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Research Article

Assessing the Eligibility of Sweet Biscuits for Marketing to Children in Nigeria Using the Nutrient Profile Model for the WHO African Region

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Abstract

The marketing of foods high in total sugars contributes to unhealthy diets, which are a major risk factor for non-communicable diseases (NCDs) such as obesity and dental caries. The eligibility of marketing of sweet biscuits to children in Nigeria is yet to be assessed. The WHO nutrient profile model has been developed to implement recommendations on marketing of foods and non-alcoholic beverages to children by identifying unhealthy foods that should be subject to restricted marketing. Results from the second Global Nutrition Policy Review (GNPR2, 17) indicated that Nigeria is yet to implement measures to control the marketing of foods and non-alcoholic beverages to children. The purpose of this study is to assess the eligibility of sweet biscuits for marketing to children in Nigeria by comparing their amount of total sugar with the corresponding threshold in the nutrient profile model for the WHO African Region. Data on total sugars from on-pack nutrient declaration panels of the labels of a total of seventy-six (76) cookies and other sweet biscuits randomly collected and most commonly available in major open markets and supermarkets in almost all the States of the Federation, with exception to savoury biscuits and crackers, were analyzed. The average sugar content of the sweet biscuits was estimated by this study to be 30.0g (on a per 100g basis). This exceeds the corresponding sugar threshold set in the nutrient profile model. Hence, sweet biscuits are not eligible for marketing to children. The nutrient profile model for the WHO African Region should be adopted or adapted as a national policy to regulate the marketing of sweet biscuits in Nigeria and encourage their reformulation.

Keywords: *Nutrient Profile Model; Sugars; Sweet Biscuits; Pre-Packaged Food Labelling Regulations; Restricted Marketing*

Introduction

There is increasing concern that excess intake of sugars increases the risks of obesity and dental caries. Obesity is an independent risk factor for many non-communicable diseases (NCDs) and rapidly increasing globally. According to the world health organization (WHO), in 2022, 16% of adults and 8% of children and adolescents globally were living with obesity. In 2022, studies showed that Nigeria's adult obesity rate was around 15% overall. Dental diseases are the most prevalent NCDs globally [1]. It is estimated that oral diseases affect nearly 3.7 billion people. A 2024 systematic review found the pooled prevalence of dental caries in Nigerian adolescents to be 23%, with males

at 16% and females at 22% [2]. Following the work of the 1989 WHO Study group on diet, nutrition and prevention of noncommunicable diseases, the 2002 Joint WHO/FAO expert consultation on diet, nutrition and the prevention of chronic diseases updated the guidance on the free sugars intake as part of the guidance on population nutrient intake goals for the prevention of noncommunicable diseases (NCDs) [3]. The world health organization recommends reducing the intake of free sugars to less than 10% of total energy intake, which translates to less than 50g added sugar on a 2,000 kcal diet per day.

One of the key activities in the national policy on food safety and quality and its implementation plan 2023 is to develop and implement a national strategic plan/guideline for the reduction/reformulation of sugar in packaged and processed foods as well as spices. The percentage reduction to be expected by 2027 and main food group categories to target are poorly identified [4].

The survey data in Umuahia North, Abia State, indicates that the consumption of various processed foods, including sweet biscuits, is common. While this doesn't provide a precise figure, it suggests that sweet biscuits are a regular part of many people's diets and consumed as a regular staple with a hot drink, and contributing to excess sugar intake [5]. It is believed that increased consumption of sweet biscuits (due to their widespread availability, affordability, desirability and promotion) may contribute to the obesity and dental problems in Nigeria. The slow decline in the implementation of sugar taxes is also an issue of concern in spite of the WHO global call for such tax policy measures. These gaps could contribute to placing Nigeria 'off course' towards achieving global target of reducing obesity, as reported by the WHO.

Food environments have a great impact on populations' nutrition and health status; therefore, food environment interventions are a popular way of addressing the obesity epidemic. However, there are gaps in their implementation [6]. WHO is particularly concerned that the implementation of recommendations on marketing of foods and non-alcoholic beverages to children adopted by the sixty-third world assembly in 2010 has been slow globally, especially in the African region. The results from the second global nutrition policy review (GNPR2, 2017) indicated that only three countries in the region (The Gambia, Liberia, and Mali) have implemented measures to regulate the marketing of foods and non-alcoholic beverages to children. One of the reasons for the slow progress may be linked to difficulties in identifying and classifying foods for which marketing should be restricted, because of the lack of appropriate food classification tools. WHO has adopted nutrient profiling as a useful approach to identifying foods (according to their nutritional composition) whose marketing should be restricted as part of the implementation of the recommendations endorsed by the world health assembly (WHA) to control the marketing of foods and nonalcoholic beverages to children [7,8]. Results from the second global nutrition policy review (GNPR2, 17) indicated that Nigeria is yet to implement measures to control the marketing of foods and non-alcoholic beverages to children.

