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Commentary. The big issue is ultra-processing
**There is no such thing as a
healthy ultra-processed product**



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Introduction



Note

This commentary is not suggesting that any specific transnational or other very large food or drink processor, or any specific ultra-processed brand or product, is fundamentally different from any others. To the contrary. Some company policies and some products are better and some are worse than others, including nutritionally, but this is not the point being made here. The fundamental issue with ultra-processed products, including those that make health claims, is the same. My view is that by their nature ultra-processed products are unhealthy; they tend to damage the nutritional quality of diets and to increase the risk of diseases. No such product, whether or not modified, should be represented as healthy.

Healthy foods and drinks are high in nutrients and, in these days of pandemic obesity, are generally low in energy-density. The same applies to food systems, food supplies, dietary patterns, and family and personal diets and meals. Some foods are well-known exceptions to this rule. Adequate and varied traditional diets and meals made up from fresh and minimally processed foods, classed here as type 1, together with culinary ingredients, classed here as type 2 are usually healthy (1,2), although some may have shortcomings, such as being too salty.

By contrast, industrially ultra-processed products, in the form of ready-to-eat or ready-to-heat ‘fast’ dishes, snacks and drinks, are typically energy-dense, depleted of nutrients, and fatty, sugary or salty. That’s the context for this commentary. Its subject is ultra-processed products that are claimed or implied to be healthy. This is now a colossal worldwide business, which is – ironically – fuelled by concerns about disabilities and diseases in part caused by food supplies and dietary patterns increasingly composed of ultra-processed products. Ultra-processed products able to make health claims are increasingly touted as part of the global public health solution. They are not. They are a large part of the global public health problem, and such products that make health claims may well make the problem worse.

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Discussion

Box 1

'Healthy' ultra-processed products: My view

As the title of this commentary states, in my view there is no such thing as healthy ultra-processed products. By their very nature they are unhealthy. There may be exceptions to this rule. If any readers think so, I will be glad to hear from them.

To say that a food or drink or product is unhealthy is not to say that it should never be consumed. Practically all diets, including those that overall are very healthy, include foods and drinks consumed preferably occasionally because they are delicious or stimulating treats. Feasts and parties usually include a lot of sweet or fatty foods and drinks. These are best prepared at home, or else purchased from shops where they are made on-site for immediate sale.

In countries and areas where most food is industrially processed, it would be tedious and impractical to avoid all ultra-processed products. I am not advocating this. It is a question of proportion. What we should do, as professionals and also as purchasers, is to make sure that ultra-processed products make up a relatively small proportion of food supplies and diets. If consumed, they should not be consumed daily, regularly, or in large amounts, but only sparingly and occasionally. With colleagues I am working on quantification of this recommendation.

Health claims

So what about ultra-processed products reformulated so as to enable claims or suggestions that they are healthy? While there may be exceptions, the best that can be said of such products is that they are less unhealthy.

Here is one example of a multitude of others. Pepsi-Co, the world's leading manufacturer of snack products, has reformulated a 'light' version of its chip (crisp) branded as Ruffles. This is known as 'Fit Ruffle Chips' in my country of Brazil. It uses 100 per cent vegetable oils, contains no trans-fats, and contains less salt than before. This product is basically no better or worse than many others that are now promoted as healthy and, by implication, fit to eat in unlimited quantities. But 62 per cent of its calories still come from fat, and it still has a massive energy-density of 540 calories per 100 grams, twice as high as condensed milk and higher than chocolate biscuits. It still promotes snacking over regular meals, for that is the business of industries in the snack business (3), and it still displaces fresh and minimally processed nutrient-dense foods. To repeat, this is not a point about Ruffles or Pepsi-Co but about all such products and their manufacturers.

So I think it is nonsense and indeed pernicious to claim or suggest that such products are healthy and as such are good to consume regularly. Indeed, the eventual impact of 'healthy' ultra-processed products could well be to remove any existing restraints, whether in the form of regulatory vigilance or public concern. In this way, 'healthy' ultra-processed products are liable to accelerate the replacement of whole, fresh or minimally processed foods, and also the obesity pandemic. This is and should be a matter of great concern to all concerned with nutrition and public health, including leaders in the United Nations system and national governments.

