

Tax on sugar sweetened beverages and influence of the industry to prevent regulation

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Abstract

Consumption of sugar sweetened beverages in Germany is high compared to other nations worldwide. Sugar sweetened drinks contribute to the development of obesity and type 2 diabetes mellitus. Secondary diseases are presenting the health care system with enormous challenges, which is why prevention of those diseases must be a priority. A tax on sugar sweetened beverages as part of a comprehensive strategy can contribute substantially to obesity prevention, as experience has shown in Mexico, France, and the USA. The food industry is using the same tactics as the tobacco industry to prevent effective regulation. With strong political will and support from professionals and the public, however, it is possible to introduce a tax on sugar sweetened beverages despite massive resistance by the industry.

Keywords: obesity, prevention, food industry, sugar tax, nutrition policy

diseases, reduced quality of life, and lower life expectancy [9, 10] (♦ Figure 1). The prevalence of obesity and T2DM has taken on alarming proportions. In Germany, 18% of adults are obese, that number being on the rise [11], and even 6% of children and adolescents are severely overweight [12]. 7.7% of adults in Germany suffer from diabetes (type 1 and type 2, not including gestational diabetes) [13].

The severe health consequences of obesity and diabetes put an enormous burden, not only on the affected persons but also on society and the social health insurance systems. According to an estimate, the long-term health effects of obesity in Germany result in costs of about €63 billion per year [14]. It is therefore essential to prevent the development of obesity, and to reduce the number of existing cases of obesity in order to minimize the occurrence of secondary diseases.

Solution strategies

The ideal way to prevent obesity is a combination of behavioral and structural prevention. Behavioral prevention aims to change the health behavior of individuals; structural prevention means to modify the living environment in such a way that it promotes a healthy lifestyle [15]. Current living environments, however, tend to stimulate physical inactivity and an increased intake of energy-dense foods.

What is needed, therefore, is a comprehensive strategy that addresses many different areas of life in

Introduction

Germany is among the top ten countries in the world when it comes to consumption of sugar sweetened beverages [1], and is also at the top of the list in terms of juice consumption as compared to other European countries [2]. In 2016, German per capita consumption of sugar sweetened beverages was nearly equal to the consumption of mineral water: 116 L soft drinks, 33 L juice, and 153 L mineral water [3]. Especially children, adolescents, and young adults consume large quantities of sugar sweetened beverages: In this group, almost half of the drinks consumed are juices and soft drinks [4].

Sugar sweetened beverages contribute to the development of obesity [5], type 2 diabetes mellitus (T2DM) [6], and caries [7, 8]. Obesity and T2DM are particularly significant, as they are primary causes of several severe

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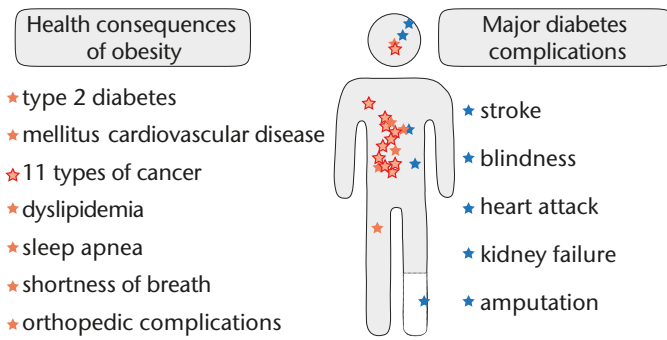


Fig. 1: Health consequences of obesity and diabetes [own illustration according to (9, 10)]

