

Stakeholder perspectives on national policy for regulating the school food environment in Mexico

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In Mexico, the school environment has been promoting sale of unhealthy foods. There is little empirical evidence on multi-stakeholder perspectives around national school food policy to regulate this. We studied stakeholders' perspectives on the proposed regulation for school sale of unhealthy foods. Comments about the regulation were available from an open consultation process held in June 2010 before the approval and implementation of the regulation. To examine perspectives, we coded 597 comments for beliefs, expectations and demands in NVivo. We created matrices by actors: academics, parents, citizens, health professionals and food industry. For academics, citizens and health professionals, the primary issue regarding the regulation was obesity, while for parents it was health of children. Academics, citizens, health professionals and parents believed that government was responsible for health of citizens, expected that this regulation would improve eating habits and health (i.e. less obesity and chronic diseases), and demanded that unhealthy foods be removed from schools. Parents demanded immediate action for school food policy that would protect their children. Citizens and health professionals demanded nutrition education and healthy food environment. Food industry opposed the regulation because it would not solve obesity or improve diet and physical activity behaviours. Instead, industry would lose income and jobs. Food industry demanded policy aimed at families that included nutrition education and physical activity. There was substantial consensus in narratives and perspectives for most actor types, with the primary narrative being the food environment followed by shared responsibility. Food industry rejected both these narratives, espousing instead the narrative of personal responsibility. Consensus among most actor groups supports the potential success of implementation of the regulation in Mexican schools. With regard to addressing childhood obesity, sound government policy is needed to balance different perspectives and desired outcomes among societal actors, particularly in Mexico between food industry and other actors.

Keywords Stakeholder perspectives, school food environment, national policy, childhood obesity, Mexico

KEY MESSAGES

- Parents', academics', health professionals' and citizens' perspectives were similar in regard to the issues, demands and expectations they had for policy regulating school food environment. In contrast, food industry had an opposing perspective on the same policy.
- The actor groups had distinct narratives to articulate their perspectives. The main narratives were food environment and personal responsibility, and shared responsibility was a third, though less dominant, narrative.
- Given its profit mandate, how food industry can best partner in actions to prevent obesity remains challenging.

Introduction

Childhood obesity is increasing rapidly worldwide (Wang and Lobstein 2006). Whilst the causes of obesity are many, there is consensus that healthy food environments are necessary to reverse and prevent childhood obesity (IOM 2004). Reducing a child's intake by 110–165 kcal/day (about one 12-oz can of soda) may prevent excessive weight gain during childhood (Wang *et al.* 2006). Regulating foods and beverages sold in schools is one strategy to create healthy environments for children (Swinburn *et al.* 2011; Cawley 2006) that has been adopted or is being considered in many countries in Latin America.

The Mexican government has taken significant action to regulate the school food environment. A recent survey of schools in Mexico revealed that in a 4-h school day there were at least four opportunities for children to consume energy-dense foods and sweetened beverages, with little availability of fresh fruits and vegetables (Bonvecchio *et al.* 2010). From 1999 to 2006, overweight and obesity among Mexican school-aged children (5–11 years) increased 44%, from 18 to 26% (Bonvecchio *et al.* 2009). Responding to the rapid rise in unhealthy weights coupled with rapid changes in the food system (Rivera *et al.* 2004), the Secretary of Health developed a multi-stakeholder, multi-sector initiative ANSA (*Acuerdo Nacional para la Salud Alimentaria: Estrategia Contra el Sobrepeso y la Obesidad*), which provided a framework for regulating the school food environment (Secretaría de Salud 2010).

Regulating the school food environment to prevent obesity is deemed necessary for some stakeholders, and viewed with scepticism by others. Building consensus and commitment among many stakeholders is essential for successful development and implementation of policy initiatives (Clark 2002). Yet, there is little empirical evidence on multi-stakeholder perspectives around a national school food policy. In this study, we examined stakeholder responses to an open consultation process on national policy regulating the sale and preparation of foods and beverages in elementary schools in Mexico before the policy was enacted. Stakeholder perspectives can (1) reveal the narratives around a policy issue, which is important for issue framing (2) reveal where consensus among actors is likely or unlikely, to understand how to move forward in the policy process; and (3) identify other potentially viable policy approaches. We examine perspectives that actors expressed in response to a proposal submitted for public comments as part of the regulatory process. We first examine convergence and divergence in perspectives among the various actors, and then

construct narratives to examine broadly how actor groups framed the Guidelines.

