

Garcia, A. L., Menon, R. and Parrett, A. (2022) Extensive use of on-pack promotional claims on commercial baby foods in the UK. *Archives of Disease in Childhood*, (doi: 10.1136/archdischild-2021-322851)

There may be differences between this version and the published version. You are advised to consult the publisher's version if you wish to cite from it.

http://eprints.gla.ac.uk/266094/

Deposited on 2 March 2022

 $En lighten-Research\ publications\ by\ members\ of\ the\ University\ of\ Glasgow \\ \underline{http://eprints.gla.ac.uk}$

Extensive use of on-pack promotional claims on commercial baby foods in the UK.

Garcia AL*, Menon R, Parrett A

Affiliations for all authors

Human Nutrition, School of Medicine, Dentistry and Nursing, College of Medical, Veterinary & Life Sciences, University of Glasgow, Glasgow G31 2ER, UK

*Corresponding author

Ada L Garcia

Human Nutrition, School of Medicine, College of Medical, Veterinary & Life Sciences, University of Glasgow

New Lister Building, Glasgow Royal Infirmary,

10-16 Alexandra Parade, Glasgow, G31 2ER, UK

Tel +44(0)141 201 8687

Email: Ada.Garcia@glasgow.ac.uk

Word count (main body): 2467

Conflict of interest statement

The authors declare that they have no conflict of interest

Contributor statement

ALG conceived the study design and supervised data collection and analysis. MR collected data, undertook analyses, and produced the first draft of the paper. AP and ALG helped plan the study and supervised the analyses and write up. All authors contributed to successive drafts, and have approved the final draft.

Acknowledgement

We thank Vania Nunes (University of Glasgow) for carrying out quality check of the database.

Key words

promotional claims, marketing, commercial baby food, complementary feeding

Abstract

Objective: To explore and categorise the nature of promotional claims on packaging of commercial baby foods (CBFs).

Setting: United Kingdom

Methodology: An online survey of CBFs (for infants up to 12+ months) in 7 UK supermarkets and Amazon in 2020. On-pack promotions were classified as marketing, composition, health, and nutrient claims using the WHO Nutrient Profile Model draft for infants and young children and European Union regulation on Health and Nutrition claims.

Main outcome measure: Distribution and proportion of claim types, association between product characteristics and claim types.

Results: A total of 6265 promotional claims were identified on 724 products. Marketing (99%, n=720) composition (97%, n=705) and nutrient claims (85%, n=616) were found on the majority of CBFs, compared to health claims (6%, n=41). The median (Q1,Q3) number of total claims per product was 9 (7,10), marketing 5 (3,6), composition 2 (1,2), nutrient 2 (1,2), and 0 (0,0) health.

Marketing claims were mainly texture [84%, n=609 e.g., super smooth] and taste related [70%, n=511 e.g., first tastes]. The main composition claim was organic (62%, n=452) whilst nutrient claims were mainly around "no added" or "less" sugar (58%, n=422) and salt (57%, n=417).

Baby led weaning claims (BLW) (e.g., encourages self-feeding) were found on 72% of snacks with a significantly higher (P< 0.01) number of BLW claims on snacks (99%, n=209), compared with other product types.

Conclusion: Promotional claims on CBF packaging are extensively used and for the most part unregulated. CBF are promoted using "healthy halo" connotations that might confuse parents. Regulations on their use should be implemented to avoid inappropriate marketing.

What is already known:

- CBFs are predominantly sweet, mask vegetable tastes and not as nutrient dense as home-made complementary baby food.
- Sugar content has increased in sweet-savoury products and baby snacks are an emerging trend in the market.
- WHO has called to end inappropriate marketing of CBFs by classifying products based on a nutrient profile model.

What this study adds:

- CBFs are promoted using "healthy halo" connotations that might confuse parents.
- The on-package promotion in CBFs is extensive, these include marketing and composition claims referring to texture, taste and quality of the product, these are currently unregulated.
- Health claims were identified on only 6% of the products which may indicate the effectiveness of stringent regulations for these types of claims.

Introduction

The UK commercial baby food (CBF) market is forecasted to rise to £1 billion by 2024 with an annual growth rate of 2.5%¹. This increase, in particular finger food products, is reflected in consumption surveys where 74% of Scottish infants are offered snacks, and 29% of these are treats (i.e. chocolates, crisps)². In the EU, almost 100% of infants consumed CBFs until the age of 9 months, decreasing to 68% at 24 months³. A combination of market and political strategies have been used to shape "first-foods" on a global scale across the baby food industry to drive this market⁴.

