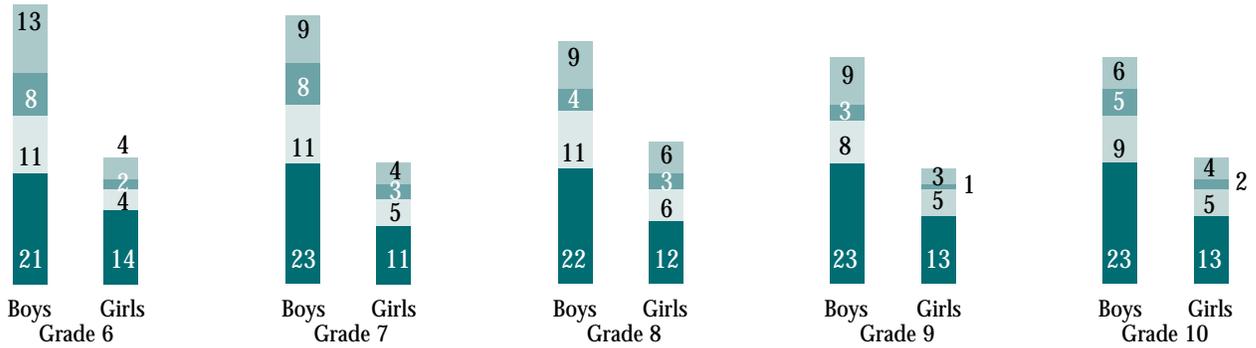


Table 8.1

Targets of physical fighting (%)

	Grade 6		Grade 7		Grade 8		Grade 9		Grade 10	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Total stranger	5	2	6	4	12	6	20	4	17	9
Adult family member	1	2	2	1	1	3	1	1	2	2
Brother or sister	21	43	17	38	13	34	11	40	13	37
Boyfriend or girlfriend	2	3	1	3	2	2	1	4	1	3
Friend or acquaintance	48	31	50	38	46	37	46	38	44	31
Other	23	19	24	16	26	18	21	13	23	18

Fighting Behaviour

Although physical fighting behaviour may or may not be defined as bullying (depending on whether there is a power imbalance), it is an extreme form of aggression and merits attention. Figure 8.16 shows the reported frequency that students in the HBSC sample were involved in physical fights. Several observations can be made from these data. First, in all grades, more boys than girls reported engaging in fighting, and boys reported being involved in fights more often than did girls. Significantly more boys than girls reported physical fighting behaviour:

47 percent of boys versus 24 percent of girls. Second, for boys, fighting behaviour decreased with age; however, the rates remained unchanged for girls. Third, when asked with whom they fought, a high proportion of boys and girls indicated that they fought with friends or acquaintances. In addition, girls said that they were most likely to fight with a brother or a sister (Table 8.1). It may be that girls are more likely to be aggressive within the confines of intimate family relationships or that it is more acceptable to fight within these relationships. Boys also stated that they fought with their siblings, but

this behaviour decreased with age. Older students were more likely to fight with strangers, people whose history and tendency to be aggressive were unknown. In doing so, they could put themselves at substantial risk for serious injury or harm. Physical fighting with adult family members or a romantic partner occurred relatively infrequently for both boys and girls.

Major Findings

- Over 20 percent of students reported being both bullies and victims of bullying.
- Sexual harassment reported by girls peaked at Grade 9.
- Physical bullying reported by boys peaked at Grade 7.
- Sexual harassment reported by girls increased with age.
- More boys than girls experienced harassment because of their race, ethnicity, and religion.
- Students did not report being bullies as often as victims experienced bullying.
- More boys reported physical fighting, and frequent fighting, than did girls.
- Physical fighting decreased with age in boys but stayed constant in girls.
- Boys most often fought with friends or acquaintances, while girls were equally likely to fight with their siblings.

9

Injuries

William Pickett

Injuries are one of the most important health problems that youth face during their school-aged years. They are the leading cause of death among young people (Institute of Medicine Committee on Injury Prevention and Control, 1999), and approximately one hospitalization in six experienced by young people can be attributed to an injury (Lescohier and Scavo-Gallagher, 1996). Non-fatal injuries occur at least 1,000 times more often than fatal injuries (Lescohier and Scavo-Gallagher, 1996), and their impacts in terms of treatment, rehabilitation, and ongoing disability are of huge importance (Rivara, Grossman, and Cummings, 1987).

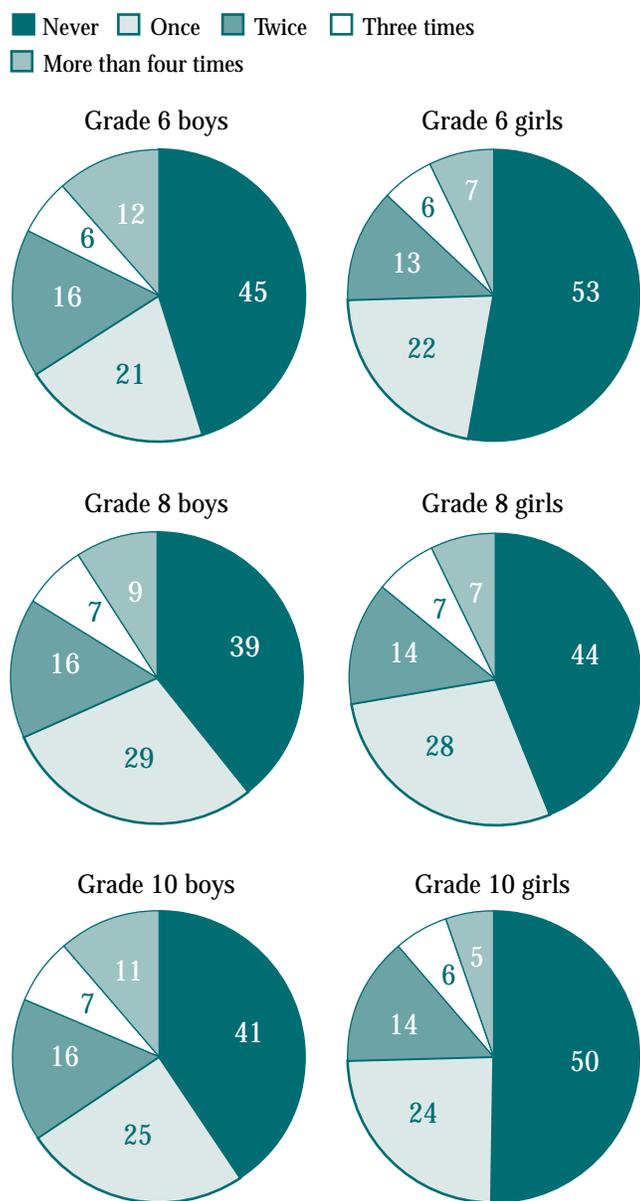
Various strategies have been developed to prevent injuries to youth, including those aimed at reducing risk-taking and promoting safety-oriented behaviours. Multi-faceted bicycle helmet campaigns that combine regulation with educational efforts provide good examples of such strategies (Henderson, 1995; Irvine, Rowe, and Sahai, 2002). Other ongoing strategies include: enforcement of rules and



Jad Saab

regulations around motor vehicle use, such as seat belt campaigns and RIDE programs aimed at drinking and driving (Grossman and Garcia, 1999; Evans et al., 2001); and engineering strategies that involve making youth environments as safe as possible, such as playground equipment standards (Canadian Standards Association, 1990). While all of these strategies can be effective in practice, basic information about the nature of youth injury problems assists in the planning and evaluation of the effects of interventions.

Figure 9.1
Number of injuries requiring treatment by a doctor or nurse the previous year (%)



Injuries to young people should not be viewed as “accidents.” They are both predictable and preventable. By examining circumstances associated with injury events that happen over and over again, their predictability can be demonstrated and potential opportunities to intervene can be identified. This chapter shows that some young people are more at risk for injury than others. It also profiles certain factors that are common to injury events. All of this information can contribute to the development of effective injury prevention programs. However, this chapter does not examine trends in the occurrence of injuries from previous surveys, because the 2002 survey was conducted during a different season than previous HBSC surveys. Injury patterns change with the seasons; hence an analysis of such temporal trends would be misleading.

Magnitude of the Youth Injury Problem

Injuries represent a common health problem among young people in Canada. The 2002 HBSC survey asked about all injuries requiring medical attention during the previous 12 months and collected detailed descriptions about the most serious of these injuries. This allowed the profiling of these most serious injuries by a variety of factors that contributed to their occurrence. They included personal characteristics of the young people involved, as well as recurrent external causes and consequences of injury. In general, 47 to 60 percent of young Canadians surveyed in 2002 experienced at least one injury that required medical treatment. This was higher than the 30 to 44 percent who reported injuries from past Canadian surveys (King, Boyce, and King, 1999). Although variations in incidence were not strong between groups, boys consistently reported more injuries than did girls (59 percent versus 50 percent overall) and the incidence of injuries peaked in Grade 8 (58 percent). In addition, most victims of injury (54 percent) reported more than one injury event.

Another way of examining the magnitude of the Canadian youth injury problem is by examining lost time attributable to injuries. Figure 9.2 indicates that up to one-third of the students surveyed experienced one or more injuries that were severe enough to keep them from school or other usual activities for at least a day. Applied to the entire population, these rates of lost time represent an enormous burden to Canadian society. Huge numbers of children are missing opportunities to learn and develop. Injuries are also affecting the lives of parents and other family members who need to seek emergency medical care on behalf of the children, as well as to provide time and care in some circumstances during various stages of rehabilitation.

Activities Associated With the Occurrence of Injuries

Figures 9.3 to 9.5 show the diversity of activities that were associated with injuries for students in Grades 6, 8, and 10. They also demonstrate the clear importance of sports and sport injuries in the lives of young Canadians (58 percent of all serious injuries reported). Sports are a major cause of injury in all grades and in both genders. Figure 9.6 also shows that from Grades 6 to 10, the percentage of injuries that happened during organized activities tended to increase. Although this figure represents activities associated with the full spectrum of injuries, a large percentage of these involved sports activities. This reflects the increase of injuries associated with organized sports as youth make the transition from the elementary to high school years. It perhaps also reflects the increased level of organized activities in young people’s lives in general.

Figure 9.2

Students who said they missed one or more days of school or other usual activities due to injury in the past year (%)

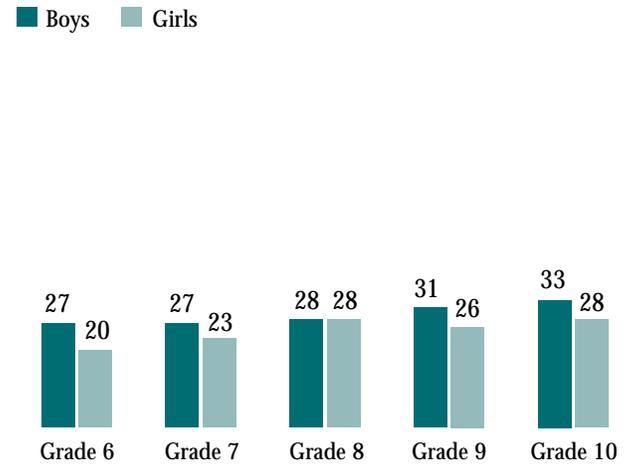


Figure 9.3

Activity prior to injury: Grade 6 (%)

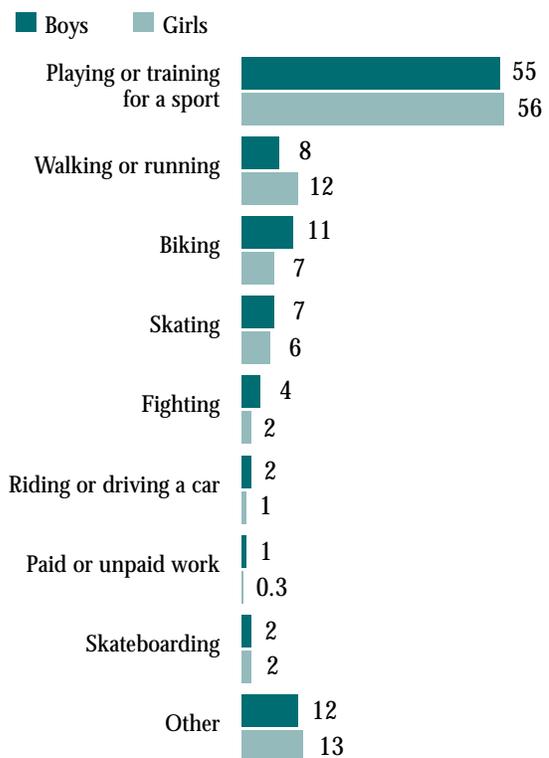


Figure 9.4
Activity prior to injury: Grade 8 (%)

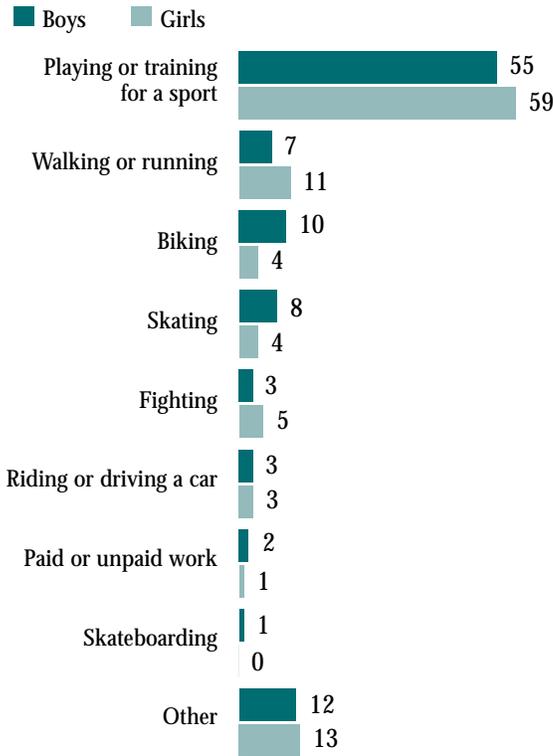
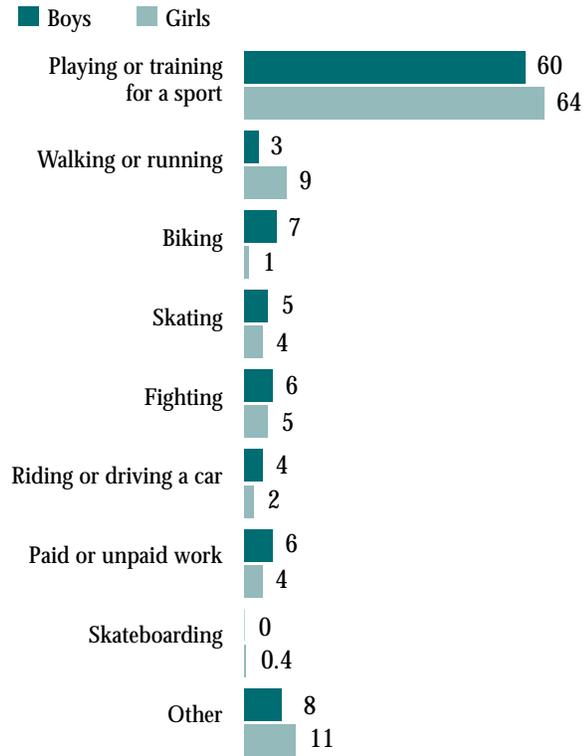


Figure 9.5
Activity prior to injury: Grade 10 (%)



Students were asked to identify the sports that resulted in their injury and whether the injury happened within an organized or non-organized activity. Most injuries (50 percent) occurred in organized team sports, followed by non-organized individual sports activities (18 percent). Canadian sports that most often lead to serious injury include team contact sports such as hockey and football, team non-contact sports such as basketball, soccer, and baseball, and individual sports such as cycling and gymnastics (data not shown).

