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Food Reformulation Task Force: The Accuracy of Nutrition Declarations on the Labels of Pre-Packed Soups, Sauces, and Breads Sampled in 2022

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Food Reformulation Task Force:
The Accuracy of Nutrition Declarations on the Labels of Pre-Packed
Soups, Sauces, and Breads Sampled in 2022

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Acronyms

Acronym	Definition
DRV	dietary reference value
EC	European Commission
EFSA	European Food Safety Authority
EU	European Union
FSAI	Food Safety Authority of Ireland
INFORMAS	International Network for Food and Obesity / Non-communicable Diseases (NCDs) Research, Monitoring and Action Support
IQR	interquartile range
NANS	National Adult Nutrition Survey
NCDs	non-communicable diseases
RTEBC	Ready to eat breakfast cereal
TE	total energy
UK	United Kingdom
WHO	World Health Organization



Executive summary

According to the Irish National Dietary Consumption Surveys, 61.0% of adults, 23.6% of adolescents and 16.4% of children are living with overweight and obesity in Ireland (Irish Universities Nutrition Alliance, 2010; O' Donnell *et al.*, 2022; Moore Heslin *et al.*, 2023). Overweight and obesity are also risk factors for non-communicable diseases (NCDs), which increase the risk of developing coronary heart disease, stroke, type 2 diabetes, and cancer (Nettleton, Brouwer, Geleijnse and Hornstra, 2017; Fiolet *et al.*, 2018). Rising rates of overweight and obesity among the Irish population mean that there is a need to reduce nutrients such as sugar and salt intake in order to improve population health.

[The Obesity Policy and Action Plan – A Healthy Weight for Ireland](#), published in 2016, outlines 10 steps to be taken within a 10-year time frame to prevent overweight and obesity in Ireland. Step 3 of the plan relates to food reformulation. It aims to “secure appropriate support from the commercial sector to play its part in obesity prevention and agree food industry reformulation targets and review progress”. To realise this, a Food Reformulation Subgroup of the Obesity Policy Implementation Oversight Group developed [A Roadmap for Food Product Reformulation in Ireland](#) (Department of Health, 2021).

To deliver the Roadmap, the Food Reformulation Task Force (FRT), a strategic partnership between Healthy Ireland and the Food Safety Authority of Ireland (FSAI), was established in 2022. The FRT will implement the Roadmap and monitor progress made in reducing energy (calories), saturated fat, sugar, and salt in processed packaged food and non-alcoholic beverages. Food label nutrition declarations will be used as an information source on the nutrient content of food to monitor reformulation progress. The International Network for Food and Obesity / Non-communicable Diseases (NCDs) Research, Monitoring and Action Support (INFORMAS) network recommends the validation of declared nutrition information on food labels used for monitoring (Neal *et al.*, 2013). The aim of this study was to examine the accuracy of the declared nutrition information on soups, sauces, and breads sampled in reformulation monitoring in 2022, in line with European Commission (EC) guideline nutrition labelling tolerances (European Commission, 2012).

In 2022, soups (n=28), sauces (n=35), and breads (n=71) were sampled as part of the FRT's salt and sugar monitoring programmes. Soups, sauces, and breads were analysed in the Public Analyst's Laboratory, Galway (GPAL) using accredited methods for salt and sugar.

Conformance of declared nutrition labels with EC guideline nutrition labelling tolerances was reviewed. This assessment involved using a Nutrition Tolerance Calculator built by the FSAI in Microsoft Excel. The Nutrition Tolerance Calculator set the initial bounds for that specific nutrient,



applied the tolerance permitted, giving consideration to whether or not a claim was made on the food, and finally applying the rounding principle as set out in Section 6 of the [guidance document](#).

To examine the accuracy of the declared nutrition information, labelled and analysed values for soups, sauces and breads were analysed using RStudio Version 4.3.0. As data were not normally distributed, median values per 100 g with interquartile range (IQR), and minimum and maximum values were investigated.