Methods

Context

The '*Lineamientos Generales para el expendio o distribución de alimento y bebidas en los establecimientos de consumo escolar de los planteles de educación básica*' (Diario Oficial de la Federación 2010), hereafter referred to as the Guidelines, were a key piece of the ANSA initiative. Details on how ANSA and the Guidelines were created will be published elsewhere (Hernandez-Cordero *et al.*, unpublished manuscript). Briefly, the ANSA initiative has three primary aims: health promotion and education, encourage regular physical activity and improve access and availability of healthy foods and beverages (Secretaría de Salud 2010). The Guidelines address primarily the third aim. The objectives of the Guidelines are 2-fold: (1) establish clear rules on the type of products that can be prepared, sold or distributed inside schools, including hygienic preparation of foods, to promote a correct diet and a healthy environment; and (2) promote a healthy eating culture in children in addition to providing some critical reflection and analysis among adult actors about the importance of health in a child's quality of life (Table 1).

In the Mexican policy process, proposed regulations must be submitted to a decentralized federal office (Comisión Federal de Mejora Regulatoria or COFEMER) to consider social costs of regulations and provide transparency to the policy process. The final Guidelines, approved by the Ministries of Health and Education, were submitted to COFEMER, which then held an open consultation process from 10 June to 22 July 2010. The Guidelines were made public on COFEMER's website and published in the Diario Oficial de la Federación web page; individuals were encouraged to submit their written documents via mail, email or fax to COFEMER.

Data

There were 857 comments uploaded to COFEMER's website (http://207.248.177.30/regulaciones/scd_expediente_3.asp?id=01/0596/100610) during the open consultation period, which we reviewed for inclusion in this study. We did not include (1) duplicate responses or more than one response from the same email address ($n=89$, 10%), (2) comments on technical or legal aspects of the document ($n=33$, 4%), (3) responses where it was not possible to code for the actor's perspective, such as

Table 1 Summary description of the six sections of and the proposed activities for the Guidelines as submitted to COFEMER and published for public comments

Section	Summary of activities
1. Promote a correct diet	Diet should be complete, balanced, varied, adequate and hygienic. The diet should consist of fruits, vegetables, non-processed foods and potable water Nutrition education to students, parents and those who prepare school snacks/lunch
2. Create a school committee for sale and preparation of foods	Monitor and supervise the sale of foods Participate in nutrition education to parents Compliance with hygienic preparation and sale of food
3. Kitchen hygiene	Kitchen cleanliness including surfaces that can be disinfected, frequent replacement of sponges and cleaning cloths, separate utensils for meat and vegetables, store garbage in closed containers and elimination of pests
4. Persons involved in the preparation and sale of food	Wash and disinfect fruits and vegetables Hand washing Appropriate handling of food Adequate cooking of raw foods Cover cooked foods Store cooked foods in refrigerator
5. Rights and obligations	<i>Schools:</i> promote healthy foods and good eating habits as well as promote physical activity for good health. Include parents and teachers in the implementation of the Guidelines <i>Teachers:</i> ask parents and caregivers to give their children breakfast before coming to school. Promote drinking potable water and healthy foods. Explain to the children the importance of physical activity <i>Parents:</i> participate in school activities that involve promotion of healthy eating and physical activity. Adoption of healthy lifestyle. Help monitor the hygienic preparation of food sold in schools <i>Children:</i> participate in school activities that promote correct diet and physical activity. Access to nutritional information that can be understood by elementary students. Report any unhygienic preparation of food <i>Health sector:</i> provide technical support for the activities outlined in the regulation. Follow-up with the education sector to ensure adequate implementation of the regulation
6. Annex—technical criteria for the preparation and sale of foods	For foods prepared at schools must meet energy, protein, fat (saturated and trans), added sugar and artificial sweeteners and sodium specifications. Foods must be made from whole grains and natural foods or those with minimal processing (milk, cheese and bread). School lunch must include vegetable and fruit, plain potable water and a main dish prepared using two or more foods. All foods must meet the established nutritional requirements. Processed foods must also meet specific energy, protein, fat (saturated and trans), added sugar and artificial sweeteners and sodium specifications, as well as specific container/portion size. Processed foods include savoury snacks, cookies, juice, milk, yogurt and soy beverages

single-sentence responses ($n = 75$, 9%) and (4) requests for information or submission of additional material to be considered by COFEMER ($n = 68$, 8%) (e.g. suggested other foods to be allowed or prohibited). We imported the comments to NVivo (version 9.2, QSR International) and 597 responses were included for analysis.

Analysis

Perspectives reveal how stakeholders understand the problem and the possible solutions. We analysed perspectives by examining identity, expectations and demands (Clark 2002). Identity includes what is valued or what is important. In this study, identity was best captured through the theme of 'issue' that was a concern or a priority for the stakeholders. Issues included reasons as to why they agreed or disagreed with the

Guidelines. Expectations were what respondents believed would be gained, lost or would stay the same as a result of the Guidelines (Clark 2002). Demands were the practices that participants wanted to change or the actions that needed to occur through this process. Coding for actor types was based on self-identification. Individuals who did not self-identify were coded as civil society. After initial coding was completed, we classified stakeholders into five actor types: civil society, health professionals, academics (i.e. school teachers, researchers), food industry and parents (Table 2). Groups of actor types were based on the similarity of responses for the primary issue. For example, the decision to categorize parents separately from civil society was based on a strong argument around their children's health. Similarly, school teachers and researchers were grouped together based on the issues of obesity and public health policy.

