

Health Behaviors and Protective factors of School Students Aged 13-15 Years Old in Four Cities of China

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Submitted February 7, 2006; Revised and Accepted April 3, 2007

Abstract

This paper presents baseline data on health behaviors and protective factors among junior middle school students aged 13-15 years old in China for the purpose of developing priorities, establishing programs and policies for school health and youth health and also establishing trends in the prevalence of these behaviors. The 2003 CHINA GSHS employed a two-stage cluster sample design to produce a representative sample of junior middle school students in Grades 1- 4 in Beijing, Hangzhou, Wuhan and Urumchi. A World Health Organization (WHO) developed survey was used to collect the data among 7,393 students. Results showed that 14.6% of students drank at least one alcohol drink on one or more of the past 30 days, 7.1% were at risk of becoming overweight, 25.9% did not have habit of washing hands before eating, 17.8% seriously considered attempting suicide during the past 12 months, and only 12.2% of students were physically active 7 days during a typical week for a total of at least 60 minutes per day. Additionally, 6% of students missed classes or school without permission on one or more of the past 30 days, 48.1% of students had been taught about HIV or AIDS during the school year, 6.2% of students smoked cigarettes during the past 30 days, 18.4% of students were involved in a physical fight and 20.6% were seriously injured during the past 12 months. Finally, 93% of students were taught how to prevent Sudden Acute Respiratory Syndrome (SARS) during the past school year. Results also indicated there were many different problems on health behaviors and protective factors of school students among four cities. This was the first Global School-based Student Health Survey (GSHS) conducted in China and it is expected the results will be helpful in providing data for program development and making policies concerning school health and health education. Additionally, the data will be helpful for international comparisons between countries.

Key words: *Healthy behaviors; Protective factors; Health education; Junior middle school students*

Introduction

In 2001, the World Health Organization (WHO) in collaboration with UNAIDS, UNESCO, and UNICEF, and with technical assistance from the US Centers for Disease Control and Prevention (CDC), initiated the development of the Global Student Health Survey (GSHS). Since 2003, Ministries of Health and Education around the world have been using the GSHS to periodically monitor the prevalence of key health risk behaviors and protective factors among students to help developing priorities, establishing programs, and advocating for resources for school health and youth health programs and policies.¹ To date, 35 countries have completed the first GSHS.²

The China GSHS is a school-based survey conducted primarily among students aged 13-15 years. It measures behaviors and protective factors related to the leading causes of mortality and morbidity among youth and adults in China. The behaviors assessed in the survey included alcohol and other drug use, dietary behaviors, hygiene related behaviors, mental health related behaviors, physical activity. In addition, protective factors, HIV-related knowledge, tobacco use, violence and unintentional injury and questions related to SARS were also included.

Alcohol and Other Drug Use

Worldwide, alcohol use causes 3% of deaths (1.8 million) annually, which is equal to 4% of the global disease burden.³ Very little data related to alcohol and drug use is available in China, particularly among young adults and adolescents. Data from this survey will be very helpful for future planning and policy making.

Dietary Behaviors

During adolescence, overweight is associated with hyperlipidemia, hypertension, abnormal glucose tolerance, and adverse psychological and social consequences. Overweight acquired during childhood or adolescence may persist into adulthood and increase risk later in life for coronary heart disease, diabetes, gallbladder disease, some types of cancer, and osteoarthritis of the weight-bearing joints. Nutritional deficiencies as a result of food insecurity (protein-energy malnutrition, iron, Vitamin A, and iodine deficiency) affect school participation and learning.⁴ It is important that dietary behaviors be included in the survey.

Hygiene

Dental caries and other oral disease can affect a number of health effects including ability to eat, appearance, communication, overall health status, and ability to learn. In addition, diarrhea diseases kill 2 to 3 million children in developing countries every year. Hand-washing with soap alone could cut deaths in half. Removing excreta and cleaning hands with soap after contact with fecal materials prevents transmission of the bacteria and protozoa that cause diarrhea diseases. Therefore, it is important that data on hygiene related behaviors are assessed in the survey.

Mental Health

Anxiety disorders, depression and mood disorders, and behavioral and cognitive disorders are among the most common mental health problems among adolescents in the world. Every country and culture has children and adolescents struggling with mental health problems. Most of these young people suffer needlessly, unable to access appropriate resources for recognition, support, and treatment. Ignored, these young people are at high risk for abuse and neglect, suicide, alcohol and other drug use, school failure, violent and criminal activities, mental illness in adulthood, and health-jeopardizing impulsive behaviors. The assessment of mental health related behaviors can be helpful in planning and policy making for adolescents in China.

Physical Activity

Participating in adequate physical activity throughout the life span and maintaining normal weight are the most effective ways of preventing many chronic diseases, including cardiovascular disease and diabetes.⁵ Participating in adequate physical activity also helps build and maintain healthy bones and muscles, control weight, build lean muscle, reduce fat, reduce feelings of depression and anxiety, and promote psychological well-being.⁶ Like other health behaviors, physical activity is included to help providing data for health professionals and policy maker in China.

Protective Factors

For most adolescents, school is the most important setting outside of the family. School attendance is related to the prevalence of several health risk behaviors including violence and sexual risk behaviors.^{7,8,9} It is helpful to include this type of behavior and other protective behaviors in the survey.

HIV-Related Knowledge

Since the epidemic began, more than 60 million people have been infected with HIV. More than half of those newly infected with HIV today are between

15 and 24 years old. Each day, nearly 6,000 become infected.¹⁰ HIV/ AIDS have become an important health threat for adolescents in China. Therefore, it is important the survey also includes HIV-related knowledge.

Tobacco Use

About one in three or 1.1 billion people worldwide smoke. Among these, about 80% live in low- and middle-income communities.¹¹ By 2020, the tobacco epidemic is expected to kill more people than any single disease. Most people who use tobacco initiate use prior to age 18. Exposure to tobacco smoke in the environment can aggravate allergies and increase the severity of symptoms in children and adolescents with asthma and heart disease; it is also associated with lung cancer.¹² This item is included in the survey to provide data for government to plan and implement tobacco prevention program.

Violence and Unintentional Injury

Injuries are a major cause of death and disability among young children.^{13, 14} Each year, 750,000 children die from injuries. Another 400 million children are hurt seriously. In 2000, estimated 190,000 youth homicides (9.2 per 100,000 populations) occurred globally. For every youth homicide, approximately 20 to 40 victims of non-fatal youth violence receive hospital treatment. Many injuries lead to permanent disability and brain damage. The data on violence and unintentional injury is needed for planning school health and health promotion programs as well.

Questions Related to SARS (Sudden Acute Respiratory Syndrome)

Adolescents are vulnerable to the attack of the sudden acute respiratory syndrome (SARS). To help prevent the recurrence of the SARS in China, we are interested in assessing the knowledge related to SARS among adolescents. This information will be very helpful for planning education and prevention campaign in China.

The purpose of the GSHS was to provide data on health behaviors and protective factors among students to help develop priorities, establish programs, and advocate for resources for school health and youth health programs and policies in China. Additionally, results of the China GSHS could also allow international agencies and other countries to make comparisons regarding the prevalence of health behaviors and protective factors and to establish trends in the prevalence of these behaviors for evaluation of school health and youth health promotion programs.

This report presents results from the first GSHS conducted in four cities of China – Beijing, Hangzhou, Wuhan and Urumchi by the Institute for Health Education, China CDC during September – November in 2003. These four cities were selected based on the geographical consideration, economical development status, ethnicities and population size. Beijing represents a developed large city located in the northern China with 15 million populations. Wuhan represents a moderately developed mid-size city in the central China. Urumchi represents a developing city in the northwestern China with many minority ethnic groups. Hangzhou is a developed mid-size city located in the southeast China.