CBF's are predominantly sweet^{5 6 7 8}, of soft texture^{9 10} and a large proportion are snacks^{10 11 12}. Additionally, the promotional statements used on packaging of CBFs are also concerning^{13 14}. Claims such as "finger foods", "encourages self-feeding" were observed on snacks high in sugar¹¹ which may suggest appropriateness of these snacks for baby led weaning (BLW). Consequently, the baby food industry has been challenged to consider to what extent CBFs promote adequate complementary feeding practices^{13 15}.

WHO has called to establish standards for promotion of CBFs to align with complementary feeding recommendations¹¹ ¹⁵. However, these calls and a recent WHO Euro Nutrient Profile Model (ENPM) for CBFs are not legally binding but rather designed for use by governments to restrict inappropriate promotion¹⁵. Thus, due to the absence of specific regulations and guidelines regarding composition and promotion of CBFs ¹¹ ¹⁶ the current marketing promotions are permitted under general EU and UK regulations¹⁷ ¹⁸.

The use of "health" related promotions and marketing in foods targeted to young children have been extensively described^{4 10 19 20 21} but the evidence for CBFs is limited. In depth exploration of the use of such marketing practices by the baby food industry is needed to generate evidence for changes in regulations to protect infant nutrition. The aim of this study was to 1) explore the use of promotional claims on CBFs for infants in the UK market, 2) describe the nature of promotions, and 3) test associations between product characteristics and promotion types.

Methodology

Data collection

In this study, 'baby foods' refer to CBFs targeted for infants up to the age of 12 months. Online searches of keyword 'baby foods' were conducted for seven (Asda, Aldi, Lidl, Tesco, Sainsburys, Waitrose, Morrisons) major UK supermarkets²² and Amazon in June and September 2020. Products on Ocado could not be surveyed as the website was only accessible to members due to Covid-19. Data collection was completed with in-store surveying of products sold in only Aldi and Lidl because they were not available for purchase on-line. For quality check, 20% of the products were resurveyed independently by a second researcher to identify any missing claims, claims wrongly classified or duplication. The selection and inclusion criteria of products were adapted from previous studies⁶ ¹¹. All ready-made (soft-wet) and dry foods (cereals, cakes, biscuits, rusks, bars, snacks and raisins, stock cubes, sauces) marketed for infants up to 12+ months were included. Milks and drinks; products without front-of-pack and back-of-pack images; packaging in languages other than English; marked 'unavailable' on retailer websites; and fresh and unpacked were excluded.

Variables collected were brand name, type of packaging, net weight content (g), target age, name of the product, food type (wet, dry), product type (e.g., snack, puree), promotional claim type, and claim message. Promotional claims obtained from the front and back-of-pack of CBFs were categorised as marketing, composition, nutrition, and health claims (fig. 1) informed by the WHO ENPM draft¹⁵. Marketing claims were further subcategorised (fig. 1). Examples of claims listed (supplementary table 1) in the ENPN were used as a reference¹⁵. If a statement contained two or more different categories of claims, the sentence was split into the respective claim category. For example, the sentence "With Omega-3 for the development of brain and nerve tissue" was categorised as both Nutrient Claim: With Omega-3; and Health claim: for the development of brain and nerve tissue. Similarly, statements containing several subcategories of marketing claims were split and subcategorised.

Subcategories baby led weaning (BLW), dietary goals and endorsements are not included in the ENPM draft but were added as previous studies observed such claims on CBFs¹⁴. The ENPM combines nutrient and composition claims¹⁵ but for this study both claim categories were separated as *Regulation (EC) No* 1924/2006 mandates nutrient and not composition claims¹⁷. All permissible statements listed in the ENPM,¹⁵ and the claim 'contains only naturally occurring sugars' were excluded as it is required to be mentioned with the claim 'no added sugar' by law. This was done to avoid repetitive claims.

Data analysis

Cohen's (κ) coefficient was used to measure inter-rater reliability for total number of promotional claims between the researchers. Products were classified according to the food type (wet or dry), product type (breakfast cereal, dairy based dessert, dry ingredients, meal, puree, sauce, snack or stock-cubes) as previously described by our group^{6 11}. Flavour profile was classified as sweet, savoury, sweet-savoury, or neutral based on the name of the product and ingredients listed¹¹. CBFs were also classified by packaging type (pouch, jar, tray meals)

Frequency distributions were computed for all promotional claims. Promotional claims were classified based on targeted age groups, flavour profile, type of product and packaging and these classifications were tested for associations with total number of claims using Chi square. Significance level was set at P<0.05. Flavour profile sweet-savoury and neutral (n=17) were excluded for data analysis due to their small number. The top 5 promotional claims were identified by analysing the most common words or statement in each claim category. All analysis was conducted using SPSS V.26 data software.