Other activities are also responsible for important numbers of injuries. While injuries caused by physical fights were relatively uncommon (2 to 5 percent), violence can have a lasting impact on various aspects of health that goes beyond the violent encounter and associated physical injury. Motor vehicle transport injuries, while again relatively uncommon (1 to 4 percent), have great significance for young people in general. Motor vehicle crashes are the leading cause of death and major trauma to school-aged children in Canada (Health Canada, 1999).

Figure 9.6
Organized versus non-organized activities associated with the occurrence of injuries (%)



Locations of Injury

In developing injury prevention programs, it is helpful to understand where injuries most commonly occur. Location can suggest the people and agencies responsible for the environments in which these injuries are happening. Figures 9.7 to 9.9 show that the vast majority of injuries to young people happened at sports facilities (30 percent), home (24 percent), or in school environments (20 percent). The frequency of home injuries fell between Grades 6 and 10, while injuries at sports facilities rose. This reflects the predominance of sports-related injuries in high school youth. The majority of organized sports injuries occur at dedicated sports facilities such as arenas, gymnasiums, and playing fields. Most unorganized sports injuries occur either at homes/yards or in school facilities.

Figure 9.7
Where Grade 6 students were when injured (%)

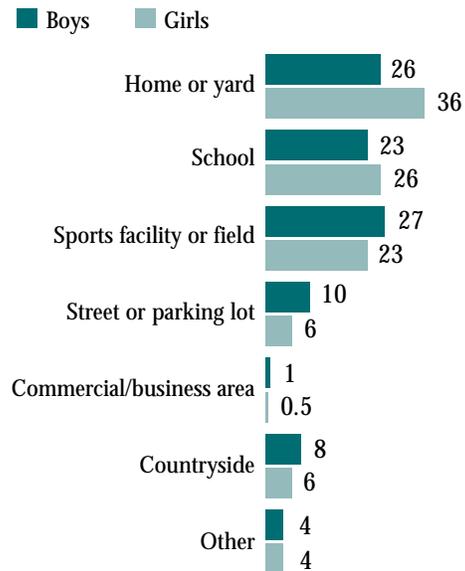


Figure 9.8
Where Grade 8 students were when injured (%)

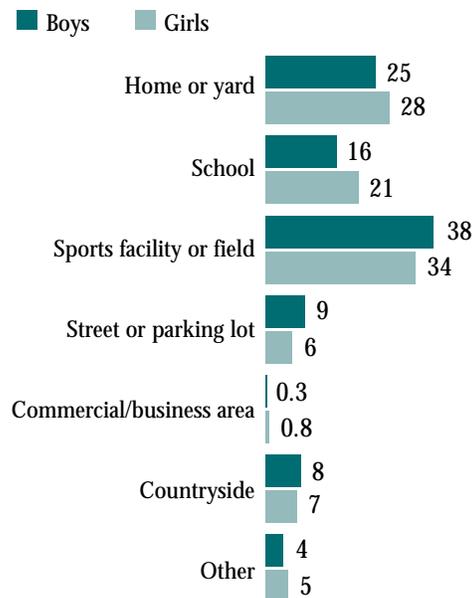
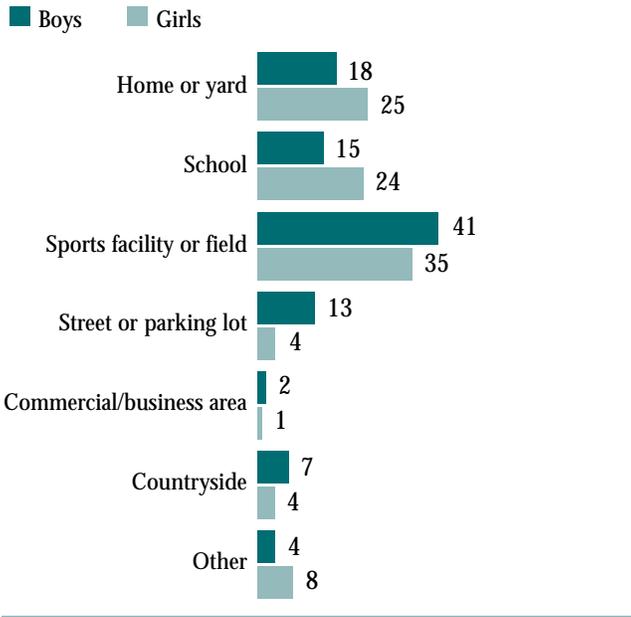


Figure 9.9
Where Grade 10 students were when injured (%)



When Do Injuries Happen?

Students were asked to document the month when their most serious injury occurred (Figure 9.10). Past versions of this survey showed that injuries were most likely to occur in spring and fall (King et al., 1999), when organized sporting activities intensify, especially those that involve physical contact. Summer injury peaks were also observed in association with warm-weather activities.

The 2002 survey was conducted mainly in the winter and early spring, unlike previous HBSC surveys, which were done during the fall and early winter of the school year. In the current survey, a pronounced injury peak was observed in the late winter and early spring. In 1998, two injury peaks were observed in summer and fall months. It is clear that the timing of the current survey affected students' reporting of their one most serious injury. Students tended to report "most serious" injuries as those that were nearest in time to when the survey was conducted.

Figure 9.10
Month when most serious injury occurred, all grades (%)

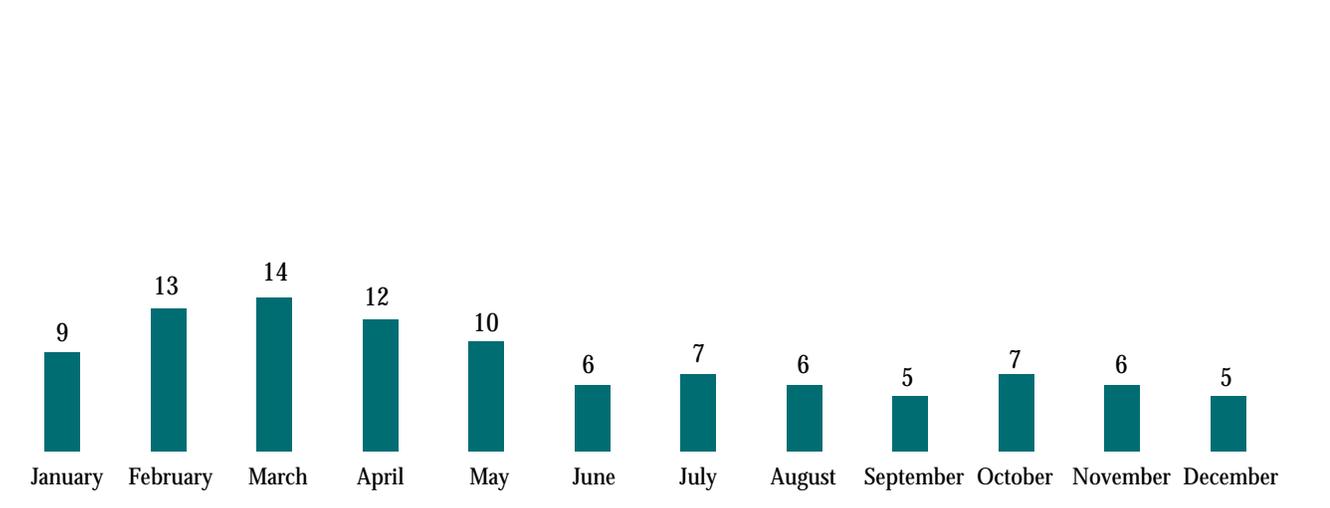
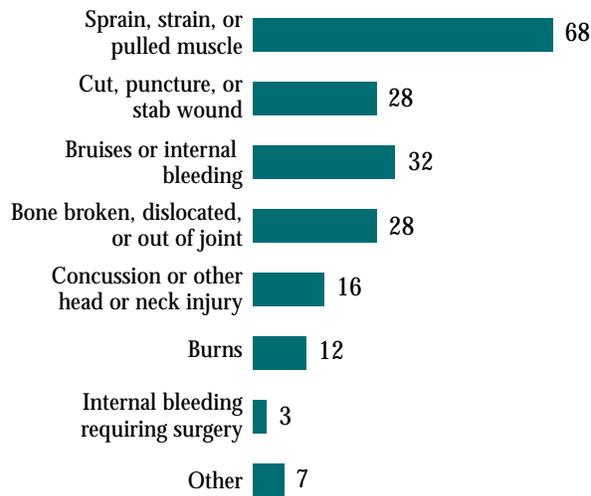
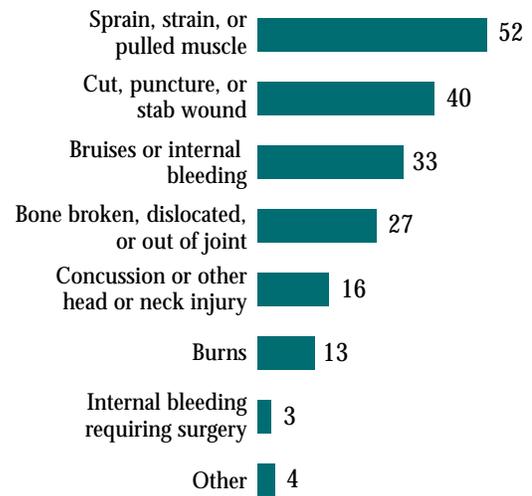


Figure 9.11

Type of injury suffered by students who were playing or training for a sport (%)

**Figure 9.12**

Type of injury suffered by students who were walking or running (%)



Physical Damage Caused by Injury

The types of physical injury varied only slightly according to the activities young people were involved in at the time of injury (Figures 9.11 to 9.13). Sprains, strains, and pulled muscles were the leading types of physical injuries (56 percent). The proportion of injuries that resulted in fractures or dislocations to bones was fairly consistent across activities. Other leading types of physical damage included soft-tissue injuries such as lacerations and bruises, minor head injuries, and burns. These patterns are useful in highlighting recurrent types of injury that can inform the content of first aid and other training programs aimed at the initial medical management of injury events.

Figure 9.13

Type of injury suffered by students who were biking (%)

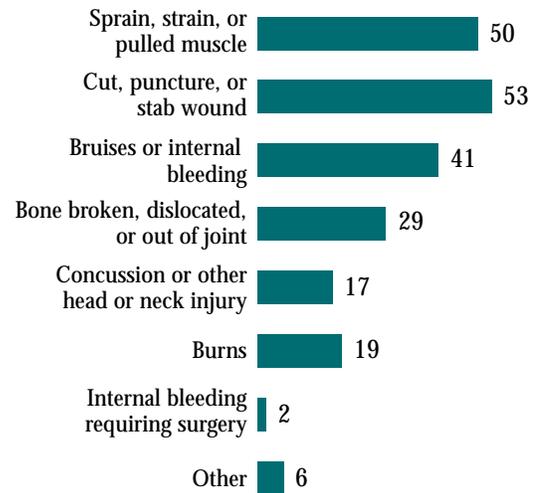


Figure 9.14
Place where treatment was received, Grade 6 (%)

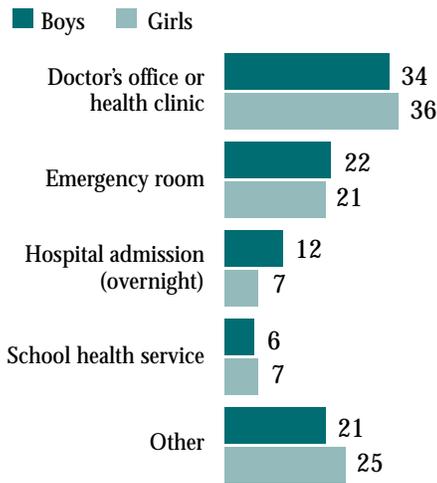


Figure 9.16
Place where treatment was received, Grade 10 (%)

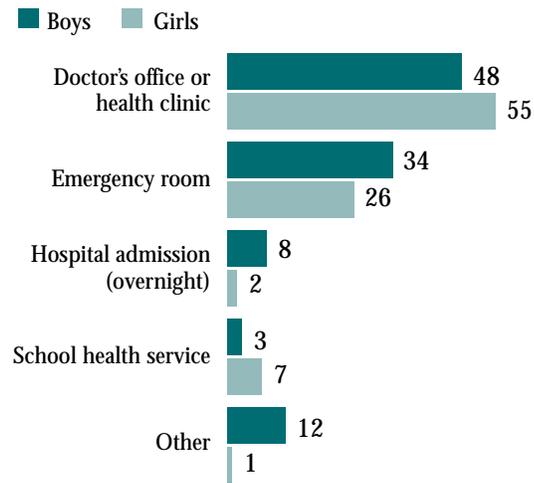
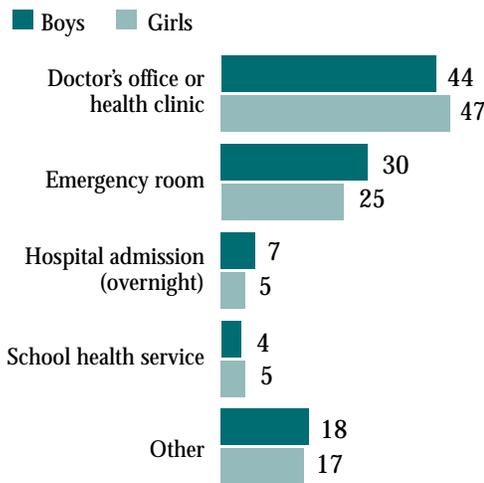


Figure 9.15
Place where treatment was received, Grade 8 (%)



Patterns of Injury Treatment

Figures 9.14 to 9.16 show where students receive medical treatment for their injuries, by grade and gender. Treatment patterns were quite consistent by gender but varied somewhat between grades. The frequency of youth seeking injury treatment from doctors' offices or health clinics rose in the higher grades. Similarly, emergency room treatment was highest in Grade 10. The opposite trend was observed for hospital admissions. Overnight hospital stays were highest in Grade 6 for both genders, although young boys tended to be admitted more often than girls. This likely reflects the fact that on average, the injuries experienced by boys are of greater severity.

