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Consumer behaviour towards milk and dairy yoghurt products carrying nutrition and health claims: a qualitative study

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Abstract

Purpose – Milk and yoghurt provide essential sources of nutrition throughout the life cycle in the Irish diet. Health claims on dairy product labels were popular in the 1980s, and since the introduction of the nutrition and health claims (NHC) Regulation (EC) No 1924/2006 in 2007, many new regulated claims have been used to communicate product benefits. Meanwhile, COVID-19 and the Farm to Fork strategy have heightened consumer awareness of health issues. All of these factors have contributed to a change in our food environment and interest in health. In addition, the European Commission is working to introduce a legislative proposal on nutrient profiles (NP) to restrict the use of NHC on foods that are high in salt, fat or sugar. This qualitative study aims to research knowledge on adults' attitudes, perceptions and behaviour towards NHC on dairy products.

Design/methodology/approach – The study used a thematic analysis using transcripts from a series of discussion groups, attended by adults (n = 24). The participants also completed an introductory questionnaire.

Findings – The study noted positive attitudes towards dairy protein. This attitude was common across age, gender or life stage. There were misperceptions regarding yoghurt composition and health benefits. There were negative perceptions of low-fat nutrition claims on yoghurt, which led to a preference for full-fat dairy products. This requires further insight and research.

Research limitations/implications – Participants from a wider socio-demographic group could have broadened the research limits of this project.

Originality/value – These findings will interest policymakers, regulators, dieticians and the food industry.

Keywords Consumer behaviour, Perceptions, Consumer attitudes, Dairy products, Health claim, Nutrition claim

Paper type Research paper

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Introduction

The food industry and retail sector shape the nutritional composition of the national food supply through product development and innovation (Spiteri and Soler, 2017) and often use nutrition and health claims (NHC) on their packaging to communicate various messages to the consumer. A nutrition claim refers to the nutrients a food contains, whereas a health claim refers to a health effect a food may confer. NHC are used extensively on food packaging worldwide (Table 1) and cover a range of information and advertising statements.

A regulatory framework in the EU facilitates the use of NHC (Neale and Tapsell, 2022) through Regulation (EC) No 1924/2006 on NHC. This regulation aims to ensure that claims are trustworthy and clear, scientifically substantiated and support consumers to make informed food choices (European Commission, 2006). Article 4 of the NHC regulation foresees the development of nutrient profiles (NP) for foods-bearing claims so that consumers are not misled (European Commission, 2022). Although they have not been set yet, the European Commission is working to introduce a legislative proposal on nutrient profiling as part of the Farm to Fork strategy (European Commission, 2020). Various categories and types of NHC are described in Regulation (EC) No 1924/2006 (Figure 1). In addition, all NHC are subject to conditions of use which must be satisfied (European Commission, 2006). Although tightly regulated, without NP, NHC can potentially inform or mislead consumers depending on the overall nutritional composition of a product bearing a claim (Orquin and Scholderer, 2015).

Evidence across all food categories shows that nutrition claims are used more than health claims on product packaging (Table 1), and this is especially evident on yoghurt product labels. For example, a study in Australia on yoghurts found that most products carried nutrition claims (93.9%) and only 4% health claims (Wadhwa *et al.*, 2021). A study in Ireland found that 67% of yoghurts carried a nutrition claim while 34% carried a health claim (O'Mahony *et al.*, 2020). Dairy products were amongst the first foods to carry health claims, long before the NHC regulation was introduced. Health claims referring to cholesterol-lowering and immune-health benefits of dairy products were popular in the 1980s (Menrad, 2003). However, today, nutrient content claims are mainly used on product labels and dairy yoghurts (O'Mahony *et al.*, 2020; Wadhwa *et al.*, 2021). There has been a remarkable evolution in the type of claim used in food labelling: moving predominantly from health claims to mainly nutrition claims (Offe *et al.*, 2022). Thirty years have passed since health claims first appeared on dairy products and in the intervening time, much has changed. The European Food Safety Authority (EFSA) has authorised many more health

