



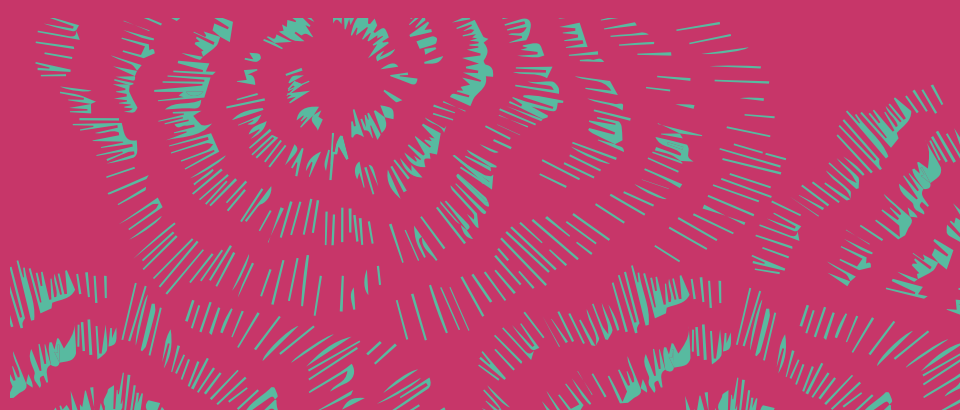
UK Research
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Public perceptions of ultra-processed foods

A Sciencewise social
intelligence report



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The views expressed in this report are not representative of the views of UKRI.

Sciencewise, a public dialogue programme delivered by UKRI, has conducted this research with a view to identifying areas of research and innovation and technologies where early public engagement would be useful, and welcomes further discussion with research funders, government departments, government agencies and other public bodies working on these issues.

Executive summary

Ultra-processed foods make up more than half of the calories consumed in the UK and are increasingly common around the world. With growing interest in the UPFs among the media, researchers, and policymakers, there has been a lot of public debate about the issue in recent years. But what do the public think? This report outlines what is known about public attitudes to UPFs and explores key themes identified in public opinion sources. Our five key findings are:

UPFs are embedded in people's eating habits, with cost, convenience, and stress driving their consumption.

Although people generally pay attention to the food they are eating, research shows that UPFs are embedded in people's lives from early ages, and that cheaper prices and long shelf lives drive UPFs consumption. Many studies draw links between UPF consumption and people on lower incomes, though, since the definition of UPFs includes that they are low cost, this is an unsurprising finding.

People feel that the food system does not support them to make good choices.

Evidence suggests that many people feel unsupported in their food choices. The recent cost of living crisis has added to the regular food-related concerns, and there is an increasing sense of "no choice is perfect" as people feel they need to juggle competing drivers such as price, health and convenience.

There are varying levels of understanding of UPFs, and people would welcome more transparency.

Many people find it hard to differentiate between processed foods and ultra-processed foods (this is likely a consequence of the broad definition, discussed in our introduction). Although perceptions of UPFs are generally negative, research shows varying levels of understanding and concern about UPFs.

We found a gap in evidence about what was driving negativity and concern (for example, whether it was about perceived unhealthiness, about the role of large businesses, about environmental concerns, or about "unnaturalness").

We found signs that people feel anxious about UPFs, and several studies reported that people would welcome more transparent information about UPFs and their place in our diets.

There are signs that the public would support more Government intervention to make food healthier

Research suggests that the public would be supportive of more Government intervention on food and health, and that most people believe it is the Government's job to make sure everyone has access to sustainable, ethical, affordable and healthy food.

Although several studies looked at regulation and health, we found a gap in the evidence around regulation and UPFs (as noted above, since UPFs are not automatically "unhealthy").

Experts agree that processed foods and some UPF subgroups can have a place in people's diets, but there is a lack of consensus on how risks should be communicated to the public.

Overall, experts in the UK agree that nutritional quality of foods should be a more important consideration than level of processing. However, they also acknowledge the link between UPFs and poor health outcomes – though the exact cause of that link is still undetermined.

Diet and nutrition professionals are aware that the Nova definition of ultra-processed food may not be clear to the public, but have different views on what new definitions might look like. There is also a lack of consensus on how to communicate the balance of risks and benefits of UPFs to the public.

Introduction

There is a high volume of detailed research into public views and values concerning food topics and policy, including the Food Standards Agency surveys, a Sciencewise dialogue on the National Food Strategy¹, and several studies on food production and novel farming techniques. While many studies have involved the public in questions around nutrition, a healthy diet, and some specific areas of ‘food engineering’, exploring the concepts of food processing and ultra-processed foods (UPFs) is relatively new.

To inform UK Research and Innovation’s (UKRI) exploration of UPFs as a potential health research priority, UKRI and Sciencewise are working in partnership to commission a UK-wide public dialogue to explore public knowledge and attitudes on UPFs, and the impact on public health and wellbeing.

This report outlines what is already known about public views on ultra-processed foods and identifies key themes which could be further explored through the dialogue. By analysing social intelligence sources such as surveys, opinion polls, reports, and social research from the last five years, our aim was to gather insights into public knowledge and perceptions regarding UPFs.

¹ Food, Farming, and Countryside Commission. (2023). “So, what do we really want from food?” https://cdn2.assets.servd.host/fcc-uk/production/assets/downloads/FECC_National-Conversation_report_design_v10_FINAL.pdf?dm=1695293205
Sciencewise. (2021). National Food Strategy <https://live-sciencewise.pantheonsite.io/wp-content/uploads/2020/05/HVM-National-Food-Strategy-Public-Dialogue-report-Sep21-2.pdf>

Defining UPFs

Ultra-processed foods (UPFs) are often defined according to the Nova classification system developed by a Brazilian researcher Carlos Monteiro and his colleagues².

UPFs are “group 4” in the Nova system, which states **“These are industrial formulations typically with five or more and usually many ingredients. Such ingredients often include those also used in processed foods, such as sugar, oils, fats, salt, anti-oxidants, stabilisers, and preservatives...**

“...Several industrial processes with no domestic equivalents are used in the manufacture of ultra-processed products, such as extrusion and moulding, and pre-processing for frying.

“The main purpose of industrial ultra-processing is to create products that are ready to eat, to drink or to heat, liable to replace both unprocessed or minimally processed foods that are naturally ready to consume, such as fruits and nuts, milk and water, and freshly prepared drinks, dishes, desserts and meals. Common attributes of ultra-processed products are hyper-palatability, sophisticated and attractive packaging, multi-media and other aggressive marketing to children and adolescents, health claims, high profitability, and branding and ownership by transnational corporations.”

The category of “UPF” is very broad.

Examples include:

- Sugary drinks
- Infant formula
- Supermarket wholemeal bread
- Instant soups
- Pre-packaged meals
- Baked beans
- Low-fat spreads
- Flavoured yoghurt
- Packaged cake (*note that a homemade cake is Nova group 3, even if it has a similar nutritional profile*)
- Sweets and confectionery
- Distilled alcohol like gin and whisky.