Health Risk Behaviours That Lead to Injury

During the teenage years, young people often begin to engage in behaviours that may be detrimental to their health. These include smoking, drinking, social drug use, and aggressive behaviours. They also may ignore accepted safety practices such as the use of seat belts in vehicles. Positive impacts of these behaviours include the opportunities for learning and growth associated with them, which in turn help young people make the transition to adulthood (Jessor, 1991). Yet the negative impacts include the effects these behaviours have on health and well-being. Multiple risk behaviour refers to the engagement of more than one of these behaviours on a regular basis. Irrespective of the impacts, multiple risk behaviour has been observed in groups of young people throughout the world.

The impact of multiple risk behaviour on long-term health has been well established. For example, many chronic diseases, such as heart disease, respiratory disease, and some forms of cancer, are caused by long-term exposures to substances like tobacco and alcohol. The short-term impacts of multiple risk behaviour on youth health are not well understood. One way of exploring them is by examining whether multiple risk behaviour has an influence on injury experiences.

Figure 9.17 shows that in Canada, risks for youth injury rose sharply in accordance with the number of risk behaviours reported. These risk behaviours included smoking, excessive drinking, engagement in bullying, and failure to use seat belts. They were selected to illustrate a general trend that has been observed among youth of various ages, both genders, and for a variety of different types of injury (Pickett, Garner, King, and Boyce, 2002; Pickett, Schmid, and colleagues, 2002).

Figure 9.17

Students who had an injury in the past year requiring treatment by a doctor or nurse, by number of health risk behaviours (HRB) (%)

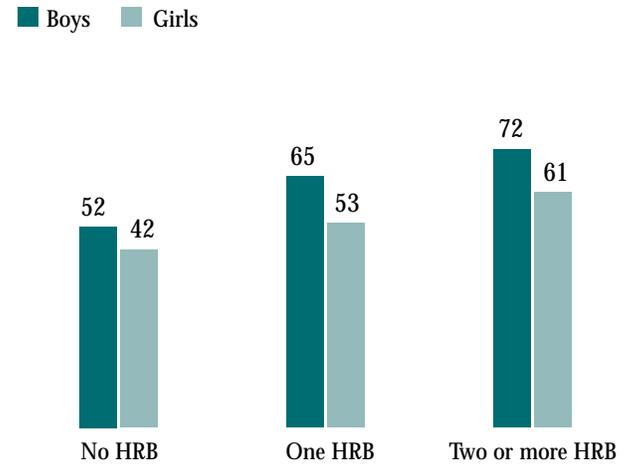


Figure 9.18
 Students who had an injury in the past year requiring treatment by a doctor or nurse, by number of health risk behaviours (HRB) across various countries (% , 1998 HBSC)

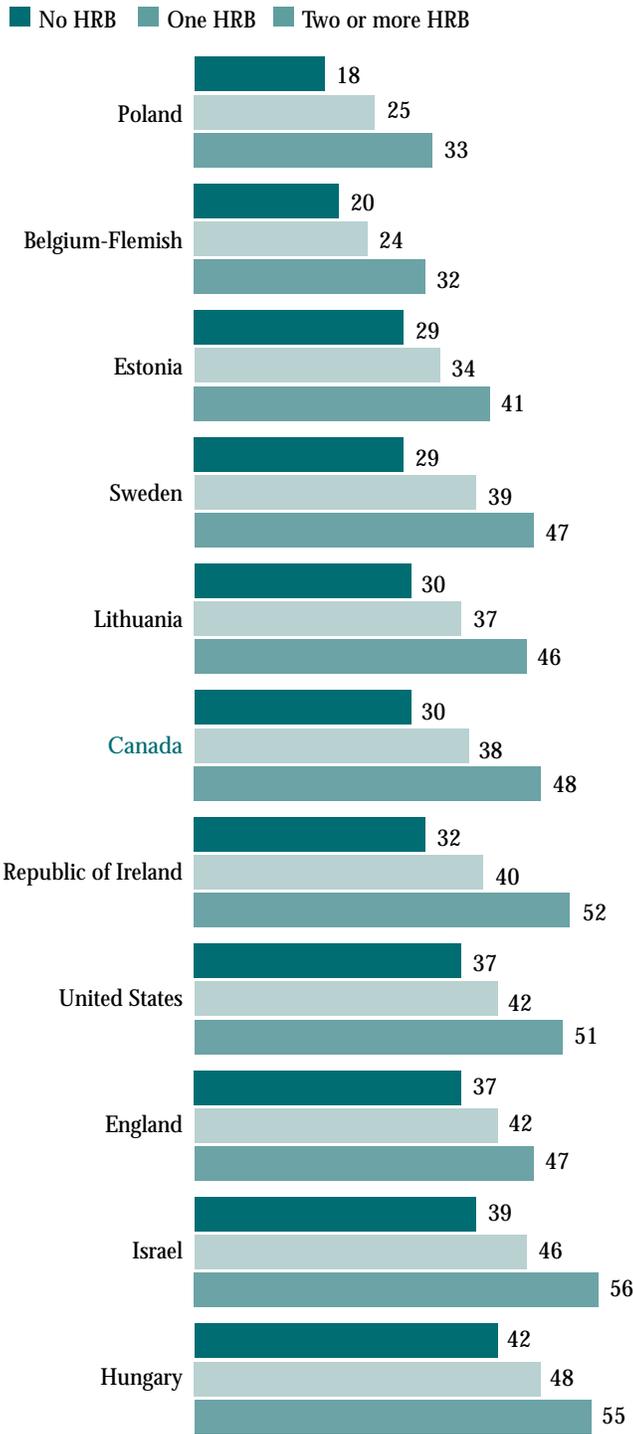


Figure 9.18 uses 1998 HBSC data to show that the association between multiple risk behaviour and injury can be observed in youth in many countries. The interesting differences in rates of injury between the 1998 and 2002 survey years must be interpreted with caution. For a number of practical reasons, questionnaires were not administered in both survey years at the same time of year. Seasonal differences in the occurrence of injury exist, and young people tend to recall the injuries that occurred most recently with more accuracy (Harel and colleagues, 1994). This likely influenced the magnitude of the injury rates observed between survey years but did not alter the trend toward increasing risk for injury with increasing numbers of health risk behaviours reported.



Major Findings

- Injuries among students peaked at Grade 8.
- Slightly more boys than girls reported injuries.
- Students who reported injuries usually said they had more than one injury.
- Most injuries were due to sports activities.
- Organized sports accounted for an increasing proportion of injuries as students got older, even though girls decreased their involvement in organized sports.
- Schools, sports facilities, and the home environment are the main locations for injuries.
- Risk taking was highly related to injuries.

10

Emotional Health

John Freeman

Emotional health should be of concern to all Canadians. Approximately 20 percent of the Canadian population will have some sort of mental health condition during their lifetime (depression, schizophrenia, psychosis, etc.). An estimated 2.5 million Canadians over the age of 18 will experience a depressive disorder (Canadian Mental Health Association, 2002). Additionally, a high proportion (66 percent) of Canada's homelessness (Canadian Mental Health Association, 2002) and suicides (Moscicki, 1999) are related to poor emotional health. Even such high numbers may underestimate the true extent of the problem, given that people may not always be willing to admit they are suffering from emotional health difficulties. This relatively high percentage of persons suffering from emotional health problems has both financial and societal costs. A recent report indicated that \$14.4 billion is spent annually on treating mental illness in Canada (Joubert and Stephens, 2001), with this amount expected to increase to the point that mental illness will represent the leading health cost in the country by 2020 (Canadian Psychiatric Association, 2001).



Jessica Ackley

Emotional health problems that arise in adolescents need not continue throughout their lifespan (Elder and Crosnoe, 2002). With proper treatment, such as personal and/or group counselling or medication, most individuals can lead healthy and productive lives (Diverty and Beaudet, 1997). Therefore, it is essential that we gain an understanding of the extent of emotional health problems among Canadian adolescents and what contributes to them so that they can be treated appropriately.

The 2002 HBSC survey measured emotional health across Grades 6 to 10 in two ways: symptomatically and globally. At a symptomatic level, an eight-item checklist of psychosomatic complaints was used. The scale had four items measuring psychological indicators of emotional health (feeling depressed or low, irritability or bad mood, feeling nervous, feeling dizzy) and four items measuring somatic factors (headache, stomach ache, backache, difficulties getting to sleep). The scale is flexible in that both summary scores (Haugland, Wold, Stevenson, Aarø, and Woynarowska, 2001) and individual item scores (Torsheim and Wold, 2001) are meaningful. For each of these emotional health indicators, adolescents were asked how often they had experienced the complaint in the past six months (“about every day,” “more than once a week,” “about every week,” “about every month,” and “rarely or never”).

Two global questions were also used to ask students how they viewed their health. The first item on life satisfaction asked students to rate their life on an 11-point ladder scale, with “10” representing the best possible life and “0” the worst possible life. This life satisfaction ladder has been shown to be a valid instrument in judging life satisfaction in adults (Cantril, 1965), although it has yet to be validated as a measure of adolescent life satisfaction. A second question on perceived health simply asked youth to indicate whether their health was “excellent,” “good,” “fair,” or “poor;” this item has been a useful measure of emotional health in large epidemiological surveys (Idler and Benyamini, 1997).

Psychosomatic Indicators of Emotional Health

For this report, we examined four individual symptoms of emotional health (two somatic and two psychological): headaches, backaches, feeling depressed or low, and irritability or bad mood. These symptoms were selected on the basis of their having been the focus of previous HBSC reports in Canada (e.g., King, Boyce, and King, 1999).



Angela Solar

Headaches

Headaches are an increasing focus of research in recent years, as their relationship to adolescent stress has been strongly documented (Reynolds, O’Koon, Papademetriou, and Szczygiel, 2001; Waldie, 2001). Figure 10.1 shows the percentage of adolescents who reported having a headache at least weekly. At each grade level, substantially greater numbers of girls than boys reported weekly headaches. For example, while 19 percent of Grade 6 boys reported at least weekly headaches, 27 percent of girls reported this level of headaches. The number of reported headaches grew with grade level for both boys and girls. This increase was most precipitous for girls between Grades 7 and 8 (33 percent and 43 percent, respectively).

The downward trend in headaches noted in the previous report (King et al., 1999) continued in 2002, with the exception of Grade 8 girls and Grade 10 boys (Figure 10.2). For these two groups, the level of headaches was higher than in the two HBSC previous surveys. For Grade 8 boys – the only group in which headaches increased from 1994 to 1998 – headaches were at the lowest level in the past three surveys.

Figure 10.1

Students who had headaches at least once a week in the past six months (%)

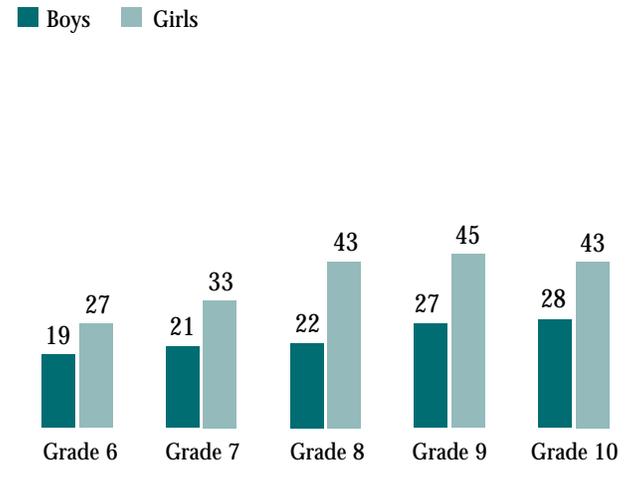


Figure 10.2

Students who had headaches at least once a week in the past six months, by year of survey (%)

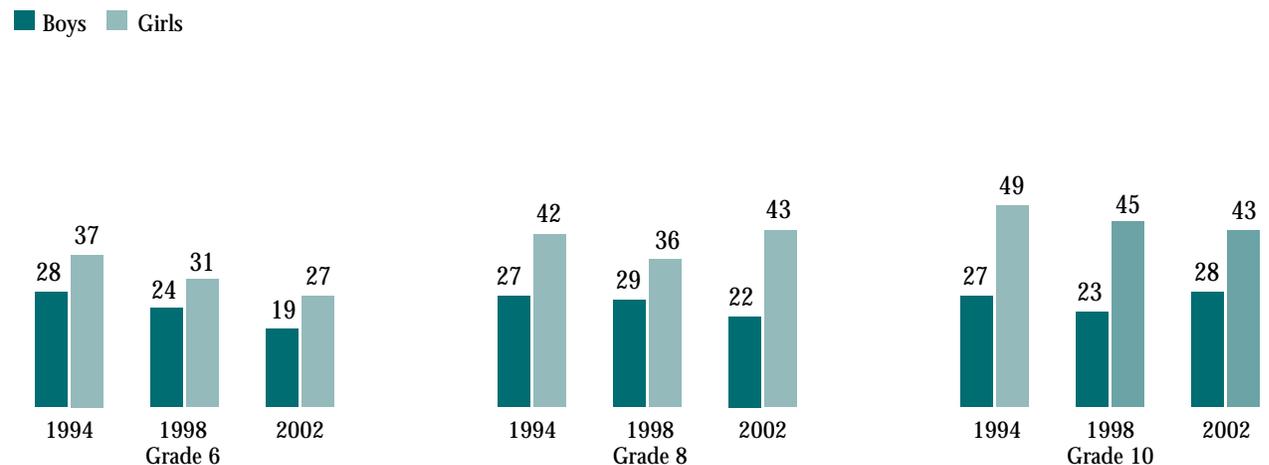
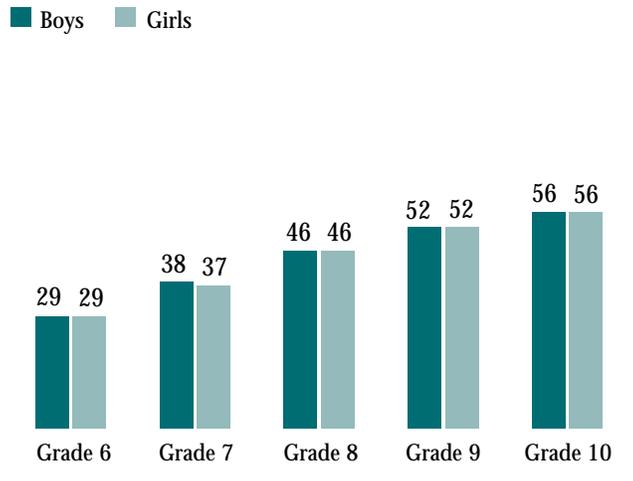