Health claims are allowed by regulatory authorities, when products are formulated so as to be lower by amounts of undesirable ingredients agreed to be significant. These may be known as 'light' products. Claims are also allowed when formulations include more than additional agreed amounts of desirable ingredients. These are known as 'functional' or 'fortified' foods. See also Box 2, below.

For instance, manufacturers may make health claims when their products are significantly lower in fat, saturated fat, *trans*-fat, sugar, or salt, or higher in dietary fibre, either than previous versions of the product itself, or by comparison with similar products. A health claim can be triggered if the product is lower in say salt, even if it still contains excessive amounts, and when the other unhealthy ingredients are unchanged. Health claims are also made when products contain significant added amounts of recognised vitamins, minerals, or other bioactive compounds.

This practice may sound salutary but in many ways it is problematic. A product may make a health claim for low or no content of an undesirable ingredient, when by its nature the product would never have contained that ingredient. Cholesterol and *trans*-fats are two examples. A product previously loaded with saturated fat, say, or salt, can make a health claim when the amounts, while reduced, are still high. The fact that a health claim can be made when one undesirable ingredient is reduced but not the others is obviously troublesome. Further, products whose caloric ingredients are highly undesirable can make claims simply by substituting chemical sweeteners for sugars, or by adding cocktails of additives in the form of synthetic vitamins, minerals or trace elements, together with others that add flavour, colour, or bulk, give 'mouth-feel', or have other sensory qualities, while being nutritionally worthless.

In a competitive market, it is inevitable that transnational and other giant companies will use their muscle to push for the strongest possible health claims for products made with the cheapest possible ingredients. In so doing they are liable to force smaller companies to follow their example.

Box 2

What is a 'health claim'?

As the phrase implies, health claims, made by manufacturers of processed foods in their advertising and promotion, including on packages and labels, and as slogans, state or imply that a brand or a product has healthy qualities, or that it is generally healthy. Fresh or minimally processed foods available or sold unpackaged, typically do not make health claims. The task of explaining the value of such underpromoted foods is usually left to governments, nutritionists, and 'whole food' advocates.

A 'health claim' is not the same as a 'medical claim'. Claims that a product can prevent or treat a disease are in principle not allowed in most countries that have a competent regulatory structure, and no reputable manufacturer would claim or imply that any of its products will or could prevent or cure any form of cancer.

Health claims are meant to be more generic. For instance, many food and drink products that are high in added sugars have for many decades stated or implied that for this reason they give greater energy. 'Sports' or 'power' drinks containing caffeine or other stimulants may take such claims a stage further.

Processed products that are natural sources of a substance known or believed to have beneficial qualities may make a health claim. Thus oat products may refer to the effect of soluble fibre on blood and heart health. The same applies to products whose formulation is high in an ingredient with a specific metabolic function, such as breakfast cereals containing a lot of bran, which 'keeps you regular'. Health claims are intrinsic to the marketing success of 'functional foods' such as yoghurts and other milk products whose formulation includes specific added bacteria claimed to protect gut health. The difference between such 'functional foods' and over-the-counter pharmaceuticals is fuzzy,

Far more ultra-processed products now are 'fortified' with synthetic micronutrients. Thus, the presence of significant amounts of synthetic micronutrients added to an ultra-processed product will enable a health claim. Very heavily promoted food and drink products now make claims giving an impression that they are in effect a chic delicious 'designer' vitamin pill. Given that people generally believe that vitamins are healthy, this itself amounts to a health claim.

The line between health claims and medical claims is not clear. Manufacturers push for the right to make increasingly explicit claims, of types that ordinarily would be seen as medical, and may confront regulatory authorities with their own research results and sometimes also with resourceful lawyers. In general, claims made in countries without adequate regulatory structures are liable to be stronger. Health claims are problematic. As a general rule, any product making a health claim is liable to be unhealthy, or at least liable to be less healthy than natural, fresh or minimally processed food or drink that could be consumed instead.

