Evidences to validate public policies: a review with an international research perspective

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Abstract

Nutrition and related health issues are nowadays topics of general interest. The prevalence of overweight and obesity has increased with alarming speed over the past twenty years, being described by the World Health Organization as a global epidemic. An evidence-based approach to public health interventions should be based on the best available information. Given the substantial investment of society in fundamental and applied health research, and the high expectations of society for reducing the burden of illness, attention to these matters should have high priority. There's an urgent need to foster the development of international standards, such as food labeling and profiling. Considering the complex network involved in obesity development, it is necessary to promote multiple-concurrent interventions, taking into account that by focusing on a single intervention in isolation, all other factors being constant, each individual policy change is likely to appear ineffective.

Key words: policy making; nutrition programs and policies; research policy evaluation

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Resumen

El sobrepeso y la obesidad, hoy definidos por la Organización Mundial de la Salud (OMS) como una epidemia global, son un importante problema de salud pública internacional. Su rápida propagación no sólo afecta a los países desarrollados, sino también a los que están en desarrollo, los cuales enfrentan la doble problemática de la desnutrición y el sobrepeso. Dada la importancia de la investigación sanitaria y las grandes expectativas de la sociedad para reducir el impacto de esta enfermedad, la atención de estos asuntos debe ser prioritaria. Existe una necesidad urgente de fomentar el desarrollo de normas internacionales como el etiquetado de alimentos y la elaboración de perfiles. No obstante, al igual que sucede con la medicina individual, los enfoques para intervenir en la salud pública han de fundamentarse en la mejor evidencia disponible. En el caso específico de la obesidad, puesto que se trata de una red compleja de factores, es indispensable promover intervenciones simultáneas. Lo contrario podría derivar en políticas individuales que no logren resultados eficaces. Este artículo propone, desde un punto de vista basado en las evidencias actuales sobre la obesidad y su desarrollo, una nueva perspectiva internacional para enfrentar esta epidemia.

Palabras clave: formulación de políticas; programas y políticas de nutrición y alimentación; evaluación de políticas de investigación

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The initial conception for what would later become known as evidence-based medicine (EBM) was originated by clinical epidemiologists at McMaster University in Canada.[1] In 1996 Sackett's editorial openly stated the role of EBM for clinicians, public health practitioners, purchasers, planners, and the public.[2] The author summarized how EBM represented the conscientious, explicit, and judicious use of existing best evidence in making decisions about the care of individual patients. Randomized controlled trials (RCT), especially the systematic review of several RCT, are therefore considered the gold standard of good evidence, followed by cohort studies (CS) and systematic reviews of CS. This methodological approach is considered by its supporters much more adequate to inform practitioners and policy makers; although throughout the years there have been several critics to this method.

Like in medicine, an evidence-based approach to public health interventions should be based on the best available evidence.[3] Given the substantial investment of society in fundamental and applied health research, and the high expectations of society for reducing the burden of illness, attention to these matters should have high priority.[4]

Nutrition and related health issues are nowadays a major public health concern. The prevalence of overweight and obesity has increased with alarming speed over the past twenty years, being described by the World Health Organisation (WHO) as a 'global epidemic'. The rapid spread has concerned not only developed countries,[5-7] but developing countries,[8-11] that face the double burden of malnutrition and overweight.

Scientific evidence is fundamental for decision making processes at public health levels, as advocated in several studies.[12,13] This article aims at observing from an EBM point of view current evidences on obesity and its developments, proposing a new international perspective, intended to tackle the epidemic through new approaches.

Discussion

Obesity: a complex scenario for policies development

Obesity has been gathering massive attention in public health research in the last years,[14] due to its rapid spread and its multifaceted implications in a broad range of public sectors, including health, psychology, economy and politics.[15]

Several factors have been identified as playing a role in obesity development. Energy intake role is well established.[16] Swinburn and colleagues' model explained that for a reversal of body mass index (BMI) a 1970's value, it would be needed a reduction of the increase in energy intake of approximately 500 kcal/day for adults and of 350 kcal/day for children. The authors moreover pointed out the role of physical activity, showing that a large compensatory increase in physical activity or a combination of both, would achieve the same outcome. A positive energy balance is therefore responsible for weight gain, in an obesogenic environment where the net effect of eating behavior and physical activity are modulated by biological traits that are highly prevalent in the population, as described by Bouchard.[17]

In a disease where complexity of associations and reciprocal influences appear to be the norm,[18] public health policy makers have identified two main targets of action: individual responsibility, an unexplored field of politics, and the obesogenic environment. When considering personal behavior, intervention programs have been mostly directed towards public awareness campaigns and school-programs.[19] In order to help consumers in making reasoned and healthful choices, food labels are seen as a powerful tool. Clear and easily understandable labels can contribute to increase consumers' awareness about their purchasing choices.