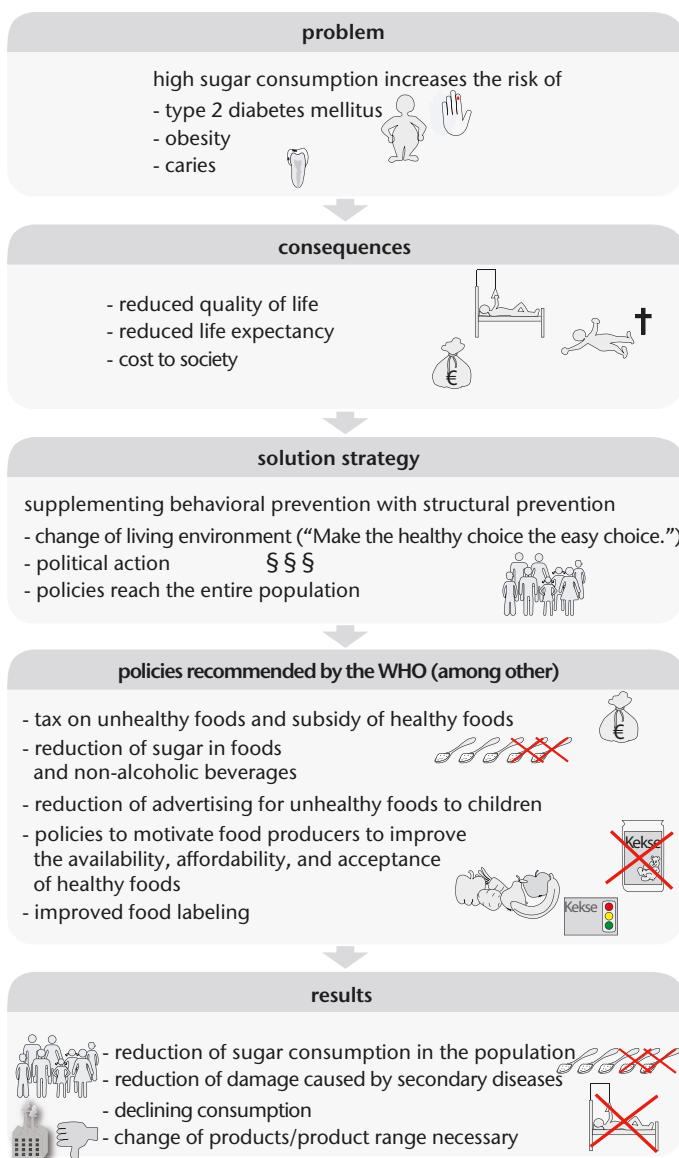


Fig. 2: Consequences of high sugar consumption, strategies for reduction of sugar consumption and consequences for public health and manufacturers [own illustration according to (9, 10, 15–17)]

order to effectively prevent the development of obesity – ideally during childhood. The World Health Organization (WHO) recommends a package of several effective measures¹, some of which target the reduction of sugar consumption [16, 17] (♦ Figure 2).

Influence of the food industry

Some important obstacles will have to be overcome before a tax on sugar sweetened beverages can be introduced (♦ Box), because the food industry is opposed to any measures that would lead to a reduced consumption. The industry goes to great lengths to prevent effective regulation, employing the same tactics as the tobacco industry [18, 33]. These include direct policy interference (lobbying), influencing research and the media, as well as corporate social responsibility (♦ Figure 3). Manufacturers use these tactics to build up opposition against such measures in politics as well as in the population, while promoting weak voluntary commitments and education measures instead.

A systematic review of the literature regarding the influence of the industry was conducted. For this review, the literature published between 1 January 1987 and 31 August 2017 was searched in the literature database PubMed on 31 August 2017. Search terms included “sugar sweetened beverage*, ssb*, soda*, soft drink*, carbonated beverage*, sugar-sweetened*, beverage*, sugar, industry, economic, interfe-

¹ Article “Instrumente der Ernährungspolitik. Ein Forschungsüberblick” (Instruments of nutrition policy. A research overview) [19]

Powerful policy: tax on sugar sweetened beverages

One key element of a comprehensive strategy is the implementation of fiscal policies, because they have multiple effects. A price increase for unhealthy foods, for instance, motivates consumers to buy less of these products. For sugar sweetened beverages, price elasticity of demand, i.e. the change in demand as a reaction to price changes, is -0.79 to -1.3 [18, 19]; that means that a price increase of 10 % would decrease consumption by 7.9–13 %. Persons with low incomes, young people, and overweight people are particularly price sensitive [18]. Modeling and experimental studies point out that a tax increase raising the price of sugar sweetened beverages by at least 20%, likely would decrease the consumption and the associated health consequences proportionate to the price increase [18].