The most commonly eaten UPFs in the UK are supermarket bread, pre-packaged meals, breakfast cereals, sausages, confectionery, biscuits, soft drinks, and crisps³.



² Monteiro CA, Cannon G, Levy RB et al. (2016). NOVA. The star shines bright. <https://archive.wphna.org/wp-content/uploads/2016/01/WN-2016-7-1-3-28-38-Monteiro-Cannon-Levy-et-al-NOVA.pdf>

³ BBC. (2019). What is ultra-processed food and what does it mean for my health? https://www.bbc.co.uk/food/articles/what_is_ultra-processed_food



The Nova classification system groups foods by how they are made, not their nutritional profile – therefore foods classified as “ultra-processed” are not necessarily worse in nutritional terms. However, the term “UPF” is often used in discussions of nutrition and health, and that can lead to confusion and mixed messages.

To complicate matters further, there are studies showing clear links between UPF consumption and poor health outcomes. However, it is not clear why these links exist: whether this is because the foods are unhealthy due to how they are made; or because they are often high in calories, saturated fat, salt, and sugar. We discuss the link between UPFs and health later in this report.

For these reasons, it is important to note that the Nova definition of UPFs is not universally accepted. As parts of the definition relate to the use of specific ingredients (e.g. sweeteners, flavours, emulsifiers) rather than processing per se, some researchers have criticised the framework as ambiguous and too simplistic⁴. For example, the phrase “five or more ingredients” referenced in the definition of UPFs becomes complicated when you give a counter-example of “a salad with six ingredients”. Additionally, even the term “ingredient” is disputed and seen as unclear. As well as referencing ingredients, the definition of UPFs includes references to industrial processing, cost, convenience, and common marketing techniques.

Critics have questioned the usefulness of focusing on the extent of processing rather than the nutritional quality of food, with some even suggesting that the Nova classification is counterproductive to solving the global food production challenges⁵.

⁴ Petrus, R.R., do Amaral Sobral, P.J., Tadini, C.C., Goncalves, C.B. (2021). The NOVA classification system: A critical perspective in food science. Trends in Food Science & Technology. https://www.researchgate.net/profile/Rodrigo-Petrus/publication/353969101_The_NOVA_classification_system_A_critical_perspective_in_food_science/links/63363b2e769781354ea64203/The-NOVA-classification-system-A-critical-perspective-in-food-science.pdf

⁵ Astrup, A., Monteiro, C.A., Ludwig, D.S. (2022). Does the concept of “ultra-processed foods” help inform dietary guidelines, beyond conventional classification systems? NO. Nutrition <https://www.sciencedirect.com/science/article/pii/S0002916523036833>

About Sciencewise

Sciencewise is an internationally recognised programme led and funded by UK Research and Innovation (UKRI) with support from the Department of Science, Innovation and Technology. The consortium is led by public engagement charity, Involve, with the British Science Association (BSA) and National Co-ordinating Centre for Public Engagement (NCCPE).

This report was compiled by the British Science Association between March and July 2024.

Sciencewise has conducted this research with a view to identifying areas of research, innovation and technologies where early public engagement would be useful, and welcomes further discussion with research funders, government departments, government agencies and other public bodies working on these issues.

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About this report: sources and limitations of public opinion

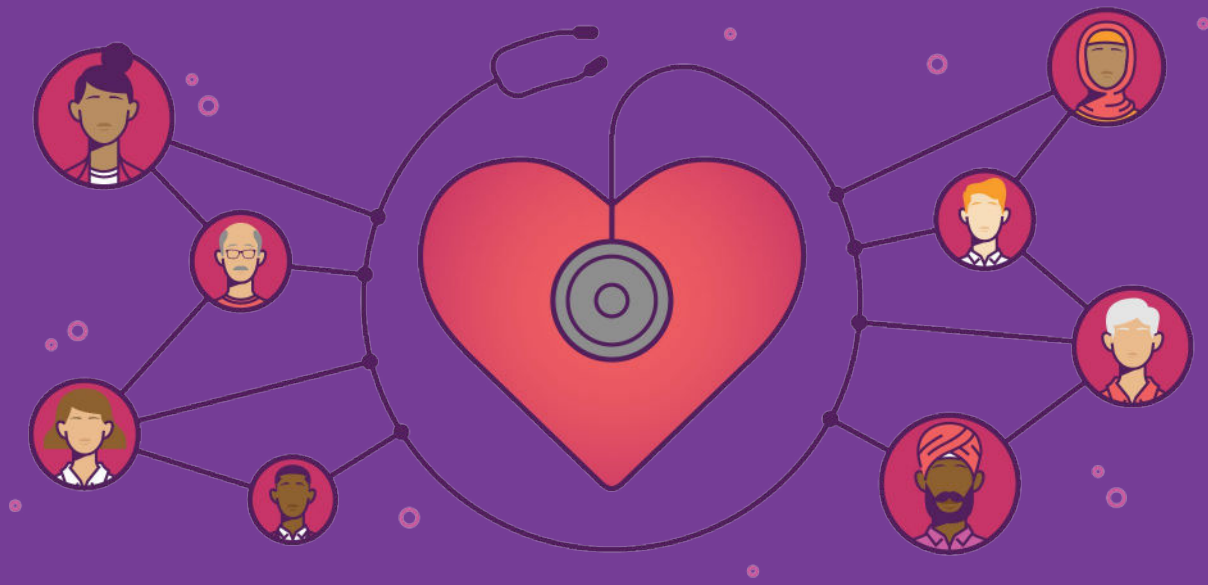
To find out about public opinion on UPFs, we analysed recent surveys, reports, and social research by scanning social research companies, academic publications, consumer research, and grey literature relating to policy discussions of the topics. We conducted desk research using web searches, repositories, citation databases, searches within major polling and research companies, and social media searches. We also consulted with subject matter experts during the research phase and the review phase.

We looked for publicly available public opinion sources that are transparent about their sampling procedure and methods, and published since 2019. We were particularly interested in research and surveys that are UK-focused. We have included one or two studies that took place between 2010–2017, and we have highlighted in our analysis that they might be out-of-date.

We did not commission any new research as part of this process. We note that some research may have been embedded in activities (such as a focus group to inform a public health campaign) but these studies tend not to be discoverable as standalone pieces of work, so were not included in our analysis.

The UK public is diverse, and published data is not always representative of the many views and values held across society. Therefore, we cannot assume the transferability between contexts and communities, and this restricts the conclusions that we are able to draw. Wherever possible we have aimed to include qualitative research which may add insights that cannot be drawn from quantitative research.

Another limitation we identified in our research was that some sample sizes, even when large enough to be considered representative of the UK, are too small to provide useful information on groups which are traditionally marginalised, such as disabled people and minority groups. We have sought out studies that specifically sample marginalised groups in order to account for lack of diversity and representation in many major studies.



Attitudes to public health

Public attitudes to UPFs do not exist in isolation from other views and values people hold. Even though UPF is not a classification based on health, attitudes to many of the topics we reference in this report are likely to be influenced by broader views on public health. The following section aims to provide a background to the rest of the report by summarising what is known about public attitudes to health and health advice.