Results

In total 724 products from 34 brands were recorded, of which 55.8% were sweet (n=404) and 41.9% were savoury (n=303). Two-thirds (68%, n=493) of the products were classified as wet-spoonable, compared to 32% (n=231) which were classified as dry. Snacks made up the majority (73%) of dry foods, followed by cereals (22%). Wet-spoonable products packaged in pouches made up 35% of the surveyed products, followed by 26% dry products packaged in wrappers, 13% in jars and 12% sold as tray meals.

From the 147 (20%) products resurveyed for data quality control, all CBFs had the right product name. 'Antioxidant ascorbic acid' was recorded by first researcher in 8 products as a nutrient claim which was removed entirely from the database due to its use as a preservative. The other 139 products had rightly categorized promotional claim types (e.g. marketing or nutrient) and corresponding claim messages. However, 4 claim messages were found to be rephrased on the same products (e.g. Perfect For Little Fingers was reworded as Perfectly Sized For Diddy Hands). Seven claim types (3 composition, 2 marketing, 2 nutrient, and 1 health claim) could not be found on the website resurveyed and were removed from the database. Six additional claims (marketing) were found which were added to the database. Inter-rater agreement of $(\kappa) = 0.9$ was observed for total number of claims indicating an almost perfect agreement.

Promotional claims

Marketing (99%,n=720), composition, (97%,n=705) and nutrient (85%,n=616) claims were found on almost all CBFs compared to only 6% (n=41) with health claims (supplementary table 2). A total of 6265 promotional claims were identified when combining all claims in all products. The predominant promotional claims were marketing (57%), followed by composition (23%), nutrient (19%) and health (1%). The median (Q1, Q3) number of total claims per product was 9 (7,10), marketing claims 5 (3,6) composition 2 (1,2), nutrient 2 (1,2) and 0 (0,0) health. Texture, taste and quality claims made up 67% (n=2394) of the marketing claims (fig. 2).

Promotional claims classified by flavour, product type and packaging

Irrespective of flavour, product type or packaging, all CBFs had promotional claims. There was a significant difference (p=0.005) in the total number of claims between sweet (56%) and savoury (44%) products (table 1). CBFs classified as wet-spoonable had 67% (n=4200) of the total claims which was significantly (p=0.007) higher than claims found on dry products (33%,n=2065). Health claims were found only on 16% (n=38) of CBFs classified as dry and 0.6% (n=3) of wet-spoonable CBFs (table 1). Nevertheless, dry products which included snacks and breakfast cereals had 94% (n=51) of total health claims which was significantly higher (p=<0.001) than those found in wet-spoonable CBFs (6%, n=3).

Pouches (36%) were also found to have a significantly (p=<0.001) higher number (35%, n=2164) of claims (Median: Q1, Q3) (9: 6,11) compared to other forms of packaging.

Marketing claims by age recommendation

Age group 6-7+ months had a significantly higher (p<0.001) number of products with BLW, ideals on feeding, quality, and texture claims compared to other age groups(table 2), in addition to having the majority (43%, n=2700) of promotional claims (Supplementary table 2).

Age group 4+ had a significantly higher (p<0.001) number of products with claims categorised as 'others' which predominantly included the message "The Government advises that you don't need to wean your little one until they are 6 months. Every baby is different!"

BLW claims (e.g. encourages self-feeding, ideal finger food) were found on 72% of snacks. Snacks had a significantly higher (P=< 0.001) number of BLW claims (99%, n=209), compared to the rest of products with BLW claims (i.e. purees, meals, cereals, deserts).

Top 5 promotional claims

Claims using texture, taste, and quality in messages on packaging were identified as the most prominent marketing claims (Table 3). 'Organic' was identified as the most common composition claim found on 63% of CBF packaging. Similarly, 'no added' or 'low' sugar and salt claims were identified as the most common nutrient claim in more than half of the CBFs. Claims on the role of Iron in supporting normal cognitive development was the most common health claim (Table 3).

Discussion

To give children the best start in life and to protect them from developing long-term unhealthy dietary habits, the UK Government passed new legislation to restrict online advertising of food and drinks high in fat, salt and sugar (HFSS) from April 2022²³. However current UK and EU legislation does not specifically regulate promotional messages used on CBFs. Thus, we set out to understand the extent to which the baby food industry uses promotional claims on CBFs sold in the UK.