Simultaneous significant reduction of the value-added tax on healthy foods like fruits and vegetables could avoid a disproportionate burden on low-income individuals and at the same time promote switching to healthy foods [20]. Ideally, the health consequences – particularly obesity – would decline in the long term as a result of the reduced consumption of unhealthy products. At the same time, taxes on unhealthy foods are an incentive to the industry to change unhealthy products by improving their nutritional quality – this, too, contributes to a healthier diet [18, 21]. Beyond that, taxes on unhealthy foods increase government revenue, which could be earmarked for obesity prevention [18]. Price-related measures are particularly significant because they address the lower income segment of the population, where excess weight and obesity are more prevalent than among people with higher incomes. This way, price-related measures can even contribute to mitigating health inequalities [22].

According to intervention and modeling studies, a tax on sugar sweetened beverages has the largest effect of all pricing measures. It has the potential to positively influence consumer behavior, particularly if it is imposed simultaneously with financial incentives on fruits and vegetables [18]. Several countries currently levy a tax on sugar sweetened beverages, among them Mexico, France, Ireland, and the United Kingdom, other countries are considering the option [18]. However, the industry has prevented such a tax from being introduced in several countries. Denmark, for instance, cancelled a proposed sugar tax in 2012 in response to intensive lobbying by the sugar industry. Finland refrained from an increase on the tax on sweets that has been in effect since 2010 because of a complaint by the Finnish Food and Drinks Industries' Federation to the European Court of Justice [23, 24].

First evaluation studies in countries with a tax on sugar sweetened beverages indicate that these taxes are effective, at least in the short term: They lead to price increases and are thereby passed on to consumers, although the extent differs between the various types of taxed drinks and the point of sale [23, 25–27]. Also, the tax influences consumer behavior: Demand declined in all countries that were evaluated [23]. In Mexico and in Berkeley (California/USA), the tax caused a reduction in purchases of sugar sweetened beverages of 6 and 9%, respectively, and sales of untaxed drinks, particularly water, increased by 4 and 15% [28–30]. This trend continued in Mexico during the second year after the introduction of the tax [31]. The effect varied in intensity depending on socioeconomic status: low-income households reduced the purchases of sugar sweetened beverages more significantly [29, 31, 32]. There is no evidence as yet to what degree these taxes have long-term effects on consumer behavior, body weight, and public health.

rence, influence, regulation, tax”, and were linked with operators. The initial search identified 1,539 articles, of which 104 were selected based on the title. After exclusion of duplicates, editorials, commentaries, news, essays, features, and contributions with unsuitable topics, 19 articles were included in the review; 3 more were located by means of cross-references. In addition, hand-searched reports by economic, health, and

lobby control organizations were included.

Influence on politics

In order to prevent strict regulation, producers are not only influencing politicians directly, but are also creating special interest groups and front groups that represent their interests to policy makers and the public. The

industry and its lobby organizations argue that taxing sugar sweetened beverages is ineffective, undifferentiated, has a disproportionate effect on low-income households, promotes cross border shopping and smuggling, harms the economy, and destroys jobs [34]. The industry points out that it could solve the problem by reformulating the products and that education, product labeling, and nutritional guidelines are more effective [34, 35].

