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What is the availability of iodised salt in supermarkets on the Island of Ireland?

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Abstract

Iodine deficiency remains a global nutritional public health challenge, with evidence suggesting borderline adequate or even deficient status for UK and Irish subpopulations such as schoolgirls and pregnant women. The solution, according to the WHO, is salt iodisation, but it is not known how widely available iodised salt is in supermarkets. Iodised salt availability was determined by a shelf survey of 89 supermarket stores on the island of Ireland (n=30 in Northern Ireland and n=59 in the Republic of Ireland) from September 2018-January 2019, to take into account factors such as store type, location, population density, socioeconomic status and ethnicity. Availability was calculated as the number of stores selling iodised salt as a percentage of the total. Iodised salt was only available in 11 stores (12%), of which 10 were ethnic stores. This indicates a lack of access for the majority of the Irish and Northern Irish populations.

Introduction

Iodine deficiency disorders are caused by lack of iodine, with their health effects well-described (1). There is no harmonised European approach to ensure adequate population dietary iodine intakes (2). Europe has the lowest uptake of salt iodisation globally; the form of iodine fortification recommended by the World Health Organisation (2). This is possibly due to concerns that iodisation may undercut population-level efforts to reduce salt intakes and, consequently, hypertension (2). Neither the UK nor Ireland has ever had a salt iodisation policy, with dietary iodine relying heavily on adventitious intakes, particularly from dairy produce where presence of iodine in cleaning solutions or in animal feed has historically led to iodine entering milk and dairy produce (2, 3). Without any iodised salt policy, a number of studies have investigated iodine intake and status in UK and Irish populations, suggesting some concern (4-8). This against a background where there has been a rise in non-dairy milk alternatives which may not contain iodine (9). Iodised salt availability has been demonstrated to be low in the UK and Northern Ireland (NI) (10), but has not been explored across the Island of Ireland (Iol). The aim of this study was to survey iodised salt availability in supermarkets in NI and the Republic of Ireland (RoI).

Methods

Iodised salt availability was ascertained by a supermarket shelf survey method through undertaking supermarket audits to check in-store salt availability, and browsing supermarket websites to check online availability from September 2018-January 2019. Visits occurred in four geographical areas in NI and six in RoI. These were selected to cover densely (urban) and more sparsely (rural) populated regions, and included areas with populations of diverse socioeconomic status and ethnicity. In all geographic areas, all available stores were inspected, including supermarkets, smaller convenience stores and ethnic stores (European, Asian and African). A database was created to document on-pack details, and each store was categorised by the following supermarket type: retail giant, discounter, convenience store and ethnic store. A total of 89 stores were included overall.

Data were collected on the weight of salt available in grams, cost of salt per kilogram (in either pound sterling (£) or euros (€)), ingredients, manufacturer, presence and concentration ($\mu\text{g}/100\text{g}$) of iodine. The availability of iodised salt was calculated using the number of stores selling iodised salt as a percentage of the total number of stores investigated.

Results

Iodised salt was available in eleven of the eighty-nine supermarkets (12.4% of total) investigated, with three of these being in NI and eight in the RoI (Table 1). Fifty-six stores were surveyed in the three main cities (Belfast, Dublin, Cork), of which 16.1% stocked iodised salt; only 2 stores outside of these cities (out of 33 surveyed) sold iodised salt (6.1% of stores visited). Iodised salt was generally not found in mainstream supermarkets, but was present in a much higher percentage of ethnic stores (50% of stores surveyed, n=20), especially those of Eastern European origin (66.6% of stores surveyed, n=12). Sainsbury's (NI) was the only non-ethnic store selling iodised salt but, even then, this was only present in one of the two Sainsbury's stores surveyed. There were 19 unique brands of iodised salt available. In Sainsbury's the sole brand was Cerebos (Premier Foods Group), while there were 18 unique iodine-containing brands in ethnic stores. The iodine concentration also differed, with Cerebos containing 1150 µg/100g, while the ethnic brands contained 1268-3026 µg/100g.

The cost of iodised salt ranged from £2.38/kg to £41.50/kg in NI and from €0.50/kg to €6.33/kg in RoI. In contrast, standard salt sold for £0.36/kg in NI and €0.37/kg in RoI: making iodised salt 6.6-115.3 times more expensive in NI, and 1.4-12.7 times more expensive in RoI than standard salt.

Discussion

Iodised salt is not widely available for purchase on IoI. Iodised salt was present in only 12% of all stores audited, being more available in cities and in ethnic supermarkets. Prices were higher than for standard table salt, and brands contained differing iodine concentrations. Given the apparent low market share of ethnic supermarkets, this indicates that iodised salt is not widely accessible or available on the IoI.

A previous shelf survey of major supermarket stores in the UK and NI identified that 42% of the 75 stores checked contained iodised salt, which, when accounting for market share, yielded a weighted availability figure of 22% (10). Although the present survey included many of the same stores (Tesco, Lidl, Asda, Sainsbury's), iodised salt was only present once (Sainsbury's), indicating that the majority of shoppers on IoI cannot buy iodised salt. Of note, we report availability of iodised salt in some ethnic stores and note that ethnic stores were not surveyed previously (10). Given the lack of data on market share of ethnic supermarkets, we could not complete weighted availability, but it would appear that there is an inverse relationship between market share and iodised salt availability.

The level of iodised salt consumption by UK and Irish shoppers and/or their awareness of iodised salt and its health implications is unknown. The brands of iodised salt identified here contained variable amounts of iodine and were more expensive than standard varieties. Given the WHO recommendation for adoption of salt iodisation in Europe, there is a need to engage with consumers, policymakers and industry to understand opinions on iodised salt use, and to assess whether the growing popularity of veganism and non-dairy milk alternatives is indirectly promoting iodine deficiency, due to the low levels (or lack of) iodine in non-dairy milk alternatives.

Strengths of the study were inclusion of supermarkets in areas of differing population density across IoI, including ethnic stores. However we acknowledge the survey was not exhaustive, results were

limited to a period of 4-5 months and we were unable to complete weighted availability analysis due lack of market share data for all contributing supermarket types.

In conclusion, iodised salt availability is low on Iol, and neither the UK nor Ireland have iodine fortification programmes. Current availability is limited to ethnic supermarkets. There remains a need to monitor iodine status and to investigate stakeholder knowledge and attitudes to salt iodisation.

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Table legends

Table 1: Iodised salt availability according to shop type from a survey of supermarket stores on the Island of Ireland between September 2018 and January 2019

1

Shop Type	Overall			Northern Ireland			Republic of Ireland		
	Number of stores visited	Number selling iodised salt		Number of stores visited	Number selling iodised salt		Number of stores visited	Number selling iodised salt	
		n	% of stores visited		n	% of stores visited		n	% of stores visited
Total	89	11	12.4	30	3	10	59	8	13.6
Retail Giants	33	1	3	10	1	10	23	0	0
Discounters	24	0	0	6	0	0	18	0	0
Convenience Stores	12	0	0	7	0	0	5	0	0
Ethnic Stores	20	10	50	7	2	28.6	13	8	61.5
Ethnic Stores: Non-European	8	2	25	3	0	0	5	2	40
Ethnic Stores: European	12	8	66.6	4	2	50	8	6	75

2