

# Review of: "[Commentary] Snus Has Saved Many Lives in Sweden – And Can Save Many More"

Brendan Noggle<sup>1</sup>

<sup>1</sup> Altria

**Potential competing interests:** Brendan Noggle is employed by Altria Client Services LLC and declares no additional competing interests.

I am reviewing Lars Ramström's commentary: Snus Has Saved Many Lives in Sweden – And Can Save Many More. The commentary argues that snus use is associated with a reduction in smoking rates and mortality among men using two simple methods and is a compelling reminder that tobacco harm reduction is possible.

The first method compares Sweden with analogous countries where snus use is virtually absent. This example uses a simple comparison of Sweden's age-adjusted mortality rate with that of a like country. While the math is straightforward, additional information could strengthen the argument. When making comparisons, choosing a like country is of the utmost importance. I would explore matching on additional measures to reduce bias between comparison countries. Other country-specific population characteristics are influential but are not captured by the countries' levels of development as calculated by the Human Development Index. It is worth noting that none of the other countries had an age-standardized death rate as low as Sweden's.

The author age-standardized the results, and this is very appropriate. I would also consider an age-stratified analysis or limit the analysis to an older age group to reduce mortality influences that have nothing to do with tobacco use, such as accidents or injuries, which occur far more often in younger age groups, especially among males.

Additionally, a comparison of mortality and snus use over time in Sweden and among like countries would provide evidence to show that the increase in snus use coincided with a decrease in mortality in Sweden. If data were available, one could look before snus was used predominantly to see if mortality was similar and if mortality shifted in a different way in Sweden than in the comparison countries. There are also more appropriate statistical time series methods for this.

In the second method, comparison between observed data and a hypothetical scenario, "If there had been no snus in Sweden," the author refers to a representative cross-sectional survey to describe tobacco use transitions over time. I believe a longitudinal study would provide better temporal evidence.

It is interesting to note, and compelling, that both methods arrived at a similar conclusion: snus has saved around 4,000 lives per year in the 2010s.

Tables could use notes to identify aspects such as shading.