Country	Year	Total Products (*n*)	% Products Using Nutrition Claim	% Products Using Health Claim	References
Ireland	2010	1,880	47.3	17.8	Lalor *et al.* (2010)
Slovenia	2015	5104	37	13	Pravst and Kušar (2015)
UK	2016	382	29	15	Kaur *et al.* (2016)
New Zealand	2016	7,058	35	15	Al-Ani *et al.* (2016)
Brazil	2019	3491	28.5	22.1	Duran *et al.* (2019)
Mexico	2021	17,264	33.8	3.4	Cruz-Casarrubias *et al.* (2021)
Australia	2021	340	93.9	4	Wadhwa *et al.* (2021)

Source: Authors' own creation

Table 1. Nutrition and health claim usage on commonly eaten pre-packaged food

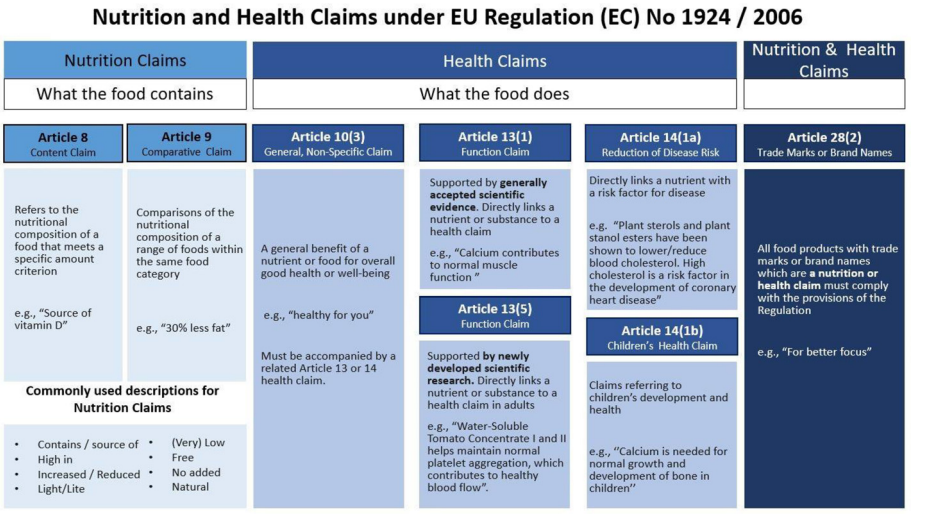


Figure 1.
Overview of nutrition and health claims in the European Union

Source: Compiled from Regulation (EC) No 1924/2006 and adapted from Collins and Verhagen, 2022

claims, and NHC are essential sources of information for the consumer. In addition, there is a greater awareness of the European Union Farm to Fork strategy promoting healthier, sustainable diets (European Commission, 2020). These factors have all contributed to a change in our food environment and consumer interest in NHC.

Qualitative research offers methods of examining the depth and complexity of a person's response or belief in an issue (Mason, 2002). It has the capacity to constitute how things work in particular contexts and in this context, it was important to study how people respond to the use of claims on food packaging.

This study aims to research Irish adults' (aged 18–65+ years) attitudes, perceptions and behaviour towards NHC in a qualitative study on dairy product labels.

Methodology

Study design

This qualitative study design constituted a series of focus groups with consenting adults. The focus groups were scheduled, audio-recorded and transcribed using an automated transcription service.

Informed consent was obtained from all participants. The transcripts were quality-checked prior to analysis because the automated transcription had limits and required significant editing. A general-risk assessment form was completed, and all transcripts and personal data were anonymised.

The Ethics Committee at University College Dublin granted an application for ethical approval for the study (ethics reference TMREC-SAFS-22-018).

Participants

Participants were recruited from a notice posted on LinkedIn and were asked to invite others using a snowballing sampling method (Browne, 2005). According to Guest *et al.* (2016), over 90% of themes are presented in three to six focus group sessions. In line with this and the

number of participants recruited, it was decided to host four focus groups over eight weeks between May–July 2022. In addition, Silverman (2015) describes six to eight participants per group as optimum to facilitate discussion. Accordingly, six participants were assigned to each focus group. Participants completed a consent form and a questionnaire that gathered information on age, gender, the highest level of education achieved, general current health status, a brief targeted medical history of conditions that could influence their attitudes, perceptions, behaviour towards NHC and work status. All adults aged 18+ years were eligible for inclusion, and adults with educational qualifications or experience in food law, NHC regulations or vegans (due to their total avoidance of dairy products) were excluded.