Methods

Sampling

The 2003 CHINA GSHS employed a two-stage cluster sample design to produce a representative sample of junior middle school students in grades 1-4. The first-stage sampling frame consisted of all junior middle schools. Schools were selected with probability proportional to school enrollment size in four selected cities -- Beijing, Hangzhou, Wuhan and Urumchi. Schools with more 13-15 year old students are more likely to be selected to participate than schools with fewer 13-15 year olds. Twenty five schools in each city were selected to participate in the China GSHS.

The second stage of sampling consisted of randomly selected intact classrooms (using a random chart) from each school to participate. All classrooms in each selected school were included in the sampling frame. All students in the sampled classrooms were eligible to participate in the GSHS.

For the 2003 China GSHS available questionnaires were completed in 100 schools in four sites, among them there are 7,393 students aged 13-15 year old, and this report describes results from 13-15 year olds only. Older and younger students were excluded from analysis. The school response rate was 100%, the student response rate was 98%, and the overall response rate was 98%. The data set was cleaned and edited for inconsistencies. Missing data were not statistically imputed. GSHS data are representative of all students attending grades 1 - 4 of junior middle school in four cities. See Table 1 for the demographic information including distribution of age, gender, grades, and height and weight.

Survey Administration

Survey administration occurred from Sep 1st 2003 to Nov 23rd 2003. Survey procedures were designed to protect student privacy by allowing for anonymous and voluntary participation. Students completed the self-administered questionnaire during one classroom period and recorded their responses directly on a computer-scanable answer sheet.

GSHS Questionnaire

The CHINA GSHS questionnaire contained 83 questions addressing the following ten modules: Alcohol and other drug use, Dietary behaviors, Hygiene, Mental health, Physical activity, Protective factors, Sexual behaviors, Tobacco use, Violence and unintentional injury, and Questions about SARS. The development of GSHS was based on the YRBS questionnaire developed by CDC in US. The validity and reliability of the instrument is presented based on the YRBS questionnaire.

CDC has conducted two test-retest reliability studies of the national YRBS questionnaire that is the precedent of GSHS questionnaire, one in 1992 and one in 2000. In the first study, the 1991 version of the questionnaire was administered to a convenience sample of 1,679 students in grades 7-12. The questionnaire was administered on two occasions, 14 days apart. Approximately three fourths of the items were rated as having a substantial or higher reliability ($\kappa = 61\% - 100\%$), and no statistically significant differences were observed between the prevalence estimates for the first and second times that the questionnaire was administered. The responses of 7th grade students were less consistent than those of students in higher grades, indicating that the questionnaire is best suited for students in grades >8 .

In the second study, the 1999 version of the questionnaire was administered to a convenience sample of 4,619 high school students. The questionnaire was administered on two occasions, approximately 2 weeks apart. Approximately one of five items (22%) had significantly different prevalence estimates for the first and second times that the questionnaire was administered. Ten items (14%) had both $\kappa < 61\%$ and significantly different time-1 and time-2 prevalence estimates, indicating that the reliability of these items is questionable. Certain items (e.g., an item related to injury during physical activity) have been revised or deleted from later versions of the questionnaire.

In 2000, CDC also conducted a study to assess the validity of the two YRBS questions regarding self-reported height and weight. In that study, 2,965 high school students completed the 1999 version of the

YRBS questionnaire on two occasions approximately 2 weeks apart. After completing the questionnaire, the students were weighed and had their height measured. Self-reported height, weight, and BMI calculated from these values were substantially reliable, but on average, students in the study over reported their height by 2.7 inches and underreported their weight by 3.5 pounds, which indicates that YRBS probably underestimates the prevalence of overweight in adolescent populations.

Statistics Analysis

All answer sheets were sent to US CDC, scanned into computer and built relevant data files. Data is analyzed by Epiinfo Software that takes into consideration of the complex sample design to compute prevalence estimates and 95% confidence intervals. The significance of the differences was determined if 95% confidence intervals of prevalence rate did not overlap between two sites or two variables.

Results

Alcohol and Other Drug Use

The overall prevalence of current alcohol use among all students (i.e., drank at least one drink containing alcohol on one or more of the past 30 days) was 14.6%. Five percent of the students indicated they obtained the alcohol they drank by buying it in a store, shop, or from a street vendor during the past 30 days. (See Table 2)

Overall, 10.8% of students got drunk one or more times during their lifetime. Also, about 5.4% of students ever had a hang-over, felt sick, got into trouble, missed school, or got into fights one or more times as a result of drinking alcohol during their life. The lifetime drug use among students in the survey was 1.6%.

Dietary Behaviors

As indicated in Table 3, 7.1% students were at risk for becoming overweight (at or above the 85th percentile, but below the 95th percentile for body mass index by age and sex) and 3.0% were overweight (i.e., at or above the 95th percentile for body mass index by age and sex).

Overall, 2.3% of students went hungry most of the time or always because there was not enough food in their home during the past 30 days. On the other hand, 63.9% of students usually ate fruit one or more times per day during the past 30 days. In addition,

25.1% of students usually ate fruits and vegetables five or more times per day during the past 30 days.

On the perception of body weight, 32.3% of students described their weight as slightly overweight or very overweight. Male students (61.2%) were less likely than female students (66.6%) to describe their weight as slightly overweight or very overweight.

Overall, 78.9% of students ate breakfast most of time or always during the past 30 days. On the other hand, 17.4% of students indicated they usually drink carbonated soft drinks, such as Coke, Pepsi, or Sprite two or more times per day during the past 30 days, and male students (20.1%) were more likely than female students (14.6%) to consume carbonated soft drinks.

Hygiene-Related Behaviors

Table 4 presents data related to hygienic behaviors. Overall, 2.4% of students did not clean or brush their teeth during the past 30 days. Also, 25.9% of students did not have a habit of washing hands before eating or after using toilet or latrines. Furthermore, 11.4% of students never or rarely used soap when washing their hands during the past 30 days.

Mental Health Issues

On the mental health related issues, Table 5 indicated that an average of 7.4% of students felt lonely most of the time or always during the past 12 months and 7.4% of students had no close friends. An average of 4.3% of students surveyed indicated that they felt so worried about something that prevented them from sleeping at night most of the time or always during the past 12 months. Overall, 20.7% of students felt so sad or hopeless almost every day for two weeks or more in a row that they stopped doing their usual activities during the past 12 months.

Results also indicated that 17.8% of students seriously considered attempting suicide during the past 12 months. Overall, 8.4% of students made a plan about how they would attempt suicide during the past 12 months.

Physical Activity

As shown in Table 6, only 12.2% of students in these 4 cities were physically active 7 days during a typical or usual week for a total of at least 60 minutes per day. Overall, 22.0% of students spent three or more hours per day doing sitting activities during a typical or usual day and 20.9% of students did not walk or bicycle to and from school during the past 7 days. Also, on an average, 55.4% of students usually took

less than 30 minutes to get to and from school each day during the past 7 days.

Protective Behaviors

Table 7 presents data related to protective behavior. Overall, 6.0% of students missed classes or school without permission on one or more of the past 30 days and male students (7.2%) were significantly more likely than female students (4.9%) to miss classes or school without permission. On an average, 47.8% of students reported that most of the students in their school were kind and helpful most of the time or always during the past 30 days. Male students (41.6%) were less likely than female students (53.8%) to report that most of the students in their school were kind and helpful most of the time or always during the past 30 days.

About 35.7% of students reported that their parents or guardians checked to see if their homework was done most of the time or always during the past 30 days. Also, 35.0% of students reported their parents or guardians understood their problems and worries most of the time or always during the past 30 days and 44.0% of students reported their parents or guardians really know what they were doing with their free time most of the time or always during the past 30 days.

HIV-Related Knowledge

As indicated in Table 8, 96.5% of students in the 4 cities had ever heard of HIV or the disease called AIDS and 48.1% of students had been taught in any of their classes about HIV or AIDS during the school year. On an average, 37.4% of students had been taught in any of their classes how to avoid HIV or AIDS during this school year. On the other hand, 46.6% of students ever talked about HIV or AIDS with their parents or guardians.

