

Accepted manuscript

Klepp, K. I., Helleve, A., Fismen, A.-S. & Rutter, H. R. (2022). Improving the health of adolescents: the Nordic countries can help fill the evidence gap. *Scandinavian Journal of Public Health*, 50(7), 887-891. doi: [10.1177/14034948221124675](https://doi.org/10.1177/14034948221124675)

Published in: Scandinavian Journal of Public Health

DOI: [10.1177/14034948221124675](https://doi.org/10.1177/14034948221124675)

AURA: <https://hdl.handle.net/11250/3135883>

Copyright: © 2022 The Authors

License: sagepub.com/journals-permissions

Article reuse guidelines: sagepub.com/journals-permissions

Improving the health of adolescents: the Nordic countries can help fill the evidence gap

Authors: Klepp KI^{1,2}, Helleve A³, Fismen AS^{3,4}, Rutter H^{5,6}

1. Division of Mental and Physical Health, Norwegian Institute of Public Health, Norway
2. Department of Nutrition, University of Oslo, Norway
3. Centre for Evaluation of Public Health Measures, Norwegian Institute of Public Health, Norway
4. Department of Health Promotion & Centre for Evaluation of Public Health Measures, Norwegian Institute of Public Health, Norway
5. Department of Social and Policy Sciences, University of Bath, United Kingdom
6. Centre for Lifecourse Nutrition, Department of Nutrition and Public Health, University of Agder, Norway

Corresponding author:

Knut-Inge Klepp

Division for Mental and Physical Health

Norwegian Institute of Public Health

PO Box 222 Skøyen, 0213 Oslo, Norway

E-mail address: kikl@fhi.no

Abstract

While in the Nordic countries we have well-developed welfare policies and several structural, statutory measures in place aiming to promote public health, studies from these countries are often absent from systematic reviews of research literature assessing the effects of policy measures designed to promote health. Using adolescent health promotion and efforts related to primary prevention of obesity as an example, this short commentary aims to illustrate the paucity of well-designed studies investigating the effects of public health policies affecting adolescents. This paper argues that the Nordic research community is in a good position to help fill this gap, and to contribute more widely to the international literature on evaluation of policy interventions.

Keywords

Public health policies, evaluation, adolescents

Introduction

There has been a large increase in syntheses of public health-related research as indicated by an observed 20-fold increase in the number of systematic reviews indexed over the last 20 years (1). Despite this apparent growing body of research evidence, the assessment of effects and impacts of interventions and policy measures addressing primary prevention often points to a lack of evidence, or that the evidence-base is weak. This is, for example, shown in reviews of evidence on obesity prevention (2-4), in contrast to the literature on clinical health service interventions where the number of highly rated, randomized controlled trials tend to provide a stronger evidence-base (5), e.g., medical treatment of type 2 diabetes (6).

Evaluating the effects of broader policies at the population level often requires analysis of data from multiple sources, and employment of a variety of research designs. Setting up such studies can be time consuming in terms of obtaining ethical and research permissions, access to datasets, and linkage of data from a range of sources. Furthermore, there is often no private sector sponsor of such studies, and funding largely relies on the availability of public grants. While this is the case for public health policy evaluation in general, the situation has been accentuated and illustrated during the COVID-19 pandemic. While new vaccines and drugs have been developed and tested at an impressive speed, evidence related to the effects of primary prevention measures targeting population groups, including measures such as school closures or curbing alcohol sales, have been slow to appear. As an example, by April 1, 2022, as many as 2597 randomized controlled drug trials had been registered, compared to only 18 trials designed to evaluate the effect of behavioral, environmental, social or systems interventions (so-called BESSI trials) (7).

This paucity of well-designed studies investigating the effects of public health policies is a particular problem for evidence on the impacts of policies affecting adolescents (4). The aim of this commentary is to illustrate this lack of well-designed studies, and we argue that the Nordic research community is in a strong position to help fill this gap.

Current contributions and the evidence gap

The Nordic countries are often seen as champions of public health and welfare policies (8), with consistently strong performance on social determinants of health, including child poverty reduction measures, education, and employment (9). Furthermore, when assessing variation in implementation of health policies across Europe, including in the areas of food and nutrition, tobacco, and alcohol, countries in the Nordic region were found to perform the best (10). Thus, it appears that the Nordic countries score highly on the introduction and implementation of public health-relevant policies at the population level. Free school meals (i.e., no parental payment) served to all children in Sweden and Finland, or strict policies related to marketing of unhealthy food and drinks to children in Norway, are examples of such policies specifically targeting children and adolescents.

