

AstraZeneca Fact Sheet 2010: Morbidity and Mortality among Adolescents and Young Adults in Sweden

Overview of Morbidity and Mortality

Sweden has a population of 9.1 million, of which approximately 1 million are adolescents aged 10-19 years old (1). Like many other countries in Europe, a significant portion (20%) of young people in Sweden are immigrants (2). Sweden reports one of the lowest mortality rates in the world, including adolescent deaths. As in other regions of the world, boys have higher mortality rates compared to girls. Using data from 1981-2000, mortality rates for adolescent males in Nordic countries (Denmark, Norway, Finland, and Sweden) was 70/100,000 follow up years. Among these countries, Swedish young males had the lowest mortality rate at 50/100,000 follow up years. Excess mortality among males compared to females was higher by 27% among those aged 10-14 years old, and even higher among 15-19 year olds with 71% (3).

General Well-Being

The overall health of young people change as they grow older, with gender differences across different health domains. Self-rated health declines with age, with 11 year olds reporting themselves as healthier with a more positive attitude towards school than their older peers aged 13-15 years old (4). Gender differences also exist, as females are less likely to report being happy compared to males (4).

Mental Health: A Growing Concern

A growing challenge in Sweden is the increasing rates of mental health issues reported among adolescents, particularly older females. This recent trend has been attributed to a number of factors including economic transitions in Sweden including a recession in the 1990's (5), and the increasing stress and life demands felt by youth (6).

Based on WHO's Health Behavior in School Aged Children (HBSC) Study, trend analysis from 1985/1986-2005/2006 highlights the deterioration of mental health among Sweden's youth with stark gender differences. Mental health scores were based on four questions concerning somatic symptoms (i.e. headaches, stomach-aches, backaches, dizziness) and four questions concerning mental complaints (i.e. low sleep levels, feel low, irritable/bad temper, nervous). Overall, a linear increase in mental health issues is reported by older females (grade 9) (6).

Among males, 8.6%, and 7.5% in grade 7 and grade 9, respectively, reported a mental health issue in 1985/1986; 10 years later in 2005/2006, 12.8%, and 17.6% of males in grade 7 and grade 9, respectively, reported a mental health issue. Males in grade 5 demonstrated a slight decrease from 10.0% in 1985/86 to 8.7% in 2005/06 (6) (See Figure 1). Females demonstrated similar results, with even higher prevalence rates compared to males (see Figure 2). In 1985/86, 13.6% and 15.0% of

females in grade 7 and grade 9, respectively, reported mental health concerns compared to 22.3% and 38.6% of grade 7 and grade 9, respectively, in 2005/2006 (6). Figure 2 demonstrates the increasing trend taken from 5 surveys of the HBSC among older females.