When EC guideline nutrition labelling tolerances for sugar were applied to the declared sugar content of soups and sauces (n=63), 98.4% (n=62) of soups and sauces were conformant. The declared sugar content of one soup (n=1) was outside the EC guideline nutrition labelling tolerances for sugar (European Commission, 2012).

When EC guideline nutrition labelling tolerances for salt were applied to the declared salt content of soups and sauces (n=63) and breads (n=71), 100% (n=63) of soups and sauces and 98.6% (n=70) of breads were conformant. The declared salt content of one 'other bread' (n=1) was outside the EC guideline nutrition labelling tolerance for salt (European Commission, 2012).

The findings of this study indicate that the declared nutrition labels on soups (n=28), sauces (n=35), and breads (n=71) may reflect the true food reformulation efforts.

Based on the findings of this study, the following recommendations are made:

- When EC guideline nutrition labelling tolerances are accounted for declared nutrition labels accurately reflect the composition of nutrients investigated.
- The FRT should continue to investigate the accuracy of nutrition declarations of other food categories using the same methodology.



1. Introduction and background

According to the World Health Organization (WHO), non-communicable diseases (NCDs) caused 90% of deaths in the WHO European Region (World Health Organization, 2020). In Ireland, it is estimated that 105 to 141 per 100,000 deaths are related to dietary intakes (Ashkan *et al.*, 2017). There are numerous risk factors for NCDs, including a high intake of sugar and salt in the diet, which increase the risk of developing coronary heart disease, stroke, type 2 diabetes, and some cancers (Nettleton *et al.*, 2017; Fiolet *et al.*, 2018). Overweight and obesity are also risk factors for NCDs and out of 53 European countries, Ireland has the ninth highest rate of adults living with obesity (World Health Organization, 2022). According to the Irish National Consumption Surveys, 61.0% of adults, 23.6% of adolescents and 16.4% of children are living with overweight or obesity in Ireland (Irish Universities Nutrition Alliance, 2010; O' Donnell *et al.*, 2022; Moore Heslin *et al.*, 2023)

To address this situation, the Department of Health published [The Obesity Policy and Action Plan – A Healthy Weight for Ireland](#) in 2016 (Department of Health, 2016). This action plan sets out 10 steps to tackle the rising rates of overweight and obesity. Step 3 commits to securing appropriate support from the commercial sector to play its part in obesity prevention, and food reformulation is identified as one measure to achieve this. In order to realise this step, [A Roadmap for Food Product Reformulation in Ireland](#) was developed by the Obesity Policy Implementation Oversight Group's Food Reformulation Subgroup (Department of Health, 2020). To implement the roadmap, the Food Reformulation Task Force (FRT), a strategic partnership between the Food Safety Authority of Ireland (FSAI) and Healthy Ireland at the Department of Health, was established in 2022. The Roadmap sets out that food products and non-alcoholic beverages which are significant contributors to sugar and salt in the Irish diet, will reduce their sugar content by 20% and salt content by 10%.

The FRT has published a report titled [Priority Food Categories for Reformulation in Ireland Version 3](#) which outlines 40 priority food categories for food reformulation in Ireland (Food Safety Authority of Ireland, 2023a). Fifteen food categories and 5 non-alcoholic beverage categories are prioritised for sugar reduction, and 25 food categories are prioritised for salt reduction. These priority food categories are listed in Appendix 1.

On 13 December 2016, the [European Food Information to Consumers \(FIC\) Regulation \(EU\) No 1169/2011](#) was entered into force in Ireland. This regulation required the mandatory provision of nutritional information per 100 g (energy, total fat, saturated fat, carbohydrate, sugars, protein, and salt) of prepacked food (Regulation (EU) No 1169/2011). The accessibility of this nutritional information on all prepacked foods and non-alcoholic beverages offers a convenient source of information to monitor food composition over time and identify reformulations.