In tobacco, alcohol and drug control, there has been a notable contribution from the Nordic research community to the long tradition within social science research of investigating the effects of structural, statutory measures designed to limit the use of these substances (11-15), but studies investigating effects of measures targeting adolescents are rare (16).

However, when reviewing available evidence supporting the development of international guidelines on public policies related to diet and physical activity, few Nordic studies are identified. This is illustrated by ongoing work related to the development of WHO guidelines on policy actions which have an impact on the food environment (17-19). These policy areas, which include school food and nutrition policies, fiscal policies, nutrition labelling policies, and food marketing exposure and power, are areas where extensive policies are in place in all Nordic countries (20). Furthermore, important, and interesting similarities, as well as differences between existing and the introduction of new policies are seen, pointing to the relevance of comparative studies across the region. This is, for example, seen with respect to differences in school food policies (only Finland and Sweden provide warm school lunches to all pupils for free), use of fiscal measures (both the level of and introduction/repeal of taxes on unhealthy food, tobacco and alcohol vary considerable between countries), marketing to children (both statutory action and voluntary measures varies between countries), and physical education during school hours (both with respect to the amount and organization). Given this variation, the limited number of included evaluation studies and comparative studies from the Nordic countries in these systematic reviews is striking.

Today the GRADE methodology (21) used to assess the certainty of estimated effects within clinical research is increasingly also becoming the norm for assessing public health evidence (22). However, this methodology favors the traditional hierarchy of evidence, and thus prioritizes randomized controlled trials (RCT) when assessing the certainty of estimated effects. It is often extremely difficult, if not impossible, for complex public health interventions applied across populations to be amenable to RCT designs (23-24). As a result, even important and effective public health interventions may be dismissed as having only low certainty of estimated effects. This can play into the hands of commercial interests opposing proposed public health policy actions even when these measures are highly likely to be more effective than the alternatives favored by industry (i.e., structural policy changes such as fiscal measures or statutory action rather than educational campaigns or voluntary measures). Furthermore, we run the risk that individual-focused interventions can be seen as superior to structural measures on the basis of their amenability to being tested in an RCT, even though their overall benefits are much lower. For example, city planning that secures safe, active transport for young people while also contributing to improved air quality, reduced carbon emissions, lower injury rates, and increased social capital, is not amenable to trialing in the way that a social marketing campaign that is at best only able to provide minor, short-term benefit may be. A social marketing campaign can relatively quickly and at a relatively modest cost be set up to tailor different messages to a variety of targeted audiences in a controlled, experimental design. In contrast, securing safe, active transport is far more costly, time consuming, involve several societal sectors, and municipalities will face several ethical and practical challenges if such public health measures were to be introduced in a random, controlled manner.

CO-CREATE – involving adolescents in creating policies

In the European CO-CREATE research project (Confronting obesity: Co-creating policy with youth), the main objective is to work with adolescents to identify policy changes that can support healthy eating and a physically active lifestyle, with the aim of halting the rise of adolescent obesity rates (www.co-create.eu). To address this, we have developed evidence informed policy databases presenting existing dietary (NOURISHING) and physical activity-related policies (MOVING) (23); reviewed

research evidence related to how such policies affects adolescents (4); and involved youth in developing and communicating what they see as important questions to be addressed and measures to be implemented and evaluated (24). We aim to explore what opportunities exist to strengthen the research agenda, including the methodological rigor of studies evaluating policy measures designed to halt the rise of adolescent obesity rates.

Figure 1 illustrates how policy databases and data from ongoing monitoring systems (health surveys and/or registry data) can contribute to building a system for evaluating public health policies targeting and involving adolescents.