Table 2 Description of actor types

Actor types	Actors	Description for actors
Industry, <i>n</i> = 75	Beverage (<i>n</i> = 17)	- Producers and bottlers of juice, carbonated beverages
	Snack foods (<i>n</i> = 10)	- Producers of chocolate, candies, savoury snack foods
	Associations (<i>n</i> = 35)	- Consortia representing producers of carbonated beverages, snack food and agriculture producers (sugar, milk, corn, potato)
	Union groups (<i>n</i> = 2)	- Unions representing workers in beverage, candy companies
	Packaging companies (<i>n</i> = 4)	- Producers of bags, plastic, canned containers
	Other (<i>n</i> = 7)	- Purveyors of parts or services for equipment - Producers of non-nutritive sweeteners
Academics, <i>n</i> = 63	Researchers (<i>n</i> = 29)	- Stakeholders who self-identified doing research or with an institution that conducts research
	University professors (<i>n</i> = 8)	- Stakeholders who self-identified as university professors
	School teachers (<i>n</i> = 18)	- Teachers from kindergarten to 12th grade
	Students (<i>n</i> = 8)	- High school or university students
Citizens, <i>n</i> = 246	Individuals (<i>n</i> = 224)	- Women and men
	Civil organizations (<i>n</i> = 16)	- Consumer groups
	Other professionals (<i>n</i> = 6)	- Economists and lawyers
Parents, <i>n</i> = 97	Mothers (<i>n</i> = 69)	- Stakeholders who self-identified as a mother or father
	Fathers (<i>n</i> = 26)	
	Parent leagues (<i>n</i> = 2)	- Parent leagues
Health professionals, <i>n</i> = 119	Doctors (<i>n</i> = 52)	- General practitioners and specialists
	Nutritionists (<i>n</i> = 46)	- Nutritionists
	Allied health workers (<i>n</i> = 9)	- Nurses, social workers, diabetes educators, psychologists
	Professional associations (<i>n</i> = 12)	- Associations/academies of paediatricians, cardiologists, diabetes, nutrition, etc.

After coding a sample of 30 responses, ECM developed a codebook to define categories for actor types, issues, expectations and demands. Then ECM, FC and LTM met prior to beginning coding and coded a sample of 10 responses to harmonize coding among them. Coders met periodically to discuss new codes or any issues where categorization was not clear.

We used *in vivo* coding to define categories that fit with the respondents' response for broad definitions of issues, expectations and demands. For example, codes for demands included *in vivo* codes that reflected participant responses, such as eliminating unhealthy foods, promoting physical activity or multi-actor approach. ECM reviewed each response to ensure accuracy of codes. ECM merged the codes that were similar to each other, but may have been coded slightly differently by each coder. For lengthy responses, it was possible that more than one expectation and demand were coded. For issues, there were 21 categories where actors were not ambivalent in their issue (i.e. actors had an opinion for or against the regulation and then an explanation for that choice); five ambivalent categories were excluded from analysis; for expectations, there were 38 categories, and for demands there were 34. These categories were used to analyse actor perspectives.

Separate matrices for issues (*n* = 575), expectations (*n* = 571) and demands (*n* = 581) by actor types were created. Numbers in each cell summarized the unique text for every code-actor category combination. For some actors it was only possible to code two of the three perspective categories, which is reflected in the different sample sizes. Matrices were exported to Excel and percentages were calculated for each cell. Because actors could potentially have more than one issue, expectation or demand, for each column (actor category) we summed the cell frequencies and used that as the denominator (rather than the total number of actors in each category) to calculate percentages for every cell in each matrix. The aim of the analysis was to examine salient perspectives, so we excluded codes where cells represented <3% of the references for that actor category. If only one actor category had 3% of the references, then that code was excluded also. With this approach we preserved ≥88% of the categories for issues, ≥88% for expectations and ≥83% for demands.

Codes provide a snapshot of the breadth of issues, expectations and demands that actors made in response to the Guidelines. To construct narratives by actor perspectives of the Guidelines, we extracted quotes exemplifying the top three issues, expectations and demands. We combined the narratives for academics and health professionals because the responses

for issues, expectations and demands were similar between these two actor types.

Results

There was considerable overlap among salient issues, expectations and demands for academics, citizens, health professionals and parents (Table 3). The issues, expectations and demands from food industry were substantively different than the other actor types.

Academic and health professionals' perspective

Academics and health professionals were concerned primarily with obesity, the role of government in crafting health policy and with the health of children.

