Tobacco use among Swedish schoolchildren

B Rodu, S Nasic, P Cole

Objective: To study the prevalence of snus use and of smoking among Swedish schoolchildren from 1989 to 2003.

Design: Surveys conducted by the Swedish Council for Information on Alcohol and Other Drugs.

Setting: All of Sweden.

Subjects: 84,472 boys and girls age 15–16 years.

Main outcome measures: Subjects are classified as non-smokers, occasional smokers, and regular smokers, and into three similar categories for snus use. Tobacco use is reported as sex specific prevalence.

Results: During the period 1989 to 2003, the prevalence of tobacco use declined both among boys and girls. For boys, regular smoking declined after 1992 from 10% to 4%. Their snus use was about 10% in the 1990s but increased to 13% by 2003. Regular smoking among girls was 20% in early years and declined to 15%. Smoking among girls was always double that among boys. Patterns of occasional tobacco use were similar to those of regular use.

Conclusions: The high prevalence of snus use in Sweden not only reduces smoking rates among Swedish men, but suppresses smoking among boys as well.
from about 45% to 30–35% over the period. Girls had a somewhat higher prevalence than boys, but this difference was minimal after 1995.

Figure 2 shows the prevalence of regular tobacco use, by type, among boys and among girls. The prevalence among boys ranged from 20–25% throughout the study period. However, after 1992 the prevalence of regular smoking among boys declined steadily, from 10% in that year to 3.9% in 2003. From 1990 to 1998 the prevalence of snus use averaged 9.5% (range 8–11%), then increased to 13% during
the 1999–2003 period. The correlation coefficient between regular smoking and regular snus use, over time, was −0.73. The prevalence of regular combined use was stable at 3–4%.

The prevalence of regular tobacco use among girls, starting around 20% and declining to 15%, was lower than that among boys in each year. The prevalence of regular smoking declined gradually, from almost 20% to about 13%. However, the prevalence of regular smoking among girls was more than double that among boys over the study period (mean 17% vs 8%, p < 0.05). Among girls the prevalence of regular snus use and combined tobacco use (together) always was 1.5% or less.

Figure 3 shows the prevalence of occasional tobacco use, by type, among boys and girls age 15–16 years in Sweden, 1989–2003.

What this paper adds
It is now generally recognised that snus use is associated with low smoking prevalence in Sweden, especially among men. However, there has been concern that widespread availability of snus may lead to tobacco initiation among youth, eventually resulting in higher smoking rates.

From 1989 to 2003 the prevalence of regular snus use among Swedish boys increased from about 10% to 13%, but the prevalence of regular smoking was very low and declined, from about 10% to under 4%. The prevalence of snus use among girls was very low, but the prevalence of smoking was about double that of boys over the entire period. Thus, snus use does not appear to be a gateway to smoking among Swedish youth, but instead is associated with low smoking prevalence among boys.

**DISCUSSION**
This study shows that about 20% of Swedish boys use tobacco regularly, as do boys in other European countries. However, specific patterns of tobacco use differ strikingly between Swedish boys and their EU counterparts. For example, in 2003 the prevalence of snus use was 14% and smoking prevalence was 3%. In 2002 the World Health Organization reported that the average prevalence of daily smoking among 15 year old boys in 25 European countries (excluding Sweden) was 18%. In that report boys in Sweden had the lowest smoking prevalence of all countries, at about one third of the EU average (5.7%). The next highest prevalence was in Greece (9.2%). All other countries reported prevalences from 12% (Wales) to 27% (Lithuania). Thus, high prevalence of snus use by Swedish boys may be a factor in low smoking prevalence.

In contrast, smoking rates among 15 year old girls in Sweden do not differ from those among girls in other European countries. In the 2002 WHO report smoking prevalence among Swedish girls was the fifth lowest in...
Europe (14%), but still close to the average for all other countries (19%, range 11% in Greece to 29% in Germany). Our study shows that smoking among both Swedish boys and girls has declined gradually over the past 15 years. This also has occurred in most west European countries. However, the prevalence of smoking among girls is now higher than that among boys in 18 of 26 European countries, including Sweden. A close look at these differences in smoking rates by sex reveals that smoking rates are about 20% higher among girls than boys in 17 of these countries (range, from 10% higher in Ireland to 80% higher in Wales). In contrast, the prevalence of smoking among girls is almost 2.5 times that of boys in Sweden. In our study this ratio has been below 2.0 only once in the last 10 years, and it reached a high of 3.3 in 2003.

A recent Swedish study showed that parental tobacco use influences tobacco use by children. For example, boys whose father used snus were three times more likely to use snus compared with boys whose fathers were tobacco-free (95% confidence interval (CI) 1.4 to 6.4). Similarly, mothers’ smoking was associated with smoking in their children (odds ratio 2.4, 95% CI 1.6 to 3.6). It appears that the high prevalence of snus use in Sweden has played a role not only in reducing smoking rates among Swedish men, but in suppressing smoking rates among boys as well.

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