European Union (EU) regulations require that the labelled nutritional values are average values for the food in its manufactured state, and that these average values can be based on analytical measurement or published values (Regulation (EU) No 1169/2011). Moreover, European Commission (EC) guidance with regard to tolerances for the average nutrient values declared on a label sets out the variability accepted for official controls purposes in relation to the measured nutritional content of a food sample in comparison to the declared nutrition content on the label of that food (European Commission, 2012). The range of what is allowable depends on the type of food, whether a claim is made on the food and the type and amount of the nutrient in the food. Once the analysed nutrient value of a particular food or non-alcoholic beverage is within the accepted tolerance for that specific nutrient, as outlined in the nutrient tolerance guidelines, it is acceptable for the analysed and labelled value to be different (European Commission, 2012).

The International Network for Food and Obesity / Non-communicable Diseases (NCDs) Research, Monitoring and Action Support (INFORMAS) recommends, where resources allow, the validation of declared nutrition information on food labels of food products surveyed in the monitoring of important nutrients in the food supply (Neal *et al.*, 2013). The FRT uses the declared nutritional information on prepacked food and non-alcoholic beverages to monitor reformulation progress. Research on the accuracy of declared nutrition labels for monitoring the nutrient content of foods has previously been carried out by the FSAI in a sample of yoghurts and breakfast cereals (Food Safety Authority of Ireland, 2021a; 2021b).



2. Aims and objectives

The aim of this study was to examine the accuracy of the declared nutrition information on soups, sauces, and breads sampled in 2022, in line with EC guideline nutrition labelling tolerances.

The objectives of this study were to:

1. Examine the declared and analysed sugar content (median per 100 g) in soups and sauces (n=63) sold on the Irish market in July and August 2022.
2. Examine the declared and analysed salt content (median per 100 g) in breads (n=71) and soups and sauces (n=63) sold on the Irish market between July and September 2022.
3. Determine whether the declared nutrition labels are within the EC guideline nutrition labelling tolerances for sugar and salt in soups and sauces (n=63) sold on the Irish market in July and August 2022.
4. Determine whether the declared nutrition labels are within the EC guideline nutrition labelling tolerances for salt in breads (n=71) sold on the Irish market between July and September 2022.



3. Methodology

In 2022, the FRT undertook sampling surveys for sugar and salt analysis in soups and sauces (n=63) and salt analysis in breads (n=71), as part of the FSAI's long-standing salt monitoring programme (ongoing in Ireland since 2003) and sugar monitoring programme (commenced in 2022) (Food Safety Authority of Ireland, 2023b; 2023c).

3.1 Sampling and laboratory analysis of soups, sauces, and bread

All samples were analysed by the Public Analyst's Laboratory, Galway (GPAL) [Irish National Accreditation Board Registration Number: 9T](#). The methodological approach taken to sample and analyse sugar in soups and sauces is outlined in the [Monitoring Sugar in Processed Foods in 2022](#) report. The methodological approach taken to sample and analyse salt in soups, sauces and breads is outlined in the [Monitoring Sodium and Potassium in Processed Foods](#) report.

3.2 Food categories and number of products reviewed against EC guideline nutrition labelling tolerances

All sampled products (N=134) were reviewed against EC guideline nutrition labelling tolerances for sugar and/or salt. This is outlined in Table 1.

3.2.1 Soups, sauces & miscellaneous foods'

'Soups, sauces & miscellaneous foods' (n=63) were reviewed against the EC guideline nutrition labelling tolerances for sugar and salt shown in Table 1.

3.2.2 Breads

Breads (n=71), which included 'white sliced bread & rolls' (n=24), 'wholemeal & brown bread & rolls' (n= 35) and 'other breads' (n=13) were reviewed against the EC guideline nutrition labelling tolerances for salt shown in Table 1.

3.2.3 EC guideline nutrition labelling tolerances for sugar

The EC guideline nutrition labelling tolerances for sugar are defined as <10 g of sugar per 100 g \pm 2 g, and 10–40 g per 100 g \pm 20% for foods without a nutrition or health claim and are dependent on condition of use for foods with a nutrition or health claim.