An extremely short history of ‘healthy’ ultra-processed products

Manipulation of food is not new. Crop and animal breeding is a form of manipulation of food, one of whose purposes is to improve the qualities of the resulting products, but the subject here is ultra-processed products. Food scientists and technologists have been formulating products designed to have special qualities ever since the chemistry of food began to be understood early in the 19th century.

Early super-foods

Some pioneering ultra-processed products, for example the first infant formulas produced in the later 19th century, were claimed by enthusiasts, including those holding patents, to be more health-giving than the natural food. Similar enthusiasm was expressed by manufacturers and scientists for concoctions such as meat ‘essences’, whose health and life-giving qualities as claimed were however mainly for the rendered-down product itself rather than for any additional ingredient.

A glass of milk, a slice of bread and marg...

Vitamins began to be isolated and their functions identified around a hundred years ago. Synthetic vitamins and also minerals began to be mass manufactured in the 1930s. In Europe then, the main focus was on prevention of shortage or actual deficiency, and this concern became one of national priority at times of food insecurity in prewar and wartime conditions. In the US vitamins were promoted more as producers of positive health and well-being. In the UK around the time of the Second World War, white bread was ‘fortified’ with vitamins B1, B3, calcium and iron, and margarine with vitamins A and D, by law. The word ‘fortify’ is misleading, because other than calcium, which was added to bread liberally, the amounts either partially restored two of the many nutrients depleted in refining, in the case of bread, or in the case of margarine gave it the same amounts as contained in butter. In the US vitamins A and D were added to pasteurised milk.

Tang. An example of a vitaminised soft drink



A recent Tang promotion (left). The flower motif on the can advertises the synthetic micronutrients with which it is 'fortified'. Ingredients of a version are shown (right)

As said in the main text, all ultra-processed products are more or less problematic, from the nutritional point of view. Again to repeat, I am not suggesting here or elsewhere that occasional consumption of any ultra-processed product is harmful to health. The issue here is quantity, and the amount of whole, fresh or minimally processed foods that has been replaced by ultra-processed products. In my view, one of the reasons for the increasing proportion of ultra-processed products is the increasing number of these products that are making or implying health claims

The example given here is the fruit-flavour brand Tang, a drink usually sold in powder form. It is a venerable product, first marketed with reference to its 'fortification' over half a century ago. It is a world leading product. I give it as an example partly because it is now being marketed very energetically and successfully in my own country of Brazil. A \$US 50 million Tang factory opens this year in the Brazilian state of Pernambuco, offering 600 jobs, good news for the local economy,

The ingredients of a recent formulation, one version of grape-flavour Tang (this one is for the Singapore market) pictured above, show that it is much the same as soft drinks, without the water, but with added synthetic vitamins, which in other markets are specified. Hydrated versions may also be available. The sales of Tang now are over \$1US billion a year. It is identified by manufacturer Kraft, the world's third largest food processor, employing around 125,000 people, as one of its 10 global 'power brands'.

Any product 'fortified' with synthetic micronutrients listed on the label and in other promotion, is making a health claim, and is also suggesting daily consumption, for on the label vitamins and minerals are listed together with the recommended daily amounts to be consumed. In this sense, Tang has always made health claims, and has always been marketed as a good choice for children. In the US the classic Tang advertising slogan has been 'Moms everywhere trust Tang'.

Space age food

The first version of Tang powder was formulated in 1957 by food scientist William Mitchell. It was an artificial orange juice, using sugar, citric acid for the 'tang', orange colours and flavours, other additives, plus synthetic vitamins A and C, and a compound of calcium. From the start its labels specified its vitamin content, marketing it as containing some of the nutrients it would have contained had it been a juice made from fruit. As from the 1960s it was used on Gemini and Apollo missions: John Glenn and his fellow astronauts became bored with drinking the water from their life-support systems, and added Tang, whose sales were boosted by its image as space age food.

Exciting water

Kraft Foods state on their current website: 'Tang, available in more than 30 countries, is the leading brand in our powdered beverage portfolio. This fresh, fruit-flavored drink is available in a variety of flavors, based on local consumers' preferences, and is fortified with minerals and vitamins'. It is sugared, or else sweetened mostly with chemicals. The rebranding slogan is 'Tang makes water more exciting' (4).