The magnitude, speed of increase of obesity as well as the negative effect on the health of the population has made it the most urgent health issue in the country. Although obesity spans all ages, the increase in obesity in school children and adolescents has been substantial (Doctoral student, issue: *obesity in Mexico*)

Health is a constitutional right enshrined in Article 4, which states that 'Everyone has the right to health protection ...' and '... a suitable environment for their development and welfare ...' (Researcher, issue: *regulations that favour health*)

The proposed guidelines to ban junk food in schools should test our imagination and creativity to produce healthier foods. This is an opportunity to make food, without using preservatives, dyes, many of them toxic, like red dye # 2, red # 40, and Ponceau red, carmoisine. (University professor, Chemist, issue: *health of children*)

Schools have the enormous responsibility of educating and caring for people, without betraying the confidence parents give us, who believe in our services and good profession. We should not endanger children's health. (School teacher, issue: *health of children*).

Academics expected that the regulation would improve eating habits and protect or improve the health of children, while health professionals expected that the Guidelines would result in fewer chronic diseases.

Teachers are here to educate, and students are at formative stage, where they should form good habits. (School teacher, expectation: *improve eating habits*)

Junk foods have too much sugar, which causes fluctuations in blood sugar and uneven supply to the brain, which reduces their concentration and attention level. Also, a high content of additives like dyes, flavorings and preservatives cause hyperactivity and asthma... (School teacher, expectation, *better health*)

If we don't do anything, obese children and adolescents will remain obese and this problem predisposes to risk and premature death from diabetes, cardiovascular disease and some cancers. (Mexican Institute for Social Security, expectation: *fewer chronic diseases*)

They demanded that junk foods be eliminated from school, that the Guidelines be enacted, and a public health policy protecting the health and rights of children.

Eliminate all type of processed foods, like instant soup. (School teacher, demand: *eliminate junk foods from schools*)

The health of children is in the government's hands and ask for your [COFEMER] informed decision (Preschool teacher, demand: *public health policy*)

Citizens' perspective

For citizens, the primary concerns were the high prevalence of obesity, health and well-being of children and that government should regulate in favour of health.

According to statistics, 7 of every 10 Mexicans are overweight or obese, which puts us among countries with major problems of obesity and consequently, we hold the first place in the world for diabetes. (Male, issue: *obesity*)

It is basic logic that a good diet at this growth stage will lay the foundation for good health in the future, which allows for better learning. (Woman, issue: *health of children*)

The Guidelines protect children and ensure that the child's choice is as healthy as possible. (Woman, issue: *government should regulate in favour of health*)

They expected that the regulation would improve health of children and mitigate future health expenditures as well as improve eating habits.

... the approval of such regulations, be carried out without delay, for every day that we delay means sick children now and in the future. (Male, expectation, *better health*)

Thus it [Guidelines] helps save on public health spending in the future. Poor health causes severe pain to families and friends and is due to a very high expenditure from public resources, resulting in an increase in taxes, and this helps to increase the level of poverty of a country. (Male, expectation: *mitigate future health expenditures*)

Eating habits are established in childhood. Children learn from school teachers, who are role model for students. It is important that the school support healthy eating habits and physical activity and that the teachers are consistent with what they teach. (Female, expectation: *improve eating habits*)

Their exigencies were to eliminate unhealthy food from schools and public health policy.

I support [getting] junk food out of schools, because they are harmful to the health of our children. No to corporate support! Yes to health! (Female, demand: *eliminate junk foods from schools*)

The Government must without delay or compromise completely eliminate junk food from schools such as soft drinks, breads, cookies, snacks, sweets and any industrial product. We must instead sell the traditional sandwiches (*tortas*) and drinks prepared at home or prepared at school. (Male, demand: *eliminate junk food from schools*)

Table 3 Salient issues, expectations, and demands by actor categories in response to guidelines for the sale of foods and beverages in elementary schools in Mexico