Data collection

The study was conducted using a qualitative research approach described by Braun and Clarke (2013) in a sample of adults. Training in leading a focus group was completed with a market research company before a pilot study was hosted. A topic guide (Table 2) was used to facilitate the discussion and was amended after the pilot to improve participant involvement. An introductory PowerPoint presentation was used to set the context for the focus groups and convey relevant definitions. The focus groups were hosted remotely and recorded by Zoom. To enable the flow of conversation, participants were invited to give their feedback.

Data analysis

Data from the participant information questionnaires were recorded in MS Excel (Version 2206). The transcripts were analysed using reflexive thematic analysis and a six-step thematic analysis and coding process described by Braun and Clarke (2013). The researcher

Table 2. Topic guide with a series of open-ended questions on general issues and themes from previous attitudinal research on nutrition and health claims on foods such as personal relevance, taste and cost in determining participant attitudes to foods with nutrition and health claims, attitudes to complexity of claims, preferences for health or nutrition claims, the effect of claims on purchase intention and trust

Topic	Timing (mins)	Details
Introduction	5	Brief overview, round table introductions PowerPoint slides with various claims on different dairy product packaging
Claim knowledge and determinants of perceptions	10	Understand people's attitude and interest towards nutrition and health claims and foods bearing claims
Personal relevance to understanding	10	Understand how knowledge of current or previous health issues has influenced perceptions of claims and how current environmental issues influence perceptions of claims
Claim influence exploration	15	Discuss reactions and thoughts on whether claim perceptions influence purchase intentions
Claim type exploration	15	Understand likes and dislikes about different types of claims
Preference for health or nutrition claims	8	Discuss types of claims and impacts. Explore if there are preferences for one type versus another. Discuss complexity of claims
Trust in claims	8	Discuss trust issues
Wrap-up	4	Ask for any observations. Wrap-up

Source: Author's own creation

coded the transcripts from the focus groups and an independent person reviewed the nodes to eliminate researcher knowledge bias (Terry *et al.*, 2017). The reviewer changed three nodes removing them from cynicism and assigning them to trust node (negative on trust). The transcripts were uploaded in MS Word to NVivo (12) analysis software, which facilitates methodical, thematic analysis using coding. *Thematic analysis* is a research tool that leads to a detailed description of complex data in a sound methodological way and facilitates interpretative qualitative analysis (Braun and Clarke, 2006).

Results

Participant information questionnaire

A participant information questionnaire gathered information on socio-economic status and general information about participants' perceptions of their health (Figure 2).

The focus groups were attended by male (29%) and female (71%) adults ($n = 24$) aged 18–65+ years. The age profile of participants was weighted towards 45–64 years (50%), 38% were 30–44 years, 8% were 18–29 years and one participant (4%) was 65+ years. Using the Central Statistics Office (CSO) definition of socio-economic group (SEG), which classifies people into groups based on the level of skill and educational attainment of their occupation (Central Statistics Office, 2022), the majority of the participants were either a professional worker (58%) or an employer/manager (17%) and the remainder described their work situation as all others gainfully occupied (25%). Regarding general health: 91% ($n = 22$) perceive their health to be good or very good, 8% ($n = 2$) rate their health as fair and no one rated it as bad or very bad. A total of 17% ($n = 4$) of respondents (both male and female) reported having a long-term illness or chronic condition that has lasted six months or more. The most diagnosed medical conditions reported by the participants were overweight 4% ($n = 1$), obesity 4% ($n = 1$) and high blood cholesterol 8% ($n = 2$). Regarding education level, the entire sample had obtained a leaving certificate or higher. A total of 79% ($n = 19$) of participants had obtained a degree or postgraduate qualification at third level, 17% ($n = 4$) had obtained a certificate or vocational qualification and 4% ($n = 1$) had obtained second-level education.

Themes

Under the headings of A. Attitudes, B. Perceptions and C. Behaviour there were 90 nodes assigned to attitudes, 38 nodes were assigned to perceptions and 57 nodes were assigned to behaviour (Figure 3). Of these, four main themes and 10 sub-themes that matched the research aim were identified and are summarised in Figure 4 and detailed below.