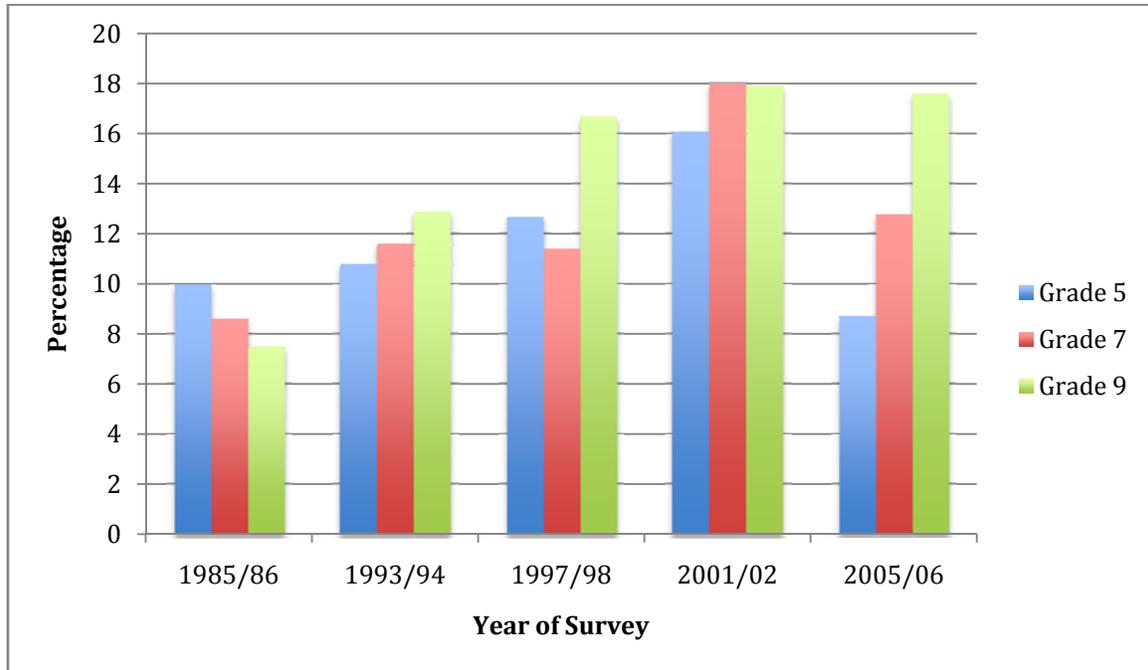


Figure 1. Percentage of Male Students with Mental Health Concerns, by year of survey and grade level *Source:* Health Behavior in School Aged Children (HBSC) (6).

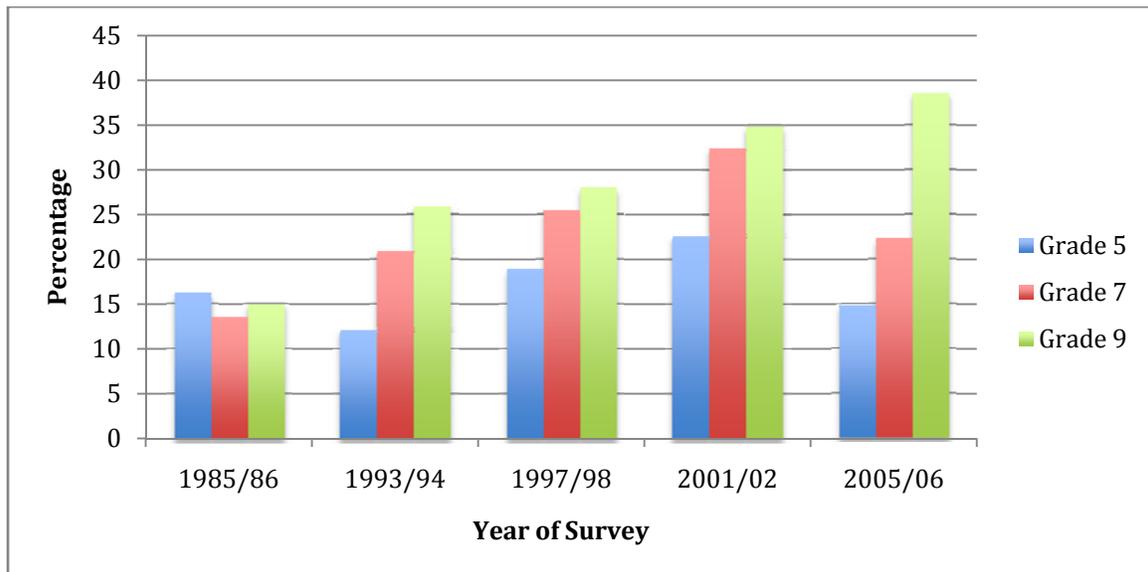


Figure 2. Percentage of Female Students with Mental Health Concerns, by year of survey and grade level *Source:* Health Behavior in School Aged Children (HBSC) (6).

Suicides

In a study comparing four countries including Sweden, South Korea, Taiwan, and the United States, Sweden reported the second highest age-adjusted suicide rate of 12.6 per 100,000, behind South Korea (7). Youth suicide in particular have also developed as a public health problem in the western world (8). The rate of suicide among adolescents aged 15-19 years and young adults aged 20-29 years doubled between the 1950's-1970s (8). 20-24 year olds experienced an even steeper increase between 1950-1980's with a more than three fold increase in suicide rates (8).