The obesogenic environment, on the other side, has been objective of a broad range of policies at the national level. If childhood obesity is seen as having an environmental component, then policy makers are asked to act to actively reduce high-calories, low-nutrition food available to children. Among the proposed options, four actions seemed to be the most frequently considered:[20] a) controlling the conditions of sale; b) restricting advertising on high fat, low-nutrition food; c) subsidizing healthier alternatives such as fruits, and d) restricting or banning some ingredients, such as trans fats.

In 2011, Hawkes and Lobstein reviewed the actions undertaken worldwide around food marketing to children.[21] The policy environment was described in the 27 member states of the European Union, and in a further 32 countries, among those, three Latin American states (Brazil, Chile and Colombia). Of these 59 countries, 26 had made explicit statements on food marketing to children in strategy documents, and 20 had, or were developing, explicit policies in the form of statutory measures, official guidelines or approved forms of self-regulation. Despite the fact that in developing countries, the issue of childhood obesity is usually not high on government health agendas, several developing countries took action in order to reduce the effect of marketing to children.[21]

Brescoll's article pointed out several actions undertaken,[22] among those programs that reduced

marketing to children. When specifically considering leveraging on taxes, it's worth looking at the United States (US) soft drink case. Forty US states currently levy small taxes on soft drinks, potato chips, candy, chewing-gum. These policies have been implemented based on evidence coming from small experimental studies,[23,24] with inconclusive results when extended to real world investigations.[25] Moreover, the evaluation of impact of taxation on such items showed negligible effects and no statistically significant connection between grocery stores and adolescents' BMI.[26]

Another popular action implemented in several countries was prohibiting sales of targeted food.[27,28] The term "competitive food" refers to all food and beverages available or sold in schools with the exception of items served through the national school lunch and breakfast programs. A cross-sectional study among 1 088 high school students from 20 schools observed that school food policies that limited access to food high in fats and sugars were related to less frequent student purchases of these foods at school.[29] Qualitative studies indicated that competitive food were contributing directly to children's obesity, taken that ready availability of competitive food boosts in-school purchases of soda and snacks, but without effect on BMI and physical activity levels.[30]

In Europe the EU Platform for Action on Diet, Physical Activity and Health was launched in 2005, with the aim of bringing together EU-level representatives of the food industry, advertisers, retailers, fast food restaurants, the cooperative movement, the consumer movement and health NGOs in order to galvanize EU-wide efforts against obesity, with actions developed in the fields of consumer information and education, the marketing of food products, composition of food, availability of healthy food options, portion sizes and the promotion of physical activity.[31] The focal areas for these voluntary actions covered promotion for a healthy lifestyle, education, nutritional information and labeling, dissemination, advertising and marketing, product redevelopment, reformulation, portion size and policy development.[32] Given the Platform's nature, continuous monitoring and appropriate evaluation were a crucial need to identify best practices; in spite of which there were very limited evaluation and monitoring tasks. In March 2007, for the second anniversary of the Platform, the Second Monitoring Progress Report was published.[33] The research indicated that there were major differences in quality between reports and that 'a significant number of monitoring forms were not entirely adequate'.

In this fragmented yet constantly evolving scenario, the complex situation faced by a policy maker can be well pictured through two fitting examples of different procedural moments. The first one introduces snacking research, showing the roots of policies meant to tackle children's obesity, while the second one, food labeling, is aimed at presenting issues and actual effects of an implemented strategy.