	Academics (%)	Health professionals (%)	Citizens (%)	Parents (%)	Food industry (%)
Issue					
Negative characterization of food products ^a	1.5		2.5		25.0
Lack of dialogue and participation from food industry ^a					9.0
Illegality of regulation ^a					6.0
Regulation will not solve obesity ^a	1.5		2.0		24.0
Loss of income and jobs ^a			1.0		25.0
Promotion of physical activity ^a			2.0		2.5
Government should regulate in favour of health	20.5	13.5	15.5	9.0	
Less power to food industry ^b		2.0	3.5	6.0	
Improve eating habits	9.5	12.0	8.0	9.0	5.0
High prevalence of obesity	41.0	32.5	34.5	27.0	
Chronic disease	1.5	11.0	6.0	2.0	
Health of children	17.5	13.0	20.5	31.5	
Expectation					
Negative impact on company					10.0
Stigma attached to foods			1.0		9.0
Loss of income and jobs	1.5		1.0	2.0	47.0
No change in physical activity	3.0	1.5	5.0	3.0	4.5
No change in adequacy of diet		1.0	1.0		8.0
No change in nutrition education	3.0	5.0	3.0	3.0	1.0
No change in eating habits			3.0	3.0	1.0
No change in obesity					8.0
Less power to the food industry ^b	6.0	1.0	5.5	2.0	
Hold government accountable for health		1.0	7.0	4.0	1.0
Saving in future health expenditures by government	6.0	8.5	12.0	5.0	
Improve nutrition education	3.0	3.0	1.0	2.0	
Improve eating habits	23.0	20.0	9.0	29.0	1.0
Healthy food environment	7.0	19.0	8.0	3.0	
Healthy food options	8.0	6.0	1.0	14.5	
Less obesity in general	1.5	5.0	2.4	1.0	
Less childhood obesity	4.5	5.0	6.0	2.0	1.0
Fewer chronic disease	6.0	13.0	4.5	2.0	
Better health	17.0	11.0	13.0	12.5	
Better future	3.0	5.0	5.5	3.0	
Demand					
Eliminate criteria of energy density to assess adequacy of food product					7.0
Document is illegal and consultation process should be suspended					8.0
Assess or re-assess cost to food industry				1.0	7.0
Extend implementation deadline to adjust to new packaging requirements					7.0
Fair treatment to food products (no discrimination)					13.0
Policy that effectively deals with obesity, without prohibiting foods					8.0
Public health policy ^c	18.0	19.5	18.0	18.5	

(continued)

Table 3 Continued

	Academics (%)	Health professionals (%)	Citizens (%)	Parents (%)	Food industry (%)
Regulate publicity/marketing		1.0	3.0	4.0	
Nutrition education	2.0	10.0	7.0	6.0	14.0
Physical activity	1.5	3.0	5.5	7.0	7.0
Healthy lifestyles			1.0	2.0	5.0
Availability of healthy food	8.0	11.0	10.0	12.0	3.5
Regulate junk foods	5.0	2.0	2.5		1.0
Eliminate junk foods from schools	26.0	17.0	33.5	27.0	
Regulation should be enacted	19.5	17.0	7.5	7.0	
Immediate action on the sale of junk foods	3.5	3.0	3.0	3.0	
Multi-actor approach	6.5	4.5	1.5	6.0	10.5

^aIndicates issue against the Guidelines. All other issues were in favour of the Guidelines.

^bThe 'less power to the industry' category focused on the economic gains made by the food industry by being able to market and sell these foods within schools and to children.

^cThis category refers to public health policy aimed at protecting children's health.

The rhetoric 'because I generate jobs you cannot touch me' condemns our student population. It doesn't matter how much investment and employment a company generates, if it threatens public health then the project is suicidal. (Female, demand: *public health policy*)

Parents' perspective

The salient issues were health of children and high prevalence of obesity.

The junk food in schools has caused health problems for children and poor learning performance. A child that is fed poorly will not concentrate or pay attention. The companies responsible for poisoning our children have no scruples, all they seek is to make products that are nutritionally volatile and the child, after ingesting these, will want to buy more and more. (Mother, issue: *health of children*)

We are concerned with the exponential increase in childhood obesity. We can easily avert the forthcoming health problems of all these kids today, our adults of tomorrow, fill hospitals as diabetics or hypertensive patients. If we do not support actions at the exact time and place where the problem is brewing, we will never deal with the problem (Father, issue: *obesity*)

Parents generally expected that the Guidelines would improve eating habits, provide healthy options at school and improve the health of children.

At home we embark on a ceaseless campaign against consuming junk food, and if they are banned in schools, then it would be much easier to endow my children with healthy eating education. (Father, expectation: *improved eating habits*)

Given the limited ability of children to make decisions about their health, the school must become the ultimate healthy environment, offering foods and beverages that promote health and limiting those whose habitual

consumption increases the risk of obesity and chronic disease. (National Federation of Parents, expectation: *healthy food options*)

I think it's time to prefer children. There's overwhelming evidence of how bad obesity is for health and now more than ever [obesity] is affecting childhood in Mexico. (Mother, expectation: *better health*)

Parents demanded that unhealthy food be removed from schools and that healthy foods made available at schools.

Get junk food out of schools because it contains food colors and excess fat that are harmful to health, and they do not provide any nutritional value at any stage of development. (Mother, demand: *eliminate junk foods*)

If food industry does not want to lose millions of pesos, then they should start producing quality food, with ingredients that provide nutritional value and then they will have the doors open in our schools and our homes. (Mother, demand: *healthy foods*)

Children need to be fed food that will nourish the body and brain cells, food from the land; food optimal for development and not food that pollutes their body with chemicals, dyes, flavors or genetic modifications (Mother, demand: *healthy foods*)

Parents also demanded a public health policy and were upset that the Guidelines were even under consideration by the COFEMER. For most, the Guidelines were a necessary step to ensure health of children.