Figure 10.3
Students who had backaches at least once a month in the past six months (%)

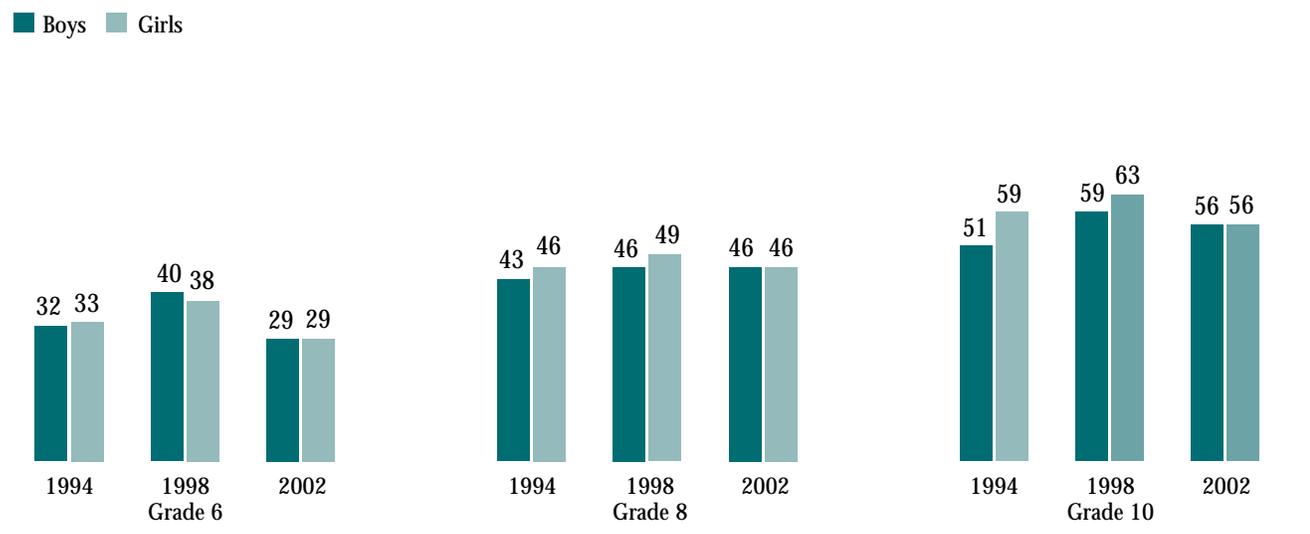


Backaches

Unlike most other indicators of emotional health, reports of backaches were similar for boys and girls (Figure 10.3). The number of backaches grew steadily by grade, with the steepest increase occurring after Grade 7 (similar to what was found for girls in terms of headaches).

The trend analysis for backaches (Figure 10.4) indicated no systematic pattern over the past three surveys. However, at each grade level, the number of reported backaches decreased for both boys and girls since 1998. The only exception to this pattern was Grade 8 boys, whose report of backaches remained steady at 46 percent. The largest drop between surveys was among Grade 6 students, decreasing from 40 percent to 29 percent among boys and from 38 percent to 29 percent among girls.

Figure 10.4
Students who had backaches at least once a month in the past six months, by year of survey (%)



Feeling Depressed or Low

Figure 10.5 indicates the percentage of students who reported that they felt depressed or low at least weekly during the past six months. For Grade 6 to 10 boys, the self-reported incidence of depression increased only marginally from 21 percent to 25 percent, while the incidence rose sharply for girls from 23 percent to 36 percent. These self-reports of depression were congruent with, but slightly higher than, the incidence of diagnosable psychiatric disorders of almost 20 percent reported for children and youth by the Canadian Mental Health Association (2002). The gender differences were also similar to those identified using clinical measures of depression (Wade, Cairney, and Pevalin, 2002). Analysis of previous surveys indicate that self-reports of depression or feeling low remained essentially unchanged across the years (Figure 10.6).

Figure 10.5

Students who felt depressed or low at least once a week in the past six months (%)

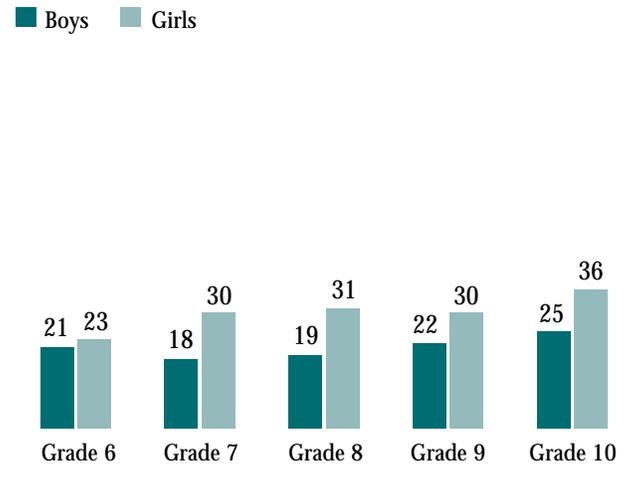


Figure 10.6

Students who felt depressed or low at least once a week in the past six months, by year of survey (%)

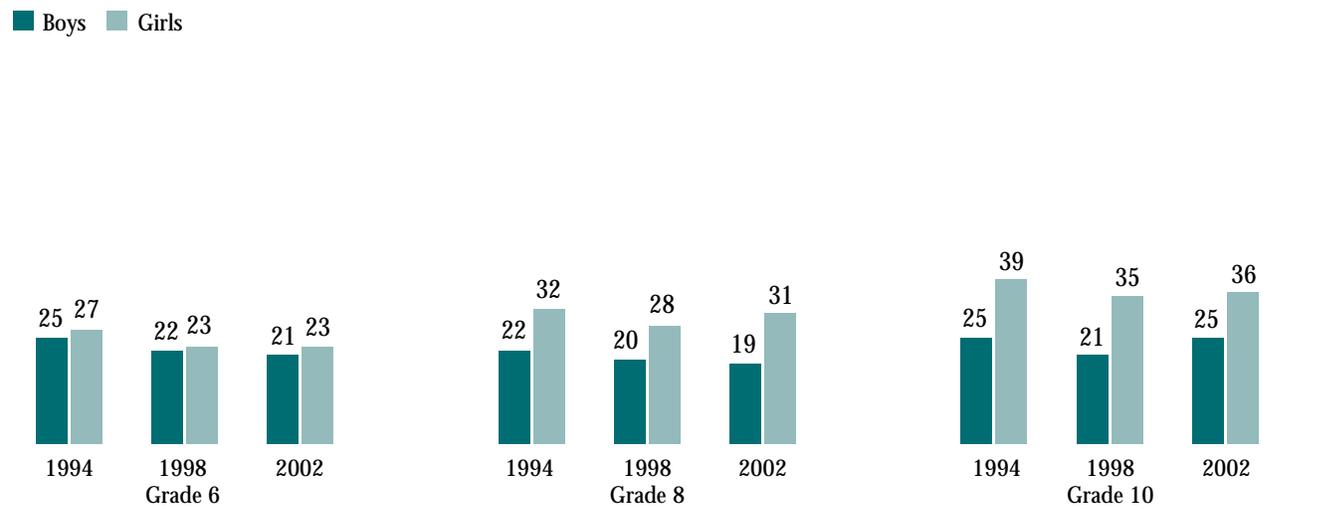
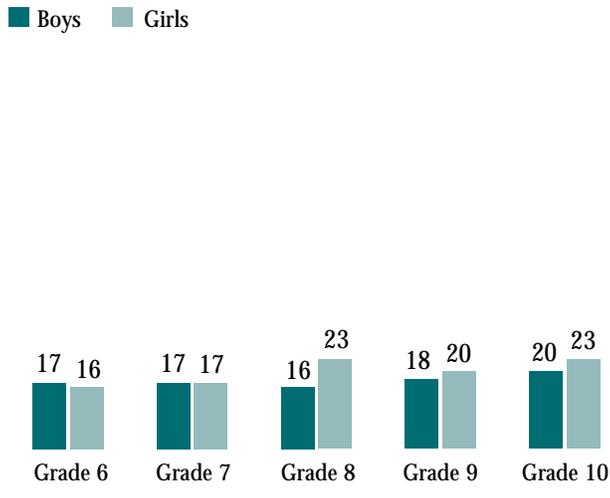


Figure 10.7
Students who were in a bad mood or irritable once a week in the past six months (%)



Irritability or Bad Mood

The differences between boys and girls noted for headaches and feeling depressed were less pronounced for irritability or bad mood (see Figure 10.7). In Grade 8, more girls than boys reported irritability or bad mood (23 percent, compared with 16 percent), while gender differences were not significant at the other grade levels. Being in a bad mood increased the most for girls between Grades 7 and 8 (from 17 percent to 23 percent), similar to the pattern found earlier for headaches and backaches.

Figure 10.8 reveals a strong downward trend in self-reports of irritability more than once a week among Grade 6 students from 1994 to 2002. Both boys and girls in Grade 6 reported fewer episodes of irritability over the past three surveys. Such a trend was also evident for Grade 8 boys and, to a lesser extent, for Grade 10 girls. Reasons behind this continuing trend are not immediately apparent.

Figure 10.8
Students who were in a bad mood or irritable at least once a week in the past six months, by year of survey (%)

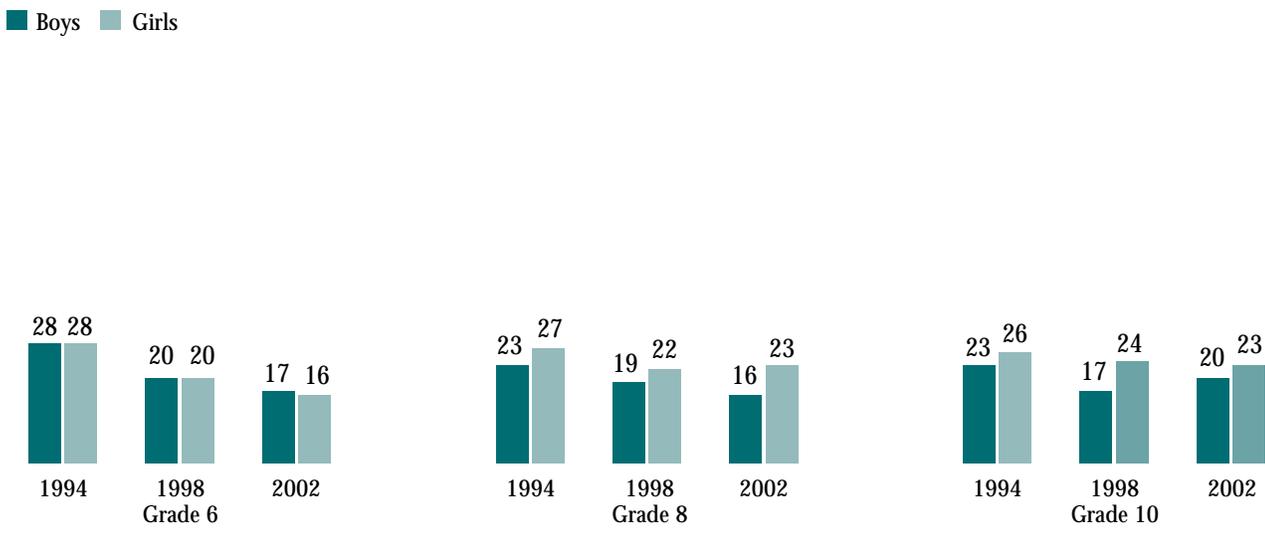
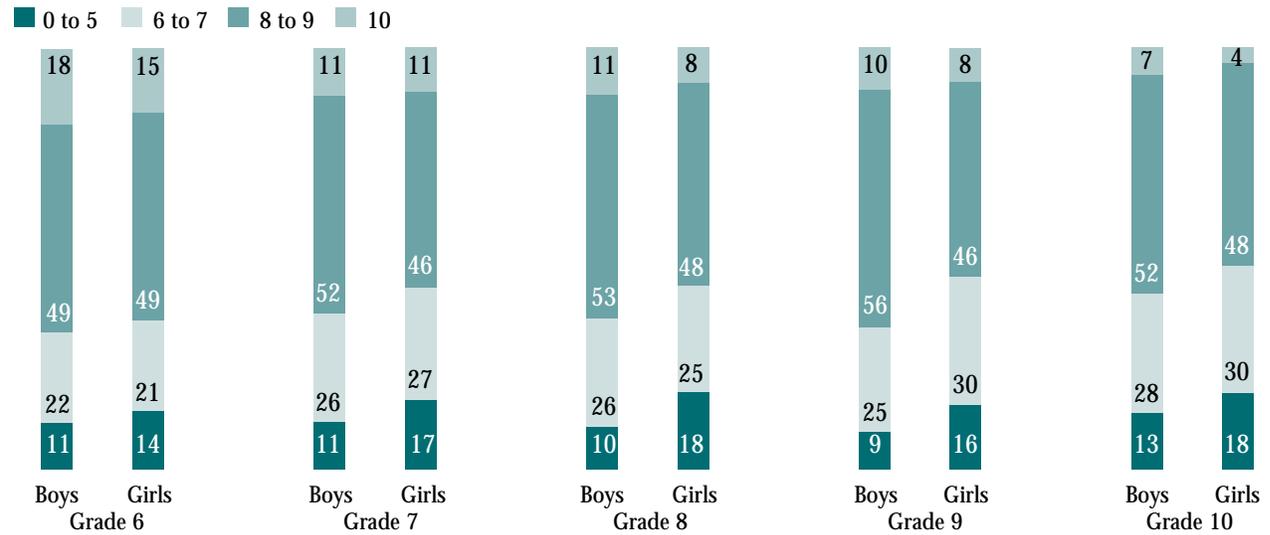


Figure 10.9

How students rated life out of 10 (%)



Global Views of Emotional Health

Life Satisfaction

Across grade levels, relatively few students rated their life satisfaction as “10” (Figure 10.9). Grade 10 girls were particularly unlikely to give this highest rating for their life satisfaction (4 percent). In contrast, 18 percent of Grade 6 boys were perfectly satisfied (a rating of “10”) with their lives.