Packaging has been used as a platform for manufacturers of foods targeted to young children to promote "health halo" statements^{8 24} but the extent of this practice by the baby food industry is not clear. Our study found up to 17 promotional claims on a single product. Similarly a survey of toddler foods and milks in Australia also identified 99% of the products with promotional claims with up to 26 claims per product¹². The ferocious use of marketing claims on CBFs reported here is in agreement with a WHO report concluding the marketing of CBFs to be common and pervasive²⁵.

This is concerning since the availability of highly processed baby snacks is a rising trend¹¹ and we found that dry foods (fingers foods and cereals) have a high number of health claims. Concomitantly population surveys showed increased consumption of snacks and treats in the UK². Dry finger foods, are given as snacks and snacking is not recommended in this age group¹⁵. Thus, the promotion of snacking habits as early as 6-12 months should be restricted because of negative implications for obesity²⁶.

Furthermore, we found that 72% of snacks had BLW claims. The principles of BLW are to include a variety of textures, flavours that increase sensory exposure to promote consumption of foods such as fruit and vegetables in late infancy²⁷. However, snacks mostly promote sweet and salty tastes^{8 13}.

The use of taste claims such as 'first tastes' or 'vegetable tastes' and or nutrient claims such as 'no added sugar' found in this study could mislead parents into perceiving that CBFs are free from sugars and get children accustomed to sweet tastes. "Vegetable taste" suggests foods are made of vegetables

when in reality the ingredient contribution might be a combination of fruit and vegetables with a predominantly sweet taste¹¹. A survey conducted by Public Health England found that parents assume nutrient claims "no added sugar or salt" mean the product is healthy and appropriate¹³. Forty-one percent of the respondents in the Scottish Infant Survey 2017 used CBFs 5 days or more per week ². Since food preferences are formed early in life¹³ and infants have an innate preference for sweet and salty foods²⁸, promoting sweet CBFs containing a high amount of sugar¹¹ ¹⁵ ²⁹ could be detrimental. Moreover, it may contribute to high energy consumption and dental caries¹³.

Texture claims such as 'no big lumps' or 'super smooth' found in this study, encourages consumption of smooth foods. Regular consumption of non-lumpy foods could lead to reduced acceptance of textured or family foods later in childhood³⁰. Predominant exposure to very soft textures during complementary feeding has negative implications for the development of chewing skills³¹.

Dietary goals for fruit and vegetable consumption (5- portions-a-day) are given for children from the age of five years³² thus, the suitability of promoting claims such as 'contributes towards your 2-of-5' or 'contains 1 of 5' remains questionable.

Endorsements such as 'Nutritionist approved' or 'Dietitian approved' were widely used but the meaning of these endorsements in terms of nutrient quality or veracity of health claims is not fully clear and needs further scrutiny. The claim "organic" widely used in this survey, implies these CBFs are more desirable and advantageous¹³. Moreover, it suggests the influence of promotions on parental trust³³. Organic food is perceived better for infants because of low pesticide residues, and parents feel responsible for their infant's health and wellbeing³³ ³⁴. Albeit, independent of CBFs certified as organic, current regulations encompasses safety thresholds requiring adequate agricultural practices (<0.01 mg/kg of pesticide residues) to be followed prior commercialisation of CBFs¹⁸.

The limited use of health claims identified in this study may reflect the effectiveness of strict regulatory provisions by the European Food Safety Authority who evaluated scientific evidence supporting health claims³⁵ pre-Brexit. This therefore highlights the importance of regulations to mandate promotions on CBFs. On the other hand, limited evidence on health effects of diet in early childhood might also be a reason why there are limited health claims.

Statutory and voluntary regulations are advocated to positively influence the food environment and eating behaviour. Because of the rise in childhood obesity and exposure to HFSS foods, Chile has implemented a law to regulate nutritional composition of food and advertising³⁶. This legislation

restricts all forms of food advertising aimed at children under 14 years, regardless of where it occurs if it does not meet the cut-off values³⁶. Post Brexit, the UK has continued to follow legislations on labelling, packaging¹⁸, and use of health and nutrient claims¹⁷ set out by the European Union while the WHO ENPM¹⁵ to improve nutrient composition of CBFs has not been implemented yet³⁷.

The strength of this study is the comprehensive exploration of promotional claims used on packaging of commercial baby foods in the UK based on the ENPM. Study limitations are the cross-sectional design which provide just a snapshot of a fluid CBF market. Promotional claims were identified from online images from retailer's websites, and there may have been changes in packaging which was not reflected on the website. Sentences and statements on packaging were also split into different claim categories to reflect the ENPM classification. We did not assess the nutritional composition of CBFs with "health halo" and nutrient claims to determine whether they meet ENPM recommendations thus further research is needed.

