

Antidepressant Use in Denmark, Norway, & Sweden

Background

Antidepressants are a common treatment for children and teenagers suffering from a variety of mental health problems, including anxiety disorders and depression. These medications are generally considered a safe option for young people, but significantly less research has been done on their efficacy in children and teens than in adults. Given their generally low cost, some worry that antidepressants are overprescribed in cases where other treatments may be more effective (Vilhelmsson, 2013). This is particularly relevant in Scandinavia, which has some of the highest rates of antidepressant prescription in the world (Bojanić, 2024). This poses particular risks to young people, as antidepressant use is associated with both common and rare side effects that range in severity and can uniquely affect young users (Rasmussen). The side effects also vary by the type of antidepressant, with first-line antidepressants like SSRIs (Selective Serotonin Reuptake Inhibitors) being highly preferable over other types. The causes of these side effects are not well understood, indicating the need for more rigorous

research into the impact of antidepressant medication in younger populations.

Motivating Questions

In this project, I seek to better understand the rates of antidepressant prescription among young people in Scandinavia. Can it be determined through existing literature and the obtained data whether the trends in antidepressant usage in young people in these countries are cause for concern, especially regarding first-line versus second- and third-line treatments? How do these trends vary by country and age group, and how do they correspond to the type of antidepressant prescribed? With relatively comparable demographics and health care systems, why might these differences among Denmark, Norway, and Sweden?

Data

The title of the dataset that I used for the project is “Antidepressant use among children and adolescents in Denmark, Norway and Sweden”. The data comes from public domain statistics sites in these three countries, and a version of it is published on zenodo.org. The contents include antidepressant prescription data from 2007 to 2017, including the type of drug prescribed and demographic information of users.

Methodology

I explored the data through the framework outlined by my project’s guiding questions.

Analysis can be found in the project notebook.

Findings

Countries

The rates of antidepressant usage by young people in 2017 are highest in Sweden, where about 1.8% of the population of children and adolescents aged 5-19 take antidepressant medication (Figure 1). The number of young people taking antidepressants in Scandinavia has had a net increase of about 1% from 2007 to 2017, with approximately 3.3% of Scandinavians aged 5-19 taking antidepressants in 2017. In those 10 years, Sweden shows a strong upward trend in usage, while Norway exhibits a much more modest increase. Denmark shows the most unique trend, with usage actually decreasing after a peak in usage around 2010 (Figure 2).

Figure 1

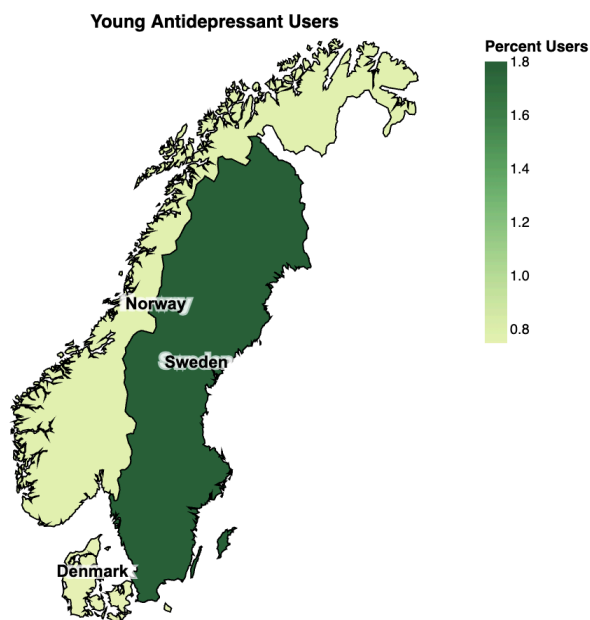
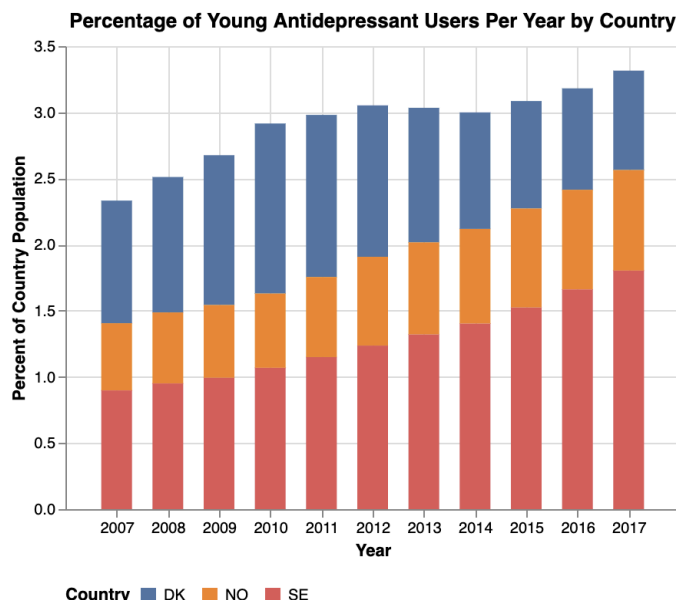