Although relatively few adolescents rated their life satisfaction as “10,” the majority in each group gave themselves at least “8” on life satisfaction. Once again, the most satisfied group was Grade 6 boys (67 percent gave themselves “8” to “10”), and the least satisfied group was Grade 10 girls (52 percent gave themselves “8” to “10”). Indeed, life satisfaction was consistently higher for boys than for girls across all grade levels, while life satisfaction decreased progressively across grades.

Table 10.1 relates student life satisfaction to other measures from the study. The numbers presented are Pearson Correlation Coefficients that indicate the strength of the relationship between the measures across the entire range of the scales, with higher correlations designating stronger relationships; no relationship is indicated by a zero, while a perfect relationship is one. The wording of the items identified the direction of the relationships.

As might be expected, life satisfaction was positively associated with other measures of emotional health, such as perceived health and absence of psychosomatic symptoms (Table 10.1). In addition, adolescents who were satisfied with their lives tended to have higher levels of self-esteem. The strongest influence on life satisfaction was students’ relationship with parents. Families may act as a foundation for experience in the social world through providing a sense of security (Chubb and Fertman, 1992) and by encouraging an adolescent to develop a strong sense of identity (Noller and Callan, 1991). Family functioning in terms of good parental problem solving (Vuchinich and de Baryshe, 1997), family responsibility taking (Taylor et al.,

Table 10.1

Factors associated with students rating their lives positively (correlation coefficients*)

	Grade 6		Grade 8		Grade 10	
	Boys	Girls	Boys	Girls	Boys	Girls
Good or excellent health	0.41	0.39	0.38	0.42	0.45	0.40
Positive self-esteem**	0.45	0.44	0.44	0.51	0.45	0.55
Absence of psychosomatic symptoms**	0.35	0.38	0.38	0.33	0.29	0.38
Positive relationship with parents**	0.48	0.47	0.52	0.52	0.50	0.54
Positive on decision making**	0.20	0.23	0.16	0.25	0.17	0.25
Well integrated socially**	0.18	0.15	0.23	0.10	0.22	0.20

* Correlation coefficient: weak (less than or equal to 0.20); moderate (between 0.21 and 0.39); strong (equal to or greater than 0.40).

** scale scores

1997), and positive parental treatment (DeHaan and MacDermid, 1998) all may contribute to positive emotional health as measured by life satisfaction.

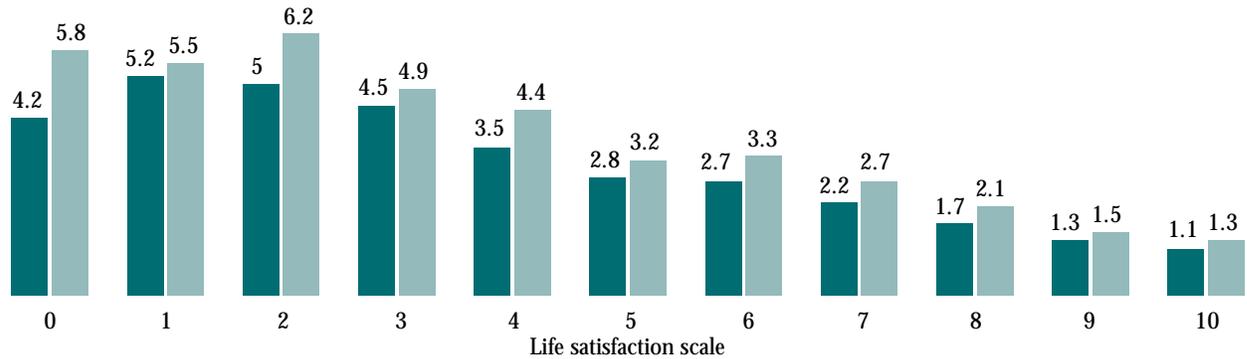
In contrast, being well integrated socially was less strongly related to life satisfaction for students in the survey. Being well integrated socially reflects only the degree of social integration and not the nature of peer influence used in the related measure employed in Chapter 4, The Peer Group. Some authors have argued that during adolescence, social needs shift, with an increased requirement for interpersonal intimacy (Erdley, Nangle, Newman, and Carpenter, 2001); however, the apparent contribution of social integration to life satisfaction in the HBSC sample was low. This greater influence of family in comparison with peers may be related to the fact that parents provide an ongoing support for their children through many years and also that emotional health develops over an extended period.

To see whether adolescents who had higher levels of life satisfaction were less prone to psychosomatic symptoms, the mean number of symptoms (ranging from 0 to 8) experienced by a student once a week or more was calculated. As expected, the more satisfied that students were with their lives, the less likely they were to experience emotional health complaints (Figure 10.10). The contrast in symptoms was especially dramatic between those who were least satisfied and those who were most satisfied with their lives. For example, girls who rated their life satisfaction as “10” had an average of 1.3 psychosomatic symptoms. In comparison, those who rated their life satisfaction as “0” had an average of 5.8 symptoms. For boys, the comparable averages were 1.1 and 4.2 symptoms. The highest levels of psychosomatic symptoms reported by boys were for those who rated their life satisfaction as “1”; the highest levels of psychosomatic symptoms for girls were for those who rated their life satisfaction as “2.”

Figure 10.10

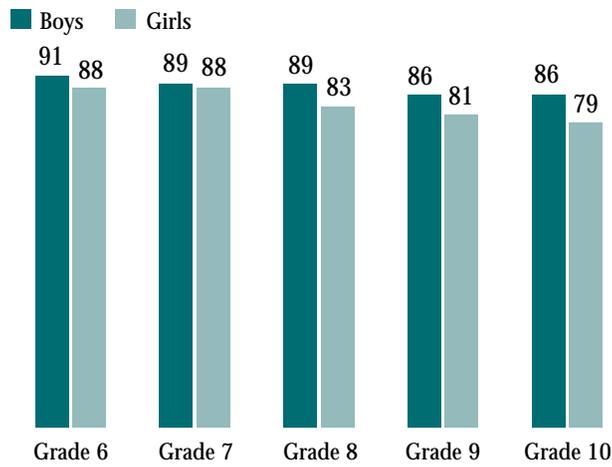
Mean number of psychosomatic symptoms, by how students rated life out of 10

■ Boys ■ Girls



In addition, regardless of life satisfaction, girls experienced more emotional health complaints. The steep increase in health complaints for girls along the life satisfaction scale indicates that psychosomatic symptoms may be a better means of distinguishing girls who are at risk for emotional health problems than is a general life satisfaction scale.

Figure 10.11
Students who reported good and excellent perceived health (%)



Perceived Health

The self-reported perceived health of adolescents provided a second measure of their emotional health (Figure 10.11). Across grade levels, boys more frequently than girls, rated their health as “excellent” or “good.” However, while the difference between genders was slight in the younger grades (91 percent versus 88 percent in Grade 6; 89 percent versus 88 percent in Grade 7), the difference increased in Grades 8 to 10. This sudden change between Grade 7 and Grade 8 for girls was also seen in the psychosomatic symptoms. Girls in Grades 7 and 8 may be at a particularly difficult transition point in their lives as is evident in the decrease in their perceived health. This, perhaps, can be attributed to developmental and pubertal changes and the associated physical and emotional symptoms that accompany menarche, such as headache, stomach ache, backache, depression, and irritability.

The factors associated with perceived health mirrored those associated with life satisfaction (Table 10.2). Like life satisfaction, parent relationships played a stronger role in promoting perceived health than did social integration.

Table 10.2
Factors associated with positive perceived health (correlation coefficients*)

	Grade 6		Grade 8		Grade 10	
	Boys	Girls	Boys	Girls	Boys	Girls
Rated life positively	0.41	0.39	0.38	0.42	0.45	0.40
Positive self-esteem**	0.32	0.28	0.29	0.37	0.29	0.36
Absence of psychosomatic symptoms**	0.29	0.29	0.23	0.33	0.29	0.32
Positive relationship with parents**	0.32	0.23	0.23	0.29	0.29	0.27
Positive on decision making**	0.21	0.21	0.11	0.17	0.13	0.13
Well integrated socially**	0.09	0.13	0.17	0.12	0.18	0.13

* Correlation coefficient: weak (less than or equal to 0.20); moderate (between 0.21 and 0.39); strong (equal to or greater than 0.40).

** scale scores

Major Findings

- Girls were more likely to report somatic (headache) and psychological (depression) symptoms, and this increased with age.
- Students reporting fewer psychosomatic symptoms were more satisfied with their lives.
- Poor emotional health of students was associated with lower life satisfaction and lower subjective health in higher grades.
- Good parent and peer relationships were related to global measures of life satisfaction and overall health.
- Life satisfaction was more strongly related to positive relationships with parents than to social integration with peers.

11

Conclusions

William Boyce



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The main purpose of this report was to examine patterns in the determinants of health of Canadian youth. A further goal was to examine selected trends in the health of Canadian youth from 1990 to 2002. The HBSC study was not designed to assess the impact of specific social, educational, and health system changes on the health of youth but to note only whether changes in the outcomes and determinants of youth health have occurred.

In this study, gender was a strong determinant of many aspects of adolescent life: physical and emotional health; satisfaction with school and home; healthy living patterns; and bullying and injuries. Socio-economic inequalities associated with family wealth and social status (for example, parent occupation) were also pronounced. A significant proportion of students indicated that their families were not well off, and alarming, although small, numbers of adolescents reported that they sometimes went to bed hungry. One-quarter of students reported that either their father or mother was unemployed. However, the majority of youth also stated that their families had material possessions such as cars and computers. The

inequality between these two extremes may lead to compromised population health outcomes. For instance, an important relationship between socio-economic inequality and adolescent health outcomes was indicated by the fact that students who had a middle or high family affluence scale score were significantly more likely to report better health status, higher life satisfaction, and better home and parent relationships. The causes of these differences in socio-economic determinants of adolescent health need to be addressed by a variety of income support and employment strategies.

This research has confirmed other studies that show how connectedness to one's parents, exemplified by feelings of trust, openness, and support, appear to be essential protective factors associated with positive health and healthy behaviours (Resnick and colleagues, 1997; Resnick, 2000). Lower levels of connectedness to parents in older girls may indicate conflict with parents over young women's roles in society. Most adolescents considered their parents as primary attachment figures, even as their social allegiances shifted more toward their peers. These HBSC findings concur with

others which show that adolescents with strong connectedness to their parents demonstrate positive psychosocial functioning (Jackson, Bijstra, Oostra, and Bosma, 1998) and less involvement in risk taking (Garnier and Stein, 2002). As mentioned previously, the relationship of adequate socio-economic status (SES) to a positive home environment appears to be crucial. Community level interventions that facilitate the home setting, such as parent-school collaborations, parent-youth social interactions, and parent involvement in youth organizations, may provide opportunities not only to solidify individual families but also to test models of community cooperation and responsibility for youth well-being.

In the HBSC survey, adolescent friendships with peers had both positive and negative features. Social integration with friends had significant beneficial impacts on psychosocial and behavioural outcomes. In contrast, adolescents whose friends were involved in risk behaviours were more likely to be involved in those behaviours themselves. However, having friends who were not involved in risk behaviours was associated with less risk taking in those students who did not have many friends. It appeared that students who were not well integrated socially and who had negative peer influences felt unhappy at home, had a desire to leave home at times, did not feel that they belonged at school, and felt lonely or left out of things. Finally, girls seemed to be slightly less comfortable in cross-gender peer communication.

A large portion of adolescents' lives are spent in schools interacting with teachers and peers. In terms of the school experience, two general patterns were found throughout the study. First, students who had positive experiences in school were less likely to participate in health risk behaviours or to have negative views of their lives. Teachers, parents, and peers each had an influence on the decisions and behaviours of

school-aged youth, and positive school experiences were associated with healthy teacher, parent, and peer relationships. These students were more likely to feel good about their health and their overall lives. Unfortunately, it is not possible from this survey to determine whether negative school experiences result in increased health risk behaviours; it can show only that these associations are present.

As well, secondary students' perception of school tended to be more negative than that of elementary students. Similarly, boys had more overall negative views of school than did girls. This decline in positive attitudes toward secondary school may be associated with the changing school structure found in the upper grade levels; it also may be attributable to these students having external competing interests. Certainly, students believed the secondary classroom to be less student-centred than the elementary classroom, a situation that may be contrary to their developmental needs for autonomy. However, boys also reported higher levels of outside activities that directly or indirectly compete with school. A case may be made that boys increasingly find secondary school less relevant to their immediate lives. On the other hand, girls appeared to adapt better to secondary school, in contrast to their experiences at home. Overall, these findings fit with other evidence that the number of male post-secondary students is decreasing relative to the number of females pursuing post-secondary education.

In regard to adolescent risk behaviours, smoking, substance use, and early unprotected sexual activity are linked to various preventable diseases and illnesses. However, these behaviours occur within such a complex interaction of psychosocial, economic, and environmental determinants that targeting a single cause in health promotion efforts is unlikely to be successful. Consequently, monitoring adolescent smoking and substance use and their correlates

is crucial for health and social service programs aimed at young people. Although smoking rates for boys remained unchanged since the last survey in 1998, it is encouraging to notice a decline in the proportion of Grade 10 girls in the 2002 HBSC sample who smoked. Experimentation with alcohol is a behaviour that occurred early, with rates of alcohol consumption increasing significantly between the ages of 12 and 14 years. Interestingly, almost as many girls as boys reported engaging in binge drinking, indicating that excessive alcohol use is a feature of adolescent social events.