3.2.4 EC guideline nutrition labelling tolerances for salt

The EC guideline nutrition labelling tolerances for salt are defined as <1.25 g of salt per 100 g \pm 0.375 g, and >1.25 g of salt per 100 g \pm 20% for foods without a nutrition or health claim and are dependent on condition of use for foods with a nutrition or health claim.



3.2.5 Nutrition guideline labelling tolerances when nutrition and health claims are made

If a claim is made on a food, e.g. low sugar claim, the upper tolerance will be set as the maximum amount of sugar permitted in the food (i.e. 5 g sugar per 100 g) for the condition of use of the nutrition claim outlined in the Annex of [Regulation \(EC\) No 1924/2006 of the European Parliament and of the Council of 20 December 2006 on nutrition and health claims made on foods.](#)

Table 1: Food category and subcategory breakdown with corresponding considered nutrient

Overall sample	Food category	Food subcategory	Nutrient considered	EC nutrition declaration labelled tolerance for sugar	EC nutrition declaration labelled tolerance for salt
All products (N=134)	Soups and sauces (n=63)	Soups (n=28)	Sugar and salt	10 g of sugar per 100 g \pm 2 g, and 10–40 g per 100 g \pm 20%	<1.25 g of salt per 100 g \pm 0.375 g, and >1.25 g of salt per 100 g \pm 20%
		Sauces (n=35)	Sugar and salt		
	Breads (n=71)	White sliced bread & rolls (n=24)	Salt	/	
		Wholemeal & brown bread & rolls (n=35)	Salt		
		Other breads (n=13)	Salt		

3.3 Review of EC guideline nutrition labelling tolerances using Nutrition Tolerance Calculator

EC guideline nutrition labelling tolerances were reviewed. This assessment involved using a Nutrition Tolerance Calculator built by the FSAI in Microsoft Excel. The following variables were entered into the Nutrition Tolerance Calculator to determine declared nutrition value conformance: declared nutrient content (g per 100 g), analysed nutrient content (g per 100 g), the nutrition claim stated on the product (if present) and the measurement of uncertainty that was given for the analytical test in the analytical report provided by GPAL. The Nutrition Tolerance Calculator set the initial bounds for each product, applied the tolerance permitted for the nutrient type and amount of that nutrient, and applied the rounding principle as outlined in Section 6 of the [guidance document](#). The findings from the Nutrition Tolerance Calculator classified the products as either within or outside the tolerance range.



3.4 Data and statistical analysis

In this analysis, the sodium content (mg per 100 g) reported in the [Monitoring Sodium and Potassium in Processed Foods](#) report was converted into a salt equivalent (g per 100 g) by multiplying the sodium value by 2.54 and dividing by 1000. Throughout this study, the salt equivalent was referred to as salt content (g per 100 g).

To examine the accuracy of the declared nutrition information, labelled and analysed values for soups, sauces and breads were analysed using RStudio Version 4.3.0. As data were not normally distributed, median values per 100 g with interquartile range (IQR), and minimum and maximum values were investigated.

All declared and analysed medians, IQR, and minimum and maximum values were rounded to the nearest two decimal places. All percentages (%) were rounded up to the nearest one decimal place.

3.5 Study limitations

The study had the following limitations:

1. The study used one sample per product to measure the nutritional content of salt and/or sugar, rather than a number of samples from different batches of the same product. Using a number of samples from different batches of the same product would have increased the reliability of the analysed values for each product and more accurately reflected the average nutrient value as declared on the food label.
2. The 2022 sampling survey in-store collection was a convenience sample of soups, sauces and breads on the Irish market and was therefore not considered representative of the market at that time.



