

Abstract

Assessment of the Effects of Updated Nutri-Score Nutrient Profiling Algorithm Using a Representative Slovenian Food Supply Dataset [†]

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Abstract: Background: Front-of-package nutrition labelling (FOPNL) is an important public health tool for promoting healthier food choices. Therefore, the European Commission has committed to proposing harmonised mandatory FOPNL in Europe. A relevant option for this harmonisation is Nutri-Score (NS), which, however, has been subject to some criticism about its alignment with nutritional recommendations. As a result, the Scientific Committee of the NS published two reports in 2022 and 2023, updating the NS algorithm. The aim of our study was to exploit differences between previous (NS2021) and updated (NS2023) algorithm, using foods from Slovenian food supply. Methods: A total of 19,510 branded foods/drinks from the 2020 Slovenian food supply database were profiled using NS2021 and NS2023. We focused on comparing the distribution of each grade and the discriminatory ability between NS2021 and NS2023, while identifying products that were most affected by the NS2023 changes. We also examined changes in alignment with Slovenian nutritional recommendations based on nationally adapted WHO Europe nutrient profile (WHOE). Results: The results show that both NS2021 and NS2023 have good discriminatory ability, with NS2023 being slightly better in 12 sub-categories. Overall, NS2023 was stricter, with E being the most common grade (32%), whereas NS2021 predominantly assigned a grade of D (28%). While the overall proportion of products with grade C remained almost unaffected, there was a notable decrease in “healthier” products graded A or B, from 30% (NS2021) to 23% (NS2023). NS2023 was stricter than NS2021 in almost all main categories, except for beverages and eggs. Alignment with the WHOE profile was moderate ($\kappa = 0.59$) for NS2021 and strong ($\kappa = 0.65$) for NS2023. Alignment was improved especially for edible oils and emulsions, fruits and vegetables, and snack foods. Discussion: NS2023 was shown to be stricter and more aligned with recommendations than NS2021. The updated NS2023 addressed limitations such as better grading of cooking oils (especially olive oil), higher penalisation of high sugar and salt content, lower grading of beverages with non-nutritive sweeteners, and slight modifications for nuts and cheeses. This study gives first insights into how the update of the NS algorithm works on real-life data and can support policymakers in the implementation of harmonised FOPNL in Europe.

Keywords: Nutri-Score; nutrient profiling; front-of-package labelling; food supply; food policy

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Conflicts of Interest: The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results. I.P. has led and participated in various other research projects in the area of nutrition, public health, and food technology, which were (co)funded by the Slovenian Research Agency, the Ministry of Health of the Republic of Slovenia, the Ministry of Agriculture, Forestry and Food of the Republic of Slovenia, and in the case of specific applied research projects, also by food businesses. While he has not been involved in the development or implementation of NS, he was involved in independent studies that assessed NS, and disclosed his support for the implementation of mandatory harmonised FOPNL in the EU.

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