In 2002, females aged 15-24 year old suicide rate was approximately 5.0 per 100,000 (7). Among 15-24 year old females, the most commonly used suicide methods include: poisoning (54%), hanging (29%), and jumping (8%) (7). Unlike youth in the United States who most commonly use firearms, no Swedish youth used firearms as a method of suicide (7). This may be due to lack of availability of firearms as a method of choice.

Sexual Health: Contraceptive Use, Abortion, and Sexually Transmitted Infections

Although Sweden is known for liberal views towards adolescent sexual health, with sex education taught in schools since the 1950's, adolescents are also engaging in riskier behaviors. The SAM 73-90, a national survey of adolescent sexuality conducted in 1990 by Berg-Kelly and colleagues found that 54% of high school males and 64% of high school females were sexually active. These results are similar to other Scandinavian countries that have demonstrated higher sexual behaviors among girls compared to boys (9).

Number per 1,000 women, 15-19 years

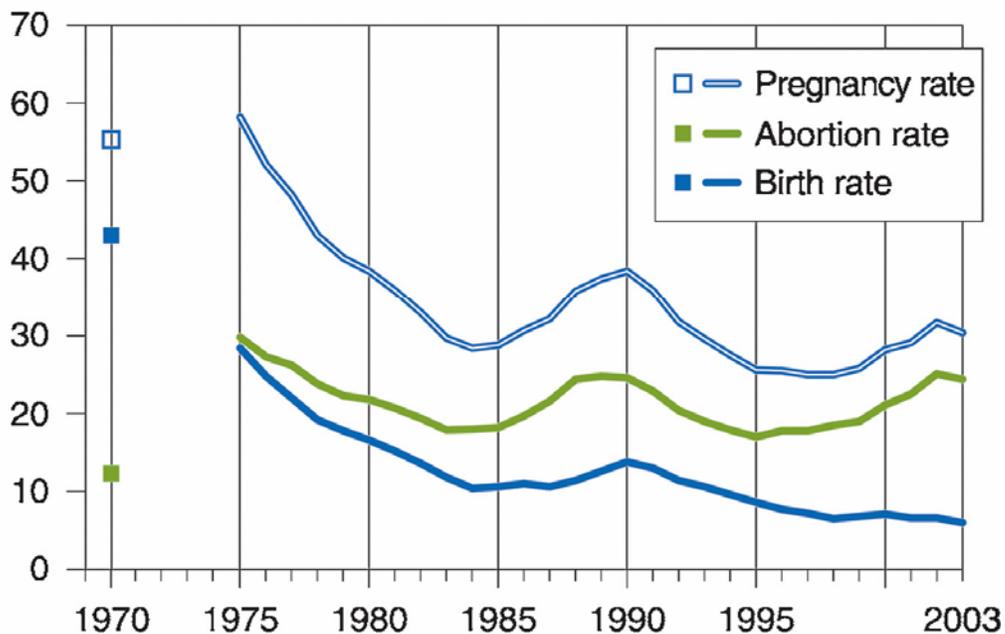


Figure 3. Number of abortions, deliveries and pregnancies per 1,000 women aged 15-19 (1970, 1975-2003). *Source:* Center for Epidemiology, National Board of Health and Welfare

Condoms, oral contraception, emergency contraception are all sold over the counter, and they are easily obtained. Among sexually active 15 year olds, 82% reported using some form of contraception at their most recent sexual encounter (4). While birth rates remain low, abortion rates have increased steadily from 17/1000 in 1995 to 22.5/1000 in 2001 (See Figure 1). In 2001, 5665 abortions were among teenage girls. 7% of sexually active girls reported ever having an abortion (2).

HIV, chlamydia, and gonorrhoea are all monitored by Swedish institute of infectious disease, and studies have found that sexual transmitted infections (STI's) are also increasing. 5% and 9% of sexually active boys and girls, respectively, reported having a STD. Genital chlamydial infections increased from 14,000 cases in 1994 to 22,263 cases in 2001. Similar to other regions of the world, STIs are disproportionately reported among young people. For example, 60% of genital chlamydial infections occur among adolescents; moreover, trends in chlamydial infections have increased most dramatically among teenagers (2).