4. Results

4.1 Description of all samples

An overview of all products (N=134) included in this study is outlined in Figure 1 below,

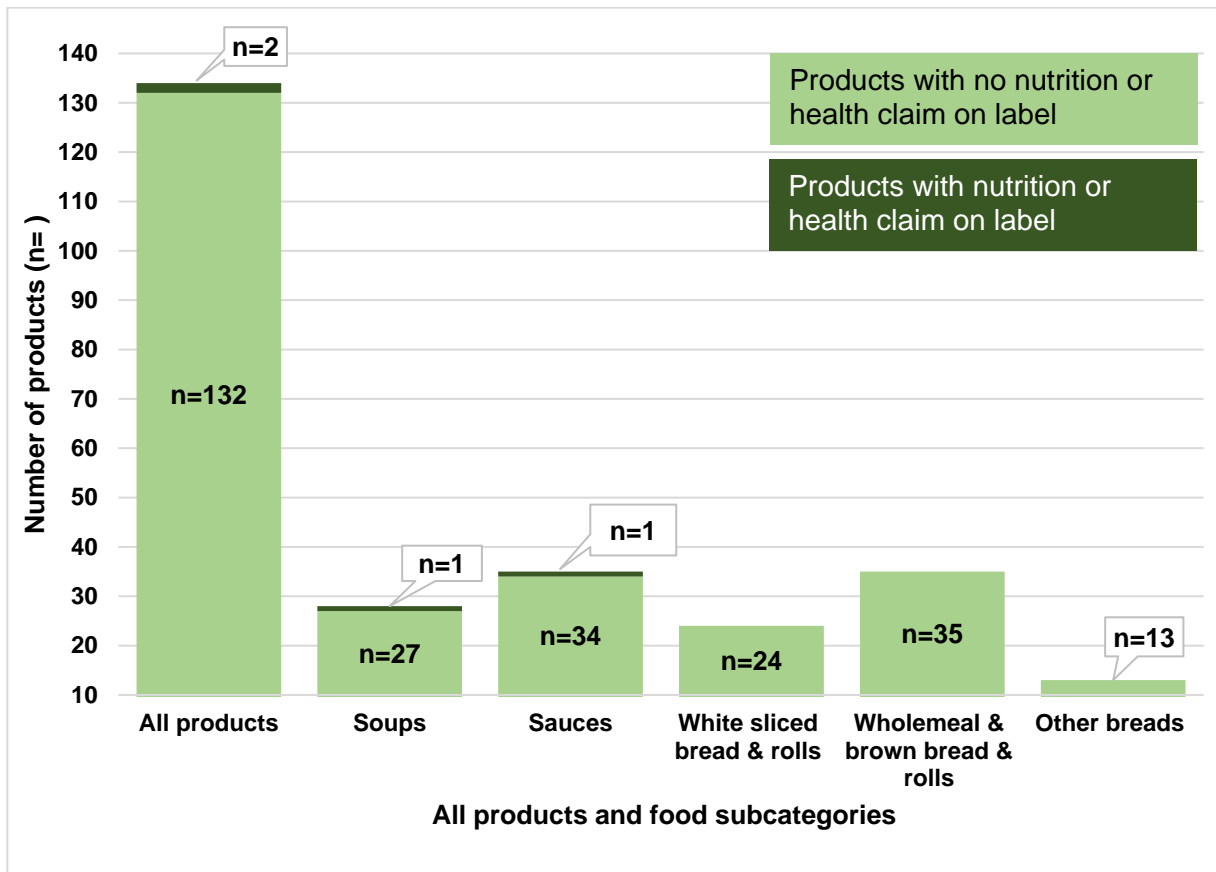


Figure 1: Bar chart representing the number of soups, sauces, and bread products with/without nutrition and health claims for sugar and salt

4.2 Review of nutrition and health claims

Nutrition and health claims for sugar:

The study found that 3.2% (n=2) of soups and sauces (n=63) made a nutrition claim for sugar content. The two nutrition claims for sugar content were a 'low sugar' claim on one soup (n=1) and a 'reduced sugar' claim on one sauce (n=1).

Nutrition and health claims for salt:

The study found that 0% (n=0) of soups and sauces (n=63) and 0% (n=0) of breads (n=71) made a nutrition or health claim for salt content.