Tobacco Use

Prevalence of tobacco use among students in the four cities is presented in Table 9. Overall, 6.2% of students smoked cigarettes on one or more days during the past 30 days. Among students who smoked cigarettes during the past 30 days, 27.2% tried their first cigarette at age 9 or younger.

Overall, 1.5% of students used any other form of tobacco on one or more days during the past 30 days. Among students who smoked cigarettes during the past 12 months, 65.5% tried to stop smoking cigarettes. Overall, 63.1% of students reported that people smoked in their presence on one or more days during the past seven days. Overall, 62.6% of

students had a parent or guardian who uses any form of tobacco.

Violence and Unintentional Injuries

Data in Table 10 showed that overall 18.4% of students were involved in a physical fight one or more times during the past 12 months. Among students who were bullied during the past 30 days, 17.9% were bullied most often by being hit, kicked, pushed, shoved around, or locked indoors.

On an average, 20.6% of students were seriously injured one or more times during the past 12 months. Among students who were seriously injured during the past 12 months, 13.1% were playing or training for a sport when their most serious injury happened to them, 5.2% had their most serious injury caused by a fall, 61.2% had their most serious injury occur as a result of hurting themselves by accident, and 23.8% experienced a broken bone or dislocated joint as their most serious injury.

SARS-Related Questions

Table 11 displays information on SARS-related items. Overall, 93.0% of students were taught in any class how to prevent SARS during the past school year and 92.2% of students washed hands more often during the day because of SARS. On an average, 48.4% of students were afraid of getting SARS during the SARS epidemic and male students (44.6%) were significantly less likely than female students (52.0%) to be afraid of getting SARS during the SARS epidemic.

Discussion

This was a first large scale survey on health risk behaviors among junior middle school students in China. The purpose of the survey was to provide assessment of risk behaviors and protective factors for school health planning and policy decisions in China. Additionally, the information presented here would be helpful for cross countries comparisons of these behaviors. Several key findings emerged from the analysis of data.

First, male students had a higher prevalence rate than female in a number of risk behaviors including cigarettes and alcohol use, fighting, drinking carbonated soft drinks, never or rarely washed their hands before eating and after using toilet, and unintentional injury. Male students drank more carbonated soft drinks than female students could be the result of male students participating in more

sports activities than female students. On the other hand, female students had higher rate of mental health issues. Over one quarter of female students seriously considered attempting suicide during the past 12 months. This rate or trend was consistent with other reports that indicated female students are more likely to suffer mental health problems. A similar survey in Ireland also showed that 29% of student aged 13-14 at school considered attempting suicide.¹⁵ These data indicate that there is a need for developing effective programs in the school to tailor different male and female students' needs.

Second, 10.7% of male students in the four cities smoked cigarettes on one or more days during the past 30 days, and a large proportion (62.6%) of parent or guardian used any form of tobacco. Parent smoking is one of the important influence factors on student smoking¹⁶ and the high percentage of parent or guardian tobacco use would be a concern for students in China. The data also indicated 6.8% of male students had a hang-over, felt sick, got into trouble, missed school, or got into fights one or more times as a result of drinking alcohol. It appears that many health problems could be reduced if we can reduce the prevalence of alcohol misuse and abuse. Young people who drink are more likely to use tobacco and other drugs and engage in risky sexual behavior, than those who do not drink.¹⁷ Problems with alcohol can impair adolescents' psychological development and influence both the school environment and leisure time negatively.¹⁸ Additionally, a study indicated that there is a strong relationship between the age of initiation of alcohol use and the pattern of its use and abuse in adulthood, so the data on alcohol consumption among adolescents is very important for planning prevention programs.¹⁹

Third, over one fifth of students did not eat breakfast most of time or always during the past 30 days. The literature indicated that not eating breakfast will affect the ability to learn and study^{20, 21}. Leaders in the education need to be informed about this problem. On another dietary issue, 32.3% students described their weight as slightly overweight or very overweight. These rates were ten times as those who were really overweight (3.1%), especially among female students. Female students appear to be more concerned about weight loss. This trend is consistent with the situation in other countries and may be an indication of future eating disorder problems for adolescents in China.

Fourth, only 12.2% of students were physically active seven days for a total of at least 60 minutes per day during a typical or usual week and female students had a higher rate of physical inactivity. In China, generally there are too much homework assigned by teachers for students which may lead to lack of time and energy for students to attend sport events and participate in exercise activities outside of class. This could be a main concern for students in China.

Fifth, over one quarter of students never or rarely washed their hands before eating at school during the past 30 days. This may reflect a lack of health education and water-drinking facilities in schools in China. Gastrointestinal infectious diseases continued to be a significant health challenge in China and more school health programs to address hand-washing health habits could be an effective way to reduce this health challenge.

Sixth, data indicated 15.8%-22.0% of students were in a physical fight and 16.4-24.7% of students were seriously injured one or more times during the past 12 months. On the other hand, 20.2%-33.2% were bullied on one or more days during the past 30 days. Violence and bullying are closely related to a number of health problems and more programs are needed to reduce these problems. Previous study indicated that victims of bullying have increased stress and a reduced ability to concentrate and are at increased risk for substance abuse, aggressive behavior, and suicide attempts.²²

Seventh, depression during adolescence and young adulthood is recognized increasingly as an important public health and social problem. An average of 17.8% of students had seriously considered attempting suicide during the past 12 months could be a serious concern for adolescents in China and more research and prevention programs are needed to address this problem. One protective factor that has been shown to be effective in reducing this problem is family support and parental bonding. A study showed that parental bonding and connection was associated with lower levels of depression and suicidal ideation, alcohol use, sexual risk behaviors, and violence.²³ Worldwide, about 4 million adolescents attempt suicide annually, resulting in at least 100,000 deaths.^{24, 25, 26}

Lastly, there are many differences on health behavior and protective factors among four cities. These differences are summarized below.

Students in Beijing. The risk for becoming overweight is higher for students from Beijing. The

reason is probably due to the dietary style in north of China contains much meats and fat with high protein and calorie. On the other hand, there are some good points among students in Beijing including higher rates of eating fruits and vegetables, being taught in classes and talking with their parents or guardians about HIV or AIDS, lowest rate of insufficient amount of physical activity, least likely to be bullied on one or more days during the past 30 days, and least likely to be afraid of getting SARS during the SARS epidemic. Students in the city also showed higher rate of protective factors including higher rate of thinking that most of the students in their school were kind and helpful and highest percentage of parents or guardians understanding their children's problems and worries.

Students in Hangzhou. The negative health behaviors include higher rates of drinking carbonated soft drinks, insufficient amount of physical activity, lower rate of being taught in classes and talking with their parents or guardians about HIV or AIDS, and higher rate of being afraid of getting SARS during the SARS epidemic. On the other hands, students from Hangzhou were least likely to becoming overweight, least likely to never or rarely washed hands after using toilet or latrines, and had lowest rate of recent cigarettes smoking.

Students in Urumchi. The problems in the city are that there are higher rate of feeling lonely most of the time or always, feeling so sad or hopeless and seriously considered attempting suicide; highest rate of being in a physical fight and seriously injured one or more times. The positive factors include highest rate of being taught in classes about HIV or AIDS and higher rate of being taught in any class on how to prevent SARS.

Students in Wuhan. Students in the central city of China showed higher rate of overweight, higher rate of being drunk one or more times during their life, never or rarely washing their hands before eating, having no close friends, lowest rate of feeling that most of the students in their school were kind and helpful, lower rate of being taught in classes and talking with their parents or guardians about HIV or AIDS. Positive factors include lower rate of cigarettes smoking on one or more days during the past 30 days, lowest rate of being in a physical fight, and lower rate of being afraid of getting SARS during the SARS epidemic.