People think that overall health in the UK is getting worse

According to the Health Foundation, in 2023, people are generally pessimistic about the health of the UK, with 64% reporting that the overall health of the nation has got worse in the past 12 months⁶. Their study of public perceptions of health and social care also found that people generally support the view that local government should have greater responsibility to implement policies to reduce harm from tobacco, alcohol, and unhealthy food.

⁶The Health Foundation. (2023). Public perceptions of health and social care: what are the priorities ahead of a general election? [https://www.health.org.uk/publications/long-reads/public-perceptions-health-and-social-care-priorities-general-election#:~:text=Nearly%20two%2Dthirds%20\(64%25\),got%20better%20\(Figure%204\).](https://www.health.org.uk/publications/long-reads/public-perceptions-health-and-social-care-priorities-general-election#:~:text=Nearly%20two%2Dthirds%20(64%25),got%20better%20(Figure%204).)

People think Government and business should act in the interests of society

Analysis of health-focused Sciencewise dialogues over the past ten years shows that people want to retain choice and individual agency when making wellbeing decisions. While most people feel that society as a whole would benefit from changes in behaviour and lifestyle, the benefit to an individual of making a particular change in their own life can be less clear cut. We also find that people think that businesses must operate in the interests of society on health matters (for example, by altering their products, or by providing clear information on packaging which can support people to make better decisions), and that people think this will not happen without enforcing regulation⁷.



Familiar faces and organisations are the most trusted sources of information about health

A Health Research Authority survey asked the public about trusted sources of information on health research, and what impacted their trust⁸. The NHS was the most trusted source of information, with 83% saying they trusted it “a lot” or “a fair amount”. Family and friends were the second most trusted source (77%) followed by a research regulator (67%), charities (64%), and Government departments (62%). Much lower were private businesses (18%) and social media (10%). Note, that “social media” is a broad term – people could be receiving information from friends or family (which they highly trust) through the medium of social media (which they trust less).

The study also shows that people who have participated in health and care research are more likely to trust private businesses.

Across all sources except for friends and family (where there is no difference), people in higher social grades report higher trust.

The survey results show that organisations can demonstrate trustworthiness by providing information on the funder of research (59%), using plain language (58%), and giving information about research standards (58%). Additionally, around half of UK adults say that inclusion of the NHS logo would help them trust information about health and social care research.

⁷ Sciencewise. (2023). How should we live healthy lives? Insights from a decade of Sciencewise public dialogues. <https://sciencewise.org.uk/2023/02/how-should-we-live-healthy-lives-insights-from-a-decade-of-sciencewise-public-dialogues/>

⁸ Health Research Authority. (2024). Public Perceptions of Research <https://www.hra.nhs.uk/planning-and-improving-research/best-practice/public-perceptions-research/#trustinsources>



Understanding ultra-processed foods

Trends in consumption of UPFs

Analysis of the National Diet and Nutrition Survey (NDNS) between 2008 – 2019 did not show an overall increase in UPF consumption over that 11-year period, which stayed at around 56% of total energy intake⁹. The analysis also found that trends in UPF consumption did not vary according to socio-demographic characteristics.

However, the results did suggest changes in the consumption of UPF subgroups:

- Consumption of sausages and other reconstituted meat products, soft drinks, and margarine decreased.
- Consumption of packaged pre-prepared meals, breakfast cereals, cookies, pastries, buns and cakes, packaged salty snacks, sauces, dressing and gravies all increased.

However, a study of UPFs and young people over the same period of NDNS data found that this group receive an average of 66% of their energy intake from UPFs, 10 percentage points higher than older people, though there has been a slight fall during the 11-year period¹⁰. The authors found clearer demographic patterns for younger people, with adolescents from deprived backgrounds, living in the north of England, those of white ethnicity, and younger adolescents, consuming the most UPFs.

⁹Madruca M, Martínez Steele E, Reynolds C, Levy RB, Rauber F. Trends in food consumption according to the degree of food processing among the UK population over 11 years doi:10.1017/S0007114522003361

¹⁰NIHR (2024) NIHR study finds ultra-processed food makes up almost two-thirds of calorie intake of UK adolescents <https://www.nihr.ac.uk/news/nihr-study-finds-ultra-processed-food-makes-up-almost-two-thirds-of-calorie-intake-of-uk-adolescents/36354/#~:text=The%20data%20came%20from%20the,younger%20adolescents>.

Food labelling

Labelling using a “traffic light system” currently informs consumers of foods that are high in energy, fats, salt, and sugar, however this labelling does not indicate levels of processing. A paper published in early 2024 compared foods labelling and Nova classification, and found that UPFs were more likely to have “red” categories in their labelling and less likely to have “green” categories than minimally processed foods¹¹.

Global analysis of food labelling systems found that nutrient-based systems were more common than processing messages, though the majority of discouraged foods under existing systems were UPFs¹². The authors of this study noted that consumer understanding and capacity to act on advice should be key considerations if processing was included on “traffic light” labels. It is already the case that the UK Food Standards Agency requires a description of food processing in the title of a product, for example, ‘smoked bacon’, ‘roasted peanuts’ or ‘dried fruit’. However, many foods use ‘customary names’ – referring to a food that has become commonly understood by customers, such as ‘BLT’¹³.

Expert consensus

Throughout our research, we noted that experts acknowledged that the Nova definition of ultra-processed food is broad, and may not be clear to the public. Policy organisations and professional bodies have attempted to support the public to understand the Nova system, by providing examples of foods in each category and by emphasising that Nova classifies on the basis of processing, not nutrition. Note that we discuss media coverage of UPFs later in this document.

A 2022 study brought together professionals with a link to diet and nutrition to talk about the current Nova food classification system¹⁴. Participants broadly agreed that the current definitions were too broad, but had differing views about what new definitions might look like (i.e. whether they should focus on the type of processing, or the nutritional value of the resulting food). One mentioned that focusing on definitions may distract from action: “It constrains the whole process and then you start worrying about the definition instead of the issue.” The participants also discussed the need to be able to communicate the balance of risks and benefits of UPFs. Overall, the participants agreed that the lack of expert consensus presented a challenge for communicating with the public.

¹¹Dicken SJ, Batterham RL, Brown A. () Nutrients or processing? An analysis of food and drink items from the UK National Diet and Nutrition Survey based on nutrient content, the NOVA classification and front of package traffic light labelling doi:10.1017/S0007114524000096

¹²Koios D, Machado P, Lacy-Nichols J. (2022). Representations of Ultra-Processed Foods: A Global Analysis of How Dietary Guidelines Refer to Levels of Food Processing doi: 10.34172/ijhpm.2022.6443.

¹³Food Standards Agency (updated 2023) Packaging and labelling <https://www.food.gov.uk/business-guidance/packaging-and-labelling>

¹⁴Sadler CR, Grassby T, Hart K, Raats MM, Sokolović M, Timotijević L. (2022). “Even We Are Confused”: A Thematic Analysis of Professionals’ Perceptions of Processed Foods and Challenges for Communication <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8904920/>

UPFs and health outcomes

As referenced in our section 'Defining UPFs', the Nova classification groups foods by how they are made, not their nutritional value. However, researchers have sought to determine whether there is a link between UPFs and health outcomes.