4.2 Sugar

4.2.1 Comparison of declared and analysed sugar content of soups and sauces

Table 2 below summarises the median (IQR), minimum and maximum value for declared and analysed sugar content (g per 100 g) for soups (n=28) and sauces (n=35).

Table 2: A comparison of median (IQR) declared and analysed sugar content (per 100 g) of soups (n=28) and sauces (n=35)

Soups, sauces & miscellaneous category	Source of nutrition information	Median (IQR) sugar content (g per 100 g)	Minimum and maximum sugar content (g per 100 g)
Soups (n=28)	Declared	3.90 (1.45)	2.10–7.20
	Analysed	3.70 (1.63)	1.90–7.60
Sauces (n=35)	Declared	15 (12.50)	1.30–33.80
	Analysed	15 (13.40)	1.60–38.00

g= grams, IQR= interquartile range



4.2.2 Comparison of declared and analysed sugar content of all soups and sauces with EC guideline nutrition labelling tolerances

Of all soups (n=28) analysed, 96.4% (n=27) were within the EC guideline nutrition labelling tolerances for sugar, meaning that 3.6% (n=1) of soups analysed were outside the EC guideline nutrition labelling tolerances for sugar. The soup (n=1) was non-conformant as a result of the analysed sugar content being above the maximum amount set for a 'low sugar' claim outlined in the Annex of the Nutrition and Health Claims on Food (EC) No 1924/2006 legislation. The 'low sugar' claim is permitted if the food product contains no more than 5 g of sugar per 100 g.

Of all sauces (n=35) analysed, 100% (n=35) were within the EC guideline nutrition labelling tolerances for sugar.

The trend in nutrition labelling tolerances for sugar is outlined in Figure 2.