Limitations

Findings of the data need to be considered due to several limitations. First, all survey data are self-reported, and the extent of underreporting or over-

reporting of behaviors cannot be determined, although measures described in this report demonstrate that the data are of acceptable quality. Second, the school-based survey data apply only to youth who attended school and, therefore, are not representative of all persons in this age group. Third, the survey only addresses behaviors that contribute to the leading causes of morbidity and mortality among adolescents in China. However, despite this limited scope, school and community interventions should focus not only on behaviors but also on the determinants of those behaviors. Also, the translation of the GSHS may have affected how the questions or responses were interpreted.

Future Implications and Research

As with any public health surveillance system, GSHS is constantly evolving to meet the needs of the WHO and other users of the data. As described previously in this report, the questionnaire is revised before each biennial cycle, and new survey populations periodically have been added to the system since its inception. In the future, additional sub-state sampling and analysis might be possible, similar to the Selected Metropolitan/Micropolitan Area Risk Trends that are part of the Behavioral Risk Factor Surveillance System.

References

- ¹ WHO. *Global school-based student health survey (GSHS)*. 2002. Available on-line at <http://www.who.int/chp/gshs/en/>
- ² WHO. *Global school-based student health survey (GSHS) implementation*. 2004. Available on-line at <http://www.who.int/chp/gshs/country/en/index.html>
- ³ Poikolainen K, Tuulio-Henriksson A, Aalto-Setälä T, Marttunen M, Lonnqvist J. Predictors of alcohol intake and heavy drinking in early adulthood: a 5-year follow-up of 15-19 year-old Finnish adolescents, *Alcohol and Alcoholism*. 2001, 36(1): 85-88.
- ⁴ Vince-Whitman C, Aldinger C, Levinger B, Birdthistle I. *School Health and Nutrition*. UNESCO: International Consultative Form on Education for All, 2001.
- ⁵ WHO. *Diet, Physical Activity and Health: Report by the Secretariat*. Fifty-fifth World Health Assembly, Provisional agenda item 13.11, 2002.
- ⁶ *Physical Activity and Health: A Report of the Surgeon General*. Atlanta: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, 1996.
- ⁷ Dearden K, Hale C, Woolley T. The antecedents of teen fatherhood: A retrospective case-control study of Great Britain youth. *American Journal of Public Health*. 1995, 85(4):551-554.
- ⁸ Westall J. Poor education linked with teen pregnancies. *British Medical Journal*. 1997, 314 (7080):537.
- ⁹ Halcon L, Beuhring T, Blum R. *A Portrait of Adolescent Health in the Caribbean*. Minneapolis, Minnesota: WHO Collaborating Centre on Adolescent Health, Division of General Pediatrics and Adolescent Health, University of Minnesota, and Pan African Health Organization, Population Program Adolescent Health and Development, 2000.
- ¹⁰ UNICEF, UNAIDS, WHO. *Young People and HIV/AIDS – Opportunity in Crisis*. New York, NY: UNICEF, 2002.
- ¹¹ WHO. *What in the World Works? International Consultation on Tobacco and Youth*. Singapore, September 28-30, 1999
- ¹² WHO, UNESCO, Education International. *WHO Information Series on School Health – Tobacco Use Prevention: An Important Entry Point for the Development of Health-Promoting Schools*. Geneva, Switzerland: WHO, 1999.
- ¹³ WHO. *World Report on Violence and Health*. Geneva, Switzerland: WHO, 2002.
- ¹⁴ UNICEF. *Injury Prevention*. 2003. Available on-line at www.unicef.org/ffi/12/index.html.
- ¹⁵ Osullivan M, Fitzgerald M. Suicidal ideation and acts of selfharm among Dublin school children [J]. *J Adolesc*. 1998, 21:427.
- ¹⁶ Rogers PD, Thomas MH. Alcohol and Adolescent. *Pediatric Clinics of North America*, 1995, 42: 371-387.
- ¹⁷ Hibell B, Andersson B, Ahlstrom S, Balakireva O, Bjarnason T, Kokkevi A, Morgan M. The 1999 ESPAD Report: Alcohol and Other Drug Use Among Students in 30 European Countries. Stockholm, Sweden: Council of Europe, 2000.
- ¹⁸ *Health and Health Behaviour Among Young People*. Currie C, Hurrelmann K, Settertobulte W, Smith R, Todd J, eds. Copenhagen, Denmark: WHO Regional Office for Europe, 2000.
- ¹⁹ Poikolainen K, Tuulio-Henriksson A, Aalto-Setälä T, Marttunen M, Lonnqvist J. Predictors of alcohol intake and heavy drinking in early adulthood: a 5-year follow-up of 15-19 year-old Finnish adolescents, *Alcohol and Alcoholism*. 2001, 36(1): 85-88.
- ²⁰ Siega - Riz ,Popkin BM, Terri Carson. Trends in breakfast consumption for children in the United States from 1965 to 1991. *Am J Clin Nutr*, 1998, 67 (suppl): 748-756.
- ²¹ Wirths W. School catering tests in light of nutritional physiology. *Nutr Abstr Rv*, 1976, 46: 554.
- ²² Anti-Bullying Centre. *School Bullying: Key Facts*. Trinity College, Dublin: Anti-Bullying Centre, 2002. Available on-line at www.abc.tcd.ie/school.htm.
- ²³ Barber BK. *Regulation, connection, and psychological autonomy: Evidence from the Cross-National Adolescence Project (C-NAP)*. Paper presented at the WHO-sponsored meeting Regulation as a Concept and Construct for Adolescent Health and

Development. WHO Headquarters, Geneva, Switzerland, April 16-18, 2002.

WHO. *Mental Health Fact Sheet*. 2006. Available online at http://www.who.int/child-adolescent-health/New_Publications/ADH/mental_health_factsheet.pdf

²⁵Annan KA. *We the Children: Meeting the Promises of the World Summit for Children*. New York, NY: UNICEF, 2001.

²⁶WHO. *The World Health Report 2001 – Mental Health: New Understanding, New Hope*. Geneva, Switzerland: WHO, 2001.

Table 1. Demographics

		Beijing	Hangzhou	Urumqi	Wuhan
n		1936	1529	2447	1481
Age%	13	30.4	30.6	35.6	48.1
	14	40.7	39.1	37.5	35.7
	15	28.9	30.3	26.9	16.3
Gender%	Male	47.6	50.3	49.0	50.2
	Female	52.4	49.7	51.0	49.8
Grade%	1	20.7	23.8	25.2	15.5
	2	42.4	33.0	36.9	42.3
	3	36.6	43.2	37.6	39.6
	4	0.3	0.1	0.2	2.5
Average height (m)		1.62±0.08	1.60±0.08	1.63±0.08	1.60±0.08
Average weight (kg)		52.36±12.08	47.46±9.81	49.37±9.76	51.47±15.30

Table 2. Alcohol use and other drug use, % (CI)*, by city, CHINA, 2003.