Here is a new version of orange flavour Tang. The flash on the can says '100% daily value Vitamin C'. This is not from oranges, despite the pictures of orange slices.

Tang is now advertised as the 'world's favourite powdered beverage', with sales three times those of its nearest competitor. In 2010 Tang delivered 20 billion servings in 90 countries (5). It is very profitable, at 37 per cent, the kind of return usually associated with successful pharmaceuticals. The US market is more or less saturated with ultra-processed products and US sales of Tang, like those of other soft drinks and mixes, are not changing much.

A growth engine

In contrast with the US, Tang sales rocketed by 30 per cent in 2009 in Asia, Latin America and Eastern Europe, and totalled \$US 750 million in the South. 'Tang is right on trend with what consumers thirst for – affordability, convenience, nutrition and great fruit taste', recently said the President of Kraft Foods in Latin America. 'In Latin America, which is a major growth engine for Tang, we developed exciting flavours, new packaging innovations and breakthrough marketing to help propel the brand's growth'. The new packages include sachets, shown below.



Tang Latin American sales are booming. Innovative packaging includes sachets, convenient for school lunch boxes. Might some parents think Tang is fruit juice?

Fun for kids

A number of leading transnational food and drink processing companies are now pledged to limit the marketing of their products to younger children. Tang has been recently reformulated to correspond with the nutritional criteria established by Kraft to advertise its products only to children up from the age of 6 years.

In Brazil Tang has recently been advertised to children through a campaign called the 'Green Squad'. Children are encouraged to join these squads, collect empty sachets of Tang, and exchange them for recycled backpacks and soccer balls. Kraft says this campaign raises environmental awareness, A video broadcast on television shows a boy of maybe 7-8 years waking up at 6 am, dressing quickly, preparing and drinking one glass of Tang as his breakfast, and running to meet his squad to collect empty Tang sachets. The music is a song from a Rocky movie

Healthy for kids

'While taste is king, kids' diets in developing markets are often deficient in vitamins and minerals. And Tang is a delicious source of key nutrients', says the Kraft President of Developing Markets. He goes on: 'True to its heritage as a source of Vitamin C, Tang is fortified with vitamins and minerals... We take the global idea of fortification and localize it to meet regional nutrition needs. For example, we fortify

Tang with Vitamin C in all geographies, but in Brazil and the Philippines where kids are iron deficient, we fortify with iron as well as other vitamins and minerals' (5).

A report in the business press (6) states, with reference to the Kraft chair and chief executive officer Irene Rosenfeld: 'Besides expanding product range and getting into new markets, Irene also wants Kraft to be the voice to promote better nutrition and eating habits. Several product enhancements and social activities Kraft has started carries this essence. In Brazil, the Kraft Food Foundation has started activities with local schools and societies to bring awareness of health and nutrition among children and parents. Kraft wants to be more than just a snack or a biscuit'.

Kraft general policy, like other corporations, is to develop specific criteria for each category of their product. Notwithstanding the emphasis on 'fortification', which in my view amounts to a health claim, Kraft policy tends to be not to say their products are intrinsically healthy, but rather that their brands which conform with their criteria are healthier than other products in the same category made by other companies. Thus Tang made with chemical sweeteners rather than sugar is better than other soft drinks because it has less sugar per serving, and also has added vitamins. Tang labels do not trumpet the fact that the product contains no fat, no saturated fat, no trans-fat and is low in sugar, but does mention this. Kraft applies this policy to its other products, such as biscuits and confectionery.

Tang, Grape flavour

One example of the new versions of Tang formulated and marketed in Brazil is its *Tang sabor uva* (Tang grape flavour/taste). Its ingredient and nutrition labels are shown below. The caloric ingredients are sugar and 1 per cent of dried grape pulp and maltodextrin. The other ingredients are all additives, imparting colour, flavour and sweetness, creating and regulating acidity (the tang), keeping the powder dry and thickening it. The other additives are synthetic vitamins, and iron.