Systematic reviews of the scientific literature find many published and peer-reviewed academic studies that show a statistically significant link between consumption of UPFs and poor health outcomes (such as poor mental health, poor gut health, diabetes, obesity, cardiovascular disease, and various cancers)¹⁵.

Given that UPF is such a broad categorisation, some studies have looked at health impacts of different subgroups of UPFs: a cohort study published in the Lancet showed that certain UPF subgroups (animal-based products and sweetened beverages) were associated with increased health risks, whereas other UPF subgroups (breads, cereals, plant-based animal alternatives) were not¹⁶.

Much of the evidence to-date is from observational studies and cohort studies, which, unlike experimental studies, cannot confirm a cause and effect. For example, it is difficult to fully control studies for other factors that might lead to poor health outcomes, such as amount of exercise, nutritional profile of foods, stress, or sleeping habits.

Additionally, there is still a lot that researchers do not know about the interactions between UPFs and biological processes. It could even be the case that there are health risks of UPFs that are not linked to their processing, for example, microplastics from food packaging.

Overall, our research and our comments from reviewers has indicated that there is an association between consuming more UPFs and poorer health outcomes. However, the evidence about why this association exists, and whether it is caused by processing is still emerging.

¹⁵Examples include:

Delpino et al., (2021) Ultra-processed food and risk of type 2 diabetes: a systematic review and meta-analysis of longitudinal studies.

Pagliai, et al., (2021) Consumption of ultra-processed foods and health status: a systematic review and meta-analysis.

Suksatan, et al., (2021) Ultra-processed food consumption and adult mortality risk: a systematic review and dose-response meta-analysis of 207,291 participants.

¹⁶Cordova, Viallon, et al., (2023) Consumption of ultra-processed foods and risk of multimorbidity of cancer and cardiometabolic diseases: a multinational cohort study [https://www.thelancet.com/journals/lanepi/article/PIIS2666-7762\(23\)00190-4/fulltext](https://www.thelancet.com/journals/lanepi/article/PIIS2666-7762(23)00190-4/fulltext)

The UK Government issued a statement in 2024, with the Chief Scientific Advisor at the Food Standards Agency saying that:

“Through our research we are aware that public concern and confusion around UPF, and the processing of food more generally, has risen considerably. As an evidence-led organisation, we have a responsibility to give clear facts to enable consumers to make informed choices, based on current science.”¹⁷

The Government currently promotes the Eatwell Guide as the best source of information for consumers wanting to make healthy choices but this does not make any reference to UPFs.

The Association of UK Dietitians produced a position statement on UPFs in early 2024 which emphasised that nutritional quality of foods should be a more important consideration than level of processing¹⁸. They noted that in some processed products, additional ingredients are added which then increase the content of sugar, salt, or fat. However, they were clear that processed foods and UPFs have a place in people’s diets and that: **“it is important that people do not avoid all foods that include more than five ingredients, as many of these products are integral to achieving a balanced diet for good health.”**

¹⁷ Food Standards Agency. (2024). Publication of consumer information on ultra-processed foods <https://www.food.gov.uk/news-alerts/news/publication-of-consumer-information-on-ultra-processed-food>

¹⁸ British Dietetic Association. (2024). Classifying processed vs ultra-processed foods <https://www.bda.uk.com/static/06661eb4-b635-44a7-b3a1f753525c8f99/53f7356a-51eb-42c9-b1fbc6680230fbf3/Processed-Food-Position-Statement-FINAL-approved.pdf> *One of our reviewers noted that the BDA is funded by businesses that make and sell UPFs.*





Public attitudes to ultra-processed foods



UPFs are embedded in people's eating habits

We found many examples of research that ask people about their food and eating habits, and the place of UPFs within them. These studies ask about UPFs alongside other factors such as cost, convenience, and taste; or alongside other health factors such as amounts of salt, sugar, and fats. Sources from (or on behalf of) industry bodies tend to focus more on consumer habits than on knowledge or health issues.



The role of food manufacturers in the UPFs debate

The Nova classification describes UPFs as “industrial formulations” and refers to factors such as packaging, marketing, and profitability¹⁹. This has brought attention to global food manufacturers and associated corporate groups who use their networks to influence food governance policies.

In the UK, some researchers arguing against the demonisation of all UPFs have been criticised for their links to food firms (receiving financial support for research from UPF manufacturers or holding positions with organisations and networks co-funded by them)²⁰.

Others have pointed out that senior scientists are encouraged by universities and funders to partner with a range of organisations including for-profit corporations, and that in order to transform the current food system, food manufacturers need to be included in the conversation about UPFs.

A 2023 tracker survey published on Statista reported that 32% of respondents said their consumption of UPFs had decreased in the last six months, whereas 23% stated their consumption had increased (note that we were unable to access the full version of this study, and that the survey may not have provided a definition of UPFs to respondents)²¹.

A regular YouGov tracker poll showed that 60% of adults rate their eating habits as “fairly healthy” with 24% rating them as “not very healthy”²². People under the age of 25 are more likely to say they eat unhealthily, but there is no significant difference across social grades. However, it is possible that some people are optimistic in their assessment and rate their eating habits as more healthy than they actually are. In their study of 115,051 UK Biobank participants

on adherence to dietary recommendations, researchers at the University of Oxford found that only 30%, 39%, 22%, and 10% met 0,1,2, or 3-4 recommendations, respectively²³.

A YouGov study in 2022 looked at general habits around food and eating²⁴. Responses showed that 82% often pay attention to the food they are eating. Processing is an aspect of food people pay most attention to, with 29% selecting this option, comparable with sugar (30%) and water intake (29%) and higher than vegetable consumption (26%) and salt intake (23%). People generally prioritise taste over healthiness and cost. Almost half (47%) of people report eating junk food – food high in fat, salt, and sugar (HFSS) – at least once a week, and 22% eat takeaways or ready meals at least once a week.