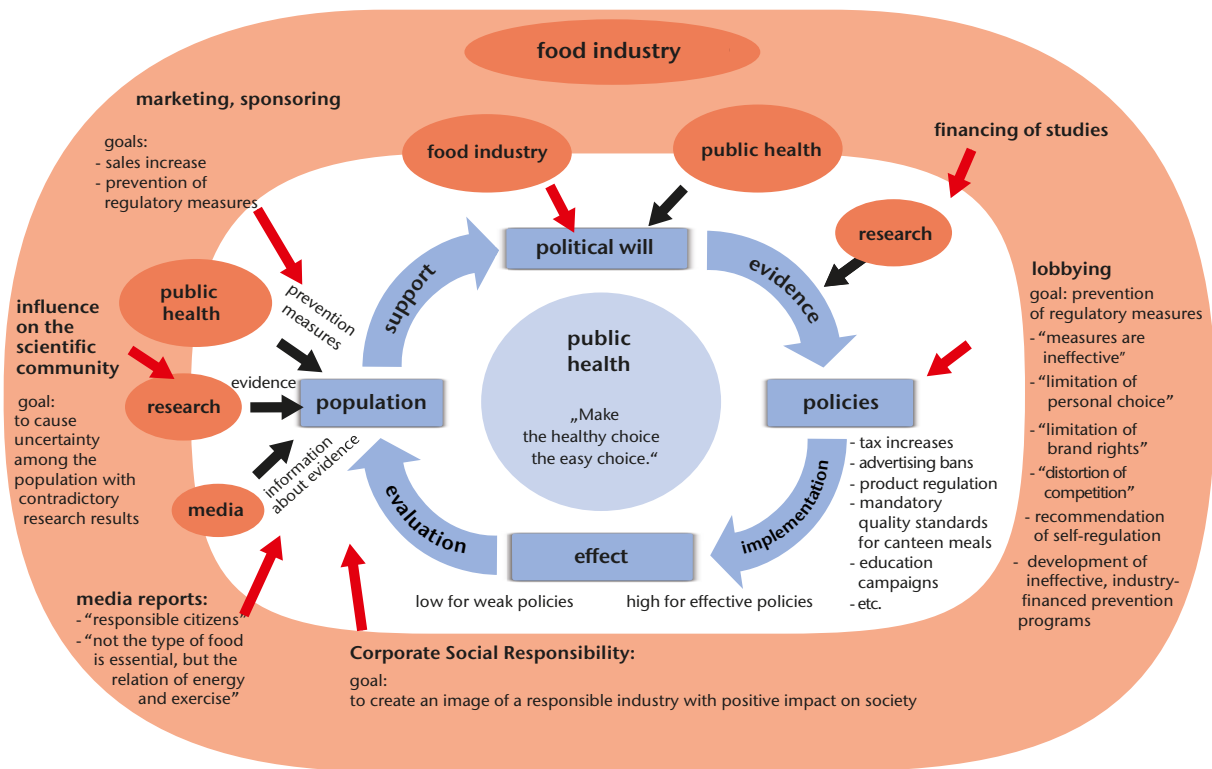


Fig. 3: Influence of the food industry to prevent effective regulation [own illustration]

In public discourse in Germany, the special interest groups of the sugar and soft drink industry take the position that there is no correlation between sugar consumption and excess weight. They explain that the sole driving factor is a person's energy balance, and that the source of the energy makes no difference whatsoever; they also emphasize each person's individual responsibility for their own diet [36, 37]. Arguments against a sugar tax are: A sugar tax has no effect on consumption and excess weight, leads to loss of jobs and limits citizens' freedom of choice [33, 36, 38]. The producers' lobby declares that "responsible consumers" are able to decide based on the mandatory information of food labels "what products meet their wishes and current needs"; furthermore, sugar sweet-

ened soft drinks as part of a "diverse and balanced, yet pleasurable diet" can certainly be a component of balanced nutrition [36].

In the USA, Coca-Cola, PepsiCo, and their lobbies resisted 29 regulations or proposed regulations between 2011 and 2015. Between 2011 and 2014, Coca-Cola spent about \$6 million per year for this lobbying activity, PepsiCo spent around \$3 million, and the American Beverage Association about \$1 million [39]. In 2009, PepsiCo threatened to move its headquarters out of New York when the state considered introducing an 18% tax on sugar sweetened beverages [40]. In Mexico, the food and beverage industry influenced the responsible ministries, successfully delaying the introduction of a voluntary commitment to fight obesity and weakening the guidelines [41].