Conclusion

Promotional claims on CBF packaging are extensively used which could mislead parents. The unrestricted use of messages and "health halo" statements on packaging of CBFs calls for policy makers and stakeholders to update guidelines, legislations, and policies to protect this vulnerable demographic so that infant feeding recommendations are not undermined.

Data Availability Statement

"Data are available from the corresponding authors upon reasonable request."

Figure Legends

Figure 1: Classification of promotional claims

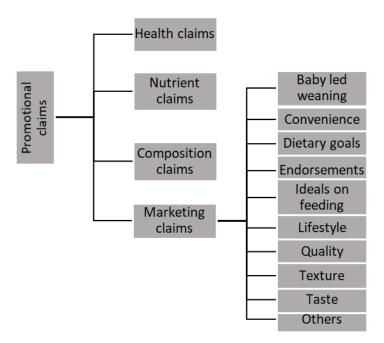
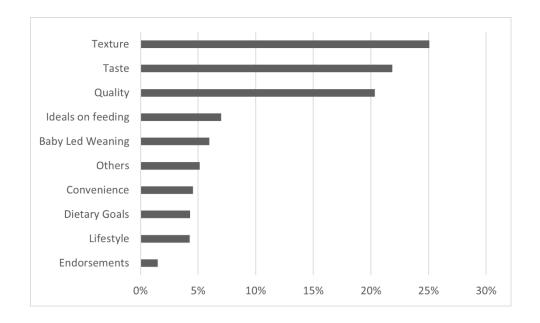


Figure 2: Distribution of total number of marketing claims (n=6265)



References

- Markets and Research. Europe Baby Food Market Growth, Trends and Forecasts (2019 2024).
 2019.
- 2. Wolfson L. *Scottish Maternal and Infant Nutrition Survey; 2017*. Edinburgh: Scottish Government, 2018.
- 3. Theurich MA, Zaragoza-Jordana M, Luque V, et al. Commercial complementary food use amongst European infants and children: results from the EU Childhood Obesity Project. *Eur J Nutr*. 2020;59(4):1679-1692. doi:10.1007/s00394-019-02023-3
- 4. Baker P, Russ K, Kang M, et al. Globalization, first-foods systems transformations and corporate power: a synthesis of literature and data on the market and political practices of the transnational baby food industry. *Global Health*. 2021;17(1):58. doi:10.1186/s12992-021-00708-1
- 5. Garcia AL, McLean K, Wright CM. Types of fruits and vegetables used in commercial baby foods and their contribution to sugar content. *Matern Child Nutr*. 2016;12(4):838-847. doi:10.1111/mcn.12208
- 6. García AL, Raza S, Parrett A, et al.. Nutritional content of infant commercial weaning foods in the UK. *Arch Dis Child*. 2013;98(10):793 LP 797. doi:10.1136/archdischild-2012-303386
- 7. Bakke AJ, Carney EM, Higgins MJ, Moding K,et al. Blending dark green vegetables with fruits in commercially available infant foods makes them taste like fruit. *Appetite*. 2020;150:104652. doi:10.1016/J.APPET.2020.104652
- 8. Hutchinson J, Rippin H, Threapleton D, Jewell J, et al. High sugar content of European commercial baby foods and proposed updates to existing recommendations. *Matern Child Nutr.* 2021;17(1). doi:10.1111/MCN.13020
- 9. Fiona McAndrew, Jane Thompson, Lydia Fellows, et al. *Infant Feeding Survey 2010*.; 2012.
- 10. Katiforis I, Fleming EA, Haszard JJ, et al. Energy, Sugars, Iron, and Vitamin B12 Content of Commercial Infant Food Pouches and Other Commercial Infant Foods on the New Zealand Market. *Nutr 2021, Vol 13, Page 657*. 2021;13(2):657. doi:10.3390/NU13020657
- 11. Garcia AL, Curtin L, Ronquillo JD, et al. Changes in the UK baby food market surveyed in 2013 and 2019: The rise of baby snacks and sweet/savoury foods. *Arch Dis Child*. 2020;105(12):1162-1166. doi:10.1136/archdischild-2020-318845
- 12. McCann JR, Russell GC, Campbell KJ,et al. Nutrition and packaging characteristics of toddler foods and milks in Australia. *Public Health Nutr*. 2021;24(5):1153-1165. doi:10.1017/S1368980020004590
- 13. Public Health England. Foods and Drinks Aimed at Infants and Young Children: Evidence and Opportunities for Action.; 2019.
- García AL, Morillo-santander G, Parrett A,et al. Confused health and nutrition claims in food marketing to children could adversely affect food choice and increase risk of obesity. *Arch Dis Child*. 2019:541-546. doi:10.1136/archdischild-2018-315870
- 15. World Health Organization. *Ending Inappropriate Promotion of Commercially Available Complementary Foods for Infants and Young Children between 6 and 36 Months in Europe.*; 2019.