¹⁹ Monteiro CA, Cannon G, Levy RB et al. (2016). NOVA. The star shines bright. <https://archive.wphna.org/wp-content/uploads/2016/01/WN-2016-7-1-3-28-38-Monteiro-Cannon-Levy-et-al-NOVA.pdf>

²⁰ The Guardian. (2023). Scientists on panel defending ultra-processed foods linked to food firms. <https://www.theguardian.com/science/2023/sep/28/scientists-on-panel-defending-ultra-processed-foods-linked-to-food-firms>

²¹ Statista. (2023). Recent changes in the consumption of hyper-processed foods among consumers in the United Kingdom in 2023 <https://www.statista.com/statistics/1406925/changes-in-the-consumption-of-hyper-processed-foods-among-consumers-in-the-uk/> *One of our reviewers noted that surveys like this are problematic as the definition of UPFs is so subjective*

²² YouGov. (2024). Eating habits tracker <https://yougov.co.uk/topics/society/trackers/how-healthy-brits-say-their-eating-habits-are?crossBreak=london>

²³ Kebbe, M., Perez-Cornago, A., Jebb, SA, Piernas, C. (2021). Adherence to international dietary recommendations in association with all-cause mortality and fatal and non-fatal cardiovascular disease risk: a prospective analysis of UK Biobank participants. <https://pubmed.ncbi.nlm.nih.gov/34158032/>

²⁴ YouGov. (2022). Societal attitudes towards food and eating <https://yougov.co.uk/society/articles/41668-part-one-general-attitudes-towards-food-and-eating>



A longitudinal study of UPFs and HFSS snacks with 122 families found that snacking was embedded in children's lives from early ages, and that price promotions, long shelf lives, and cheaper prices mean that UPFs are often turned to by parents, especially those in lower socioeconomic position. The Nova definition states that a feature of UPFs is that they are cheap, and so it is not surprising that those on lower incomes were more likely to purchase UPFs in this study²⁵. The author described that many snacks marketed as "healthier" options were still UPF.

A 2021 survey on weight loss conducted by Ipsos found that 26% of people trying to lose weight would aim to reduce or cut out processed food (there was a gender difference with 23% of women and 30% men selecting this option)²⁶. There was a significant gender difference in levels of support for reformulating processed food (using healthier ingredients) – 17% of women selected this as something Government could do, compared with 8% of men (note that policy preferences around UPFs are discussed further in a later section). Men were more likely to select "don't know" or "none of the above" in response to this question.

An experiment led by University of Bristol²⁷ and published in 2023 found that among a study of 224 adults presented with images of different foods, people did not rate UPFs as better tasting or more desirable than minimally processed foods. This could be a feature of the heterogeneity of the UPF group. The desirability of foods was more likely to be driven by having a balance of carbohydrate and fat (known as the "combo effect") and a higher flavour intensity (i.e. strongly sweet or salty).

Other studies have supported the finding that UPF consumption is more likely to be driven by cost, convenience, and stress, rather than taste (we note here again, that the definition of UPFs includes cost and convenience, so this is not a surprising finding)²⁸.

²⁵ Gallagher-Squires, C., A. Isaacs, C. Reynolds, and P. C. Coleman. (2023). "Snacking Practices from Infancy to Adolescence: Parental Perspectives from Longitudinal Lived Experience Research in England." <https://doi.org/10.1017/S0029665123003592>.

²⁶ Ipsos. (2021). Actions and interventions for weight loss https://www.ipsos.com/sites/default/files/ct/news/documents/2021-01/uk_combined_charts_fats_sugar_updated_ab_10_dec_2020_q5-q8.pdf

²⁷ University of Bristol. (2023). New research finds that ultra-processed foods taste no better than less processed foods. <https://www.bristol.ac.uk/news/2023/november/foodtaste-study.html>

²⁸ Lifesum. (2023). Brits admit to ultra-processed food addiction https://www.foodmanufacture.co.uk/Article/2024/05/21/Brits-admit-to-ultra-processed-food-addiction?utm_source=copyright&utm_medium=OnSite&utm_campaign=copyright

People feel that the food system doesn't support them to make good choices

We found evidence that many people reported feeling unsupported in their food choices. There is an increasing sense of “no choice is perfect”, as people feel they need to juggle competing drivers such as price, health, and convenience, and align their purchase decisions with both their short-term and long-term concerns and priorities²⁹.

A 2021 public dialogue commissioned by the Department for Environment, Food, and Rural Affairs (Defra) and Sciencewise involved people in creating a National Food Strategy³⁰. The participants described their experience of the food system as “upside down” where simple, natural, healthy food is expensive and hard to access, and processed food is readily available at low cost. People talked about processed food being the dominant feature of our food environment, and cited promotions, deals, branding, apps, and supermarket layouts as creating this environment that promotes processed food (note that unprocessed foods can also be in supermarket deals). People tied access to healthier food to income and affluence, and mentioned that

expense and short shelf life made it harder for people on low incomes to choose fresh food. Some participants also expressed concern about labelling, and felt that UPFs were “masquerading as healthy” through branding choices such as green fields, or health claims around being a source of protein (note that similar branding is also seen on minimally processed food).

Family preferences were also linked to UPFs, with some people stating that they chose food that they knew their children would eat: “Trying to get a child to eat vegetables, mushrooms. Not eat a load of sugar or processed food. Time wise, do you want to spend hours in the kitchen cooking? No.” Others spoke about how well-intended messages aimed at their children were having negative effects as they refused to eat food that wasn't “healthy” and this had led to confusion and waste at mealtimes. Participants also spoke about the Covid-19 lockdowns, allowing more time, and in some cases, more disposable income to shop locally and prepare fresh food. Overall, people wanted the food system to enable choices based on “what matters most to them”, rather than on their resources or circumstances.



²⁹ Food Standards Agency and Food Standards Scotland. (2022). The UK Public's Interests, Needs and Concerns Around Food <https://www.food.gov.uk/sites/default/files/media/document/The%20UK%20Public%27s%20Interests%20Needs%20and%20Concerns%20around%20Food%20-%20Main%20UK%20report.pdf>

³⁰ Sciencewise. (2021). National Food Strategy Dialogue <https://live-sciencewise.pantheonsite.io/wp-content/uploads/2020/05/HVM-National-Food-Strategy-Public-Dialogue-report-Sep21-2.pdf>

A Demos report on the food system published in 2020 found that for 51% of UK adults, stress is the main barrier to eating healthy food³¹, and this was higher (68%) for people with three or more children³². Availability and affordability were other major factors, with 37% saying healthy food was not available in shops close to their home, and 39% saying they could not afford healthy food. A higher proportion (58%) of the millennial age group struggled with affordability. People generally felt that healthy foods tasted better than unhealthy foods. Other factors such as identity and self-control stayed stable, indicating that it is predominantly cost, ease, and stress that drive habits. The study also asked about policy and regulation around the food system (looking at health, rather than degree of processing) and found people were more in favour of supportive policies like subsidies, education, and ensuring all shops stock healthy foods, over taxation or bans of unhealthy food in public places.

BBC Good Food reported that the recent cost-of-living crisis has added to the regular food related concerns of consumers, as approximately 28% of consumers are forced to eat less healthily to save money (for example, 19% have increased their consumption of ready meals and processed foods, and 17% stated that they cook less, because of the cost of ingredients)³³.

Over half of UK consumers think “hyper-processed” foods have a negative impact on health. UK consumers slightly overtake their U.S. peers in this opinion³⁴. Consequently, over 30% of them have reduced their consumption or drastically reduced their consumption of hyper-processed food products.

There are varying levels of awareness of UPFs, and people would welcome more transparency

Most sources assessed an aspect of public knowledge, i.e. do people know what UPFs are? There is evidence that people are less likely to have heard the term “ultra-processed food” than the term “processed food”³⁵. Studies indicate that people often underestimate the proportion of UPFs in their diet.