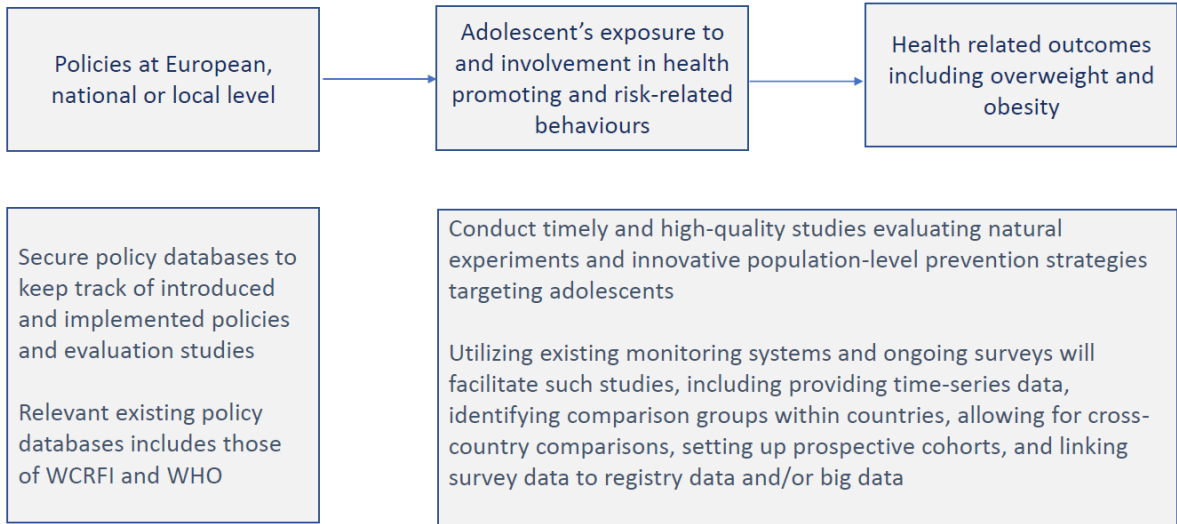


Figure 1: Building a system for evaluating public health policies targeting and involving adolescents

The way forward

CO-CREATE explores these themes across Europe, but we believe that within the Nordic countries the opportunities for increasing the number of high-quality evaluation studies are particularly ripe. The Nordic policy climate, including widespread use of structural, statutory measures to secure the welfare and public health, a strong value of equality in health, well-developed public registries (both health registries and registries within other sectors), and the possibility for making

meaningful comparative studies across countries, all points to an infrastructure that could be further developed to support high quality evaluation studies.

Furthermore, the Nordic countries participate in long-term pan-European research assessing a wide range of health-related behaviors, perceived well-being, and health, as well as indicators of socio-economic status. For the adolescent population, this includes the WHO Health Behavior in School-Aged Children Study (25) and the European School Survey Project on Alcohol and Other Drugs (ESPAD) (26). These are important monitoring tools, and data from them are seen as highly relevant for national policy planning (27). These studies have only seen limited use as a platform for evaluating policy efforts, but they provide valid, comparable research instruments available in the Nordic languages that can easily be adopted for use in evaluation studies, and data that may be linked to relevant registries (subject to the relevant consents).

There are thus ample opportunities for conducting high quality studies employing research designs including, but not restricted to, RCTs. Given the difficulty, and in many cases impossibility, of randomization in the case of national or regional policy implementation, this is important for generating high-quality evidence.

In addition to contributing to the international knowledge base of effective public health measures, understanding the impacts of specific Nordic public health policies will help to establish causality in terms of the ways on which national policy measures can affect population health and health inequalities. This will further provide contextual information on how population-level public health measures are organized, implemented, and delivered.

Conclusions

The COVID-19 pandemic has highlighted the need for knowledge related to the reach, effects, and impacts of primary prevention efforts targeting populations as well as individuals at a time of crisis. However, this holds true for broader public health efforts in more normal times. Within the CO-CREATE project we have identified a paucity of relevant evaluation studies targeting the adolescent age group, and the study attempts to fill some of these gaps. More widely, given its excellent data

infrastructure and supportive funding landscape the Nordic public health research community is well positioned to provide a significant contribution to enrich the international evidence-base related on the effects of structural, statutory public health-related measures both on the general population and on adolescents.

Declaration of conflicting interests

The author declares that there is no conflict of interest.

Funding

This work is in part funded by the European Union's Horizon 2020 research and innovation program under grant agreement No 774210: Confronting obesity: Co-creating policy with youth (CO-CREATE).