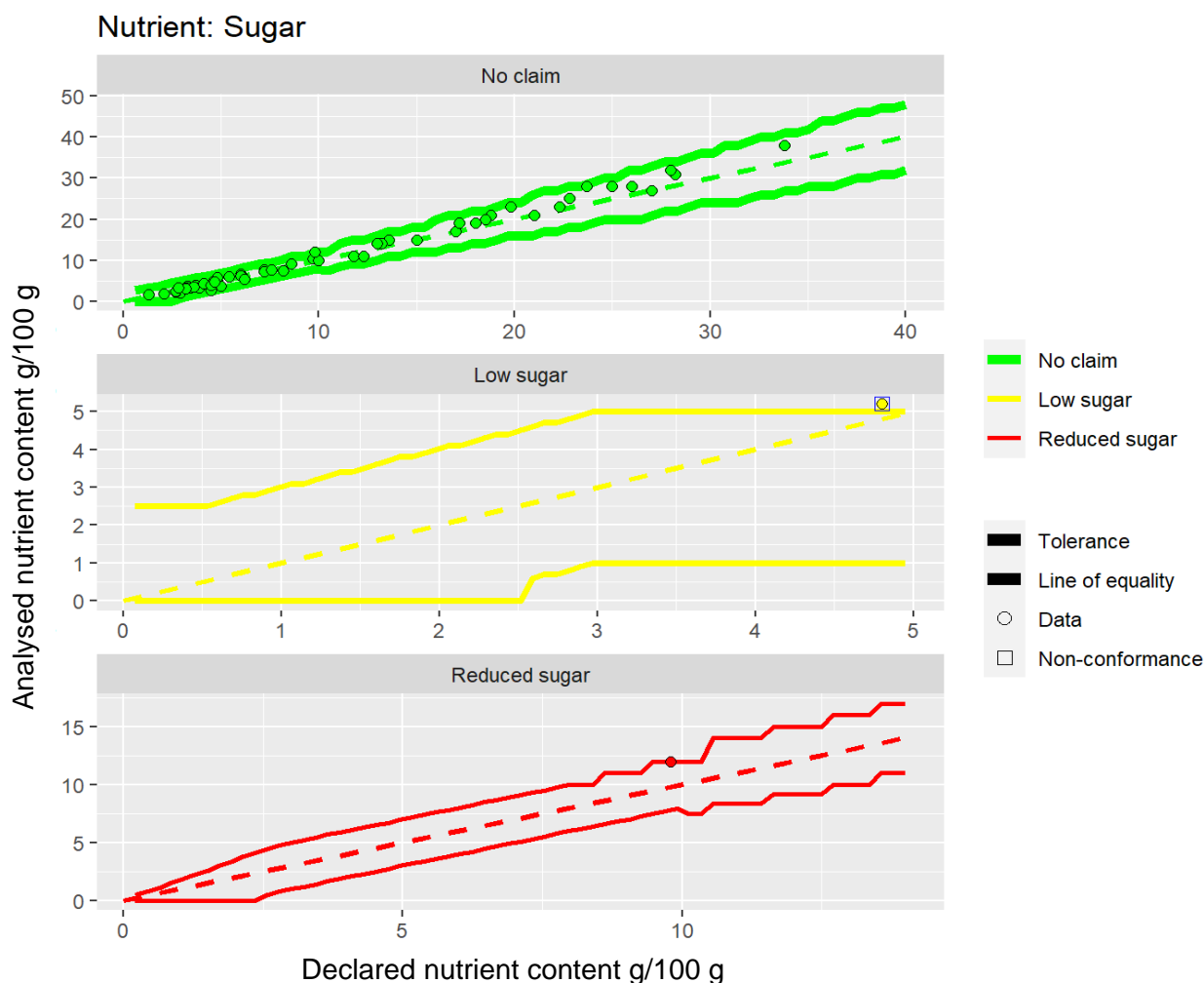


Figure 2: Trend in sugar nutrition labelling tolerances for soups and sauces (n=63)



4.3 Salt

4.3.1 Comparison of declared and analysed salt content of soups and sauces, and breads

Table 3 below summarises the median (IQR), minimum and maximum value for declared and analysed salt content (g per 100 g) for soups (n=28), sauces (n=35), 'white sliced bread & rolls' (n=24), 'wholemeal & brown bread & rolls' (n=35) and 'other breads' (n=13).

Table 3: A comparison of median (IQR) declared and analysed salt content of soups and sauces (n=63), and breads (n=71)

Soups, sauces, and breads	Source of nutrition information	Median (IQR) salt content (g per 100 g)	Minimum and maximum salt content (g per 100 g)
Soups (n=28)	Declared	0.59 (0.12)	0.38–0.80
	Analysed	0.57 (0.10)	0.38–0.79
Sauces (n=35)	Declared	1.30 (0.86)	0.30–11.00
	Analysed	1.25 (0.90)	0.43–10.67
White sliced bread and rolls (n=24)	Declared	1.10 (0.13)	0.70–1.38
	Analysed	1.09 (0.34)	0.86–1.45
Wholemeal & brown bread & rolls (n=35)	Declared	1.10 (0.31)	0.83–1.80
	Analysed	1.19 (0.36)	0.79–1.88
Other breads (n=13)	Declared	0.90 (0.20)	0.65–1.23
	Analysed	0.89 (0.23)	0.20–1.40

g= grams, IQR= interquartile range

4.3.2 Comparison of declared and analysed salt content of soups, sauces, and breads with EC guideline nutrition labelling tolerances

Of all soups (n=28) and sauces (n=35), 100% of soups (n=28) and sauces (n=35) were within the EC guideline nutrition labelling tolerances for salt, which is outlined in Figure 3.

All 'white sliced bread and rolls' (n=24) and 'wholemeal and brown bread and rolls' (n=35) were within the EC guideline nutrition labelling tolerances for salt.



It was observed that 92.3% (n=12) of 'other breads' (n=13) were within the EC guideline nutrition labelling tolerances for salt, meaning that 7.7% (n=1) were outside of the EC guideline nutrition labelling tolerances for salt, which is outlined in Figure 3. This concludes that 99.3% (n=133) of all products (N=134) analysed were within the EC guideline nutrition labelling tolerances for salt. The 'other bread' product with the analysed salt content outside of the EC guideline nutrition labelling tolerances was lower than the declared amount on the label.