Self-regulation

As an alternative to strict regulation, the industry offers voluntary commitments. However, these are generally weak, give a lot of leeway, usually do not include sanctions, and measurable effects are rather sparse [42, 43].

For instance, in the EU Pledge to regulate food and beverage advertising aimed at children, the participating companies set different age limits for the definition of "children" and selected different products to fall under the pledge [44]. The definitions of a similar US commitment were similarly inadequate; furthermore, companies not participating in the pledge continued to advertise products excluded by the agreement [45].

Companies participating in the Canadian Children's Food and Beverage Advertising Initiative pledge to either

advertise only those foods to children that satisfy defined nutritional criteria, or to not advertise to children at all. According to an analysis of food and beverage advertising on several TV channels, the agreement had no significant effect on the children's TV food advertising environment [46]. On the other hand, a report by Advertising Standards Canada, an industry-supported entity responsible for monitoring this voluntary commitment, confirmed "full compliance" in the TV advertising [47]. In Spain, almost half of the ads on television did not comply with the requirements of the voluntary commitment for food and beverage advertising directed at children [48].

In Australia, where the industry introduced the Daily Intake Guide as a voluntary initiative, most food producers did not use the food label recommended as a standard in the initiative, which lists the energy content as well as the amounts of fat, saturated fat, sugar, and salt. Instead they generally used the least informative label, which only lists energy content [49].

A voluntary regulation on the sale of soft drinks in elementary schools was largely unfamiliar to schools in Spain [50], and in the USA, such an agreement was not very restrictive, involved only the three largest beverage producers, and was voluntary for the schools [42]. According to a study supported by the American Beverage Association, an entity representing the interests of the US beverage industry, the voluntary commitment was effective: After the agreement was established, the proportion of sugar sweetened drinks sold in schools declined, the proportion of water increased, and the energy content and bottle size of beverages both decreased [51].

Influence on research

The industry is influencing research with the goal of generating contradictory research results, which cause

uncertainty among researchers and the public. For instance, the sugar industry in the USA sponsored a research program as early as the 1960s and 1970s, which came to the conclusion that fat and cholesterol are the main causes of cardiovascular disease; the role of sugar in this context was downplayed [52]. The correlation between sugar consumption and obesity is also questioned. Several current reviews show that studies that involve a conflict of interest with the food industry are significantly less likely to find any correlation between the consumption of sugar sweetened beverages and body weight and the consequences of obesity than do independent studies [53–55].

In caries research, the sugar industry in the USA was able to influence the research of the National Caries Program, so that it did not focus on the caries-causing effects of foods, but on methods of preventing caries without restricting sugar consumption [56]. The sugar industry also tried to influence the WHO's guidelines on reducing sugar intake. The main strategy consisted of spreading doubt about the scientific basis of the guidelines, introducing other risk factors like lack of exercise into the discourse, and suggesting solutions for reducing the risk of caries by administering fluoride [57, 58].

Influence on the media

The industry tried to use the media to downplay the health risks of sugar consumption and thus impact public opinion. Industry representatives appear in the media primarily when regulation is to be introduced. Their main arguments are that sugar sweetened beverages alone are not responsible for obesity, and that the proposed regulatory measures are exaggerated and damaging to the industry. Instead, self-regulatory measures are presented as being effective [59]. In the British press, producer-friendly

newspaper articles appeared in 2014 which declared that not sugar is responsible for excess weight, but an unbalanced diet. They emphasized individual responsibility for one's diet and focused on the importance of physical activity for weight control [60].