The Canadian Association of Liquor Jurisdictions considers underage drinking and its consequences a serious issue, and since 2003, with the participation of all 13 provincial and territorial liquor boards and corporations, has coordinated an awareness campaign to educate the public on the issue of minors and alcohol, and the fact that supplying alcohol to minors is a major offence.

Marijuana use was still popular among adolescents and increased in use among Grade 10 boys. The use of other drugs remained fairly stable among youth, except for LSD use, which decreased considerably since the last survey.

Findings in the 2002 HBSC survey indicate that slightly over one-quarter of Canadian students in Grade 10 engaged in sexual intercourse. Over two-thirds of those sexually active students used condoms the last time they had sexual intercourse, and just under one-half used birth control pills. However, students who engaged in sexual intercourse at least once by Grade 10 were substantially more likely to be involved with risk behaviours such as smoking, marijuana use, and getting drunk. These findings support the notion that early sexual activity occurs within the context of other risk taking. Harm reduction programs for such adolescent risk behaviours may have a good chance of reversing the risks of sexually related disease

and social problems in adulthood. However, the increased vulnerability of younger adolescents to coercion, pregnancy, and sexually transmitted disease suggests that more attention should be paid to this age group in sexual health promotion and disease prevention efforts in schools.

Thus, early onset of risk behaviours and involvement with risk-taking peers are two of the strongest predictors of negative adolescent health outcomes. However, debate arises regarding the manner in which this association between peers and risk taking develops. One explanation, known as peer pressure, suggests that peers impose values and behaviours on others to maintain the social attractiveness and power dynamics of the peer group. One intervention appropriate to this theory would be to encourage youth to set their own standards and to withstand pressure from others by building their self-confidence. The other explanation, known as social selection and socialization (Reed and Rountree, 1997), suggests that adverse circumstances in the lives of adolescents, such as dissatisfaction with home or school, initiates risk-taking behaviours by youth as expressions of discontent with their lives and society as a whole. Youths with similar problems, and similar reactions, then gather together for social support; risk behaviours become a medium for their social interaction. An intervention appropriate to this theory would be to address the student's lack of connection with the home or school environment, rather than changing the peer group. The HBSC survey does not allow full examination of either theory, since it cannot identify which occurred first, the peer involvement or the risk behaviour. Yet it is clear that those adolescents whose friends were involved in risk behaviours were more likely to be involved in those behaviours themselves.

Healthy living for youth encompasses a wide range of behaviours, such as nutritional habits, involvement in both organized and casual physi-

cal activities, and weight maintenance. Physical activity and nutritional behaviours that are learned in childhood are more likely to carry through into adulthood and affect one's lifestyle and health status. Personal dental hygiene is also a component of living in a healthy way, as is moderate use of medication to counteract some of the physical symptoms experienced by young people.

While the fact that the HBSC survey measured frequency, rather than quantity, of food consumption makes the overall assessment of nutritional well-being difficult, the study results do have general relevance and point to areas of concern. Many younger students seemed to be following healthy eating habits, such as having breakfast during weekdays and consuming fruits and vegetables. This pattern changed for older students as they spend more time away from home and rely more on their own choices regarding what they eat.

Student levels of physical activity were encouraging, although surprisingly low levels of exercise within schools were reported. This is not surprising considering the tightening in school budgets across Canada and the impact that has had on physical education and extra-curricular programs (Andersen, 2000). It is interesting to note a significant gender difference in physical activity, both in and out of school, indicating that engagement in sports is still primarily a male domain and that schools could do more to involve girls in physical activities.

Overall, the results of the Body Mass Index measure for adolescents appeared satisfactory, with only moderate proportions of overweight and obese youth, but weight management practices of adolescents varied. For example, girls, especially in Grade 10, were concerned about their weight more than boys were and reported lower consumption of soft drinks and potato chips; but they were also less physically active, compared with boys, and often relied on diets to control their weights. Girls' obsession with body image that is constantly portrayed by the media

may cause them to engage in "ineffective and harmful weight loss behaviours" (LeBlanc, 2003, p. 329).

Instead of engaging in sports and exercise during leisure time, younger girls seemed to participate more in clubs or organizations, although the gender difference disappeared in Grades 9 and 10. Levels of television watching can be an indication of a sedentary lifestyle. A high proportion of students reported that they watched several hours or more of television each day. Recreational computer use was also quite high as more than one-half of older students indicated that they spent a moderate amount of time each weekday playing computer games.

Regarding health symptoms, older girls were far more likely to indicate regular use of medications for headaches, and to report wheezing as a common symptom; however, a slightly lower proportion of girls than boys indicated that they had been actually diagnosed with asthma. This could possibly reflect an unconscious bias in diagnostic practices.

The prevalence and characteristics of bullying in youth have several policy implications. First, adolescents varied in their involvement in bullying and/or victimization and consequently require different levels of support and intervention. Not all youth were equally at risk for involvement in bullying and/or victimization – and the risks associated with these may relate to the severity, frequency, duration, and pervasiveness of the involvement. The majority of students in the study were relatively uninvolved as the perpetrator or the victim of bullying, although they were negatively influenced when they formed the peer group that watched bullying. For these youth, a universal program (directed to all students) will likely be effective in the prevention of bullying. The group of students who were more directly involved at least occasionally in bullying may experience some negative effects. These youth may require sup-

port, such as school intervention and mediation, which goes beyond a universal program. Finally, a small minority of students were involved in frequent and serious bullying and/or victim problems. These youth have the most significant adjustment difficulties and require identification and more intensive interventions such as counselling.

Second, there were changes in bullying and victimization with age. The reported prevalence of bullying and victimization generally peaked in Grade 8 for girls and in Grade 10 for boys. In the case of girls, the behaviour tended to decrease over time, while the patterns were not consistent for boys. From a policy perspective, early intervention (i.e., before bullying increases in prevalence) would prevent or reduce the problem behaviours before they emerge. Thus, prevention programs need to be put in place long before Grade 8 to reduce bullying effectively.

Third, the various types of bullying behaviours need different targets of intervention for youth. The HBSC results suggest that bullying is a behaviour that takes many forms and that some, such as verbal harassment, are more common than others. The range of harassing behaviours experienced by victimized young people highlights the need to help aggressive youth identify these behaviours as forms of harassment and to teach them respect for differences, whether these be sexual, ethnic, or religious. There is also a need to design intervention programs that recognize the changing forms of bullying as students age.

Finally, there is mounting evidence to suggest that students who bully others, or are victimized by others, are at the highest risk for long-term difficulties. In Canada, there is also a particularly high number of bully/victims. The high prevalence of students who reported bullying others, being victimized by others, or engaging in both types of behaviours highlights the urgency to address this significant problem and ensure that every student is safe at school.

Injury is one of the most serious health problems facing school-aged youth throughout the world. As many as 50 percent of Canadian students in the 2002 survey reported having had an injury during the past year requiring medical attention. These injuries, and their consequences in terms of treatment and in time lost from school, contribute an enormous burden to the health of young Canadians and society. The HBSC survey shows that some students are more at risk for injury than are others. Boys consistently experienced more injuries than did girls, and the incidence of injuries peaked in Grade 8. As young people began to engage in multiple risk behaviours, such as smoking, drinking, bullying, and a failure to use seat belts, their risk for injury consistently increased. This association has also been observed internationally (Pickett, Schmid, Boyce, and colleagues, 2002).

The HBSC study profiles circumstances that are common to youth injuries. While sports injuries happened during various activities and in many locations, the percentage of injuries that occurred during organized activities grew substantially in the older grades. The vast majority of sports and other types of injuries happened in controlled environments, including the home, school, or sports facilities. Major types of physical damage ranged from sprains and strains to lacerations, bruises, fractures, and head injuries. While the forms of health care treatment sought were consistent for both genders, treatment in doctors' offices or health care clinics and emergency departments was highest for Grade 10 students, while the need for admission to hospital peaked for Grade 6 boys.

Results of the HBSC survey are helpful in identifying priorities for injury prevention among school-aged youth in Canada. They provide direction to injury control efforts and where these could be best targeted. They also illustrate the need to continually improve the safety of school and sports-related environments

and to enhance first aid and other programs aimed at the initial response to these injuries. Finally, the importance that multiple risk behaviours play as a potential cause of injury among youth throughout the world needs to be recognized and addressed in prevention initiatives.

In terms of youth emotional health, the various HBSC measures present a fairly consistent picture. Most of the adolescents in the 2002 survey reported good emotional health. However, a substantial minority (20 to 30 percent, depending on the HBSC item) of students experienced less than optimal emotional health. Girls, compared with boys, reported higher levels of depression and headaches, and lower levels of life satisfaction and subjective health. Backaches and irritability were similar between the genders. On each measure, emotional health tended to worsen with age. An especially critical point for girls appeared at the end of Grade 7, when they may require additional support to cope with life and body changes.

Parents may be the best defence against poor emotional health. Adolescents who reported strong parental support had greater life satisfaction and subjective health. The influence of peers on emotional measures of health was relatively weaker, although having a strong network of peers contributed somewhat to better emotional health. This may indicate that peer group influence, which is often associated with risk taking, also has some influence on overall health through mechanisms of social interaction and support.

In sum, adolescent socialization occurs within three main social systems: the home, the peer group, and the school. As such, efforts that target adolescents require multi-modal intervention strategies that involve entire communities, rather than focusing only on a single student or family or school (Schneider, 2000). Multi-modal intervention strategies reflect a population health approach to dealing with youth and allow a broader understanding of adolescents and their problems within a social context (Caputo,

2000). Policies to address the problems of adolescents in home, school, and neighbourhoods should centre on opportunities that allow for youth participation and engagement in wide-based programs that help them to identify their needs and to be active participants in implementing change in their local environments.

Over the past four years, health promotion and prevention efforts for youth in Canada have expanded and consolidated to embrace a broader range of age groups and topics, such as active lifestyle and healthy eating programs and the Comprehensive School Programs. In addition, there has been an increase in anti-smoking and anti-drug campaigns that target young people. Some of these initiatives have involved youth adequately, and some have not. The findings in this report provide a very general indication of the success of these initiatives.

From a population health perspective, the most powerful determinants of youth physical and emotional health that were evident from the 2002 HBSC survey were related to gender, family affluence, school conditions, and the influence of peers on risk taking. Further analysis of these data is necessary to explore these possibilities. Clearly, policy responses for this range of potential determinants will need to be broad. Federal, provincial, territorial, municipal, professional, and business sectors need to openly discuss the health of the next generation with youth themselves. Youth have had insufficient attention among these sectors, in part because of the transitional character and independence-seeking nature of adolescence. When attention is focused on initiatives for adolescents, efforts to engage youth in policy and program development need to be strengthened. The development of an inclusive, cross-sectoral “Middle Childhood and Adolescent Agenda” in Canada would contribute to the visibility and viability of policy initiatives and may also earn widespread youth approval and participation.



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References

- Abernathy, T.J., G. Webster, & M. Vermeulen (2002). Relationship between poverty and health among adolescents. *Adolescence*, 37(145):55-67.
- American Academy of Pediatrics (1999). Contraception and adolescents. *Pediatrics*, 104(5):1161-1166.
- Anderman, E.M. (1999). School effects on psychological outcomes during adolescence. *Journal of Educational Psychology*, 94(4):795-809.
- Andersen, R.E. (2000). The spread of the childhood obesity epidemic. *Canadian Medical Association Journal*, 163(11):1461-1462.
- Anderson, A.S., S. Macintyre, & P. West (1993). Adolescent meal patterns: Grazing habits in the west of Scotland. *Health Bulletin Edinburgh*, 51:158-165.
- Andrews, J.A., H. Hops, D. Ary, E. Lichtenstein, & E. Tildesley (1991). The construction, validation, and use of Guttman scale of adolescent substance use: An investigation of family relationships. *Journal of Drug Issues*, 21:557-572.
- Atkinson, A.B., L. Rainwater, & T.M. Smeeding (1995). *Income distribution in OECD countries*. OECD, Social Policy Studies, No. 18.
- Baer, J. (1999). The effects of family structure and SES on family processes in early adolescence. *Journal of Adolescence*, 22:341-354.
- Barber, B. (1997). Adolescent socialization in context: The role of connection, regulation, and autonomy in the family. *Journal of Adolescent Research*, 12(1):5-11.
- Barber, J.G. & P. Delfabbro (2000). Predictors of adolescent adjustment: Parent-peer relationships and parent-child conflict. *Child and Adolescent Social Work Journal*, 17(4):275-288.
- Baumeister, R.F. & M.R. Leary (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117(3):497-529.
- Bergman & Scott (2001). Young adolescents' well-being and health risk behaviours: Gender and socio-economic differences. *Journal of Adolescence*, 24:183-197.
- Boston University School of Public Health, December 13, 2002. <http://www.jointogether.org>. (Join Together is a project of the Boston University School of Public Health).
- Boulton, M.J. & K. Underwood (1992). Bully/victim problems among middle school children. *British Journal of Educational Psychology*, 62(1):73-87.
- Boyce, W., M. Doherty, D. MacKinnon, & C. Fortin (2003). *Canadian Youth, Sexual Health, HIV/AIDS Study: Factors influencing knowledge, attitudes and behaviours*. Toronto, Ontario: Council of Ministers of Education, Canada. www.cmec.ca.
- Bray, J.W., G.A. Zarkin, C. Ringwalt, & Q. Junfeng (2000). The relationship between marijuana initiation and dropping out of high school. *Health Economics*, 9:9-18.
- Buhrmester, D. (1990). Intimacy of friendship, interpersonal competence, and adjustment during preadolescence and adolescence. *Child Development*, 61:1101-1111.
- Buhrmester, D. (1996). Need fulfillment, interpersonal competence, and the developmental contexts of early adolescent friendship. In *The company they keep: Friendship in childhood and adolescence*, W.M. Bukowski & A.F. Newcomb (eds.), 158-185. New York, NY: Cambridge University Press.
- Canadian Mental Health Association (2002). *Fast Facts*. http://www.cmha.ca/english/info_centre/info_frmset.htm.
- Canadian Psychiatric Association (2001). *Mental illness awareness week guidebook*. Ottawa, Ontario: Canadian Psychiatric Association.
- Canadian Standards Association (1990). *A guideline on children's playspaces and equipment: A national standard of Canada* (CAN/CSA Z614-M90). Toronto, Ontario: Canadian Standards Association.
- Cantril, H. (1965). *The pattern of human concern*. New Brunswick, New Jersey: Rutgers University Press.
- Caputo, T. (2000). *Hearing the voices of youth: Youth participation in selected Canadian municipalities*. Health Canada: Minister of Public Works and Government Services.