Outcomes and discussion

Concept 1. Attitudes

Theme A. Personal relevance. In accordance with Wills (Wills *et al.*, 2012), personal relevance, such as when a relative or friend is affected by a condition, is an important variable positively influencing consumer attitudes towards claims. In this study, positive attitudes towards NHC on dairy products were associated with life stage, health status and sport.

Life stage 1.1. The positive role of dairy products in providing essential nutrition throughout the life cycle for the development and the maintenance of bone health was identified: *So with my children, I would have definitely been aware that they needed full fat milk with calcium*; *"I want extra vitamin D because of my age, and it's for my bones. I have*

Information Questionnaire
Investigation into attitudes, perceptions, and behaviour of Irish adults towards nutrition and health claims on dairy products.

Please indicate the answer relevant to you by highlighting it:
What is your age?

- 18-29
- 30-44
- 45-64
- 65+

What is your gender?

- Male
- Female
- Other
- Prefer not to say

What is your highest level of education?

- Primary education
- Secondary education
- Certificate /Diploma/Vocational
- Degree/Postgraduate (including Masters or PhD)

How is your health in general?
Would you say it is.....

- Very Good
- Good
- Fair
- Bad
- Very Bad
- Don't Know

Medical history – do you currently have any of the following for at least 6 months or more?
(if you have none or prefer not to say, please skip forward to the next question)

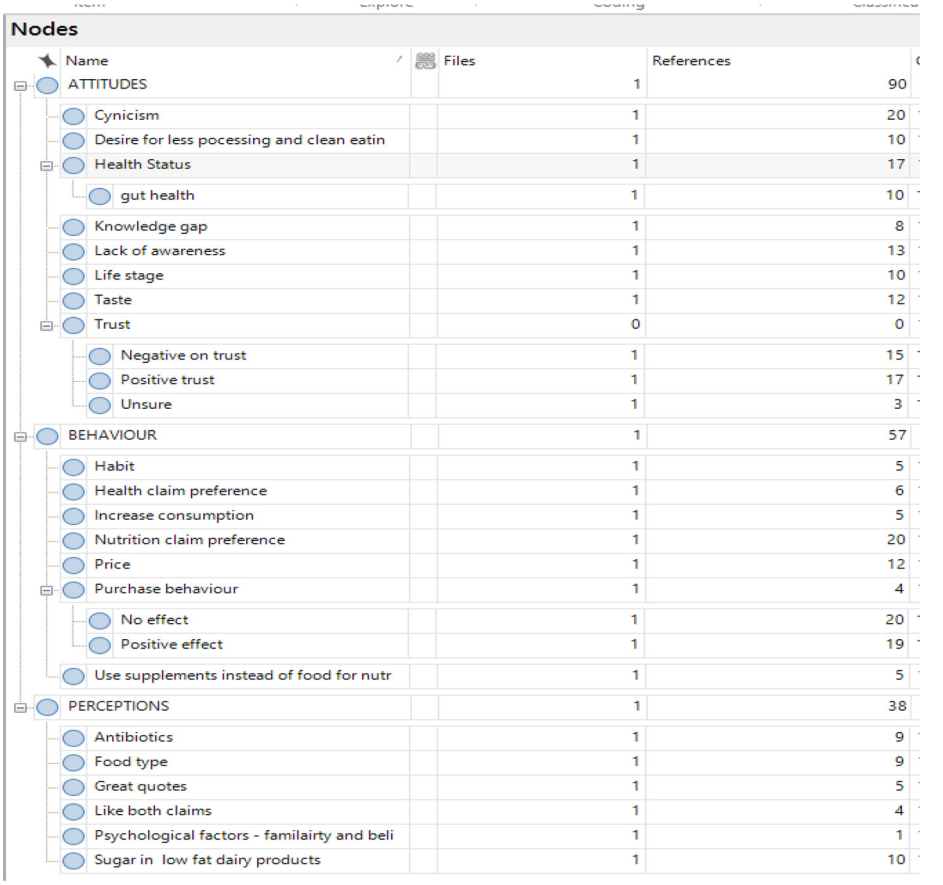
- Overweight
- Obesity
- Underweight
- High blood cholesterol
- Low bone density (osteopenia or osteoporosis)
- Other medical condition

Which description best describes your work situation?