Perceptions of UPFs are generally negative. There are many potential reasons for this which are unrelated to health, and these reasons are generally underexplored by research. They could include: “erodes indigenous food culture”, “wrapped in plastic”, “made by a big company”.

Researchers at the University of Liverpool and Liverpool John Moores University surveyed 2,386 UK adults and found that 73% of participants reported being aware of the term UPF, and 54% reported avoiding eating UPFs³⁶. Participants with the highest education levels and household income were more likely to report being aware of and avoiding consuming UPFs. However, the study also found that only a minority of participants (39%) reported feeling confident in identifying whether a food was ultra-processed or not (this is not a surprising finding, since, as discussed in our introduction the Nova definition is broad, and is widely disputed by professionals).

³¹ 51% of respondents agreed with the statement that “There are too many stresses in life without worrying about how healthy the food I eat is”.

³² Demos. (2020). Turning the tables on healthy eating <https://demos.co.uk/wp-content/uploads/2020/08/Turning-The-Tables-FINAL.pdf>

³³ The Guardian (2023) UK families ‘eating less healthily’ due to cost of living crisis <https://www.theguardian.com/business/2023/oct/02/uk-families-eating-less-healthily-due-to-cost-of-living-crisis>

³⁴ Statista (2023) Consumers' opinions on hyper-processed foods in the UK, the U.S., and Germany in 2023 <https://www.statista.com/statistics/1406900/consumers-opinions-on-hyper-processed-foods-in-the-uk-the-us-and-germany/> *One of our reviewers noted that “hyper-processed” is not a term with a definition*

³⁵ IGD. (2023). Ultra-processed foods: A consumer perspective <https://www.igd.com/Social-Impact/Health/Reports/Ultra-processed-foods-a-consumer-perspective/22006>

³⁶ Robinson, E., Cummings, J.R., Gough, T., Jones, A., Evans, R. (2024). Consumer Awareness, Perceptions and Avoidance of Ultra-Processed Foods: A Study of UK Adults in 2024. Consumer Behavior and Food Choice – Volume III) <https://www.mdpi.com/2304-8158/13/15/2317>

In their regular surveys of consumers and food, the Food Standards Agency have found that worry over UPFs or over-processing of food is rising. It has appeared as one of the top three concerns raised by customers in every monthly survey since August 2023, with 77% citing it as a concern in the March 2024 tracker³⁷.

The FSA identified three demographic groups particularly concerned about UPF:

- Those in the middle and older age brackets (80% of 35-54 year olds and 82% of those aged 55+ vs. 69% of 16-34 year olds)
- Those in higher social grades (81% of AB and 80% of C1 vs. 72% of C2 and 74% of DE³⁸)
- Those who know a lot or a little about the FSA (84% vs. 62% of those who haven't heard of FSA).

The Consumer Insights Tracker also found that concern about ultra-processed food was marginally higher in Northern Ireland and England than in Wales (78% and 76% respectively versus 72%).

A YouGov/British Nutrition Foundation survey conducted in 2021 found that many people find it hard to differentiate between processed foods and ultra-processed foods³⁹. There are signs that people associate UPFs with unhealthiness, but don't necessarily think they should be cut out completely. For example, whilst 21% of respondents agreed that a healthy, balanced diet should not include any UPFs, 53% think that some processed foods can be part of a healthy diet. Respondents also showed a split between people's attitudes to UPFs and their actions – 69% agreed that it's better to cook from scratch than use processed foods, but 49% said that processed food can be convenient, and 26% stated that it's not possible to cook all their meals from scratch.

A 2024 Vypr report on consumer attitudes towards UPFs sought input from a representative sample within their group of 75,000 consumers, and understanding and concern about UPFs⁴⁰. They found that people were unlikely to bring up UPFs in a free-text question about what changes they were making to their eating habits. Their survey results showed that 50% had heard of the term "ultra-processed food" but couldn't explain what it meant, but 30% stated that they could explain it, and offered examples such as: "These are foods that have additives, colourings and go through processes to preserve their shelf life".



³⁷ Food Standards Agency. (2024). Consumer insights tracker <https://www.food.gov.uk/safety-hygiene/ultra-processed-foods#:~:text=Broadly%2C%20our%20research%20shows%20that%20surveyed%20saying%20they%20are%20worried.>

³⁸ Social Grade is a socio-economic classification produced by the Office for National Statistics where AB describes higher and intermediate managerial, administrative, and professional occupations; C1 describes supervisory, clerical and junior managerial, administrative, and professional occupations; C2 describes skilled manual occupations, and DE describes semi-skilled and unskilled manual occupations, unemployed and lowest grade occupations. <https://www.ons.gov.uk/census/aboutcensus/censusproducts/approximatedsocialgradedata>

³⁹ British Nutrition Foundation. (2021). BNF survey reveals confusion about ultra-processed foods <https://www.nutrition.org.uk/news/2021/bnf-survey-reveals-confusion-about-ultra-processed-foods/#:~:text=69%20percent%20of%20those%20surveyed,convenient%20and%20help%20save%20time.> One of our reviewers noted that the BNF is partially funded by businesses that make and sell UPFs. A list of corporate partners is given on the BNF website.

⁴⁰ Vypr. (2024). Consumer attitudes towards ultra-processed foods <https://vyprclients.com/wp-content/uploads/2024/02/Ultra-processed-foods-report.pdf>

When asked how they feel about UPFs:

- 44% of responses were coded negatively (for example, "They are very damaging to people's health. They are addictive and unnatural. Very harmful.")
- 40% were coded neutral (for example, "I think they are not all unhealthy but they are affordable.")
- 16% were coded positively (for example, "I am not really bothered about this. As long as it tastes good, I will buy it.")

Similarly, IGD Research conducted a mixed methods study consisting of four focus groups and a survey of 997 adults in spring 2023⁴¹. They found that people rate "amount of processing" low on their priorities when choosing products, but are more likely to think about the amount of processing to evaluate whether a product is healthy (note – this is a perception despite the exact link between health and processing being unclear at present). People tended to underestimate the amount of UPFs in their diet (perhaps because of unclear definitions).

In focus groups, people were surprised, and sometimes frustrated to see products that they deemed healthier classified as UPFs (for example, "I used to be stressed about how processed bacon is, now do we have to be worried about bread too?"). In our research we have noticed signs that discourse around UPFs can drive anxiety.

The authors reported that people then tended to question the validity/practicality of the UPF classification ("It's convenience – in my head, I wouldn't say a [breakfast wheat biscuit] breakfast is bad – you need to be realistic still"), and rationalise their choices ("Think about it for a few days – on a Friday night open some crisps"). The main barriers to reducing UPFs were cost, habit, shelf-life, and family preferences. Overall, the people involved in the study wanted clearer definitions and more transparent information.