Ingredients: Sugar, dried grape pulp (1%), iron, maltodextrin, vitamins: C, niacin (vitamin B3), A, pyridoxine (vitamin B6), riboflavin (vitamin B2), folic acid; acidulent citric acid; nature-identical and natural flavours; acidity regulator sodium citrate, antihumectant tricalcium phosphate; artificial sweeteners aspartame (28.1 mg/100 ml), sodium cyclamate (11.4 mg / 100 ml), acesulfame potassium (2.9 mg/ 110 ml), sodium saccharin (1.1 mg/ 100 ml); thickeners carboxymethyl cellulose, xanthan gum, gum arabic; inorganic colour titanium dioxide, artificial colours brilliant blue FCF, bordeaux S.

Nutritional information (portion of 7 grams, 1 glass/ 200 ml of drink)

	Quantity/ % daily value (DV)	DV
Energy	26 kcal/ 109 kJ	01 *
Carbohydrate	5,6 g	02
of which sugars	5,4 g	
Sodium	29 mg	01
Iron	2,1 mg	15
Vitamin B6 (pyridoxine)	0,20 mg	15
Vitamin B2 (riboflavin)	0,20 mg	15
Vitamin B3 (niacin)	2,4 mg	15
Vitamin C	6,8 mg	15
Vitamin A	90 mcg	15
Folic acid	36 mcg	15

Does not contain a significant quantity of protein, total fats, saturated fats, trans fats or dietary fibre. * of a total of 2.000 kcal / 8.400 kJ.

Go forth and fortify

As more vitamins and minerals have become identified as essential nutrients, human requirements for them have been estimated by international and national expert panels. In parallel, a large 'health food' industry has developed, largely as an adjunct to the over-the-counter pharmaceutical business. For example, total production of synthetic vitamin C is now over 100,000 tonnes a year. Some is sold as such. Much is used as an additive in human food and animal feed.

Estimation of requirements for nutrients, coupled with industrial production of synthetic nutrients and of other bioactive compounds, drives production and marketing of ultra-processed products that make health claims. The strategy of transnational companies who make health claims for their ultra-processed products, is in effect to move into the 'health food' business, but with products that are leading brands in the centre aisles of supermarkets. Take a look and see for yourself.

The obesity crisis – a growth engine

Until recently, with exceptions as mentioned, transnational manufacturers have paid little attention to health concerns, and have concentrated on increasing market share by formulating, launching and promoting more and more increasingly palatable, convenient and cheap products.

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This focus on quantity has now increasingly become replaced by a focus on quality. In high-income countries like the US and the UK it became apparent that people simply were not able to consume more and more, unless by becoming increasingly obese. It also occurred to strategic thinkers in industry that there is more profit in quality, especially if products claimed to have higher quality, that can be sold at higher prices, actually cost little more, or even no more, to produce. It would perhaps be too cynical to say that a junk food can apparently be turned into a health food simply by adding a bunch of synthetic vitamins, but it is possible to imagine zealous company marketing directors thinking along such lines.

In the first years of this century, the evidence that ultra-processed products are an important cause of overweight, obesity and associated serious diseases became overwhelming, and accepted by relevant UN agencies and by national governments as well as by the scientific community. Transnational and other giant manufacturers, collectively known as Big Food or as Big Snack, felt threatened with the possibility of statutory regulation, other ways to restrict their freedom of action, taxation, and removal of subsidies making the ingredients of their products artificially cheap. In response industry had two choices. One was to diversify and give prime emphasis to really healthy foods such as minimally processed grains, legumes, vegetables, fruits, meat, fish, milk, and their products, most of which have low profit margins. The other was to persist with ultra-processed products but to reformulate them in ways that enabled them to be promoted as if healthy. This was an easy choice to make.

As said, the two main strategies are first, creation of 'light' products with reduced content of fats, *trans*-fats, sugars, or salt, and second, creation of 'fortified' products with the addition of synthetic vitamins and minerals, dietary fibre, and other substances. This strategy is working. It has also already been sold, through trade bodies and powerful organisations such as the World Economic Forum, to relevant United Nations agencies and national governments, in the form of 'partnerships' between the public and private sectors, said to be in the public interest. This position will be apparent at the UN Summit on prevention and control of non-communicable diseases taking place next month.