- Employer and Manager
- Professional worker
- Non- Manual
- Skilled Manual
- Semi-Skilled
- Unskilled
- Own account worker
- Farmers
- Agricultural worker
- All other

Source: Authors' own creation

Figure 2.
The form used to gather information such as age, gender, socio-economic status, highest level of education and a brief medical history (information questionnaire) from participants



Nodes

Name	Files	References
ATTITUDES	1	90
Cynicism	1	20
Desire for less pocessing and clean eatin	1	10
Health Status	1	17
gut health	1	10
Knowledge gap	1	8
Lack of awareness	1	13
Life stage	1	10
Taste	1	12
Trust	0	0
Negative on trust	1	15
Positive trust	1	17
Unsure	1	3
BEHAVIOUR	1	57
Habit	1	5
Health claim preference	1	6
Increase consumption	1	5
Nutrition claim preference	1	20
Price	1	12
Purchase behaviour	1	4
No effect	1	20
Positive effect	1	19
Use supplements instead of food for nutr	1	5
PERCEPTIONS	1	38
Antibiotics	1	9
Food type	1	9
Great quotes	1	5
Like both claims	1	4
Psychological factors - familairty and beli	1	1
Sugar in low fat dairy products	1	10

Figure 3.
Initial codes using NVivo software analysis

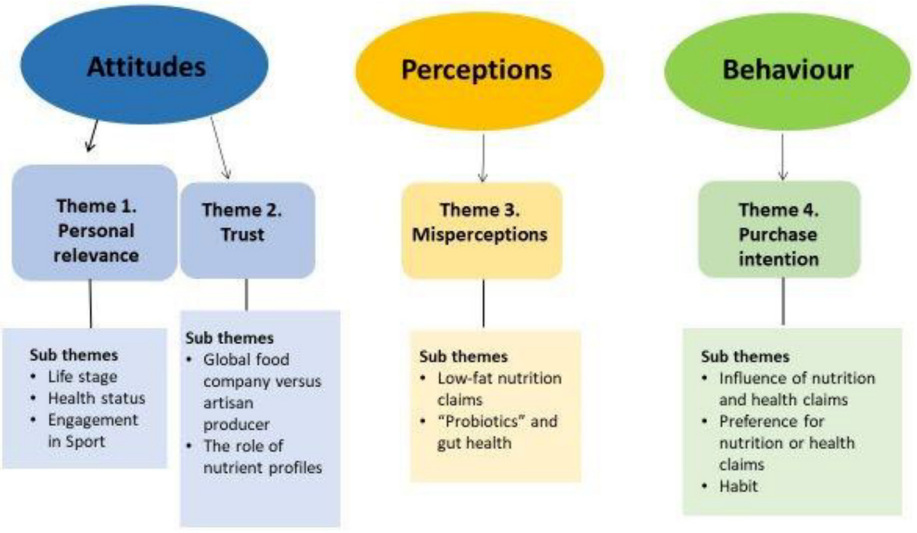
Source: Authors' own creation

osteopenia." It was fairly clear to me that children need calcium and if they didn't like it, you [parents]should try and get milk into them somehow.

Many female participants were positive about nutrition claims relating to folic acid, its importance during pregnancy and the role of fortified milk in providing additional folic acid in the diet: *when I was pregnant like I'd look for milk with folic acid*, and *obviously I would drink milk with folic acid when I was pregnant.*

Personal or family members' health status 1.2. Positive attitudes towards health claims on dairy products were associated with personal or family members' health status related to high blood cholesterol.

My husband has high cholesterol, so now I buy yoghurt for cholesterol reduction; *I buy the little yoghurt because they say it helps with lowering cholesterol.* The benefits of stanols and sterols in dairy products for lowering blood cholesterol were linked to purchase by many male and female participants aged 45–64, but not by the younger participants aged 18–44 years. The interest in cholesterol-lowering health claims and the positive association with purchase aligns with previously conducted qualitative studies in Ireland (Lalor *et al.*, 2011;



Source: Authors' own creation

Figure 4. Map of overarching areas leading to themes and sub-themes from discussion groups on attitudes, perceptions and behaviour towards nutrition and health claims on dairy product labels

Lynam *et al.*, 2011). As blood cholesterol levels increase in middle-aged men and in women after menopause (Stevenson *et al.*, 1993), this supports the interest in cholesterol-lowering claims reported in the age range of participants in the focus groups. The positive attitude towards cholesterol-lowering claims may be explained by genuine health concerns relating to coronary heart disease risk. There is a high prevalence of high blood cholesterol in middle-aged men and women in Ireland (Murphy *et al.*, 2017), and the positive attitude towards these claims may also be due to a sense of familiarity with the issue.