Tobacco, Alcohol, Illicit Drugs

The European School Survey Project on Alcohol and other Drugs (ESPAD) demonstrates that while tobacco, alcohol, and drug use remains a public health priority in Sweden, trends have been decreasing in the past two decades. A significant portion of school-going teenagers aged 16 years old in a nationally representative sample engaged in alcohol use during the past 30 days. In 2007, 47% of females and 41% of males reported alcohol use in the past thirty days. This is a decrease from the 1995 survey in which approximately 55% of Swedish youth reported alcohol use in the past thirty days (Figure 4)(10).

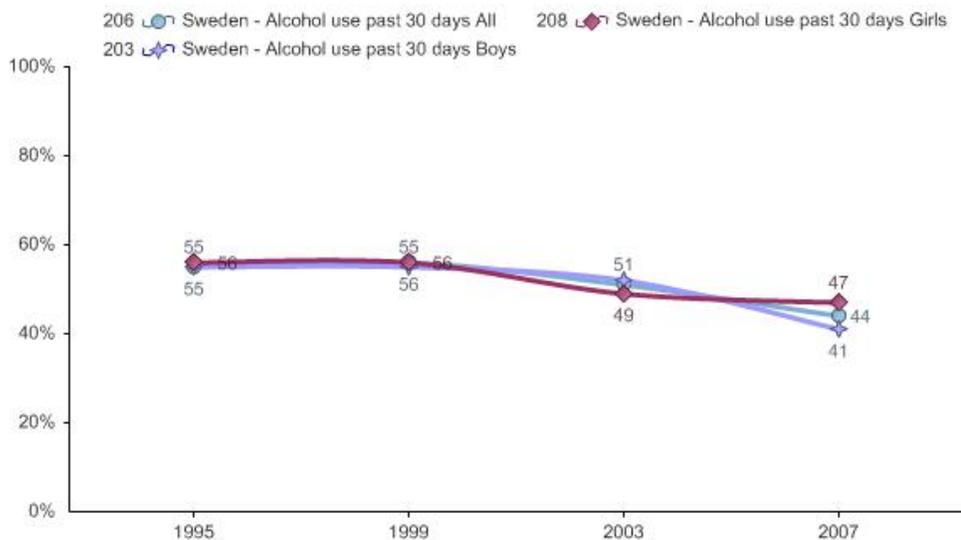


Figure 4. Prevalence of alcohol use in the past 30 days, by gender (1995-2007)

Source: <http://www.espad.org/keyresult-generator> (10)

Moreover, tobacco consumption has dropped between 1995-2007. Among 16 year old school-going youth, 24% of females and 19% of males engaged in tobacco use in the past thirty days. This has decreased over time as 33% and 28% of females and males, respectively, smoked cigarettes in the past 30 days (10).