Question	Beijing			Hangzhou			Urumchi			Wuhan			Overall		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Drank at least one drink containing alcohol on one or more of the past 30 days	13.0 (10.2-15.9)	17.7 (14.5-20.8)	8.6 (5.7-11.5)	18.1 (15.5-20.8)	20.9 (16.8-25.1)	15.0 (12.5-17.6)	13.7 (11.5-15.9)	16.3 (13.5-19.0)	11.0 (8.7-13.4)	14.8 (12.3-17.3)	19.7 (16.8-22.6)	9.7 (7.3-12.1)	14.6 (13.8-15.5)	18.5 (17.2-19.9)	11.0 (10.0-12.1)
Usually got the alcohol they drank by buying it in a store, shop, or from a street vendor during the past 30 days	5.1 (3.8-6.5)	8.2 (6.5-10.0)	2.2 (1.1-3.2)	4.7 (3.5-6.0)	5.7 (3.7-7.8)	3.5 (2.3-4.7)	4.7 (3.7-5.7)	6.3 (4.5-8.2)	3.0 (2.1-3.9)	6.0 (4.5-7.5)	7.9 (5.8-10.0)	4.0 (2.6-5.4)	5.0 (4.5-5.6)	7.1 (6.2-8.0)	3.1 (2.6-3.7)
Drank so much alcohol they were really drunk one or more times during their life	8.4 (6.0-10.7)	11.9 (9.0-14.9)	4.8 (2.6-7.0)	8.8 (6.9-10.7)	12.3 (9.5-15.0)	5.2 (3.7-6.7)	12.7 (10.6-14.7)	16.0 (13.4-18.6)	9.0 (6.7-11.3)	13.5 (12.2-14.7)	18.5 (16.1-20.8)	8.0 (5.8-10.1)	10.8 (10.1-11.5)	14.7 (13.6-15.9)	7.0 (6.2-7.9)
Had a hang-over, felt sick, got into trouble, missed school, or got into fights one or more times as a result of drinking alcohol during their life	4.8 (3.3-6.3)	6.7 (4.3-9.0)	2.9 (1.7-4.2)	4.2 (2.9-5.5)	4.6 (2.9-6.4)	3.8 (2.3-5.4)	6.2 (5.1-7.3)	7.7 (5.8-9.5)	4.6 (3.4-5.9)	6.3 (4.9-7.6)	8.1 (5.8-10.3)	4.1 (2.6-5.6)	5.4 (4.9-6.0)	6.8 (6.0-7.7)	4.0 (3.4-4.7)

Table 2. (cotd).

Used drugs such as ice, marijuana, methamphetamine, or heroin one or more times during their life	0.9 (0.6-1.3)	1.2 (0.6-1.9)	0.7 (0.3-1.1)	2.5 (2.0-3.1)	3.5 (2.3-4.7)	1.5 (0.7-2.2)	1.3 (0.9-1.8)	1.5 (0.7-2.3)	1.1 (0.4-1.7)	2.3 (1.3-3.4)	3.8 (2.0-5.7)	0.7 (0.3-1.2)	1.6 (1.3-1.9)	2.3 (1.8-2.9)	1.0 (0.7-1.4)
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*95% confidence interval.

Table 3. BMI and dietary behaviors, % (CI)*, by city, CHINA, 2003.

Question	Beijing			Hangzhou			Urumchi			Wuhan			Overall		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
At risk for becoming overweight ¹	10.7 (9.0-12.5)	13.5 (11.3-15.8)	8.0 (6.2-9.8)	4.0 (2.5-5.5)	5.5 (2.8-8.1)	2.5 (1.4-3.5)	6.3 (4.8-7.7)	9.3 (7.2-11.4)	3.1 (1.9-4.3)	7.4 (5.9-9.0)	9.9 (7.5-12.4)	4.6 (3.0-6.2)	7.1 (6.5-7.8)	9.7 (8.7-10.8)	4.6 (3.9-5.4)
Overweight ²	4.3 (2.7-5.8)	6.1 (4.3-8.0)	2.4 (1.0-3.9)	1.7 (0.7-2.8)	2.3 (1.0-3.7)	1.1 (0.1-2.0)	0.7 (0.4-1.0)	1.1 (0.5-1.7)	0.3 (0.0-0.6)	8.0 (5.2-10.9)	8.8 (4.9-12.7)	7.1 (4.5-9.8)	3.0 (2.6-3.5)	4.0 (3.3-4.8)	2.1 (1.6-2.7)
Went hungry most of the time or always because there was not enough food in their home during the past 30 days	2.4 (1.7-3.0)	2.9 (1.8-3.9)	1.9 (1.2-2.6)	2.6 (1.6-3.6)	3.3 (2.1-4.5)	1.9 (0.9-2.9)	2.3 (1.5-3.2)	2.6 (1.4-3.9)	3.0 (2.0-4.0)	1.9 (1.3-2.6)	1.9 (1.2-2.7)	2.0 (1.4-2.5)	2.3 (2.0-2.7)	2.7 (2.2-3.3)	1.9 (1.5-2.4)
Usually ate fruit, such as apples, pears, oranges, or bananas, one or more times per day during the past 30 days	72.7 (69.9-75.5)	69.6 (65.7-73.6)	75.7 (72.8-78.6)	65.7 (61.2-70.3)	64.3 (59.3-69.3)	67.1 (60.7-73.4)	61.0 (56.6-65.3)	58.3 (53.1-63.5)	63.8 (59.6-68.1)	54.9 (51.3-58.5)	52.5 (47.6-57.4)	57.5 (53.7-61.4)	63.9 (62.8-65.0)	61.2 (59.6-62.8)	66.6 (65.1-68.1)
Usually ate vegetables, such as tomatoes, cabbages, radishes, or beans, one or more times per day during the past 30 days	93.2 (92.0-94.3)	93.2 (91.8-94.6)	93.1 (91.7-94.6)	91.5 (89.0-94.0)	90.4 (87.2-93.7)	92.6 (90.4-94.7)	93.4 (92.1-94.8)	93.1 (91.4-94.8)	93.7 (92.1-95.3)	89.1 (87.5-90.8)	90.2 (88.2-92.2)	87.9 (85.6-90.2)	92.1 (91.5-92.7)	91.9 (91.0-92.8)	92.3 (91.4-93.1)

Table 3. (contd).

Ate fruits and vegetables five or more times per day during the past 30 days	33.4 (30.0-36.8)	32.2 (28.9-35.5)	34.6 (30.6-38.5)	21.9 (19.6-24.2)	22.3 (19.6-24.9)	21.5 (18.5-24.5)	25.3 (22.8-27.8)	25.2 (22.4-28.1)	25.5 (22.0-29.1)	17.1 (14.5-19.6)	19.0 (14.7-23.4)	14.7 (13.1-16.3)	25.1 (24.1-26.1)	25.1 (23.7-26.6)	25.1 (23.7-26.5)
Describe their weight as slightly overweight or very overweight	36.7 (33.5-39.9)	31.4 (27.8-35.0)	41.9 (37.8-46.1)	27.4 (24.2-30.5)	20.8 (18.2-23.5)	34.5 (30.0-39.0)	32.6 (29.9-35.3)	23.3 (20.6-25.9)	42.8 (39.4-46.1)	28.6 (25.8-31.5)	23.5 (20.4-26.6)	35.0 (31.8-38.3)	32.3 (31.2-33.4)	24.8 (23.4-26.3)	39.6 (38.0-41.2)
Ate breakfast most of time or always during the past 30 days	77.3 (74.5-80.2)	79.0 (75.9-82.2)	75.7 (72.4-78.9)	82.1 (78.8-85.3)	82.2 (77.9-86.5)	78.5 (81.9-85.4)	78.4 (76.1-80.6)	80.2 (77.4-82.9)	76.3 (73.5-79.2)	78.9 (75.3-82.4)	80.2 (76.9-83.4)	78.0 (73.7-82.4)	78.9 (77.9-79.8)	80.4 (79.0-81.7)	77.6 (76.2-78.9)
Usually drink carbonated soft drinks, such as Coke, Pepsi, or Sprite two or more times per day during the past 30 days	14.3 (11.9-16.7)	16.7 (14.1-19.3)	11.9 (8.7-15.1)	25.5 (22.4-28.7)	27.0 (24.1-29.9)	23.9 (18.8-29.1)	13.9 (12.1-15.6)	15.8 (13.2-18.3)	11.8 (9.2-14.3)	19.9 (16.5-23.3)	24.2 (20.2-28.2)	14.2 (10.6-17.8)	17.4 (16.5-18.3)	20.1 (18.8-21.5)	14.6 (13.5-15.8)
Usually drink carbonated soft drinks, such as Coke, Pepsi, or Sprite two or more times per day during the past 30 days	14.3 (11.9-16.7)	16.7 (14.1-19.3)	11.9 (8.7-15.1)	25.5 (22.4-28.7)	27.0 (24.1-29.9)	23.9 (18.8-29.1)	13.9 (12.1-15.6)	15.8 (13.2-18.3)	11.8 (9.2-14.3)	19.9 (16.5-23.3)	24.2 (20.2-28.2)	14.2 (10.6-17.8)	17.4 (16.5-18.3)	20.1 (18.8-21.5)	14.6 (13.5-15.8)

*95% confidence interval.