Engagement in sport and protein source 1.3. The health benefits of protein for building muscle and its positive association with sport were commonly reported by the participants. According to Mintel's Global New Products Database, between 2012 and 2016, there was a 498% increase in the number of foods making "high-protein" nutrition claims in the UK and Ireland (Bord Bia, 2019). The participants were positive about many sources of protein: *My children [adult children] go to the gym [. . .] it's a running battle here you know with that protein powder, I am a runner [. . .] I have to admit I do get protein powder from time to time, I did a fitness challenge recently [. . .] I would be persuaded by a protein snack bar, like I buy them all the time.* Protein milk was acknowledged as an accessible form of protein and used by many participants and their families: *The kids when they were going through their different phases with sports were drinking the protein milk*; *So the protein milk does a vanilla one, so I went for that* and *we buy protein milk for rugby.*

As part of the European Green Deal, the Farm to Fork Strategy is promoting a move to sustainable, healthy diets for EU consumers (European Commission, 2020). As a result, plant protein sources have become increasingly popular, and plant-based drinks compete with dairy milk drinks. However, plant-based protein may not be as effective at muscle synthesis as animal-based proteins (van Vliet *et al.*, 2015). The consumer is unable to identify the protein source when a nutrition claim referring to protein is made on food because the NHC regulation does not differentiate between them. As sustainability issues

and plant-based protein become more popular, distinguishing protein sources in nutrition or health claims is a potential future development area for the NHC regulation.

Theme 2. Trust. The levels of trust and mistrust in NHC on dairy product labels were well matched throughout the focus groups: *I think that there's too many products with too many ingredients, and you know I wouldn't trust the companies*; *I don't trust what companies say*; *I think the label says what's in it and that's true*; and *it's illegal to put false nutritional claims on packaging. The levels of trust reported in this study were similar to those previously reported in qualitative research in Irish adults (Lalor et al., 2011).*

Global company versus artisan producer 2.1. Some consumers have a high level of trust in NHC, and according to a quantitative omnibus questionnaire ($n = 1{,}000$), 78% of Irish consumers say they "always or most of the time" trust claims on food packaging (Donovan *et al.*, 2020). Half of the participants in a series of focus groups said they would trust multinational food companies to have research-based claims on their products (Lalor *et al.*, 2011). Similarly, many participants in this study said they trusted the claims on product labels. *I trust the dairy companies, they are regulated, it must be correct.* The fact that some Irish dairy manufacturers are global food companies with brand reputations to protect was also cited as a factor to trust claims. However, almost half the participants in the study did not trust claims and were more critical of health claims describing them as *too marketing orientated.* There was mistrust about the likely intentions of large food companies, and for this group of participants, smaller artisan producers were more likely to be trusted.

The role of nutrient profiles 2.2. Some participants conveyed their concern that NHC could potentially be misleading. *What's that expression, that it's kind of economical with the truth, maybe you know, they are not lying but am I being misled?*; *So they're selling you one message, but they're probably covering up on a worse message*; and *When I see something has lots of vitamins, I always go the back of the label to see what's really in it.* Recital 11 of the NHC regulation articulates a concern that without NP, consumers could be misled by NHC if they were used on foods high in sugar, salt or saturated fat.

Research in many countries shows NHC are currently used on foods that are high in sugar, fat or salt: in Brazil, a survey of a range of products with nutrition claims ($n = 3{,}491$) were shown to be more likely to have a poorer nutritional profile (Duran *et al.*, 2019). In New Zealand, a study of products using claims ($n = 7{,}058$) reported that 31% of foods were classified as "unhealthy foods" using the nutrient profile scoring criterion (NPSC) (Al-Ani *et al.*, 2016). In the EU, a study in Ireland has shown that more than half (53%) of the breakfast cereals with nutrition claims in a convenience sample ($n = 102$) were "unhealthy" (Heslin *et al.*, 2020). Likewise, a study on the Belgian market found breakfast cereals were mainly "unhealthy" using the WHO – Europe nutrient profiling tool, and often carried claims (Vermote *et al.*, 2020). It is of concern that a majority of breakfast cereals on the EU market, rated using two different NP models, were classified as unhealthy (Heslin *et al.*, 2020; Vermote *et al.*, 2020), and yet they continue to use NHC. This focus group discussion supports the role of NP to protect consumers from being misled and help restore trust in NHC.