Figure 2



Drug Types

Antidepressants can be classified into 4 categories. SSRIs are the safest and most commonly prescribed option. Patients that don't respond well to SSRIs may be prescribed TCAs (tricyclic antidepressants), or MAOIs (monoamine oxidase inhibitors).

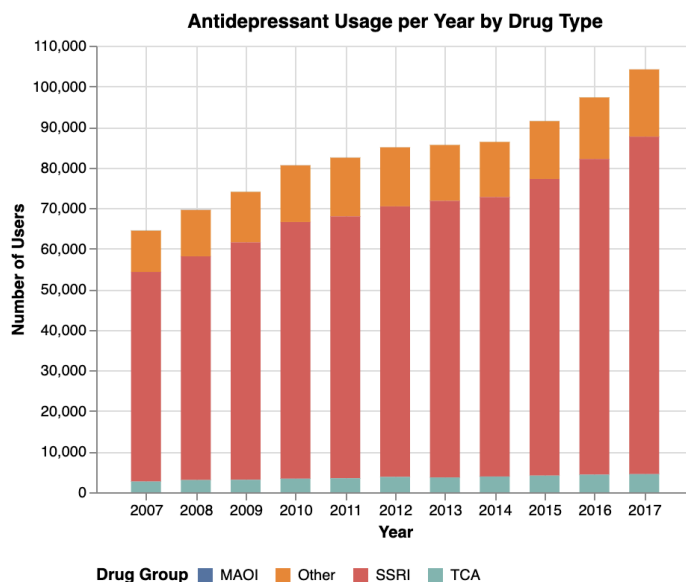


Figure 3

TCAs and MAOIs in particular are associated with more severe side effects (Mayo Clinic). Among young Scandinavians, the usage of MAOIs is nearly negligible. The use of TCAs is slight and relatively constant, remaining under 10,000 users per year from 2007 to 2017. SSRIs are by far the most common type prescribed. “Other” antidepressants, including SNRIs (serotonin-norepinephrine reuptake inhibitors), make up the second largest group (Figure 3).

Patient Ages

Younger age is associated with greater susceptibility to negative side effects of antidepressants, including insomnia and increased anxiety (Luft et al., 2018). The majority of young antidepressant users in Scandinavia are in the age range of 15-19, while a much smaller proportion of

users are 10 to 14 years of age. The number of users under 9 was nearly negligible. The percentage of 10-14 year olds taking antidepressants is increasing in Sweden, while it remains relatively constant in Norway and shows a slight decrease in Denmark (Figure 4).