¹Students who were at or above the 85th percentile, but below the 95th percentile for body mass index by age and sex based on reference data from Cole, Bellizzi, Flegal, and Dietz, BMJ, May 2000.

²Students who were at or above the 95th percentile for body mass index by age and sex based on reference data from Cole, Bellizzi, Flegal, and Dietz, BMJ, May 2000.

Table 4. Hygiene-related behaviors, % (CI)*, by city, CHINA, 2003.

Question	Beijing			Hangzhou			Urumchi			Wuhan			Overall		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Did not clean or brush their teeth during the past 30 days	2.9 (1.8-4.1)	4.0 (2.2-5.7)	1.9 (0.7-3.2)	2.1 (1.2-3.0)	3.1 (1.5-4.7)	1.1 (0.5-1.7)	2.2 (1.4-2.9)	2.8 (1.7-3.9)	1.5 (0.8-2.2)	2.8 (1.8-3.8)	2.1 (0.8-3.4)	3.5 (2.0-4.9)	2.4 (2.1-2.8)	3.0 (2.5-3.6)	1.9 (1.5-2.4)
Never or rarely washed their hands before eating during the past 30 days	3.0 (1.9-4.1)	3.6 (2.2-5.0)	2.3 (1.2-3.5)	6.4 (4.8-7.9)	7.6 (5.4-9.8)	5.0 (3.0-7.0)	4.1 (3.1-5.0)	4.3 (2.9-5.6)	3.8 (2.6-5.1)	9.1 (7.4-10.7)	9.4 (6.9-11.9)	8.6 (6.0-11.3)	5.2 (4.7-5.7)	5.8 (5.1-6.6)	4.6 (4.0-5.3)
Never or rarely washed their hands before eating at school during the past 30 days	16.8 (12.9-20.7)	20.2 (14.6-25.8)	13.3 (10.1-16.6)	20.9 (16.6-25.3)	22.3 (17.5-27.1)	19.4 (14.2-24.5)	30.8 (27.3-34.4)	30.6 (26.4-34.9)	31.0 (27.7-34.4)	35.1 (30.4-39.7)	36.0 (28.7-43.3)	34.4 (31.1-37.7)	25.9 (24.9-26.9)	27.4 (26.0-28.9)	24.5 (23.1-25.9)
Never or rarely washed their hands after using toilet or latrines at school during the past 30 days	9.9 (6.3-13.5)	11.1 (6.9-15.4)	8.7 (4.9-12.6)	2.5 (1.4-3.6)	2.7 (1.6-3.8)	2.1 (0.6-3.6)	9.1 (4.1-14.1)	9.0 (4.0-13.9)	9.2 (3.7-14.6)	6.9 (5.4-8.3)	7.8 (5.3-10.4)	5.9 (4.5-7.3)	7.5 (6.9-8.1)	8.0 (7.1-9.0)	7.0 (6.2-7.9)

*95% confidence interval.

Table 5. Mental health issues, % (CI)*, by city, CHINA, 2003.

Question	Beijing			Hangzhou			Urumchi			Wuhan			Overall		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Most of the time or always felt lonely during the past 12 months	6.9 (5.1-8.8)	6.6 (4.6-8.7)	7.3 (5.4-9.1)	5.0 (3.9-6.1)	4.2 (2.5-5.8)	5.8 (4.7-6.8)	8.8 (7.9-9.7)	7.7 (6.3-9.0)	9.9 (8.0-11.9)	8.0 (5.9-10.2)	7.1 (4.6-9.5)	9.2 (6.6-11.8)	7.4 (6.8-8.0)	6.5 (5.7-7.4)	8.2 (7.3-9.1)
Most of the time or always felt so worried about something that they could not sleep at night during the past 12 months	4.9 (3.7-6.2)	5.1 (3.0-7.2)	4.7 (3.4-6.0)	3.4 (2.5-4.2)	3.2 (2.2-4.2)	3.6 (2.4-4.7)	4.6 (3.8-5.4)	4.6 (3.4-5.7)	4.6 (3.7-5.6)	4.1 (2.9-5.3)	3.9 (2.8-4.9)	4.4 (2.3-6.4)	4.3 (3.9-4.8)	4.3 (3.7-5.0)	4.4 (3.8-5.1)
Felt so sad or hopeless almost every day for two weeks or more in a row that they stopped doing their usual activities during the past 12 months	18.4 (16.7-20.1)	19.8 (17.9-21.6)	17.0 (14.7-19.3)	19.1 (17.2-20.9)	18.4 (16.4-20.4)	19.7 (17.1-22.3)	24.3 (21.1-27.5)	24.0 (20.8-27.2)	24.6 (20.2-29.1)	20.0 (17.3-22.7)	18.9 (16.5-21.3)	20.6 (16.3-24.8)	20.7 (19.8-21.7)	20.5 (19.2-21.9)	20.8 (19.5-22.2)
Seriously considered attempting suicide during the past 12 months	14.3 (11.5-17.2)	12.5 (9.6-15.4)	16.2 (13.1-19.3)	14.5 (11.7-17.4)	13.0 (10.8-15.2)	16.3 (11.7-20.8)	21.3 (19.3-23.3)	17.6 (15.2-20.1)	25.1 (21.9-28.4)	19.0 (16.5-21.4)	15.6 (12.8-18.5)	22.5 (18.5-26.5)	17.8 (16.9-18.7)	14.9 (13.7-16.1)	20.5 (19.2-21.8)
Made a plan about how they would attempt suicide during the past 12 months	7.1 (5.4-8.8)	6.0 (4.4-7.6)	8.2 (6.0-10.4)	7.1 (5.8-8.4)	6.3 (4.6-7.9)	8.0 (6.1-9.8)	9.5 (8.0-11.0)	7.3 (5.3-9.3)	11.8 (10.1-13.6)	9.6 (7.9-11.2)	7.4 (5.3-9.6)	12.1 (9.9-14.3)	8.4 (7.8-9.1)	6.7 (5.9-7.6)	10.1 (9.1-11.1)

Table 5. (cotd).

Have no close friends	7.2 (6.4-8.0)	6.7 (5.1-8.4)	7.6 (6.3-9.0)	6.3 (5.0-7.5)	6.4 (4.2-8.6)	6.2 (4.9-7.4)	6.6 (5.5-7.6)	6.7 (5.0-8.5)	6.5 (5.4-7.6)	10.3 (8.5-12.0)	9.8 (7.6-12.0)	10.8 (8.3-13.2)	7.4 (6.8-8.0)	7.2 (6.4-8.1)	7.5 (6.7-8.4)
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*95% confidence interval.

Table 6. Physical activity, % (CI)*, by city, CHINA, 2003.