Purpose of the Study

The purpose of this study is to assess the eligibility of sweet biscuits for marketing to children in Nigeria by comparing their average sugar content with the corresponding threshold in the nutrient profile model for the WHO African Region. The marketing of sweet biscuits with average sugar content that exceeds, on a per 100g basis, the sugar threshold provided in the nutrient profile model for the WHO African Region to children should not be permitted. This is key to ensuring that foods high in total sugars are not promoted to children through advertisement or other means of marketing. Such marketing could lead to excessive consumption of sugars, increased risk of obesity and dental caries among children [9].

Definition and description of key terms and tool used in this study

- **Children:** Refers to persons aged 2 to 19 years.
- **Sugars:** Means all monosaccharides and disaccharides present in food [3].
- **Total sugars:** All monosaccharides and disaccharides other than polyols.
- **Sweet biscuits:** Refers to cookies and breakfast biscuits (such as chocolate-covered biscuits), excluding crackers.

- **Nutrient profile model:** The primary purpose of the model is to implement the WHO recommendations on marketing of foods and non-alcoholic beverages to children by identifying unhealthy foods that should be subject to marketing restriction. The model can be used by national authorities to guide policy-making and regulation related to food labelling, and health or nutrition claims by food manufacturers. It can also inform national campaigns for healthy diets and criteria for food procurement and service in public institutions.

Methodology

Average sugar content of sweet biscuits in Nigeria

The average sugar content of sweet biscuits was estimated by this study from available data on total sugars from on-pack nutrient declaration panels of the labels of randomly collected and most commonly available brands of sweet biscuits in major open markets and supermarkets in almost all the States of the Federation (as shown in table 1). A total of seventy-six (76) cookies and other sweet biscuits were collected, with exceptions to savory biscuits and crackers. Their average sugar content was cross-checked against the corresponding sugar threshold set in the nutrient profile model for the WHO African Region to determine their eligibility for marketing to children. The sweet biscuits won't be eligible for marketing to children if their estimated average sugar content exceeds the threshold. The sugar threshold in the model is based on the dietary goals recommended by WHO for preventing obesity and related NCDs, and sugars guidelines. A product has excessive free sugars if their contribution [free sugars (g) x 4 kcal] to the product's total energy is equal to or higher than 10%. Table 1 shows the total sugar content of sweet biscuits (on a per 100g basis).

S/N	Brand name	Total sugars (g) per 100g
1.	Oreo chocolate sandwich cookies	43
2.	London triple cookies	38
3.	Spur choc chip cookies	36
4.	Noel super 2 lemon cookies	36
5.	Noel super 2 strawberry cookies	36
6.	Maryland cookies choc chip	34.4
7.	Maryland cookies double choc	34.2
8.	Fox's fabulous half-coated milk chocolate cookies	34
9.	Fox's fabulous white chocolate cookies	33.7
10.	Maryland cookies choc and hazelnut	33.5
11.	Keebler chips deluxe minis cookies	33.3
12.	Papel coconut chips cookies	33
13.	Famous amos chocolate chip cookies	32.1
14.	Noel super 2 vanilla cookies	32
15.	Noel super 2 chocolate cookies	32
16.	Fox's fabulous triple chocolate cookies	32
17.	Fox's fabulous milk chocolate cookies	31
18.	London classic milk chocolate chunk cookies	31
19.	Maryland cookies choc chip and coconut	30.7
20.	Spur cream cookies	30
21.	Eurocake butter cookies	26.5

22.	Britannia good day cashew cookies	23.5
23.	Huamel donut peanut flavor cookies	23.3
24.	Huamel donut cashew flavor cookies	23.3
25.	Parle hide and seek American style butter cookies	22.3
26.	Patanjali Jeera bakery cookies	21.35
27.	Parle hide and seek American cashew cookies	21.2
28.	Patanjali Nariyal bakery cookies	20.25
29.	Fastizers fun cookies	14.7
30.	Candy cake bit bite chocolate coated wafers	46.09
31.	Shirin asal choco jido biscuit set in milk compound	43.8
32.	Oreo cocoa original biscuits with vanilla flavored filling	43
33.	Lotus biscoff vanilla biscuit	42.5
34.	Tiffany gotcha milk flavored sandwich biscuit	42.3
35.	Candy cake waffle crunchy chocolate wafers	42
36.	Lorena biscuit	40
37.	Foseh creamy mango flavored cream biscuit	39.2
38.	Foseh creamy orange flavored cream biscuit	39.2
39.	Britannia treat kool vanilla biscuit	39
40.	Lotus biscoff biscuit	38.1
41.	Deemah date bars biscuit	38
42.	Mcvities hobnobs biscuits	37.9
43.	Mcvities Dark creams biscuit	37.8
44.	Tiffany delights ginger nut biscuit	37
45.	Britannia treat funky choco biscuit	35
46.	Toren carre milk waters	34.2
47.	Britannia treat buzzy strawberry biscuit	32
48.	Serena milk cream short cake biscuits	30
49.	Serena chocolate short cake biscuits	30
50.	Britannia nice time sugar-showered coconut biscuit	29
51.	Serena milk cream short cake biscuits	30
52.	Mcvities ginger nuts	28.9
53.	Tower gate milk chocolate digestive biscuits	28.4
54.	Hasbro nord sandwich biscuits with vanilla flavored cream	28.4
55.	Hill vanilla flavor sandwich biscuit	28
56.	Mcvities digestives dark chocolate biscuit	26.6
57.	Mcvities digestives biscuit	26.2
58.	Roshen extra crunch cocoa sandwich wafers	25
59.	Binto biscuit	25
60.	Binto coated with chocolate flavored cream biscuits	25
61.	Hill fig rolls biscuits	24.2
62.	Mcvities chocolate shortbread	24
63.	Mcvities chocolate shortbread	24