Figure 5

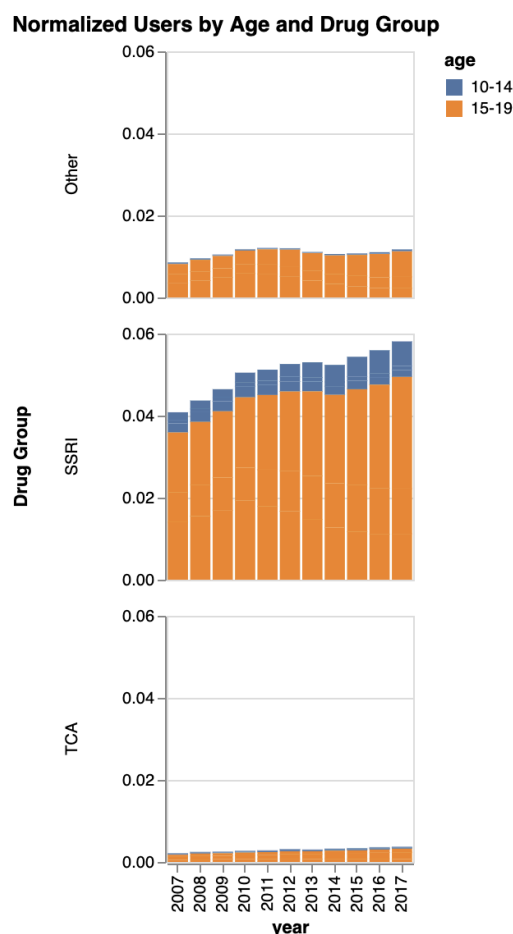
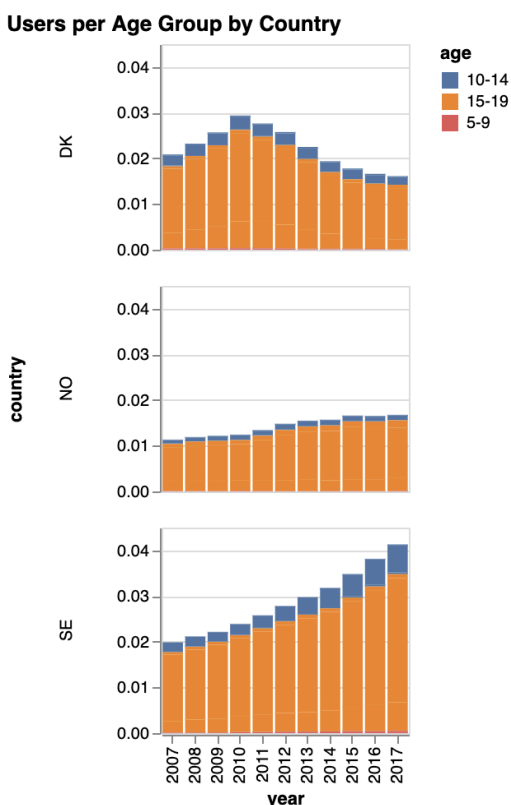


Figure 4



Discussion

Percentages of antidepressant prescription and use in Scandinavia seem to fall within reasonable ranges when considering the benefits-side effect trade off of antidepressant drug groups and the known efficacy and risks for children and adolescents. Second-line antidepressant

TCA is used very infrequently in Scandinavia, and usage of third-line treatment MAOI is nearly negligible (Figure 5). This is in line with current understandings of the efficacy and decreased side effects associated with SSRIs and SNRIs, particularly for young patients. Similarly, the usage of any antidepressant medication is extremely uncommon for children younger than 9, and the majority of 10-14 year olds taking antidepressants use an SSRI rather than TCA or other antidepressants, which is fortunate given the risks to younger age groups. The increasing percentage of young people in both the 10-14 and 15-19 age groups taking antidepressants in Sweden was unexpected. Even when adjusting for population differences, the uptick in usage is stark compared to that in Norway. The reason for this difference is not well understood, but it is hypothesized that varying access to treatment and cultural differences may be the culprit for differences among Nordic countries (Vilhelmsson). Similarly, the decrease in usage in Denmark is unexplained, though it is the only country in all of Europe to exhibit such a trend (Euro News). Perhaps a combination of cultural and health care factors are contributing to this shift as well, though more recent research suggests that usage in Denmark has actually increased post-2020, in the wake of the COVID-19 pandemic (Bliddal). Whatever the case may be, antidepressants usage in young people warrants further research to determine optimal treatment options and avoid harmful side effects. The safety and well-being of young patients should be prioritized in all aspects of the development and use of antidepressant medications, with the goal of mitigating debilitating mental health problems.

Citations

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Vilhelmsson, A. (2013). Depression and antidepressants: A nordic perspective. *Frontiers in Public Health*, 1. <https://doi.org/10.3389/fpubh.2013.00030>

Data Sources

Antidepressant Data:

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Scandinavia JSON:

<https://github.com/highcharts/map-collection-dist/blob/master/custom/scandinavia.topo.json>