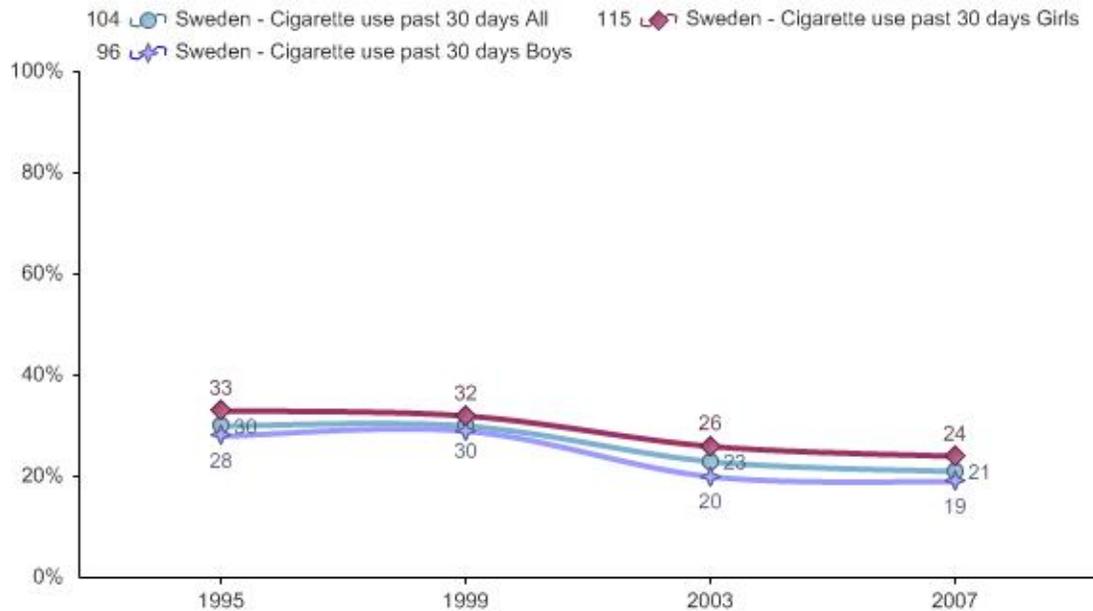


Figure 5. Prevalence of tobacco use in the past 30 days, by gender (1995-2007)
 Source: <http://www.espad.org/keyresult-generator> (10)

Unlike alcohol consumption, illicit drugs, including cannabis, use is very low among Swedish adolescents as 4% of 15-16 year olds and 12% of those aged 17-18 years old had used cannabis in the previous month, with adolescents living with only parent at greater risk than those living in two-parent households (11). Adolescents in other European countries report much higher cannabis use including 38% in France and 20% in the United Kingdom (12). However, similar to alcohol consumption, trends in cannabis use increased until 2000, and then steadily declined thereafter (12).

Prevention efforts should target personal, family, and community level environments to address known predictors of tobacco, alcohol and drug use. Personal risk factors for having been drunk include delinquency among males and positive attitudes towards alcohol and tobacco among females; protective factors that predicted tobacco and alcohol use include positive attitude to restrictions and having curfews set by parents (11).

Violence
Sexual Abuse

Based on results from a national study, sexual abuse is a growing concern among Sweden's youth. 11% of female students and 3% of male high school students experienced child sexual abuse (2). Similar results were found in a school-based sample of 258 high school students as 7.4% of students reported sexual abuse including 2.2% of boys and 13.0% of girls (9). The majority of the students who report experiencing sexual abuse identified peer-perpetration, or same-age perpetration.

Bullying in School

The multi-national effort of the Health Behavior in School Aged Children (HBSC) Study provides information on school bullying including frequency of times they had been bullied in a school year as well as frequency of times they had bullied others in a school year. Based on 1997-1998 HBSC data, 9% of the 3802 Swedish youth indicated that they were involved in bullying at school. Compared to 25 others countries in HBSC, Sweden ranked lowest in school bullying (13).

Obesity and Physical Activity

The world has witnessed an increase in obesity rates in rich and poor countries alike, particularly among children and adolescents. Until recently, Sweden experienced similar trends as Pederson and colleagues found that obesity rates doubled between 1986 to 2001 among 6-10 year olds (14). Changes in rates were most apparent among females. The prevalence of overweight among the school-based 6-10 year old sample was 23% (14). Holmback and colleagues (15) found similar results, finding young females particularly more likely to be overweight/obese in the past 20 years. In 2002, a higher proportion of 4 and 10-year old females were overweight compared to males; however, no difference was found among 16 year old males and females (15).

However, obesity trends have also appeared to level off slowly in recent years, and even decrease among young girls. In a cross sectional study comparing data on school health examinations from 2000/2001 and 2004/2005, the prevalence of overweight and obesity among girls decreased from 19.6% to 15.9% (16). Trend data for boys resulted in non-significant results with slight increases between 2000/2001-2004/2005 of 17.1% to 17.6% (16).

Based on HBSC data, weight and self-image is important to young people in Sweden. 15% of 13-15 year old females say that they diet to lose weight (4). As youth grow older, diets also change as they are less likely to report eating fruits, vegetables, and more likely to drink soft drinks. At the same time, the proportion of adolescents who are physically active decreases as they grow older, particularly girls who are less likely than boys to spend at least one hour engaging in physical activity five days a week, and a higher proportion of adolescents spend more than four hours in front of computer screens daily (4).

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Additional Websites

Swedish National Institute of Public Health <http://www.fhi.se/en/>

Health Behavior in School-aged Children (HBSC) <http://www.hbsc.org>

European School Survey Project on Alcohol and other Drugs <http://www.espad.org>

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