- Centers for Disease Control and Prevention (1993). Measuring the health behavior of adolescents: The youth risk behavior surveillance system and recent reports on high-risk adolescents. *Public Health Reports*, 108:1-96.
- Centers for Disease Control and Prevention (2002). *Morbidity and mortality weekly report: Youth risk behavior surveillance - United States - 2001*. Vol. 51, No. SS-4; 1-64. <http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5104a1.htm>.
- Chapman, G. (1994). Food practices and concerns of teenage girls. Ottawa, Ontario: National Institute of Nutrition. http://www.nin.ca/public_html/Consumer/adolescents.html.
- Chubb, N.H., & C.I. Fertman (1992). Adolescents' perceptions of belonging in their families. *Families in Society: The Journal of Contemporary Human Services*, 73:387-394.
- Cole, T.J., M.C. Bellizzi, K.M. Flegel, & W.H. Deitz. Establishing a standard definition for child overweight and obesity worldwide: international survey. *British Medical Journal*, 2000; 320:1240-3.
- Collins, W.A. & G. Russel (1991). Mother-child and father-child relationships in middle childhood and adolescence: A developmental analysis. *Developmental Review*, 11(2):99-136.
- Community Epidemiology Work Group (2001). *Epidemiologic trends in drug abuse, vol. 1: Proceedings on the CEWG*. Bethesda, Maryland: National Institutes on Health, National Institutes on Drug Abuse.
- Connop, H. & A.J.C. King (1999). *Adolescent smoking initiation and maintenance: Report of a pilot study of school smoking zones*. Kingston, Ontario: Queen's University, Social Program Evaluation Group.
- Connop, H. & A.J.C. King (1999). *Young women at risk*. Toronto, ON: University of Toronto Press (in preparation).
- Craig, W.M. & D.J. Pepler (1995). Peer processes in bullying and victimization: An observational study. *Exceptionality Education in Canada*, 5: 81-95.
- Craig, W.M. & D.J. Pepler (1997). Observations of bullying and victimization in the schoolyard. *Canadian Journal of School Psychology*, 13(2):41-59.
- Craig, W.M. (1998). The relationship among bullying, victimization, depression, anxiety, and aggression in elementary school children. *Personality and Individual Differences*, 24:123-130.
- Crespo, C.J., E. Smit, R.P. Troiano, S.J. Bartlett, C.A. Macera, & R.E. Andersen (2001). Television watching, energy intake, and obesity in U.S. children: Results from the Third National Health and Nutrition Examination Survey, 1988-1994. *Archives of Pediatric and Adolescent Medicine*, 155:360-365.
- Currie, C., J. Todd, & S. Platt (1997). Indicators of socio-economic status for adolescents: the WHO Health Behavior in School-Aged Children Survey. *Health Education Research*, 12:385-397.
- Currie, C., K. Hurrelman, W. Settertobulte, R. Smith, & J. Todd (2000). *Health and Health Behaviour Among Young People*. Denmark, Copenhagen: World Health Organization Regional Office for Europe.
- Currie, C., O. Samdal, W. Boyce, & B. Smith (eds.) (2001). *Health behaviour in school-aged children: A World Health Organization cross-national study*. Edinburgh, Scotland: University of Edinburgh, Child and Adolescent Health Research Unit.
- DeHaan, L.G. & S. MacDermid (1998). The relationship of individual and family factors to the psychological well-being of junior high school students living in urban poverty. *Adolescence*, 33:73-89.
- Dekovic, M. (1999). Risk and protective factors in the development of problem behaviour during adolescence. *Journal of Youth and Adolescence*, 28(6):667-685.
- Deslandes, R. & R. Cloutier (2002). Adolescents' perception of parental involvement in schooling. *School Psychology International*, 23(2):220-232.
- Diverty, B. & M. Beaudet (1997). Depression an untreated disorder? *Health Reports*, 8(4):9-18.
- Dornbusch, S.M., K.G. Erickson, J. Laird, & C. Wong (2001). The relation of family and school attachment to adolescent deviance in diverse groups and communities. *Journal of Adolescent Research*, 16(4):396-422.
- Drummond, S., N. Crombie, & T. Kirk (1996). A critique of the effects of snacking on body weight status. *European Journal of Clinical Nutrition*, 50:779-783.

- Duncan, G. & G. Brooks-Gunn (2000). Family poverty, welfare reform, and child development. *Child Development*, 71(1):188-196.
- Duncan, S.C., T.E. Duncan, & H. Hops (1998). Progression of alcohol, cigarette, and marijuana use in adolescence. *Journal of Behavioural Medicine*, 21(4):375-388
- El-Sheikh, M., E.M. Cummings, & V. Goetsch (1989). Coping with adult's angry behavioral, psychological and verbal responses in preschoolers. *Developmental Psychology*, 25(4):490-498.
- Elder, G.H. Jr. & R. Crosnoe (2002). The influence of early behavior patterns on later life. In *Paths to Successful Development: Personality in the Life Course*, L. Pulkkinen & A. Caspi (eds.), 157-176. New York, NY: Cambridge University Press.
- Engels, R.C.M.E. & T. ter Bogt (2001). Influences of risk behaviours on the quality of peer relations in adolescence. *Journal of Youth and Adolescence*, 30(6):675-695.
- Erdley, C.A., D.W. Nangle, J.E. Newman, & E.M. Carpenter (2001). Children's friendship experiences and psychological adjustment: Theory and research. *New directions for child and adolescent development*, 91:5-24.
- Evans, C.A. Jr., J.E. Fielding, R.C. Brownson, M.J. England, M.T. Fullilove, F.A. Guerra, A.R. Hinman, G.J. Isham, G.H. Land, C.S. Mahan, P.D. Mullen, P.A. Nolan, S.C. Scrimshaw, S.M. Teutsch, & R.S. Thompson (2001). Task Force on Community Prevention Services. Motor vehicle occupant injury: strategies for increasing use of child safety seats, increasing use of safety belts, and reducing alcohol-impaired driving. *Mortality and Morbidity Weekly Report*, 18(50), (RR-7):1-14.
- Farrington, D.P. (1993). Understanding and preventing bullying. In *Crime and Justice*, M. Tonry & N. Morris (eds.), Vol. 17:381-458. Chicago: University of Chicago Press.
- Fivush, R., M.A. Brotman, J.P. Buckner, & S.H. Goodman (2000). Gender differences in parent-child emotion narratives. *Sex Roles*, 42(3/4):233-253.
- Frankish, C.J., D. Milligan, & C. Reid (1998). A review of the relationship between active living and determinants of health. *Social Science Medicine*, 47(3):287-301.
- Fulgini, A.J., J.S. Eccles, B.L. Barber, & P. Clements (2001). Early adolescent peer orientation and adjustment during high school. *Developmental Psychology*, 37(1):28-36.
- Garcia, A., M. Broda, M. Frenn, C. Coviak, N. Pender, & D. Ronis (1995). Gender and developmental differences in exercise beliefs among youth and prediction of their exercise behavior. *Journal of School Health*, 65:213-219.
- Garnier, H.E. & J.A. Stein (2002). An 18-year model of family and peer effects on adolescent drug use and delinquency. *Journal of Youth and Adolescence*, 31(1):45-56.
- Goldbaum, S., W.M. Craig, D.J. Pepler, & J. Connolly (in press). Developmental Trajectories of Victimization: Identifying Risk and Protective Factors. *Journal of Applied School Psychology*.
- Griffin, K.W., G.J. Botvin, M.M. Doyle, T. Diaz, & J.A. Epstein (1999). A six-year followup study of determinants of heavy cigarette smoking among high school seniors. *Journal of Behavioural Medicine*, 22(3):271-284.
- Grossman, D.C. & C.C. Garcia (1999). Effectiveness of health promotion programs to increase motor vehicle occupant restraint use among young children. *American Journal of Preventive Medicine*. 16 (1 Suppl):12-22.
- Harel, Y., M.D. Overpeck, D.H. Jones, P.C. Scheidt, P.E. Bijur, A.C. Trumble, & J. Anderson (1994). The effects of recall on estimating annual nonfatal injury rates for children and adolescents. *American Journal of Public Health* 84(4):599-605.
- Haugland, S., B. Wold, J. Stevenson, L.E. Aarø, & B. Woynarowska (2001). Subjective health complaints in adolescence: A cross-national comparison of prevalence and dimensionality. *European Journal of Public Health*, 11(3):4-10.
- Hawkins, D.L., D.J. Pepler, & W.M. Craig (2001). Naturalistic observations of peer interventions in bullying among elementary school children. *Social Development*, 10:512-527.

- Hawkins, J.D., R.F. Catalano, & J.Y. Miller (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early childhood: Implications for substance abuse prevention. *Psychological Bulletin*, 112:64-105.
- Health Canada (1990). *Action Towards Healthy Eating: Canada's Guidelines for Healthy Eating and Recommended Strategies for Implementation*. Report of the Communications/ Implementation Committee. Ministry of Supply and Services Canada: Ottawa, Canada.
- Health Canada (1994). *Strategies for population health: Investing in the health of Canadians*. (Cat. No. H39-316/1994E). Ottawa: Publications, Health Canada.
- Health Canada (1996). *Towards a common understanding: Clarifying the core concepts of population health for Health Canada*. Unpublished manuscript.
- Health Canada (1999). *Canadian injury data: Mortality 1997 and hospitalizations 1996/97*. Ottawa: Child Injury Division.
- Health Canada (2000). *Developing a population health promotion model*. <http://www.hc-sc.gc.ca/hppb/healthpromotiondevelopment/pube/php/php3.htm>.
- Health Canada (2002). *Reported STD cases and rates in Canada*. Bureau of HIV/AIDS, STD, and TB update series www.hc-sc.gc.ca/pphb-dgspstd-std-stdtdata1201/tab1-1_e.html.
- Health Canada (2003). *Canada's Food Guide to Healthy Eating Focus on Children 6 to 12 Years: Background*. Ottawa, Ontario: Office of Nutrition Policy and Promotion. http://www.hc-sc.gc.ca/hpfb-dgpsa/onpp-bppn/focus_child_e.html.
- Health Reports (1999). Personal health practices: Smoking, drinking, physical activity, and weight. *Statistics Canada, Catalogue 82-003*, 11(3): 83-90.
- Henderson, M. (1995). *The effectiveness of bicycle helmets: a review*. Australia: Motor Accidents Authority of New South Wales. <http://www.bhsi.org/webdocs/henderst.htm>.
- Hewitt, D., G. Vinje, & P. MacNeil (1995). Young Canadians' alcohol and other drug use: Increasing our understanding. *Canada's Drug Strategy: Horizon's Three*. Health Canada.
- Higgins, J.W., C. Gaul, S. Gibbons, & G. Van Gyn (2003). Factors influencing physical activity levels among Canadian youth. *Canadian Journal of Public Health*, 94(1):45-51.
- Ho, S. & J.D. Willms (1996). Effects of parental involvement on eighth-grade achievement. *Sociology of Education*, 69: 26-141.
- Honkala, E., P. Anderson, D. Black, E. Breeze, G. Breucken, A. Fletcher, C. Hosman, E. Lopez, P. Puska, L. St. Leger, A. Schroer, J. Schuit, L. Suanstrom, R. Walters, & M. Warren (2000). A case study in oral health promotion. In, *The evidence of health promotion effectiveness*. A report for the European Commission by the International Union for Health Promotion and Education: Brussels-Luxembourg.
- Human Resources Development Canada (2002). Measuring up: The performance of Canada's youth in reading, mathematics and science. <http://www.pisa.gc.ca/pisa/brochure.shtml>.
- Idler, E.L. & Y. Benyamini (1997). Self-rated health and mortality: A review of twenty-seven community studies. *Journal of Health and Social Behavior*, 38:21-37.
- Institute of Medicine Committee on Injury Prevention and Control (1999). *Reducing the burden of injury: Advancing prevention and treatment*, 41-53. Washington, DC: National Academy of Sciences.
- Irvine, A., B.H. Rowe, & V. Sahai (2002). Bicycle helmet-wearing variation and associated factors in Ontario teenagers and adults. *Canadian Journal of Public Health*, 93(5):368-73.
- Irving, H.M., E.M. Adlaf, K.R. Allison, A. Paglia, J.J.M. Dwyer, & J. Goodman (2003). Trends in physical activity participation among Ontario adolescents, 1997-2001. *Canadian Journal of Public Health*, 94(4):272-274.
- Jackson, S., J. Bijstra, L. Oostra, & H. Bosma (1998). Adolescents' perceptions of communication with parents relative to specific aspects of relationships with parents and personal development. *Journal of Adolescence*, 21:305-322.
- Jensen, B. & B.B. Jensen (2002). *Adolescents' views on health, inequality in health and action for health*. Copenhagen, Denmark: The Danish University of Education.