References

1. Hoffmann F, Allers K, Rombey T, et al. Nearly 80 systematic reviews were published each day: Observational study on trends in epidemiology and reporting over the years 2000-2019. *J Clin Epi* 2021; 138: 1-11; doi.org/10.1016/j.jclinepi.2021.05.022
2. Panter J, Andersen PT, Aro AR, et al. Obesity Prevention: A Systematic Review of Setting-Based Interventions from Nordic Countries and the Netherlands. *J Obesity*, 2018, 7093260, 34 pages; <https://doi.org/10.1155/2018/7093260>
3. Nally S, Carlin A, Blackburn NE, et al. The Effectiveness of School-Based Interventions on Obesity-Related Behaviours in Primary School Children: A Systematic Review and Meta-Analysis of Randomised Controlled Trials. *Children* 2021; 8, 489. <https://doi.org/10.3390/children8060489>
4. Flodgren GM, Helleve A, Lobstein T, et al. Primary prevention of overweight and obesity in adolescents: An overview of systematic reviews. *Obesity Rev* 2020; <https://doi.org/10.1111/obr.13102>
5. Guyatt GH, Oxman AD, Kunz R, et al. What is “quality of evidence” and why is it important to clinicians? *BMJ* 2008; 336:995; doi.org/10.1136/bmj.39490.551019.BE
6. Tsapas A, Avgerinos I, Karagiannis T, et al. Comparative Effectiveness of Glucose-Lowering Drugs for Type 2 Diabetes: A Systematic Review and Network Meta-analysis. *Ann Intern Med*. 2020 Aug 18;173(4):278-286. doi: 10.7326/M20-0864.
7. Behavioural, Environmental, Social and Systems Interventions (for pandemic preparedness): <https://www.bessi-collab.net/>
8. Deloitte: The Nordic social welfare model. Lessons for reform. Report 2020; www.deloitte.com/insights.
9. CSDH. Closing the gap in a generation: health equity through action on the social determinants of health. Final Report on the commission on Social Determinants of Health, Geneva, World Health Organization. 2008.
10. Mackenbach JP, McKee M. A comparative analysis of health policy performance in 43 European countries. *Eur J Public Health* 2013; 23, 195–344; doi.org/10.1016/j.jclinepi.2021.05.022

11. Scheffels J, Lavik R. Out of sight, out of mind? Removal of point-of-sale tobacco displays in Norway. *Tobacco Control* 2013; 22:e37–e42. doi:10.1136/tobaccocontrol-2011-050341
12. Room R: Effects of alcohol controls: Nordic research traditions. *Drug and Alcohol Rev* 2004; 23: 43-53
13. Rossow I. The alcohol advertising ban in Norway: Effects on recorded alcohol sales. *Drug Alcohol Rev* 2021; 40: 1392–1395 DOI: 10.1111/dar.13289
14. Rossow I, Norström T. The use of epidemiology in alcohol research. *Addiction* 2012; 108: 20–25; doi:10.1111/j.1360-0443.2012.04031.x
15. Moeller K. Sisters are never alike? Drug control intensity in the Nordic countries. *Int J Drug Policy* 2019; 73: 141–145. <https://doi.org/10.1016/j.drugpo.2019.06.004>
16. Rimpelä AH, Rainio SU. The effectiveness of tobacco sales ban to minors: the case of Finland. *Tobacco Control* 2004; 13:167–174. doi: 10.1136/tc.2003.003087
17. [https://www.who.int/groups/nutrition-guidance-expert-advisory-group-\(nugag\)/policy-actions](https://www.who.int/groups/nutrition-guidance-expert-advisory-group-(nugag)/policy-actions)
18. Assessing the existing evidence base on school food and nutrition policies: a scoping review. Geneva: World Health Organization; 2021. Licence: CC BY-NC-SA 3.0 IGO.
19. Food marketing exposure and power and their associations with food-related attitudes, beliefs and behaviours: a narrative review. Geneva: World Health Organization; 2022. Licence: CC BY-NC-SA 3.0 IGO
20. Nordic Council of Ministers: A better life through diet and physical activity. Nordic Plan of Action on better health and quality of life through diet and physical activity. Copenhagen. ANP 2006:746
21. <https://www.gradeworkinggroup.org/>
22. Guyatt GH, Oxman AD, Vist GE et al. GRADE: an emerging consensus on rating quality of evidence and strength of recommendations: *BMJ* 2008; 336: 924-926.
23. Rutter H, Savona N, Glonti K, et al. The need for a complex systems model of evidence for public health. *The Lancet*. 2017; 390:2602-2604. doi.org/10.1016/S0140-6736(17)31267-9
24. Fischer AJ, Threlfall A, Meah S, et al. The appraisal of public health interventions: an overview. *J Public Health*. 2013; 35:488-494. doi.org/10.1093/pubmed/fdt076
25. <https://www.wcrf.org/policy/policy-databases/>
26. Savona N, Macauley T, Aguiar A, et al. Identifying the views of adolescents in five European countries on the drivers of obesity using group model building. *Eur J Public Health* 2021; 24;31:391-396. doi: 10.1093/eurpub/ckaa251
27. <https://www.euro.who.int/en/health-topics/Life-stages/child-and-adolescent-health/health-behaviour-in-school-aged-children-hbsc>
28. <http://www.espad.org/>
29. Budisavljevic S, Arnarsson A, Hamrik Z, et al. Improving Adolescent Health: Translating Health Behaviour in School-aged Children Evidence into Policy. *J Adol Health* 2020; 66: S9eS11