Corporate Social Responsibility

Producers present themselves as part of the solution by initiating Corporate Social Responsibility (CSR) programs that include physical exercise and nutrition education. For instance, the PepsiCo Foundation supported programs promoting a healthy lifestyle and healthy diet with \$1 million in 2012. Dr Pepper Snapple sponsored the establishment and maintenance of playgrounds with \$15 million, and the Coca-Cola Foundation grants about a third of its philanthropic expenditures to organizations that fight obesity, with promotion of exercise being a special focus [35, 61, 62].

Marketing

Producers use advertising not only to promote their own products, but also to prevent planned regulation. The beverage industry in the USA, for example, invested over \$10 million in an extensive ad campaign on TV, radio, and billboards, and in paid staffers going out into the public in Berkeley and San Francisco to turn the population against the planned tax on sugar sweetened beverages and to prevent the regulation [18].

Situation in Germany

In German politics, a tax on sugar sweetened beverages currently meets with little support. Instead, Germany focuses its obesity prevention mainly on behavioral prevention in children and adolescents, and relies on voluntary commitments by manufacturers [15]. However,

Countermeasures by the industry

Experience in countries which have introduced a tax on sugar sweetened beverages, particularly Mexico and the USA (Berkeley), shows that it is possible to introduce such a tax despite massive resistance by the industry. Prerequisite is a well-planned campaign supported by a broad coalition of decision makers, health organizations, and grass roots organizations [18] – a base movement that has yet to be formed in Germany.

effective obesity prevention requires a combination of different measures that address different issues at the same time, and motivate individuals to change their behavior in addition to creating a health-promoting environment. A tax on sugar sweetened beverage as part of such a package of measures can make an important contribution to obesity prevention [16, 19].

Health organizations support such a tax. For instance, the German Alliance Non-communicable Diseases (*Deutsche Allianz Nichtübertragbare Krankheiten* = DANK) recommends, among other policies, a health-promoting restructuring of food taxation: This includes lowering the sales tax on healthy foods with low fat, sugar, and/or salt content, and a simultaneous tax increase for processed foods with a high fat, sugar, and/or salt content. The tax structure is to provide incentives for a healthy diet, without unduly increasing the burden on citizens [63]. However, certain aspects of such a tax could be problematic: A tax on sugar sweetened beverages could, for example, have a regressive effect, meaning it could affect low wage earners more than higher income brackets. In that context it must be

said that unhealthy diet and obesity are particularly prevalent in the lower-income segment of the population – a tax could therefore have greater effect on this target group especially. In addition, a regressive effect could be counteracted by making healthy foods and beverages more affordable through tax breaks or subsidies [18, 19, 23]. Substitution processes must also be considered: Consumers replace the taxed products with other sugar sweetened products (e.g. juice), switch to cheaper brands or stores, or turn to low-sugar/sugar free products (e.g. water, diet varieties). With a carefully thought-out tax structure, these substitution processes can be controlled in such a way that possible negative health effects are kept to a minimum or avoided [18].

According to two simulation calculations, a sales tax on beverages with added sugar (not including juices and dairy products) of 20% in addition to the value added tax could reduce sugar and energy consumption in Germany. According to the calculations, this effect would be much more pronounced in men than in women, and also in younger and low-income persons. The calculations also reveal that such a tax could reduce the development of caries and lower the number of persons with excess body weight by 3%, and with obesity by 4% [64, 65].

Conclusion

In Germany, measures available for obesity prevention are far from being fully utilized, despite urgent need for action. A tax on sugar sweetened beverages would have the potential to motivate consumers to consume less sugar sweetened beverages. At the same time it can be an incentive for the industry to reduce the sugar content in beverages. In the long term, it can lead to healthier diets and weight stabiliz-

ation among the population. Producers are employing different methods to prevent effective regulation such as a tax on sugar sweetened beverages. Being able to introduce a regulatory tax despite massive resistance takes strong political will and public support. Scientific associations and health organizations can contribute substantially to the effort by providing sound information.

Conflict of Interest

The authors declare no conflict of interest.

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