64.	OGL coconut shortbread	21.9
65.	OGL butter shortbread	21.9
66.	Belmont biscuits crumby oaties	21.3
67.	OGL malted milk biscuit	21.2
68.	CBL munchee digestive whole grain biscuit	20.07
69.	Spar digestive biscuits	19
70.	Mcvities butter shortbread	18.8
71.	Mcvities rich tea	18.5
72.	Mcvities rich tea biscuit	18.5
73.	Walker's short bread	17.9
74.	Tower gate short cake biscuits	15.6
75.	Mcvities digestives the original biscuit	15.1
76.	Tiffany delights shortbreads	13.9

Table 1

Result and Discussion

The sugar content of sweet biscuits (on a per 100g basis) ranged from 46.09g to 13.9g, depending on the brand. This wide range indicates poor sugar content regulation. This may be due to the absence of a national maximum sugar level for these biscuits [4]. A maximum sugar level for sweet biscuits could drive reformulation to lower their sugar content. Sugar is present in large concentrations in a small amount of the biscuit. Hence, large amounts can be consumed with little or no awareness of it.

The average sugar content was estimated by this study to be 30.0g. This value exceeds (on a per 100g basis) the sugar threshold of 6g provided in the nutrient profile model for the WHO African region [6]. Thus, sweet biscuits fail to meet the sugar eligibility criterion for marketing to children and should be subject to restricted marketing. This would result in their responsible marketing and reformulation. It could also lead to reduction in their consumption among children. Table 2 shows the threshold for total sugars for sweet biscuits.

Food category	Examples of food items	Codex Food Category code	Total fat (g)	Saturated fat (g)	Total sugars (g)	Added sugars (g)	Sodium (g)	Energy (kcal)
Cakes, sweet biscuits and pastries, other sweet bakery products, dry mixes for making such	Pastries; croissants, Cakes, cookies, pies, doughnuts, sweet rolls, muffins, macaroons, breakfast biscuits (such as chocolate-covered biscuits), sweet pancake (ready-to-eat form), Buns with sweet fillings, Maandazi, chocolate pudding, plum pudding, bread pudding	7.2	8.0	No threshold provided	6.0	No threshold provided	0.25	230

Table 2: *The nutrient profile model for the WHO African region.*

NB: Marketing is prohibited if products exceed values in this model per 100g.

Source: World Health Organization, 2019. 'Nutrient Profile Model for the WHO African Region: a tool for implementing WHO recommendations on the marketing of foods and non-alcoholic beverages to children'.

An average person's total daily recommended maximum intake of total sugars is estimated by this study to be 50g (based on 2,000 Calories each day) [1]. The estimated average of 30g of total sugars (per 100g of sweet biscuits) constitute 60% of this value. Hence, sweet biscuits could contribute a lot of sugars to the total diet. It is suggested that sweet biscuits may be a major contributing factor to obesity and dental caries [9]. Therefore, consumers are advised to eat less of them if they are concerned about their sugar intake and trying to reduce it, lose weight or maintain a healthy weight.

This research makes available data that can be used for sugar-reduction programme/policy [10] and shows that reduction in sugar content is possible, since there were sweet biscuits that contained less than 16g of total sugars (on a per 100g basis). A policy that promotes the reduction of sugar content can help reduce overall sugar intake in Nigeria, reducing the risk of obesity and dental caries [11-13].

Conclusion and Recommendation

Sweet biscuits are not eligible for marketing to children in Nigeria. They are relatively high in total sugars and exceed the threshold for total sugars provided in the nutrient profile model. Their consumption makes it more likely for the diet to exceed the WHO recommended maximum free sugars intake of < 10% of total daily energy and subsequently, poses a risk of obesity and dental caries. Hence, sweet biscuit consumption could be a major reason behind the rise in obesity and dental caries among children in Nigeria. The lack of implementation of responsible marketing (promotion, advertising) policy for these biscuits to children could be a major reason for their high amounts of total sugars. The nutrient profile model for the WHO African Region should be adopted or adapted as a policy to regulate the marketing of sweet biscuits and encourage their reformulation.

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