- 16. World Health Organization. *Commercial Foods for Infants and Young Children in the WHO European Region.*; 2019.
- 17. European Union Commission Directive. 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.; 2006.
- 18. European Union Commission Directive. *Commission Directive 2006/125/EC of 5 December 2006 on Processed Cereal-Based Foods and Baby Foods for Infants and Young Children.*; 2006.
- 19. Whalen R, Harrold J, Child S,et al. The health halo trend in UK television food advertising viewed by children: The rise of implicit and explicit health messaging in the promotion of unhealthy foods. *Int J Environ Res Public Health*. 2018;15(3):560. doi:10.3390/ijerph15030560
- 20. Lavriša Ž, Pravst I. Marketing of Foods to Children through Food Packaging Is Almost Exclusively Linked to Unhealthy Foods. *Nutr 2019, Vol 11, Page 1128*. 2019;11(5):1128. doi:10.3390/NU11051128
- 21. Harris JL, Pomeranz JL. Infant formula and toddler milk marketing: Opportunities to address harmful practices and improve young children's diets. *Nutr Rev.* 2020;78(10):866-883. doi:10.1093/nutrit/nuz095
- 22. Retail Economics. Top 10 UK Food, Grocery & Supermarket Retailers. Published 2018.
- 23. Department of Health & Social Care. New public consultation on total ban of online advertising for unhealthy foods. 2020.
- 24. Hawkes C. Food packaging: The medium is the message. *Public Health Nutr.* 2010;13(2):297-299. doi:10.1017/S1368980009993168
- 25. Smith J.P., Sargent G.M., Mehta K., et al. *Does Marketing of Commercially Available Complementary Foods Affect Infant and Young Child Feeding?*; World Health Organisation. 2015.
- 26. Croker H, Russell SJ, Gireesh A, et al. Obesity prevention in the early years: A mapping study of national policies in England from a behavioural science perspective. *PLoS One*. 2020;15(9 September):e0239402. doi:10.1371/journal.pone.0239402
- 27. Morison BJ, Heath ALM, Haszard JJ, et al. Impact of a modified version of baby-led weaning on dietary variety and food preferences in infants. *Nutrients*. 2018;10(8). doi:10.3390/nu10081092
- 28. Fewtrell M, Bronsky J, Campoy C, et al. Complementary feeding: A position paper by the European Society for Paediatric Gastroenterology, Hepatology, and Nutrition (ESPGHAN) committee on nutrition. *J Pediatr Gastroenterol Nutr*. 2017. doi:10.1097/MPG.00000000001454
- 29. Public Health England. Foods and Drinks Aimed at Infants and Young Children: Evidence and Opportunities for Action.; 2019.
- 30. Northstone K, Emmett P, Nethersole F. The effect of age of introduction to lumpy solids on foods eaten and reported feeding difficulties at 6 and 15 months. *J Hum Nutr Diet*. 2001. doi:10.1046/j.1365-277X.2001.00264.x
- 31. da Costa SP, Remijn L, Weenen H, et al. Exposure to texture of foods for 8-month-old infants: Does the size of the pieces matter? *J Texture Stud*. 2017. doi:10.1111/jtxs.12271

- 32. Public Health England. SACN Carbohydrates and Health Report.; 2015.
- 33. Cairns K, Johnston J, MacKendrick N. Feeding the 'organic child': Mothering through ethical consumption: *Journal of Consumer Culture*.2013;13(2):97-118. doi:10.1177/1469540513480162
- 34. Makatouni A. What motivates consumers to buy organic food in the UK? Results from a qualitative study. *Br Food J.* 2002;104:345-352. doi:10.1108/00070700210425769
- 35. EU Commission Directive. Commission Regulation (EU) No 432/2012 of 16 May 2012 Establishing a List of Permitted Health Claims Made on Foods, Other than Those Referring to the Reduction of Disease Risk and to Children's Development and Health.; 2012.
- 36. Boyland EJ, Harris JL. Regulation of food marketing to children: Are statutory or industry self-governed systems effective? *Public Health Nutr.* 2017. doi:10.1017/S1368980017000465
- 37. Cade JE, Hutchinson J, Rippin H, et al. Improving the composition and marketing of commercial baby foods: a Nutrient Profile Model. *Proc Nutr Soc.* 2021;80(OCE1). doi:10.1017/s002966512100029x

Table 1: Promotional claims classification based on flavour profile and product type