Concept B. Perceptions

Theme 3. Misperceptions of NHC

Low-fat nutrition claims 3.1. This qualitative study found consistent negative perceptions of low-fat nutrition claims on milk and dairy yoghurts. The negativity was based on the misperception that all low-fat products are high in sugar. Many participants in each of the discussion groups commented on the relationship between sugar and fat in products with low-fat nutrition claims: *One thing I have noticed in dairy is sugar, you know there's often like*

loads of sugar in low-fat things, so you have to look on the back; I don't buy light[products], because I think there's more sugar in the light stuff; and *They compensate for the taste lost from taking the fat out by putting sugar in.* Labelling requirements under Regulation 1169/2011 on food information to the consumer (European Commission, 2011) do not enable the consumer to distinguish between natural and added sugar. In addition, participants had a broad understanding of the yoghurt category and described all low-fat yoghurt as having the same nutritional composition, whereas, in actual fact, the nutritional composition is varied, and some low-fat dairy yoghurts do not contain added sugar. A study in Australia on yoghurts (n 340) showed the majority of products with health claims (97.4%) were compliant with the Food Standards Code (FSC), where products must also meet a NPSC, which categorises the nutritional composition of food (Wadhwa *et al.*, 2021). The focus group participants were influenced by low-fat nutrition claims, which led to impacts such as negative perceptions about sugar content and a preference for full-fat dairy product versions. Ayaz *et al.* (2021) showed that nutrition education is an important determinant of consumer attitudes towards nutrition claims in young adults.

The unintended consequence of low-fat claims driving consumers towards full-fat products runs counter to public health messaging, which recommends low-fat dairy products in food-based dietary guidelines in many countries (Herforth *et al.*, 2019). Furthermore, the negative perception of all low-fat yoghurt is not justified, and the notion that all low-fat yoghurts are high in sugar is not substantiated. This finding suggests there is a need for education on food labelling to support public health goals.

Probiotics and gut health 3.2. Many participants in the study interpreted "live" on yoghurt product labelling as "contains probiotics", and they interchanged the terms "live" and "probiotic". Participants were unaware that "live" is an authorised health claim that only refers to live cultures that improve lactose digestion in individuals who have difficulty digesting lactose.

Many referred to the importance of probiotics for gut health, and a consistent practice to emerge in each focus group was to consume yoghurt when taking antibiotics *to rebalance the gut* or to *counteract antibiotics*; *I don't buy anything in particular for my health other than the live yoghurt when I am taking antibiotics.* Avila (2020), using a word-association technique, showed that consumers (n = 970) associated probiotic yoghurts with gut health. According to the EC guidance on implementing the NHC regulation in Europe, the statement "contains probiotics" is a health claim as the term implies a health benefit (European Commission, 2007). The EU health claims register contains many applications for probiotics; however, there are no authorised health claims for probiotics (European Commission, 2022). To comply with legislation while also communicating potential benefits to the consumer, some food businesses voluntarily use the name of the strain of bacteria on product labels, but these are not easily understood by the consumer (Avila *et al.*, 2020). Differing rules on the use of probiotic claims in member states generate confusion (Advocaten Maverick NV, 2023; Koirala and Kumar Anal, 2021; Ridley, 2023). In addition, some yoghurt brands make a general Article 10 health claim for "gut health" accompanied by an authorised specific health claim for calcium and digestive enzymes (European Commission, 2022). The focus group discussion points to confusion regarding the perceived benefit of "live" yoghurt. The variability across the EU in permitted "probiotic" yoghurt labelling and the use of general gut health claims related to calcium composition is also confusing for the consumer.

Concept C. Behaviour towards nutrition and health claims

Theme 4. Purchase intention. How NHC influence Consumer behaviour is very important for the food industry to understand and, for policymakers who contribute to the development of NHC regulations to know about.