For once, look out for our children and not for the interests [of food industry]... we all have children, nephews or godchildren. (Mother, demand: *public health policy*)

Food industry perspective

The salient issues were loss of income and jobs, negative image for food products, unfairly singling out food products as a

determinant of obesity, and the Guidelines being ill-suited to solve the obesity issue because it did not promote healthy lifestyle and nutrition education.

We reject the document issued by the Ministry of Education and the Ministry of Health because we believe that these guidelines will provoke serious consequences to the food industry because of its prohibitive nature and does not consider any gradual implementation. Just to mention one example, in the State of Nuevo Leon, we estimate that the processing food industry snack employs 2290 workers, the bakery food industry employs 6681 workers and 3463 for biscuits. To these we must add 7463 workers in the soft drink manufacturing food industry for a total of 19784 jobs in these sectors. We're talking about significant harm to employment and production. (Chamber of Industrial Processors, issue: *loss of income/jobs*)

The Guidelines directly attack the soft drink food industry as facilitating the problem of overweight and obesity. (Bottling company, issue: *negative image for food products*)

... we have analysed the Guidelines and generally believe that they should focus on promoting nutrition education, exercise as a fundamental part of a healthy lifestyle and avoid labeling foods as 'good 'or' bad'. (Business Co-ordinating Council, issue: *regulation will not solve the problem*)

For food industry, there was insufficient evidence to support that processed foods and beverages, which had been available to consumers for decades, are the cause of the obesity problem. Furthermore, not only were the Guidelines discriminatory against processed foods, but also it aimed to educate through restriction and prohibition rather than teaching children how to choose.

Food industry expected that the implementation of the Guidelines would result in significant loss in income and jobs as well as an overall negative impact on companies.

This measure will decrease demand, representing a fall in the price of raw milk from \$4.50 per litre to an estimated \$3.90. If the primary producer regularly produces 1000 million litres, direct cost of this measure will be about \$600 million less per year, which gives us a competitive disadvantage. (Milk producers, expectation: *loss income*)

We are a responsible company that will be seriously affected if these Guidelines harm the snack manufacturers which are our customers. (Producers of snack products, expectation: *negative impact on company*)

Food industry made two significant demands to deal with obesity: nutrition education and a multi-actor approach.

The solution will be educating [children] on calorie content. We must also educate on lack of exercise, number of times they should eat their food. In schools we need classes so children learn about what is really good or bad for their health and demystify any other ideology that has not been scientifically proven. (Bottling company, demand: *nutrition education*)

This is everyone's problem [obesity]: society, private sector and government. We need regulations that see private enterprise as part of the solution not the culprit to a problem that is generational, cultural and social. (Snack company, demand: *multi-actor approach*)

In response to the Guidelines, they also demanded fair treatment for their products.

We ask for the following to be changed: (1) delete the list of foods and beverages that are not allowed, explicitly or implicitly; (2) in the preamble and articles, eliminate that which qualifies foods or drinks as healthy or less healthy and similar concepts; (3) soft drinks be given gradual and equitable treatment as is given to other products; (4) accept the sale of beverages containing non-caloric sweeteners. (Beverage food industry group, demand: *fair treatment to products*)

In sum, academics, citizens, health professionals and parents were concerned with public health and government's role in ensuring health. In general, their expectations were that these Guidelines would result in better health and better future for their children. For food industry, the main concern was the well-being of the company, and they offered a dire outlook for the future, such as loss of income, jobs and a negative image on their products.

Despite the differences in issues and expectations between food industry and the other actors, there was convergence in demands for availability of healthy foods, nutrition education and a multi-actor approach (Table 3).

Regarding healthy food options, parents and citizens agreed that food quality at schools needed improvement. Not only did this entail eliminating unhealthy foods, but also the foods available needed to be 'real food', 'food with nutritional value' including 'yogurt, cheese, nuts or fruits'. For parents, foods with less sugar and fat were important, and food co-operatives in schools should procure healthy preparations for their children. Food industry did not offer specific examples of 'healthy options' for children.

Nutrition education was about teaching healthy eating, defined similarly by all actors. For parents, citizens, health professionals and a few academics, nutrition education was needed, in addition to the Guidelines, for improving the obesity and chronic disease profile of the population. For them, everyone needed to learn about healthy eating, and some parents wanted to learn about quality of food, understand nutrition labels and portion size and how much to eat based on activity levels. Also, nutrition education needed to be part of the school curriculum (and they complained of the lack of nutrition education in schools) to teach students about a correct diet, harm in eating junk foods, calories and how to count them and how to combine foods using Mexico's icon 'El Plato del Bien Comer' ('Good Eating Plate'). Some believed that education would help children make better food choices given that unhealthy foods would be available outside of school. Food industry viewed nutrition education as key for solving the obesity issue, and stressed the Government's role in educating the populace on healthy eating so parents and children could make informed decisions about what foods to eat.