	Total CBFs	Total claims	Mark claim	eting s	Compo	osition	Nutrient claims		Health Claims	
Flavour	n*	n (%)	n*	n (%)	n*	n (%)	n*	n (%)	n*	n (%)
Profile										
Total	707	6109	703	3495	689	1415	599	1158	34	41
Sweet	404	3408 (56)	400	1889 (31)	398	787 (13)	353	700 (11)	25	32 (1)
Savoury	303	2701 (44)	303	1606 (26)	291	628 (10)	246	458 (7)	9	9 (0)
Ρ χ2		0.005		<0.01		0.082		0.004		-
Product type										
Total	724	6265	720	3558	705	1441	616	1212	41	54
Wet	493	4200 (67)	491	2462 (39)	480	966 (15)	403	769 (12)	3	3(0)
Dry	231	2065 (33)	229	1096 (17)	225	475 (8)	213	443 (7)	38	51 (1)
Ρ χ2		0.007		<0.001		<0.001		<0.001		<0.001

n* number of CBFs, n number of claims, % of total claims in flavour profile, product type. For data analysis due to small number: Sweet-savoury and neutral CBFs (n=17) excluded; total number of claims, total number of composition claims, and total number of nutrient claims categorised as 0-1,2-3,4-5 (up to 16-17) but total number of marketing claims categorised as 1-2,3-4 (up to 9-10) and 0 as maximum of 10 claims.

Table 2: Distribution of marketing claim categories based on CBFs targeted at different age groups

Marketing	Total	Age grou	ns (months)						
Claim	CBFs in claim category	Age groups (months)							
categories		4+	6-7+	10+	12+	D - 2			
	n	n* (%)	n* (%)	n* (%)	n* (%)	Pχ²			
Baby Led weaning	123	3 (0)	64 (9)	18 (2)	38 (5)	<0.001			
Convenience	153	18 (2)	49 (7)	10 (1)	76 (10)	<0.001			
Dietary goals	150	31 (4)	33 (5)	11 (2)	75 (10)	<0.001			
Endorsements	53	10 (1)	20 (3)	4 (1)	19 (3)	0.27			
Ideals on feeding	219	30 (4)	86 (12)	20 (3)	83 (11)	<0.001			
Lifestyle	115	30 (4)	44 (6)	9 (1)	32 (4)	0.24			
Quality	429	81 (11)	173 (24)	47 (6)	128 (18)	<0.001			
Taste	511	96 (13)	235 (32)	50 (7)	130 (18)	0.18			
Texture	609	140 (19)	296 (41)	60 (8)	113 (16)	<0.001			
Others	166	67 (9)	47 (6)	16 (2)	36 (5)	<0.001			

n* number of CBFs in the age group, % of CBFs in different age categories based on total number of CBFs

Table 3: Most common promotional claims on surveyed CBFs (n=724)

Promotional claim type	Most common promotional statements	% (n*)		
Top 5 Marketing Claims	Texture claims - smooth, textured, pureed, chunky			
	Taste claims – first taste, It's delicious, super tasty, scrummy	70 (511)		
	Quality claims – baby grade ingredients, balanced	59 (429)		
	Fruit & Veg claims - real fruit, hidden veggies, 1 of 5-a-day	42 (307)		
	Ideal feeding claims – ideal finger-food, perfect for little fingers	30 (219)		
Top 5 Composition Claims	Always or 100% Organic	63 (457)		
	Nothing Artificial, No Artificial colours or flavours	58 (426)		
	No Added Preservatives	42 (310)		
	No additives, thickeners, or water	16 (116)		
	Free from GM ingredients, hydrogenated fats, palm oil	8 (60)		
Top 5 Nutrient claims	No added or 'less' sugar	58 (422)		
	No added or low in salt	57 (417)		
	Natural, natural ingredients	17 (129)		
	Key Vitamins and minerals	5 (41)		
	Source of or high in Vitamin C	5 (38)		
Top 3 Health claims*	To support normal cognitive development	2 (17)		
	For normal development of bones	1 (11)		
	Help develop fine motor skills	1 (9)		

^{*} Only top 3 claims health claims calculated due to small number of total health claims, % of claims observed on surveyed CBFs , n* number of CBFs with corresponding claims.

Supplemental Material

Supplementary table 1: Examples of claims used as a reference taken from WHO Euro Nutrient Profile Model (WHO, 2019).