Influence of nutrition and health claims 4.1. In this study, almost half of participants were positively influenced to purchase milk and dairy yoghurt products with claims: *I always buy milk with vitamin D* and *I buy the cholesterol-lowering yoghurts.* For others, the original full-fat milk and dairy yoghurt were preferred, and this behaviour is partly explained by the purposeful avoidance of low-fat nutrition claims (see section "Low-fat nutrition claims").

According to one systematic review of 11 studies conducted worldwide between 2004 and 2016, nutrition claims improved the perceived healthiness of food products and the intention to buy them (Oostenbach *et al.*, 2019). These studies focused on fat, sugar and energy-related nutrition claims. However, there was a variance in the effect of claims in different food categories. For example, chocolate with a nutrition claim increased consumption by 28–50% (Wansink and Chandon, 2006) and ready meals with a nutrition claim increased consumption by 3–4% (Carbonneau *et al.*, 2015). A meta-analysis of 17 studies covering a wide range of food categories conducted between 2003 and 2016 found the influence of claims was greater on food products generally described as healthy foods: peas, beans, lentils, meat, fish and other protein-rich food, fruit and vegetables than the food categories high in sugar or fat (Kaur *et al.*, 2017). Although consumer responses to claims vary, many consumers are influenced to purchase foods with NHC on product packaging.

Preference for nutrition or health claims 4.2. Participants in the focus groups expressed a preference for nutrition claims over health claims, which aligns with the predominant use of nutrition claims on food packaging. Nutrition claims were preferred because they were simple and conveyed a clear message, for example, *contains calcium*, whereas, for some participants, health claims were not as easy to understand. Lynam *et al.* (2011) also found consumer preference for straightforward claims. Viscecchia *et al.* (2019) reported consumer willingness in Italy to pay more for products with health claims compared to nutrition claims, and Ballco and De Magistris (2018) found that yoghurt with health claims on the Spanish market command a higher price. Many participants in the focus groups considered foods that made nutrition claims such as "with added vitamin D" or "added stanols and sterols", and foods that made health claims to be more processed, and there was an expectation they would be more expensive. In addition, a small number of participants said they would only be persuaded to buy products with nutrition or health claims if they noticed they were on price promotion.

Habit 4.3. The factors determining food choice are varied and complex and reflect many influences operating inside and outside the home: genetic inheritance, maternal influences, education and social and cultural influences (Monteleone *et al.*, 2017). Not only does food choice change from person to person, but it is also subject to change over time and is influenced by personal relevance (Wills *et al.*, 2012). Although many participants in the focus group discussions were highly engaged in the topic, NHC did not interest everyone. The food preferences expressed by a small number of participants were based on familiarity and habit; *you buy what you know*; *I am a creature of habit* and also on both habit and taste; *everyone likes to buy what they know and enjoy.* There was no consideration of the type of claim or any associated health benefit for these participants. Benson *et al.* (2018) state that familiarity with foods is a consistent predictor of perceptions of tastiness.

Conclusion

This study found similarities with previous research concerning the positive influence of personal relevance to attitudes on NHC, trust in claims, interest in cholesterol-lowering claims, the importance of good taste when purchasing food with NHC and a preference for nutrition claims. However, this research identified differences in attitudes, perceptions and behaviour. Engagement in sporting activity positively influenced attitudes towards nutrition claims about protein in milk and dairy yoghurts. Protein source (animal or plant) is a future development area for NHC regulation and a topic for attitudinal research amongst consumers. There was a negative perception concerning low-fat nutrition claims on milk and dairy yoghurt, leading to a preference for full-fat product versions (products without low-fat claims). This unexpected effect of NHC suggests that further insights are needed to understand the impact of these perceptions and behaviour. There was a common misperception that "live" yoghurt has general gut health benefits. There were varied responses to NHC on milk and dairy yoghurt labels, demonstrating that many factors play into food choice decisions, and NHC is only one.

Further qualitative research is needed to understand the impact of specific claims on specific food categories. These findings could impact industry to reconsider the use of low-fat claims on yoghurt and will interest dieticians and policymakers. The research also shows there is confusion regarding the perceived benefit of "live" yoghurt. Finally, it suggests there is a need to help consumers better understand food labels and there is an educational role for specialists in gastrointestinal health to inform consumers about the nutritional composition of yoghurt and authorised NHC.

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