

Abstract

Proposed legislation on food advertising directed towards children and the relevant science

Studies provide no evidence that advertising bans are effective

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How reliable is the scientific and statistical basis for a frequently called-for advertising ban on foods that do not meet the requirements of the WHO nutrient profile model? Inter al., our motivation for investigating this subject-matter is a statement made by Prof. Dr. Berthold Koletzko, a metabolic specialist at the University Children's Hospital in Munich and chairman of the Stiftung Kindergesundheit (Children's Health Foundation), who has opined that "the findings of relevant studies are crystal clear" and sums up topical (media) opinion thus: "Exposure to advertising is directly linked to an increase in overweight and obesity."

Neither children's health nor their food consumption is appropriately taken into account

An unbiased assessment of the relevant studies comes to the contrary conclusion. There is no evidence of a causal link between children's exposure to advertising and increased overweight and obesity levels. Instead, the following holds true: the studies that supposedly serve as a basis for this opinion,

- i. either make no such claims whatsoever, or
- ii. are not methodologically appropriately constructed to demonstrate a causal relationship to health outcomes, or
- iii. are so flawed in terms of content and methodology that the conclusions drawn by the respective studies are baseless.

Hence, study results are (i) misinterpreted by third parties, (ii) do not take into account the possible and causative risk factors, or simply cover too short an observation period,

or (iii) do not adequately adjust the significance level, so that the risk of false-positive results is far greater than the typically accepted 5%.

In addition, there is the problem of publication bias – studies with statistically significant effects are more likely to be published, leading to a disproportionate reporting of random effects.

In principle, without a randomised controlled trial, a causal relationship is practically impossible to prove or can only be proven using complex statistical methods (e.g. instrumental variables). In particular, it is questionable whether childhood obesity is caused by the exposure to advertising or rather by associated excessive media consumption and low physical activity.

Is there indeed proof in what is purported to be evidence?

A statistical association between a health problem and risk exposure is frequently taken as evidence of a cause-and-effect relationship. But often the direction of the relationship is not clear: if people with (moderate) alcohol consumption live slightly longer than abstainers, this does not mean that alcohol is conducive to good health. It may also be that people do not drink alcohol because of health problems and die earlier. Moreover, the term "statistical significance" is often misunderstood. "Statistically significant" means that, assuming a random process, an observed result would be extremely unlikely if the effect being researched upon did not exist. If this is nevertheless observed, it produces a false-positive result ("type I error").

An evidence-based preventative policy measure – such as an advertising ban – requires "evidence of the preventive potential based on representative national exposure data and evidence-based risk estimators". Hence this requires, in addition to 1) the demonstration of a causal relationship between exposure and a health problem, 2) a valid estimation of the preventive potential of the intervention, and 3) ongoing evaluation including a criterion to terminate the intervention if the expected level of effectiveness cannot be achieved.