Composition and nutrition claims

Examples of claims that would not be permitted

No added sugar, contains only naturally occurring sugars and salt, no added salt, contributes one of your five-a-day [fruit/vegetables], contains three types of vegetables, no added preservatives, no added colouring agents, no added seasoning, organic food, no added condiments, natural, fresh, contains vegetables, no allergens, no food additives, non-GMO food, no maltodextrin or modified starch, wholegrain, no added artificial flavour, contains the perfect balance of vitamins and minerals to help your body thrive, contains calcium, contains iron, contains vitamin C, contains a host of nutrients, contains dietary fibre, contains multiple vitamins, contains vitamin E, contains multiple minerals, contains vitamin A/ β -carotene, contains vitamin B1, contains ω -3, low sodium, contains zinc, contains probiotics or prebiotics, contains protein or amino acids, contains vitamin B2, contains phospholipid, contains iodine, contains phosphorus, contains vitamin D, contains DHA, contains carbohydrate, contains magnesium, contains selenium, contains arachidonic acid, unique blend of nutrients

Examples of Permissible statements

Statements relating to common allergens (such as: gluten-free or contains gluten; dairy/lactose-free or contains dairy/lactose; nut-free or contains nuts) Statements relating to religious or cultural food requirements (such as: meat-free, or vegetarian, or contains meat; Kosher; Halal) Descriptive words may be used within the ingredient list (such as organic carrots and wholegrain wheat flour)

Health Claims

Nutritionally balanced, healthy, provides good nutrition to children, improves appetite, suitable for picky eaters, supports healthy growth, improves growth, good for digestion and absorption, supports learning to chew, supports learning to hold, combats constipation, good for bones and teeth, good for enteric flora, good for the brain, good for the eyes, supports vision and skin health, good for defecation, good for thyroxine synthesis, good for red blood cell synthesis and preventing iron deficiency anaemia, good for metabolism, good for collagen synthesis, contributes to normal cognitive development, needed for the normal growth and development of bone, key minerals and vitamins that participate in the good functioning of baby's immune system, breakfast is one of the most important meals of the day, goodness of cereals, infant cereal is the ideal foundation to a healthy and balanced diet, perfectly balanced for growing babies, draws inspiration from the Mediterranean approach to health and well-being, extra goodness with wholegrain oats The Department of Health and the World Health Organization recommend exclusive breastfeeding for the first six months. However, if you choose to wean earlier, our ingredients are suitable from 4 months

Marketing claims

Taste and quality: delight for tiny taste buds; tasty; yummy; delicious; in my home the whole family loves them; picked at the peak of ripeness; truly tasty; bursting with goodness and flavour; my flavours are a new journey for tiny taste buds; exotic dishes are full of variety and flavour; our delicious new range of jars; individually steam cooked; we use over 27 different fruits and vegetables

Texture: smooth; easy-to-swallow texture and a simple flavour that is great for helping your little one as they start to explore solid foods; I'm textured; not lumpy and my yummy crispy bits will encourage your baby to begin to chew; ideally suited to promote exposure to textures; no bits/chunks; wider spout; perfectly smooth texture has been specially developed as an ideal first weaning food.

Convenience/lifestyle: convenient; great for a busy and active life; ideal for breakfast or meals on the go; simply to top up between meals; great way to make fruit fun; closest thing to homemade with all of the goodness and none of the guilt; inspired by my favourite home-cooked recipes; encourages selffeeding.

Conveying ideals on optimum feeding: making the right feeding choices for you and your baby; helps to build confidence and enjoyment with food; we've been pioneering research into infant and toddler nutrition for over 50 years to help you give your baby the best start in life; carefully prepared by our baby-food experts; we only use specially selected ingredients; grown by farmers we know and trust; we select the finest; nothing unnecessary; no junk; nothing nasty; setting standards; real fruit/vegetables; perfect for small hands; perfect; ideal; optimum; perfect way to start introducing your baby to solid food.

Others: the government advises that you don't need to wean your little one until they are 6 months old. Every baby is different!; committed to giving 10% of profits to help fund food education charities; quality approved by Mumsnet Mums.

Supplementary Table 2: Promotional claims categorised according to targeted age groups (months)

Age group(m)	Marketing claims			Composition claims		Nutrient claims		lth ms	Total claims	
	n*	n (%)	n*	n (%)	n*	n (%)	n*	n (%)	n (%)	
4+	150	714 (11)	151	290 (5)	135	293 (5)	5	7 (0)	1304 (21)	
6-7+	322	1519 (24)	315	629 (10)	265	513 (8)	30	39 (1)	2700 (43)	
10+	72	371 (6)	68	142 (2)	62	132 (2)	4	4 (0)	649 (10)	
12+	176	954 (15)	171	380 (6)	154	274 (4)	2	4 (0)	1612 (26)	
Total	720	3558	705	1441	616	1212	41	54	6265	

n*= number of products having claims, n=number of claims in age and claim category, % of claims in age group based on total claims, m=months.