Figure 3: Trend in salt nutrition labelling tolerances for soups (n=28), sauces (n=35), and breads (n=71)



5. Discussion

The aim of this study was to examine the accuracy of the declared nutrition information on soups, sauces, and breads sampled in 2022, in line with EC guideline nutrition labelling tolerances.

Since the introduction in 2016 of mandatory nutrition declaration of energy, total fat, saturated fat, carbohydrate, sugars, protein, and salt of prepacked food per 100 g, under Regulation (EU) No 1169/2011, this has led to the use of declared nutrition labels for monitoring food reformulation in Europe. This is a cost-effective way to monitor reformulation of foods.

The study observed that only 1.6% (n=1) of analysed soups and sauces (n=63) were outside EC guideline nutrition labelling tolerances for sugar. The non-conformant product was a soup product. The study observed that 0.7% (n=1) of all products (N=134) were outside the EC guideline nutrition labelling tolerances for salt. The non-conformant product was from the 'other breads' category. These findings indicate that declared nutrition labels provide a reliable source of information for salt monitoring in soups, sauces, and breads.

Based on the findings of this study, it is indicated that when EC guideline nutrition labelling tolerances are applied to this sample of soups, sauces, and breads, it is most likely that declared nutrition labels reflect the true food reformulation efforts. This finding agrees with similar studies completed by Yusta *et al.* and Hafner *et al.*, both of which observed a high level of conformance to nutrition labelling tolerances for sugar content in sauces, breads, and beverages (Yusta *et al.*, 2020; Hafner *et al.*, 2022).

6. Conclusion and recommendations.

The findings of this study indicate that declared nutrition information on food labels most likely reflects the true food reformulation efforts of foods sold in the Irish retail food environment.

Based on the findings of this study, the following recommendations are made:

- When EC guideline nutrition labelling tolerances are accounted for, it is possible that declared nutrition labels reflect the true food reformulation efforts.
- The FRT should continue to investigate the accuracy of nutrition declarations of other food categories using the same methodology.



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9. Version history and updates

Version name	Date of change	Description of change
V1	14/12/23	N.A



Appendix 1

Table 4: Salt and sugar food categories for food reformulation

Nutrient	Target	Priority food categories
Salt	10% reduction ^a	Biscuits including crackers, Cakes, pastries & buns, Soups, sauces & miscellaneous foods, Savouries, White sliced bread & rolls, RTEBC, Cheeses, Other fat spreads (40-80% fat), Beef & veal ready meals, Meat products, Wholemeal & brown bread & rolls, Sausages, Bacon & ham, Nuts & seeds, herbs & spices, Fish & fish products, Savoury snacks, Chicken, turkey & game ^b , Poultry & game ready meals, Butter (over 80% fat), Peas, beans & lentils, Other breads, Burgers ^b , Meat pies & pastries, Processed potato products and Vegetable & pulse dishes.
Sugar	20% reduction ^c	Biscuits including crackers; Cakes, pastries & buns, Soups, sauces & miscellaneous foods, Chocolate confectionary, White sliced bread & rolls, RTEBC, Yoghurts, Other breakfast cereals, Wholemeal & brown bread & rolls, Ice-creams, Nuts & seeds, herbs & spices, Sugars, syrups, preserves & sweeteners, Non-chocolate confectionary, Carbonated beverages, Alternatives to milk & milks-based beverages, Desserts, Fruit juices & smoothies, Rice puddings & custard, Other beverages, Squashes, cordials & fruit juice drinks.

^a 75 food categories that are currently the focus of the Public Health England** salt reduction programme are represented in this list. Scotch eggs excluded as not a contributor of salt to the Irish diet.

^b Chicken, turkey and game and Burgers are contributors to sodium dietary intake in children and adolescence only.

^c Nine food categories that are currently the focus of the Public Health England** sugar reduction programme are represented in this list.

** PHE: Public Health England, now called the office for health improvement and disparities (OHID)



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