A controversial snack on consultations' tables

Eating frequency (EF) has been for a long time at the centre of the debates, without reaching a formal consensus.[34] The main target of the research has been whether the number of meals external to lunch and dinner would benefit or not in weight management and reduction. Higher EF has been suggested to be more successful in weight management, considering snacks higher in carbohydrate as positively replacing fat.[35,36] An opposing belief is that a higher EF may lead to weight gain as it provides more opportunities to eat during the day, resulting in an excess daily energy intake.[37]

All this unclearness in statements and results can be ascribed to a major limitation in meals' frequency and composition research: the lack of standardized definitions.[35,38] When considering the term snack, two concurrent classes of snack definition, plus some hybrids, are available.[38] Based on food categories, consisting in a taxonomy of food, snacks can be identified by their quality and composition,[39] while based on the time criterion, every food item consumed between meals is considered to be a snack.[40] Gregori and Maffeis reviewed literature referred in PubMed library between 2003 and 2006 concerning snacking in children.[38] Fifty percent of the papers were not specifying the definition snack in studying association with obesity, neglecting the fact that up to 70% of the association eventually found can be attributed to the chosen definition. Together with these methodological considerations, that may affect the accuracy of the information offered as well as the validity of the conclusions proposed,[38,41] studies performed did not find a clear association between different aspects of dietary intake and the development of obesity in children and adolescents.[41]

Labeling: a helpful or a tricky tool?

Nutrition profiling and product labeling are composite tasks, which imply translating nutrients into healthy food and healthy eating patterns and understanding the decision-making process in food choice. Nutrient profiling can be defined as the discipline of characterizing food for specific purposes based on an assessment of their nutrient composition according to scientific and pragmatic principles. Product labeling instead is a panel found on a package of food which contains a variety of

information about the nutritional value of the food item. Current food labels differ in various respects. Labels can be positioned on the front side of the package, the back or the side. There's a wide choice of formats for front of pack (FOP) nutrition labels, e.g. multiple traffic lights labels, nutrition tables, labels based on Guideline Daily Amounts (GDA), and signpost.

Creating a combined nutritional quality index for individual food raises therefore a number of methodological issues, including: a) the selection of index nutrients; b) the choice of reference daily values, and c) the choice of reference amounts: 100 g, 100 kcal, or serving size.[42] When translating food nutrient profiling into food labeling, once again no standardization is found.[43] The choice is clear when the descriptor is "low/lower in A" or even "low/lower in A, B or C" where A, B and C are known nutrients. Things are less clear when the descriptor is 'healthy' or 'unhealthy',[44] since in this case the number of different combinations of nutrients and food components that could possibly be used for nutritional profiling is considerable[45] and terms like "healthy" need different and proper definitions.[46] This is reflected in the production of food profiles, as is the case of a WHO Report,[47] that listed 37 nutrients and other food components linked to chronic disease, and the EU Directive on nutrition labeling, where 31 nutrients were included within the nutrition labeling panel.[48] The existence of alternative schemes inevitably leads to uncertainty and geographical heterogeneity in their application, with a consequent creation of irrationality for nutrients classified as 'healthy' according to one system and 'unhealthy' according to another.[49]

In this sense, nutrient profiling necessarily involves prioritization of nutrients.[43,50] In framing the EU Directive for nutrition labeling,[48] two types of nutrition label content were permitted, if nutrition labeling was provided for food packaging: energy, protein, fat and carbohydrate (the Big 4) or energy value, amounts of protein, carbohydrate, sugars, fats, saturates, fibre and sodium (the Big 8).

Food labeling has been implemented in a voluntary basis in several EU countries. On average, 85% of the products contained back of pack (BOP) nutrition labeling or related information, versus 48% for FOP information.

Several studies[51-53] on consumers' understanding have been conducted to clarify labeling issues facing consumers and to make the existing point-of-purchase environment more conducive to select healthy choices. Nevertheless, there is no convincing evidence that food labels are an effective means to achieve the desired effect at population level.

Conclusions

The worldwide epidemic of diabetes and obesity urges quality studies to address efficacy and effectiveness of child and adolescent nutrition interventions.[54] As pointed out from several sources cited in this paper, there's a urgent need to foster the development of international standards, such as food labeling and profiling. Considering the complex network involved in obesity development, it is necessary to promote multiple-concurrent interventions, considering that by focusing on a single intervention in isolation, all other factors being constant, each individual policy change is likely to appear ineffective.[55]

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