A stupendous new market

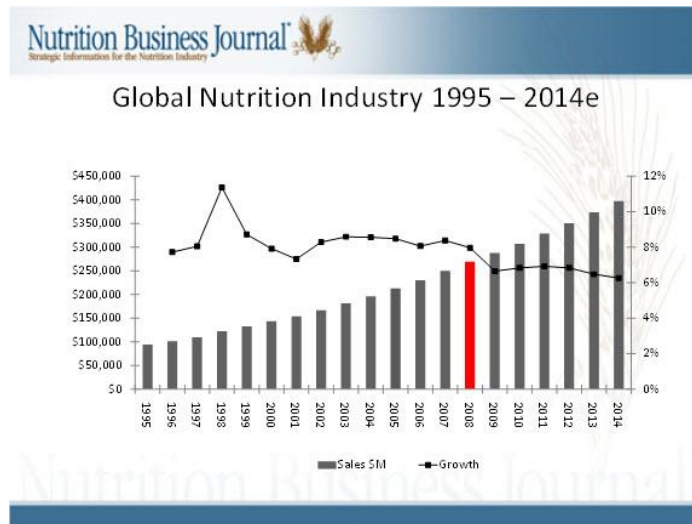
The market for ultra-processed products making health claims is already vast. The Global Nutrition Group set up by PepsiCo in 2010 estimates that the total global market for what it calls 'packaged nutrition' is in the region of an annual \$US half trillion – \$US 500 billion. This is close to the annual Gross National Product of Switzerland, ranked 19th in the tables of countries listed according to their GDP. Business journals project the global market for nutrition products as rising from less than \$US 100 billion in 1995, to more than \$US 400 billion in 2014, with annual growth over 6 per cent (see Figure 1), and project the global snack market to reach

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more than an annual \$US 325 billion by 2015 (7,8). These figures need to be treated with care. 'Nutrition products' include 'health foods' and supplements, and most snack foods are not – well, not yet – marketed as if they are healthy. But from the point of view of transnational industry, nutrition is no longer a niche market.

Figure 1

Global 'nutrition' market, 1995-2014



Seven objections to health claims

My basic objection to health claims made to promote ultra-processed products, is that by their nature, such products are not healthy. Manipulation of their formulation can only make them less unhealthy. Other objections follow from this.

1 *Ultra-processed products typically are degraded*

Ultra-processed products are mostly formulated from cheap or degraded ingredients, and typically are fatty, sugary or salty. Manipulation of the formulation to reduce any of their ingredients, or to add synthetic nutrients, does not change their basic nature.

2 *'Healthy' ultra-processed products may well increase obesity*

Ultra-processed foods making health claims are being marketed as if they are good to consume without limits. If this is accepted by policy-makers, regulations remain relaxed, and customers accept the industry line, such products are liable to be

consumed in greater quantities. Their overall impact particularly on obesity could be worse than the impact of ultra-processed products that do not make health claims

3 *Traditional food systems will be undermined faster*

In countries whose industrial development was completed a long time ago, such as the US and UK, long-established food systems and culinary and dietary traditions have dwindled or vanished, forever. Their food supplies have become increasingly ultra-processed in recent decades, but not transformed. The situation in Asia, Africa and Latin America is entirely more serious. In the South, long-established traditional food systems result in dietary patterns that are culturally appropriate, environmentally sound, economically sensible, climatically rational, able to sustain rural populations, and which are well understood by settled populations. These are now in the process of being wiped out by the incursion of ultra-processed products. This catastrophe can only be made worse by products marketed as if they are healthy.

4 *Regional and national identities will be erased*

Correspondingly, lower-income nations will become increasingly dependent on foreign capital and on the fluctuations of the money and commodity markets. This point is not fanciful. It is fundamental, from the point of view of producers and consumers most of all in the most fragile lower-income countries.

5 *Products claimed to be healthy are poor value for money*

The ‘added value’ of ‘healthy’ ultra-processed products is liable to be translated into higher prices for products that remain unhealthy. This is a poor bargain, especially for those with little disposable income, and most of all for anxious while impoverished parents. They displace fresh and minimally processed foods, which are almost always much better choices.