Question	Beijing			Hangzhou			Urumchi			Wuhan			Overall		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Physically active seven days for a total of at least 60 minutes per day during a typical or usual week	17.1 (14.2-20.0)	20.7 (17.4-23.9)	13.5 (10.3-16.6)	7.7 (6.0-9.4)	9.4 (7.4-11.4)	5.7 (3.9-7.5)	13.0 (11.6-14.4)	17.3 (15.5-19.0)	8.4 (6.8-9.9)	10.6 (8.8-12.5)	13.7 (10.7-16.7)	7.2 (5.2-9.2)	12.2 (11.5-13.0)	15.7 (14.5-16.9)	8.9 (8.0-9.9)
Participated in an insufficient amount of physical activity	73.0 (69.5-76.4)	69.2 (64.8-73.6)	76.7 (73.1-80.3)	84.9 (82.0-87.8)	82.7 (79.5-86.0)	87.3 (83.8-90.7)	78.6 (76.5-80.7)	73.4 (70.6-76.2)	84.1 (81.6-86.7)	81.9 (79.3-84.5)	76.9 (73.1-80.8)	87.7 (84.7-90.6)	78.6 (72.5-82.7)	75.1 (69.0-81.2)	83.5 (78.5-88.5)
Spent three or more hours per day doing sitting activities during a typical or usual day	22.0 (19.3-24.6)	21.3 (17.9-24.7)	22.6 (19.6-25.7)	25.0 (21.4-28.5)	22.4 (19.9-24.9)	27.8 (22.5-33.1)	21.6 (19.5-23.8)	20.8 (18.4-23.2)	22.5 (19.0-26.1)	19.1 (16.1-22.1)	21.8 (17.7-25.9)	16.0 (12.9-19.2)	22.0 (21.1-23.0)	21.6 (20.3-23.0)	22.5 (21.2-23.9)
Did not walk or bicycle to and from school during the past seven days	15.3 (9.6-21.0)	16.8 (11.1-22.4)	13.9 (6.9-20.9)	13.8 (8.9-18.8)	13.1 (9.0-17.1)	14.7 (8.1-21.3)	32.8 (29.4-36.3)	33.8 (29.8-37.8)	31.7 (27.8-35.6)	16.4 (13.7-19.0)	17.7 (15.3-20.1)	14.6 (10.5-18.8)	20.9 (20.0-21.9)	21.7 (20.4-23.1)	20.1 (18.8-21.4)
Usually take 29 minutes or less to get to and from school each day during the past seven days	54.0 (50.0-57.9)	56.9 (52.5-61.4)	51.0 (46.1-56.0)	62.6 (59.8-65.4)	65.3 (61.8-68.9)	59.6 (56.1-63.1)	52.5 (47.5-57.5)	55.5 (50.4-60.5)	49.3 (43.4-55.1)	55.6 (51.0-60.3)	57.3 (52.4-62.3)	53.6 (47.9-59.3)	55.4 (51.0-59.8)	58.3 (53.8-62.8)	52.5 (47.5-57.5)

*95% confidence interval.

Table 7. Protective factors, % (CI)*, by city, CHINA, 2003.

Question	Beijing			Hangzhou			Urumchi			Wuhan			Overall		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Missed classes or school without permission on one or more of the past 30 days	4.6 (3.4-5.8)	5.9 (3.9-8.0)	3.2 (1.7-4.7)	5.2 (4.2-6.3)	5.4 (3.9-6.9)	4.9 (4.1-5.7)	7.3 (5.5-9.1)	8.7 (6.6-10.9)	5.9 (4.0-7.7)	7.0 (5.3-8.7)	8.0 (5.6-10.4)	5.7 (3.9-7.5)	6.0 (5.5-6.5)	7.2 (6.4-8.1)	4.9 (4.2-5.7)
Most of the students in their school were kind and helpful most of the time or always during the past 30 days	57.0 (53.2-60.8)	49.1 (44.7-53.6)	64.8 (59.8-69.7)	43.5 (38.9-48.1)	38.5 (34.0-43.0)	48.7 (43.1-54.4)	48.2 (43.8-52.6)	42.5 (37.7-47.3)	54.4 (49.6-59.1)	36.6 (31.9-41.3)	32.4 (27.3-37.5)	41.2 (35.8-46.6)	47.8 (46.6-50.0)	41.6 (40.0-43.2)	53.8 (52.2-55.4)
Parents or guardians understood their problems and worries most of the time or always during the past 30 days	41.6 (37.6-45.6)	40.9 (37.2-44.7)	47.3 (37.2-42.3)	30.0 (26.1-33.9)	26.4 (21.3-31.4)	37.7 (29.8-33.8)	34.7 (32.1-37.4)	36.7 (33.4-39.9)	32.8 (29.6-35.9)	32.3 (29.2-35.4)	31.6 (27.6-35.5)	32.7 (28.6-36.8)	35.0 (33.9-36.1)	34.5 (33.0-36.1)	35.5 (34.0-37.1)
Parents or guardians really knew what they were doing with their free time most of the time or always during the past 30 days	47.4 (43.1-51.8)	46.6 (41.8-51.4)	48.3 (43.7-52.8)	40.8 (37.9-43.6)	38.2 (34.5-41.9)	43.6 (40.2-46.9)	45.1 (42.5-47.7)	43.8 (40.7-46.8)	46.4 (43.0-49.9)	40.8 (36.7-45.0)	41.1 (36.4-45.9)	40.6 (35.7-45.5)	44.0 (42.8-45.2)	42.7 (41.1-44.3)	45.2 (43.6-46.8)

*95% confidence interval.

Table 8. HIV-Related Knowledge, % (CI)*, by city, CHINA,2003.

Question	Beijing			Hangzhou			Urumchi			Wuhan			Overall		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Ever heard of HIV or the disease called AIDS	96.3 (95.1-97.5)	95.6 (94.0-97.3)	97.0 (95.7-98.3)	95.8 (93.9-97.6)	95.3 (92.9-97.7)	96.2 (94.2-98.3)	97.6 (96.8-98.4)	97.3 (96.2-98.4)	98.0 (97.3-98.6)	95.3 (94.0-96.5)	94.7 (93.0-96.4)	95.9 (94.5-97.3)	96.5 (96.0-97.0)	96.0 (95.3-96.6)	97.0 (96.4-97.5)
Taught in any of their classes about HIV or AIDS during this school year	50.4 (42.4-58.5)	50.5 (41.6-59.5)	50.4 (42.3-58.4)	27.2 (21.7-32.7)	27.1 (20.5-33.7)	27.3 (22.6-31.9)	66.9 (60.8-73.0)	66.8 (61.1-72.6)	66.8 (59.9-73.7)	34.6 (27.7-41.4)	34.8 (27.5-42.1)	33.9 (26.0-41.7)	48.1 (47.0-49.2)	48.0 (46.3-49.7)	48.2 (46.6-49.8)
Ever talked about HIV or AIDS with their parents or guardians	42.7 (39.3-46.0)	37.8 (33.2-42.5)	47.4 (43.7-51.2)	30.3 (27.3-33.2)	24.7 (21.0-28.5)	36.0 (32.0-40.1)	41.1 (38.2-44.0)	38.3 (34.5-42.0)	44.3 (41.0-47.5)	30.4 (28.0-32.9)	28.3 (24.9-31.7)	33.6 (30.2-37.0)	46.6 (45.4-47.8)	45.7 (44.0-47.4)	47.4 (48.8-49.0)
Ever heard of HIV or the disease called AIDS	96.3 (95.1-97.5)	95.6 (94.0-97.3)	97.0 (95.7-98.3)	95.8 (93.9-97.6)	95.3 (92.9-97.7)	96.2 (94.2-98.3)	97.6 (96.8-98.4)	97.3 (96.2-98.4)	98.0 (97.3-98.6)	95.3 (94.0-96.5)	94.7 (93.0-96.4)	95.9 (94.5-97.3)	96.5 (96.0-97.0)	96.0 (95.3-96.6)	97.0 (96.4-97.5)

*95% confidence interval

Table 9. Tobacco use among students, % (CI)*, by city, CHINA, 2003.