For food industry, education was about energy balance, balanced eating and an ‘all foods fit’ approach, and not about prohibiting food products to children.

Academics, health professionals, citizens and parents noted that a multi-actor approach was the viable solution for obesity and achievable through ‘shared responsibility’ and active participation of parents, health professionals, and teachers and government, food industry and media. Some specific examples were given by actors on how they could do more. These responses had a positive tone, where actors expressed a holistic approach to childhood obesity prevention and a constructive role for the food industry. Food industry saw itself as an ‘active participant’ in a multi-actor approach. They were ‘part of the solution, not the problem’, and were a ‘committed’ actor. They used phrases like ‘co-ordinated strategies’ and ‘integrated solutions’. These responses were often part of the concluding arguments, but food industry did not provide specific strategies of how they could be part of the solution.

Discussion

Narratives and perspectives aligned closely among academics, health professionals, citizens and parents in regard to regulating the school food environment in Mexico. These data show broad support for this policy instrument among these stakeholders, which has implications for how well the Guidelines could be implemented. The narratives and perspectives of the food industry differed from the other stakeholders; food industry opposed the policy instrument. This study also drew on narratives to understand the dominant issue frames around the Guidelines.

In the USA, perceptions around the causes of obesity were aligned with support for certain types of policies (Barry *et al.* 2009); policies that protect citizens were supported if people believed that extraneous factors, such as food environment, time constraints or addictive properties of foods, were causes of obesity. In our study, within actor types we found that support for actions that regulate the school food environment were also accompanied by arguments around childhood obesity, chronic diseases, child health and government responsibility.

Perspectives and narratives are useful for understanding how various stakeholders frame regulation of the school food environment. The type of government regulation around personal behaviour likely depends on issue frames (Kersh 2009). In the USA, issue frames for obesity have coalesced on two narratives, ‘personal responsibility’ and ‘food environment’ (Kersh 2009; Kersh and Morone 2005). In our study, the dominant narrative was the ‘food environment’. The ‘personal responsibility’ narrative appeared mostly in responses from health professionals and food industry, with the argument that parents needed to receive education on healthy eating and raising awareness of the consequences of obesity. Food industry further emphasized the need for physical activity. A third, though less dominant, narrative of ‘shared responsibility’ was also apparent across most actor types. Shared responsibility was part of a multi-actor approach, where all stakeholders had some duty in correcting or preventing obesity. For example, parents had to prepare healthy meals, academics and health

professionals had to teach about healthy eating, food industry had to develop healthier products and restrict marketing to children and government needed to institute policy that protected public health. In this third narrative, personal behaviours and government regulation were not mutually exclusive. Some have argued that government policies should ‘nudge’ individuals toward the healthy choice without infringing on personal choice (Ménard 2010; Vallgård 2012) (Brownell *et al.* 2010). Food industry did not espouse the ‘shared responsibility’ narrative, however, other than to oppose what they perceived as other sectors putting the blame on industry only, and instead focused on individual behaviours such as balanced diets and physical activity.

Stakeholder perspectives in this study can also be viewed through a social/normative rationality that centres on arguments of fairness, justice, ethics and obligation (Pelletier 2008). For example, food industry did not want unfair treatment for their products, noting that the Guidelines would ‘discriminate’ or ‘demonize’ processed foods. For the other four actor types, issues of fairness and justice, and ethics and obligations were discernible through their expectations and demands for less power to food industry and protecting children’s health, respectively.

The difference in perspective between food industry and the other actors casts serious concerns about food industry’s intentions as an active participant in childhood obesity prevention efforts. Food industry’s perspective was about profits. As Ludwig and Nestle (2008) note, food industry perspective is not unexpected given that higher profit margins result from the sale of highly processed foods. For food industry, the school environment is crucial for brand marketing and creating a brand loyalty (Simon 2006). What children are exposed to in schools would be considered normative by the children. Food industry argued strongly against branding products as ‘unhealthy’ because it would create an indelible negative image on processed foods and beverages. The difference in perspective between food industry and other actors further raises concerns about the potential benefits of public–private partnership with food industry and casts doubts about industry motives for self-regulation in the interest of public health (Yach *et al.* 2010; Ludwig and Nestle 2008; Lewin *et al.* 2006).

In market economies, it is often argued that government intervention is needed when there are market failures such as information failures and irrational actors (Cawley 2006). Children are considered irrational actors because they do not know the full implications of their decisions, so government regulation in the school food environment is deemed necessary. Our data suggest that there is also information failure among adults given that parents, citizens and health professionals discussed the need for nutrition education. The propensity for information failures may be exacerbated in societies where education level is low, eroding consumer choice and freedom. A policy approach to reduce information failures is to mandate trustworthy, easy-to-understand nutrition labels on all processed foods. Other approaches include nutrition education in biology curricula or social marketing campaigns.