- Jessor, R. (1991). Risk behaviour in adolescence: A psychological framework for understanding and action. *Journal of Adolescent Health*, 12:597-605.
- Johns Hopkins Bloomberg School of Public Health (2001). *Following E. R.: Teen inhalant abuse*. <http://er.jhsph.edu/ERwork/032901.htm>.
- Johnston, L.D., P.M. O'Malley, & J.G. Bachman (1994). *National survey results on drug use from The Monitoring of the Future study, 1975-1993*. Bethesda, Maryland: National Institute on Drug Use.
- Johnston, L.D., P.M. O'Malley, & J.G. Bachman (1998). Alcohol use among adolescents. *Alcohol Health and Research World*, 22(2):85-93.
- Johnston, L.D., P.M. O'Malley, & J.G. Bachman (2001). *Monitoring the Future: National results on drug use: Overview of key findings, 2000*. Bethesda, Maryland: National Institute on Drug Abuse (NIH Publication No. 01-4).
- Johnston, L.D., P.M. O'Malley, & J.G. Bachman (2002). Demographic subgroup trends for various licit and illicit drugs, 1975-2001. *Monitoring the Future: Occasional paper No. 57*. Ann Arbor, Michigan: Institute for Social Research. <http://monitoringthefuture.org>. Overview of key findings, 2000.
- Joubert, N. & T. Stephens (2001). The economic burden of mental health problems in Canada. *Chronic Disease in Canada*, 22(1).
- Kandel, D.K. & P. Wu (1995). The contribution of mothers and fathers to the intergenerational transmission of cigarette smoking in adolescence. *Journal of Research on Adolescence*, 5:225-252.
- Kennedy, B.P., I. Kawachi, & D. Prothrow-Stith (1998). Income distribution and mortality: A cross-sectional ecological study of the Robin Hood index in the United States. *British Medical Journal*, 312:1004-1007.
- Key, J.D. & L.D. Marsh (2002). Missed opportunities for prevention: Failure to identify smoking in the parents of adolescent patients. *Substance Abuse*, 23(4):215-221.
- King, A.J.C. & B.J. Coles (1992). *The Health of Canada's Youth: Views and behaviours of 11-, 13-, and 15-year-olds from 11 countries*. Ottawa: Health and Welfare Canada.
- King, A.J.C., B. Wold, C. Tudor-Smith, & Y. Harel (1996). *The health of youth: A cross-national survey*. WHO Regional Publication, European Series No. 69.
- King, A.J.C., W.F. Boyce, & M.A. King (1999). *Trends in the health of Canadian youth – La santé des jeunes, tendances au Canada*. Ottawa, Ontario: Health Canada.
- Kuttler, A.F., A.M. La Greca, & M.J. Prinstein, (1999). Friendship qualities and social-emotional functioning of adolescents with close, cross-sex friendships. *Journal of Research on Adolescence*, 9(3):339-366.
- Larson, R. & M.H. Richards (1991). Daily companionship in late childhood and early adolescence: Changing developmental contexts. *Child Development*, 62(2):284-300.
- Leeper, C., K.J. Anderson, & P. Sanders (1998). Moderators of gender effects on parents' talk to their children. *Developmental Psychology*, 34:3-27.
- LeBlanc, C.M.A. (2003). The growing epidemic of child and youth obesity: Another twist? *Canadian Journal of Public Health*, 94 (5):329.
- Lescohier, I. & S. Scavo-Gallagher (1996). Unintentional injury. In *Handbook of adolescent health-risk behaviour*, R.J. DiClemente, W.B. Hansen, & L.E. Ponton (eds.), 225-258. New York, NY: Plenum Press.
- Lundy, B., F. Tiffany, C. McBride, T. Field, & S. Largie (1998). Same-sex and opposite-sex best friend interactions among high school juniors and seniors. *Adolescence*, 33(130):279-290.
- Ma, X. & D.A. Klinger (2000). Hierarchical linear modelling of student and school effects on academic achievement. *Canadian Journal of Education*, 25:41-55.
- Maccoby, E.E. (1990). Gender and relationships: A developmental account. *American Psychologist*, 45:513-520.
- Machenbach, J., A. Kunst, & G. Cavelaars and the EU working group on socio-economic inequalities in health (1997). Socio-economic inequalities and morbidity in western Europe. *Lancet*, 349:1655-1659.
- Mahoney, J.L. & H. Stattin (2000). Leisure activities and adolescent antisocial behaviour: The role of structure and social context. *Journal of Adolescence*, 23:113-127.

- Martin, M.O., I.V.S. Mullis, E.J. Gonzalez, K.D. Gregory, T.A. Smith, R.A. Chrostowski et al. (1999). *TIMSS 1999 International Science Report*. Boston: Lynch School of Education, Boston College. http://timss.bc.edu/timss1999i/science_achievement_report.html.
- McBride, C. & T. Field (1997). Adolescent same-sex and opposite-sex best friend interactions. *Adolescence*, 32(127):515-523.
- The McCreary Centre Society (1999). *Healthy Connections: Listening to B.C. Youth. Adolescent Health Survey II*. Burnaby, British Columbia: The McCreary Centre Society.
- McHale, S.M., A.C. Crouter, & C.J. Tucker (2001). Free-time activities in middle childhood: Links with adjustment in early adolescence. *Child Development*, 72:1764-1778.
- McMaster, L., J. Connolly, D.J. Pepler, & W.M. Craig (2002). Peer to peer sexual harassment among early adolescents. *Development and Psychopathology*, 14:91-105.
- Miles, G. & S. Eid (1997). The dietary habits of young people. *Nursing Times*, 93:46-48.
- Moffitt, T.E., A. Caspi, M. Rutter, & P.A. Silva (2001). *Sex differences in antisocial behaviour: Conduct disorder, delinquency, and violence in the Dunedin Longitudinal Study*. New York, US: Cambridge University Press.
- Moscicki, E.K. (1999). *Epidemiology of suicide*. Boston, Mass.: Jossey-Bass.
- Mullan, E. & C. Currie (2000). *Social Inequalities and Adolescent Health: Cross-national Patterns from the 1998 HBSC Survey*. WHO Policy Series: Health Policy for Children and Adolescents, Copenhagen, WHO.
- Mullis I.V.S., M.O. Martin, E.J. Gonzalez, K.D. Gregory, R.A. Garden, K.M. O'Connor et al. (1999). *TIMSS 1999 International Mathematics Report*. Boston: Lynch School of Education, Boston College. http://timss.bc.edu/timss1999i/math_achievement_report.html.
- Nada-Raja, S., R. McGee, & W.R. Stanton (1992). Perceived attachments to parents and peers and psychological well-being in adolescence. *Journal of Youth and Adolescence*, 21(4):471-485.
- The National Center on Addiction and Substance Abuse (2003). *The formative years: Pathways to substance abuse among girls and young women ages 8-22*. The National Center on Addiction and Substance Abuse at Columbia University. www.casacolumbia.org.
- National Institute on Drug Abuse (2001). National Institute of Health, U.S. Department of Health and Human Services. <http://www.drugabuse.gov> (NIH Publication No. 57).
- National Institute on Drug Abuse (2002). *Monitoring the Future survey results*. <http://www.drugabuse.gov/Newsroom?02/NR12-16.html>.
- Neumark-Sztainer, D., M. Resnick, & R. Blum (1998). Lessons learned about adolescent nutrition from the Minnesota Adolescent Health Survey. *Journal of the American Dietetic Association*, 98:1449-1456.
- Neumark-Sztainer, D., P.J. Hannan, M. Story, J. Croll, & C. Perry (2003). Family meal patterns: Associations with socio-demographic characteristics and improved dietary intake among adolescents. *Journal of the American Dietetic Association*, 103:317-322.
- Neumark-Sztainer, D., M. Wall, C. Perry, & M. Story (2003). Correlates of fruit and vegetable intake among adolescents: Findings from Project EAT. *Preventive Medicine*, 37:198-208.
- Noack, P. & B. Puschner (1999). Differential trajectories of parent-child relationships and psychosocial adjustment in adolescents. *Journal of Adolescence*, 22(6):795-804.
- Noller, P. & V. Callan (1991). *The adolescent in the family*. London: Routledge.
- O'Connell, P., D.J. Pepler, & W.M. Craig (1999). Peer involvement in bullying: Insights and challenges for intervention. *Journal of Adolescence*, 22: 437-452.
- Olweus, D. (1978). *Aggression in the schools: Bullies and whipping boys*. Oxford, England: Hemisphere.
- Olweus, D. (1991). Bully/victim problems among school children: Some basic facts and effects of a school-based intervention program. In *The development and treatment of childhood aggression*, D. Pepler & K. Rubin (eds.), 411-448. Hillsdale, NJ: Erlbaum.

- Parker, J.G. & S.R. Asher (1987). Peer relations and later adjustment: are low-accepted children at risk. *Psychological Bulletin*, 102:357-389.
- Pepler, D.J., W.M. Craig, S. Ziegler, & A. Charach (1994). An evaluation of an anti-bullying intervention in Toronto schools. *Canadian Journal of Community Mental Health*, 13:95-110.
- Pepler, D.J., W.M. Craig, & J. Connolly (1997). Bullying and victimization: The problems and solutions for school-aged children. Fact sheet prepared for the national Crime Prevention Council of Canada.
- Pepler, D.J. & W.M. Craig (2000). *Making a difference in bullying*. LaMarsh Report. Toronto: LaMarsh Centre for Research on Violence and Conflict Resolution, York University.
- Pepler, D.J., W.M. Craig, J. Connolly, & K. Henderson (2002). Aggression and substance use in early adolescence: My friends made me do it. In *The violence and addiction equation: Theoretical and clinical issues in substance abuse and relationship violence*, C. Werkle & A.M. Wall (eds.). Philadelphia, PA: Brunner/Mazel.
- Pickett, W., W.F. Boyce, M. Garner, & M.A. King (2002). Gradients in risk for youth injury associated with multiple risk behaviours: A study of 11,329 Canadian children. *Social Science and Medicine*, 55(5):1055-1068.
- Pickett W., H. Schmid, W.F. Boyce, K. Simpson, P.C. Scheidt, J. Mazur, M. Molcho, M.A. King, E. Godeau, M. Overpeck, A. Aszmann, M. Szabo, & Y. Harel (2002). Multiple risk behaviour and injury: an international analysis of young people. *Archives of Pediatrics and Adolescent Medicine* 156(8):786-793.
- Polaneczky, M. (1998). Adolescent contraception. *Current Opinion in Obstetrics and Gynecology*, 10(3):213-219.
- Poulin, C. (2001). Medical and non-medical stimulant use among adolescents: From sanctioned to unsanctioned use. *Canadian Medical Association Journal*, 165(8):1039-1044.
- Poulin, C. & L. Graham (2001). The association between substance use, unplanned sexual intercourse and other sexual behaviours among adolescent students. *Addiction*, 96(4):607-621.
- Reed, M.D. & P.W. Rountree (1997). Peer pressure and adolescent substance use. *Journal of Quantitative Criminology*, 13(2):143-180.
- Resnick, M., P.S. Bearman, R.W. Blum, K.E. Bauman, K.M. Harris, J. Jones, J. Tabor, T. Beuhring, R.E. Sieving, M. Shew, M. Ireland, L.H. Bearinger, & J.R. Udry (1997). Protecting adolescents from harm: Findings from the National Longitudinal Study on Adolescent Health. *Journal of the American Medical Association*, 278 (10):823-832.
- Resnick, M.D. (2000). Resilience and protective factors in the lives of adolescents. *Journal of Adolescent Health*, 27:1-2.
- Reynolds, L.K, J.H. O'Koon, E. Papademetriou, & S. Szczygiel (2001). Stress and somatic complaints in low-income urban adolescents. *Journal of Youth and Adolescence*, 30:499-514.
- Rivara, F.P., D.C. Grossman, & P. Cummings (1987). Injury prevention: First two parts. *New England Journal of Medicine*, 337:543-548.
- Robitaille, D.F., A.R. Taylor, & G. Orpwood (1996). *The Third International Mathematics and Science Study, TIMSS-Canada Report Vol. 1: Grade 8*. Boston: Boston College, Chestnut Hill.
- Sallis, J.F., J.J. Prochaska, & W.C. Taylor (2000). A review of correlates of physical activity of children and adolescents. *Medicine and Science in Sports and Exercise*, 32:963-975.
- Samdal, O., D. Nutbeam, B. Wold, & L. Kannas (1998). Achieving health and education goals through schools: A study of the importance of the school climate and the students' satisfaction with school. *Health Education Research*, 13:383-397.
- Savin-Williams, R.C. & T.J. Berndt (1990). Friendship and peer relations. In *At the threshold: The developing adolescent*, S.S. Feldman & G.R. Elliott (eds). Cambridge, Mass.: Harvard University Press.
- Schneider, B.H. (2000). *Friends and enemies: Peer relations in childhood*. New York: Oxford University Press.
- Sharabany, R., R. Gershoni, & J.E. Hofman (1981). Girlfriend, boyfriend: Age and sex differences in intimate friendship. *Developmental Psychology*, 17:800-808.

- Sieving, R.E., C.L. Perry, & C.L. Williams (2000). Do friendships change behaviours, or do behaviours change friendships? Examining paths of influence in young adolescents' alcohol use. *Journal of Adolescent Health, 26*:27-35.
- Steinberg, L., S.D. Lamborn, M. Sanford, & N. Darling (1992). Impact of parenting practices on adolescent achievement: Authoritative parenting, school involvement and encouragement to succeed. *Child development, 63*:1266-1281.
- Stewart, G. (1995). Active living: The miracle medicine for a long and happy life. Human Kinetics: Windsor, Ontario.
- Tashkin, D.P. (1993). Is frequent marijuana smoking harmful to health? *Western Journal of Medicine, 158*: 635-637.
- Taylor, S., T. Field, R. Yando, K.P. Gonzalez, J. Harding, D. Lasko, C. Mueller, & D. Bendell (1997). Adolescents' perceptions of family responsibility-taking. *Adolescence, 32*:969-976.
- Tonkin, R.S. (2002). Marijuana use in adolescence. *Paediatric Child Health, 7*(2):73-75.
- Torsheim, T. & B. Wold (2001). School-related stress, school support, and somatic complaints: A general population study. *Journal of Adolescent Research, 16*:293-303.
- Vuchinich, S. & B. de Baryshe (1997). Factor structure and predictive validity of questionnaire reports on family problem solving. *Journal of Marriage and the Family, 59*:915-927.
- Wade, T.J., J. Cairney, & D.J. Pevalin (2002). Emergence of gender differences in depression during adolescence: National panel results from three countries. *Journal of the American Academy of Child and Adolescent Psychiatry, 41*:190-198.
- Waldie, K.E. (2001). Childhood headache, stress in adolescence, and primary headache in young adulthood: A longitudinal cohort study. *Headache, 41*(1):1-10.
- Wang, J., L. Wildman, & G. Calhoun (1996). The relationships between parental influence and student achievement in seventh grade mathematics. *School Science and Mathematics, 96*:395-399.
- Wells, J. (2000). Promoting emotional well-being in schools. In *Promoting children's emotional well-being*, A. Buchanan & B. Hudson (eds.), 161-192. London: Oxford University Press.
- Wright, P.H. (1982). Men's friendships, women's friendship and the alleged inferiority of the latter. *Sex Roles, 8*:1-20.
- Zapert, K., D.L. Snow, & J.K. Tebes (2002). Patterns of substance use in early through late adolescence. *American Journal of Community Psychology, 30*(6):835-852.
- Zullig, K.J., R.F. Valois, S.E. Huebner, J.E. Oeltmann, & W.J. Drane (2001). Relationship between perceived life satisfaction and adolescents' substance abuse. *Journal of Adolescent Health, 29*(4): 279-288.