A 2016 project by the European Food Information Council (EUFIC)⁴² aimed to look at public perceptions of processed food, by asking a panel of 71 people about their views, and their responses to information provided by the research team over a six-week period⁴³. They found that the practicality of processed food was seen as a key benefit, and that acceptability of processed food generally increased with familiarity. People generally thought of processed foods as unhealthy, and tended to cite fat content, sugar content, additives, and processing leading to a reduction of nutritional value. Processed foods were seen as an unknown quality: "The end buyer has no real way of knowing exactly what they are eating". The study concluded that people could benefit from knowing more about the safety and regulation of food additives, and noted that acceptability of processed foods generally increased as participants became more familiar with different processing techniques. Although participants showed good levels of media literacy (i.e. they were aware that there may be motives behind news stories), reporting around processed food did still influence their views.



⁴¹ IGD. (2024). Ultra-processed foods: A consumer perspective <https://www.igd.com/Social-Impact/Health/Reports/Ultra-processed-foods-a-consumer-perspective/22006>

⁴² EUFIC. (2016). Understanding perceptions of processed food among UK consumers. A qualitative consumer study by EUFIC <https://www.eufic.org/en/collaboration/article/eufic-forum-n-7-understanding-perceptions-of-processed-food-among-uk-consum>

⁴³ Note that this study is over 8 years old, and the results may not reflect current public views.

There are signs that the public would support more Government intervention on food

We found a number of studies that involved the public in setting the agenda around the food system, or that asked how policy and regulation should change. These studies considered approaches focused on supporting individual behaviour change (such as labelling) and on more interventionist approaches such as product reformulation or taxation. Note that a) very few of these studies ask about UPFs in particular, and b) any potential legislation of UPFs would require an objective definition.

An Institute for Government report published in 2023 highlighted the need for a long-term obesity strategy, and included a recommendation for polling and deliberative research to inform it⁴⁴. They analysed 20 years of obesity policies and found that almost all activities emphasised "supporting individual choices" rather than putting responsibility on Government or Industry, and suggested that pursuing individualist policies alone was the reason why progress has been limited. The Institute suggested that whilst on the surface, some public surveys supported the Government policies, qualitative research indicates that the public would be supportive of more Government intervention on food and health. However, they strongly cautioned against communication approaches that "tell people what to eat".

A qualitative study of 15 people carried out by researchers at University of Liverpool aimed to explore regulations around food preparation and pricing⁴⁵. They found that respondents favoured more Government intervention to support healthier choices, and that people were more likely to support product reformulation than taxation. Participants also placed high importance on education and teaching cooking in schools.

Participants in the Sciencewise National Food Strategy dialogue supported major changes to the food system, even if this would take some time⁴⁶. They saw Government's role as creating the right conditions for responsible actions by businesses, producers, and individuals. However, they felt that information-based interventions were not enough to be successful, and that some system-level actions were needed. In general, participants with lower levels of trust in national government were least comfortable with restrictive measures like bans – participants were more supportive of locally-led initiatives, and independent and/or decentralised governance that wasn't linked to five-year political cycles.

The 2021 annual review by the Food Standards Agency showed that 47% of the public wanted the regulator to take action to reduce ingredients added in the food process such as E numbers and preservatives⁴⁷. Similar proportions (49%) said they avoid buying foods that contain added ingredients such as trans fats, palm oil, preservatives or E numbers.

⁴⁴Institute for Government. (2023). Tackling Obesity – Improving policy making on food and health <https://www.instituteforgovernment.org.uk/sites/default/files/2023-04/tackling-obesity.pdf>

⁴⁵Simon Watts, Ffion Lloyd-Williams, Helen Bromley, Simon Capewell. (2023). Putting a price on healthy eating: public perceptions of the need for further food pricing policies in the UK <https://doi.org/10.1093/pubmed/fdad152>

⁴⁶Sciencewise. (2021). National Food Strategy Dialogue <https://live-sciencewise.pantheonsite.io/wp-content/uploads/2020/05/HVM-National-Food-Strategy-Public-Dialogue-report-Sep21-2.pdf>

⁴⁷Food Standards Agency. (2021). Our Food 2021: An annual review of food standards across the UK <https://www.food.gov.uk/our-work/chapter-1-the-nations-plate-our-diet-and-food-choices-today>



Polling by More in Common conducted in March 2024 for the Food, Farming, and Countryside Commission (FFCC) found that 68% said it is, "the Government's job to make sure everyone has affordable, healthy food options available to them"⁴⁸. When asked about the quality of their food, 24% of respondents felt it had got worse in the last few years and 30% felt it had got better. In their 2023 report "What do we really want from food", the Commission explored people's wishes for the future food system in detail.

The FFCC report was one of the few studies that talked about UPFs and regulation. Their report outlined that people feel "hoodwinked by UPFs" and wanted greater action from Government, including taxes and regulations aimed at large businesses, practical help for citizens, and more visible political leadership. People were comfortable with state intervention, with one participant saying, "I don't like the idea of government becoming involved in every aspect of our lives, but where food production is damaging people's health and the taxpayer is funding the health service, then I think government should step in."

Participants were comfortable with trade-offs, for example, understanding that higher quality food may come at increased costs, and that there may be less food choice in a fairer more sustainable food system. Their views on UPFs were linked to their feeling that UPFs were not ethical or sustainable, and used mass production techniques (i.e. they were seemingly more concerned with how the businesses that produce UPFs operate, than the UPFs themselves)⁴⁹.

⁴⁸ Food, Farming, and Countryside Commission. (2024). So, what do we really want from food? <https://ffcc.co.uk/so-what-do-we-really-want-from-food>

⁴⁹ Our reviewers note that this is the intention of the original Nova definition - it intends to identify foods on the basis of WHERE they are made (in the home or not in the home)

UPFs in the media

UPFs have been covered extensively in the media in the last few years. In the period between February and July 2024, the Science Media Centre produced 11 briefings and rapid reactions on the topic of UPFs⁵⁰.

A story by the BBC first published in 2019 and updated in 2024 explains what UPFs are, how to recognise them, and lists different health problems associated with UPFs⁵¹. The article highlights that people in the UK are among the biggest consumers of UPFs in the world (57% of calories consumed by the average adult, and 65% for children). Referring to a blog by researchers from the University of Cambridge MRC Epidemiology Unit⁵², the story also draws attention to the relationship between socioeconomic background and UPF consumption (as noted above, this finding is unsurprising because the definition of UPFs mentions that they are cheaper than other Nova groups). They report that, adolescents from lower socio-economic backgrounds consume higher levels of UPFs than those from higher socio-economic backgrounds, and are more likely to consume UPF subtypes that are considered less healthy. The same patterns may be true for adults, but the study just concerned young people.

Similar messages were conveyed by the Imperial College London who in 2021 reported that British children are consuming “exceptionally high” proportions of ultra-processed foods⁵³. Using data from thousands of children in England over a number of years, an Imperial-led study attempted to draw links between health and UPF consumption. According to the researchers, better controls and more radical public health actions are needed to protect young people from those UPFs that are nutritionally unhealthy due to high consumption rate in younger generations.

An article in The Telegraph in 2023, however, argued against demonising all processed foods⁵⁴. Professor Janet Cade highlighted that the nutritional value of a vegetable can change “very little” between its original state and going through various stages of processing. She also argued that if UPFs were removed from people’s diets then “this would require a huge change in the food supply.” She said this could be “really unachievable for most people” and could result in “further stigmatisation and guilt in those who rely on processed food, promoting further inequalities in disadvantaged groups.”