Several elements of the study design and analysis deserve comment. First, most of the comments were submitted via email, and highly motivated individuals would be more likely

to read the Guidelines and submit responses to COFEMER. The narratives here are likely not representative of Mexican citizens or parents. Food industry perspective (i.e. personal responsibility), on the other hand, is likely to be representative given that a substantial proportion of the duplicate and identical responses came from food industry (data not shown), and the lifestyle approach and nutrition education emphasis by industry has been reported by others (Jenkin *et al.* 2011; Brownell and Warner 2009; Koplan and Brownell 2010).

Second, the convergence of perspectives among academics and health professionals may be due to multiple identities within actor categories. For example, many researchers were practitioners and may also have been parents. Perspectives between academics and health professionals were similar except that health professionals emphasized the importance of nutrition education. The perspectives of health professionals and academics in this study are similar to framing of policy issues by public health researchers in New Zealand who did not think that nutrition education was relevant to obesity prevention (Jenkin *et al.* 2011).

Third, we examined differences in perspectives as well as the dominant narratives within an actor group. This approach provides an assessment of the socio-political domain in the public health policy process (Menon *et al.* 2011). Analysis of the salient issues, expectations and demands not only portrays support for the Guidelines by most actor types but also illustrates that policy aimed at nutrition education or social marketing would be well received by citizens. We found that a social marketing campaign via nurses and radio resulted in a significant, positive shift in behaviours, beliefs and attitudes around feeding young children in Mexico (Monterrosa *et al.* 2013). Social marketing campaigns that promote fruit and vegetable intake have resulted in positive changes in behaviour (Gordon *et al.* 2006). A combination of changes in the school food and physical activity environment, including access to healthy food and water, removal of some unhealthy food and access to physical activity opportunities, along with a social marketing campaign resulted in improvements in food intake and number of steps taken in a randomized trial in schools in Mexico City (Safdie *et al.* 2013).

While shared responsibility and partnerships are necessary, our results suggest that we ‘proceed-with-caution’ for collaborations or alliances with food industry. Many responses submitted by large food companies challenged or rejected the scientific criteria, such as energy density, used in the Guidelines. A study in British Columbia, Canada found that snack manufacturers and distributors did not understand how their products affected health, and the authors of that study suggest that ‘engaging with them [industry] to develop Guidelines could be complex to navigate’ (Vander Wekken *et al.* 2012, p. 284).

The final ruling from COFEMER was on 18 August 2010, two months and 8 days after the beginning of the consultation process (10 June 2010), and less than a month after the consultation process ended (22 July 2010). The final ruling approved the proposal with modifications. Despite wide support of the proposed guidelines by most stakeholders, the modifications in the final ruling were all proposed by industry, reflecting the substantial power and influence exerted by

industry in the process. The key modifications were the following: (1) the energy density criteria, proposed to avoid the sales of high-density snacks in small packages, was eliminated, leaving instead total energy per package and total fat and added sugar as percentage of total energy; (2) the use of non-caloric artificial sweeteners was allowed in milk and dairy, juices and snacks, in both primary and secondary schools and carbonated and other beverages in secondary schools only, despite concerns by other stakeholders about conditioning to sweet flavours; (3) juices and nectars, which were not included in the original proposal, were allowed, although only twice a week; (4) the nutritional cut-off points for snacks to be allowed in schools were higher than originally proposed for saturated fats (15%) and for added sugars (10% for savoury and 20% for sweet snacks) at the third year of implementation. Several items in the original proposal were approved, such as the proposed core combination of foods for daily intake (water, vegetables, fruits and food preparations which comply with the nutrition standards in the original proposal), banning sodas and whole milk, allowing snacks only once a week, as well as short periods of daily physical activity and adding nutrition and physical activity promotion as an essential part of the core curriculum.

Conclusion

This study shows substantial convergence and consensus in narratives and perspectives for most actor types in Mexico regarding regulation of the school food environment; for these actor types, the narrative of primary importance was the food environment. The actor type that rejected this narrative was food industry, which espoused instead the narrative of personal responsibility. These differences were apparent in the salient issues, expectations and demands expressed by the different actor types. The convergence and consensus of most actor groups in Mexico supports the potential success of implementation and incorporation of the regulation by schools. In other countries like the USA for which the narrative of personal responsibility is primary for many outside of food industry, the results of such regulation may be different. Given its profit mandate, how food industry can best partner in actions to prevent obesity remains challenging. With regard to addressing childhood obesity, sound government policy is needed to balance different perspectives and desired outcomes among societal actors, particularly in Mexico between food industry and other actors.

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Conflict of interest

None declared.

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