Question	Beijing			Hangzhou			Urumchi			Wuhan			Overall		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Smoked cigarettes on one or more days during the past 30 days	8.7 (6.9-10.5)	15.3 (12.2-18.3)	2.4 (1.3-3.5)	3.5 (2.7-4.3)	5.5 (4.2-6.8)	1.4 (0.6-2.2)	6.2 (4.9-7.5)	10.0 (7.7-12.4)	2.2 (1.2-3.1)	6.6 (3.5-9.7)	11.1 (5.5-16.6)	1.4 (0.4-2.3)	6.2 (5.6-6.8)	10.7 (9.7-11.8)	1.9 (1.5-2.4)
Used any other form of tobacco, such as pipe or water pipe on one or more of the past 30 days	1.9 (1.3-2.5)	3.3 (2.3-4.3)	0.5 (0.0-1.0)	1.0 (0.5-1.5)	1.2 (0.7-1.7)	0.8 (0.1-1.5)	1.6 (1.1-2.2)	2.6 (1.7-3.5)	0.6 (0.2-1.0)	1.6 (0.8-2.4)	2.5 (1.2-3.9)	0.4 (0.0-0.9)	1.5 (0.9-2.1)	2.5 (2.3-3.7)	0.6 (0.1-1.1)
Among students who smoked cigarettes during the past 30 days, those who tried their first cigarette at age 9 or younger	25.9 (20.9-30.9)	25.4 (18.8-32.0)	-	-	-	-	26.4 (21.4-31.4)	27.9 (22.2-33.5)	-	-	-	-	27.2 (23.1-31.7)	27.5 (26.0-29.1)	26.1 (16.6-38.3)
Among students who smoked cigarettes on one or more days during the past 30 days, those who tried to stop smoking cigarettes during the past 12 months	72.7 (66.1-79.4)	74.5 (67.3-81.7)	-	-	-	-	70.0 (62.6-77.4)	75.0 (69.5-80.5)	-	61.7 (51.6-71.7)	-	-	65.5 (64.4-66.6)	68.1 (63.6-72.3)	53.7 (43.9-63.3)

Table 9. (contd).

People smoked in their presence on one or more days during the past seven days	61.5 (56.8-66.2)	64.9 (59.6-70.1)	58.1 (52.3-63.9)	61.8 (57.9-65.6)	63.0 (59.1-67.0)	60.5 (55.4-65.6)	63.0 (59.8-66.2)	65.2 (61.4-69.0)	60.7 (56.6-64.9)	67.0 (62.6-71.4)	71.5 (66.9-76.0)	62.1 (56.0-68.1)	63.1	66.0	60.4
Have a parent or guardian who uses any form of tobacco	61.0 (56.9-65.2)	59.8 (55.2-64.4)	62.2 (57.4-67.0)	63.3 (60.1-66.5)	61.4 (57.8-65.0)	65.6 (61.6-69.5)	60.7 (59.0-62.4)	59.6 (57.3-61.8)	61.9 (59.6-64.3)	66.1 (63.5-68.8)	66.1 (62.3-70.0)	66.4 (62.1-70.6)	62.6 (61.5-63.7)	61.4 (59.8-63.0)	63.8 (62.2-65.3)

*95% confidence interval. - = Less than 100 students in this subgroup.

Table 10. Violence and unintentional injury, % (CI)*, by city, CHINA, 2003.

Question	Beijing			Hangzhou			Urumchi			Wuhan			Overall		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Were in a physical fight one or more times during the past 12 months	15.8 (13.5-18.2)	25.5 (21.6-29.3)	6.3 (4.8-7.7)	17.9 (16.2-19.6)	29.3 (27.2-31.4)	5.7 (4.0-7.4)	22.0 (18.7-25.3)	34.7 (30.8-38.7)	8.3 (5.7-10.8)	20.1 (16.1-24.0)	30.4 (24.8-36.0)	8.1 (5.7-10.5)	21.9 (17.9-25.9)	30.3 (25.2-35.4)	7.4 (5.1-9.7)
Were seriously injured one or more times during the past 12 months	16.4 (14.3-18.5)	20.6 (17.7-23.5)	12.6 (10.3-14.8)	19.7 (17.2-22.1)	22.7 (18.5-26.8)	16.8 (12.8-20.9)	24.7 (21.7-27.7)	29.7 (26.0-33.5)	19.3 (16.3-22.3)	22.3 (19.6-25.1)	28.4 (24.0-32.9)	15.0 (11.6-18.4)	20.6 (19.6-21.6)	25.6 (24.0-27.3)	16.0 (14.7-17.4)
Among students who were seriously injured during the past 12 months, those who most serious injury was the result of them hurting themselves by accident	63.3 (56.5-70.2)	62.9 (53.4-72.4)	64.0 (54.3-73.6)	65.5 (58.0-73.0)	62.5 (53.9-71.2)	69.4 (59.9-78.9)	61.9 (56.7-67.1)	60.4 (54.6-66.2)	64.0 (55.2-72.9)	53.3 (45.6-60.9)	48.4 (39.1-57.7)	-	61.2 (58.4-64.0)	58.7 (55.0-62.3)	65.0 (60.6-69.2)
Among students who were seriously injured during the past 12 months, those who had a broken bone or dislocated joint as their most serious injury	27.2 (21.8-32.6)	31.1 (25.1-37.1)	21.3 (13.1-29.6)	22.6 (16.5-28.7)	24.9 (15.7-34.1)	19.6 (12.2-27.0)	24.1 (19.6-28.6)	28.1 (20.6-35.6)	17.6 (12.8-22.4)	21.8 (16.9-26.7)	25.1 (17.6-32.7)	-	23.8 (21.5-26.3)	27.6 (24.4-31.1)	17.9 (14.7-21.6)
Were bullied on one or more days during the past 30 days	20.2 (16.9-23.5)	23.0 (19.1-26.9)	17.4 (14.5-20.3)	31.8 (29.3-34.3)	30.7 (28.1-33.3)	32.9 (28.0-37.9)	31.9 (28.5-35.2)	32.5 (28.9-36.1)	31.2 (26.9-35.4)	33.2 (29.9-36.6)	34.2 (29.2-39.1)	31.6 (27.2-36.0)	28.8 (27.7-29.9)	29.8 (28.3-31.4)	27.7 (26.2-29.2)

*95% confidence interval. - = Less than 100 students in this subgroup.

Table 11. Questions about SARS, % (CI)*, by city, 2003.

Question	Beijing			Hangzhou			Urumchi			Wuhan			Overall		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Taught in any class how to prevent SARS during the last school year	92.7 (90.7-94.7)	91.8 (89.5-94.2)	93.6 (91.4-95.8)	90.6 (88.3-93.0)	90.2 (86.6-93.8)	91.0 (88.8-93.2)	95.5 (94.7-96.3)	94.8 (93.8-95.9)	96.1 (94.7-97.5)	91.3 (89.7-92.9)	90.5 (88.8-92.3)	92.5 (90.4-94.6)	93.0 (92.4-93.6)	92.3 (91.3-93.2)	93.8 (93.0-94.6)
Wash hands more often during the day because of SARS	93.6 (92.5-94.7)	91.9 (89.8-93.9)	95.4 (93.6-97.1)	94.1 (92.8-95.4)	93.0 (91.1-94.9)	95.2 (93.4-97.0)	91.7 (90.4-93.1)	89.9 (88.2-91.5)	93.7 (92.0-95.5)	88.6 (86.5-90.8)	86.9 (83.6-90.1)	91.0 (88.5-93.4)	92.2 (91.6-92.8)	90.4 (89.4-91.3)	93.9 (93.1-94.6)
Afraid of getting SARS during the SARS epidemic	45.1 (41.4-48.8)	42.2 (37.8-46.6)	48.0 (43.8-52.2)	54.3 (50.6-58.0)	51.5 (46.5-56.4)	57.3 (53.3-61.3)	48.2 (44.4-52.0)	43.4 (39.6-47.2)	53.2 (48.2-58.2)	46.8 (44.4-49.2)	43.0 (39.2-46.8)	51.1 (48.3-53.9)	48.4 (47.3-49.6)	44.6 (43.0-46.3)	52.0 (50.4-53.6)

*95% confidence interval