6 *‘Healthy’ products give conflicted industry freedom to do what they want*

‘Healthy’ ultra-processed products help transnational and other giant manufacturers to say, in effect: ‘There is no need for statutory regulation of our products. We can be left alone to fortify our products and thus solve problems of population health’. This argument has some traction in impoverished countries where food and nutrition insecurity is still a big issue. The argument is itself fortified by foundations set up by conflicted industry that disperse money in Africa and Asia. As I have stated, I believe that in all other respects, including with obesity and chronic diseases, already raging epidemics in the South, the argument is specious.

7 *The one and only rational policy is to promote really healthy food*

In times to come it will surely be seen as absurd, that in these days almost all discussion at high and influential levels on public health nutrition was between policy-makers and that section of the food and drink industries whose products are harmful to public health; and further, that agreements determining the nature and quality of international food systems focused on tinkering with intrinsically unhealthy products. All of us professionally concerned with nutrition and with public health should be focusing our attention on working with all the sectors of industry whose business is really healthy food.

Box 4

Responsibility for regulation

Industry is not a regulator. The task of regulation in the public interest is a prime duty of governments and their agencies. The protection and maintenance of public health always requires the use of law, to protect public goods and to make the lives of citizens, especially those with few resources of their own, more safe, free and enjoyable. Protection against disease and promotion of well-being is or should be a permanent top priority of governments, not just on paper, but in practice.

The issue with health claims is not the responsibility of industry. Competitive companies have a responsibility to their financiers, their shareholders, and their bottom lines, to push their products as hard as they can, and to make them as attractive as possible including to children, as long as they remain within the law. The responsibility is that of legislators.

Can regulation be made to work?

Regulatory authorities throughout the world allow manufacturers to make health claims for their products when these conform to specified nutritional criteria. A problem here is that most relevant food law, including that relevant to nutritional health, is made by international organisations often seen to be run in effect as extensions of industry, distant from elected legislators. Proposals for justification of health claims are commonly made and pressed by manufacturers. Criteria have become more permissive, in a context of what is called 'regulatory capture'. This includes employment of regulators who have an industry background.

The criteria for health claims vary from country to country, and their effectiveness depends to some extent on the ability and willingness of regulators to enforce them, the skill of company lawyers who defend company practices, and the judgements made when cases come to court.

National governments or their agencies can invoke over-riding considerations of public health, although such an action can be challenged in courts of law. Given the size of transnational corporations, it is reasonable to say as a broad generalisation that the smaller the country, and the less resourced its government ministries and agencies, the more permissive will be the practice on health claims. The answer to the question 'can regulation be made to work?' is 'with difficulty'.

Conclusion

Especially since the 1980s in high-income countries, and then globally, ultra-processed products have rapidly displaced previous dietary patterns and traditional meals and diets. None of this will be changed for the better by ultra-processed products that make health claims. To the contrary, 'healthy' ultra-processed products may well accelerate the deterioration of public goods and public health.

As well as being convenient, not needing meal-times or even a table or plates and implements, ultra-processed products are formulated to be intensely palatable and even quasi-addictive. They are very profitable and marketed energetically, notably by transnational companies with vast budgets. Their main ingredients are typically very cheap, and some of the savings may be partially passed on to customers as relatively cheap prices. One result of all this – unsurprisingly – is the current uncontrolled pandemic of overweight and obesity, and rapid rises in diabetes and other associated non-communicable diseases. Prevention and control of NCDs is the topic of the Summit being held at UN headquarters next month, although – curiously – obesity is being downplayed.

All types of ultra-processed product are unhealthy. The most rational recommendation is that no such products, however reformulated, should be allowed to make or to imply health claims. Short of this, the relevant United Nations agencies should recommend, and international regulatory bodies and national governments should require, that by law, all ultra-processed products, whether or not claimed to have healthy qualities, be prominently labelled with a statement saying that they should not be consumed regularly or daily or in large amounts.

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CAM states: Geoffrey Cannon has worked with me on all these commentaries and I regard him as my co-author. All the commentaries have benefited from discussions I have had in the last two years or so with Inês Castro, Renata Bertazzi-Levy, and Rafael Claro, and also with Geoffrey Cannon and Fabio Gomes, who are co-authors with me of other papers, published (2,3) and in preparation. I have no conflicts of interest.

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