⁵⁰ <https://www.sciencemediacentre.org/?s=%22ultra-processed%22&cat=>

⁵¹ BBC. (2019). What is ultra-processed food and what does it mean for my health? https://www.bbc.co.uk/food/articles/what_is_ultra-processed_food

⁵² NIHR School for Public Health Research. (2023). Beyond taste and nutrient content: Ultra-Processed Foods and their Impact on Adolescent Health in the UK <https://sphr.nihr.ac.uk/news-and-events/blog/beyond-taste-and-nutrient-content-ultra-processed-foods-and-their-impact-on-adolescent-health-in-the-uk/#~:text=In%20UK%20adults%2C%2057%25%20of.example%2C%20crisps%20or%20supermarket%20biscuits>

⁵³ Imperial College London. (2021). Urgent action needed to reduce harm of ultra-processed foods to British children <https://www.imperial.ac.uk/news/223573/urgent-action-needed-reduce-harm-ultra-processed/>. Our reviewers note that the results of this study could be showing links between health and nutrition content, rather than health and level of processing.

⁵⁴ The Telegraph. (2023). Ultra-processed food can still be good for you, it depends on what is in it <https://www.telegraph.co.uk/news/2023/09/27/ultra-processed-food-can-be-good-for-you-say-experts/>

Professor Robin May, chief scientific adviser at the Food Standards Agency, warned against stopping people from buying UPFs. He argued that many components of UPFs were there for “safety reasons.” For example, he said additives that “reduce the growth of bacteria or fungi have a really critical role in protecting consumers and extending the life of a product”.

A recent article in the Conversation reported on the findings of an umbrella review analysing many recent studies and involving almost 10 million people⁵⁵. It highlighted correlation between health concerns around UPFs and gave examples of different UPFs. Most online articles take the same view but stress that not all examples are inherently bad. It should be noted that general population view is not included, just the general trend that large amount of the UK population are consuming UPFs.



Non-UK engagement on UPFs

The EIT Food Consumer Observatory has led a number of major studies across Europe. Their research has surveyed 10,000 people and conducted a citizen participation forum with 300 people⁵⁶. They found that 65% of Europeans believed that UPFs are unhealthy, and link them to obesity, diabetes, and other health issues. People generally dislike unfamiliar ingredients, with 67% stating that they are concerned by this. There was also a lack of confidence in regulation, with 40% saying they “do not trust that ultra-processed foods are regulated well enough by authorities to ensure these foods are safe and healthy in the long term”. As with other studies we have looked at, people reported confusion around UPF classification. The Observatory used plant-based food as a specific example of consumers being put off by UPFs – plant-based foods were more likely to be seen as ultra-processed than their animal-based originals, and therefore people (particularly meat and dairy eaters) do not eat plant-based substitutes even though they may be healthier than the corresponding animal products⁵⁷.

A survey of 497 Swiss consumers as part of the EIT Food Observatory supported other studies that found a link between perceived healthiness and level of processing (with minimally processed foods being seen as healthier) and that this was linked to perceived “naturalness”⁵⁸. People generally associated “foods produced by the food industry” with negative terms and terms linked to processing. The researchers found that the Nova classification system closely matched people’s perceptions of processed foods.

⁵⁵The Conversation. (2024). Ultra-processed foods: largest ever review shows many ill effects on health – how to understand the evidence <https://theconversation.com/ultra-processed-foods-largest-ever-review-shows-many-ill-effects-on-health-how-to-understand-the-evidence-224806>

⁵⁶EIT Food Observatory. (2024). Consumers fear health risks of ultra-processed foods – but lack guidance needed to make healthy choices <https://www.eitfood.eu/news/consumers-fear-health-risks-of-ultra-processed-foods>

⁵⁷Our reviewers note here that plant-based foods are – in general – much healthier than foods of animal origin that they intend to replace in diets, and it is widely acknowledged that meat lobbying groups such as the Centre for Consumer Freedom have been behind inaccurate messaging about the health risks of plant-based foods.

⁵⁸Alenica Hässig, Christina Hartmann, Luisma Sanchez-Siles, Michael Siegrist. (2023). Perceived degree of food processing as a cue for perceived healthiness: The NOVA system mirrors consumers’ perceptions, Food Quality and Preference <https://www.sciencedirect.com/science/article/pii/S0950329323001386>

In Brazil, “UPFs” as a word has been included in the Food Guide for the Brazilian Population for the past eight years, and a survey of 939 citizens (non-representative) showed that 82% knew of the term⁵⁹. Note that Nova was developed by a Brazilian. However, many reported some confusion over the definitions associated with the term, and that this confusion led to consumers rejecting some healthy foods due to fear of UPFs. The authors recommend that: “Care is needed to balance naïve and heuristic messages with scientific rigor and avoid unwanted consequences. All parties interested in adequate food should improve the classification system and, consequently, the understanding of the consumer; after all, innovation with healthy, sustainable, safe and convenient foods could greatly benefit the population.”

An online study in Uruguay found that some of the participants considered processed foods, culinary ingredients and even some minimally processed foods as ultra-processed⁶⁰. The authors suggested that it would be advisable to include a clear definition of ultra-processed foods in educational campaigns aimed at shifting consumers’ eating patterns and reversing the substitution of meals based on unprocessed or minimally processed foods by ultra-processed foods.

A study involving young consumers in Argentina and Ecuador has shown that participants (younger strata of the population) understand ultra-processed foods as those highly processed which usually contain artificial ingredients and additives⁶¹. Also, participants understand that these foods can be unhealthy and of low nutritional value. However, there are differences on how participants from one country understand the term ultra-processed food. For example, in Argentina, processed meats are less mentioned as ultra-processed than in Ecuador.



⁵⁹ Sarmiento-Santos, Juliana, Melissa B. N. Souza, Lydia S. Araujo, Juliana M. V. Pion, Rosemary A. Carvalho, and Fernanda M. Vanin. (2022). “Consumers’ Understanding of Ultra-Processed Foods” *Foods* 11, no. 9: 1359. <https://doi.org/10.3390/foods11091359>

⁶⁰ Gastón Ares, Leticia Vidal, Gimena Allegue, Ana Giménez, Elisa Bandeira, Ximena Moratorio, Verónica Molina, María Rosa Curutchet. (2016). Consumers’ conceptualization of ultra-processed foods <https://www.sciencedirect.com/science/article/abs/pii/S0195666316302562> Our reviewers note that this study assumes that all UPFs are “bad”, and that the suggestion that we shouldn’t be eating affordable, sustainable, healthy meals that happen to also be UPFs feels irresponsible.

⁶¹ Aguirre, A., Borneo, M.T., El Khori, S., Borneo, R. (2018). Exploring the understanding of the term “ultra-processed foods” by young consumers <https://www.sciencedirect.com/science/article/abs/pii/S0963996918307828>



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