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HEALTH SERVICES AND PROGRAMS (SFL KIRK, SECTION EDITOR)

Ethical Issues for Public Health Approaches to Obesity

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Abstract Obesity is a major public health concern worldwide. Because individual-level interventions have been unsuccessful at curbing obesity rates, there is an emphasis on public health approaches. In addition to testing the effectiveness of any public health interventions, it is important to consider the ethical implications of these interventions in order to protect the public's rights and promote overall well-being. In this paper, we review public health approaches to obesity in three broad domains (changes to the socio-communicative environment, changes to the economic environment, and changes to the physical environment/access) and consider the potential ethical issues that arise in each of those domains. We suggest that interventions that target the physical environment/access (making it easier for people to engage in healthy behaviors), that target the entire population (rather than just individuals with obesity), and that focus on health behaviors (rather than on weight) have the least potential for ethical concerns.

Keywords Obesity · Public health · Ethics

Introduction

Obesity is a major public health concern for populations worldwide. In 2015, a report released by the World Health Organization [1] indicated that 13 % of the world's adult population was obese. Rates of obesity are substantially higher in many countries. For example, the prevalence of obesity among adults is 35.3 % in the USA, 32.4 % in Mexico, 31.3 % in New Zealand, 28.3 % in Australia, 25.4 % in Canada, and 24.7 % in the UK [2]. Efforts to reduce obesity prevalence that rely on individuals' self-regulation have generally been unsuccessful [3]. Instead, the focus of interventions has justifiably shifted toward an emphasis on public health approaches. Public health is concerned with protecting and promoting society's health by preventing disease, prolonging life, and fostering well-being [4]. Legislative regulatory approaches are central to public health interventions because they circumvent the reliance on the individuals' self-regulation initiatives, which are notoriously ineffective [3]. Public health interventions often require a substantial amount of time, energy, and resources to implement, and it is therefore important that the effectiveness of any proposed intervention is rigorously tested so as not to waste resources that would be better allocated elsewhere. It is perhaps equally important, however, to consider the ethical implications of these public health interventions in order to protect the public's rights and promote well-being. Even if an intervention appears promising, neglecting the potential ethical implications creates the risk of doing more harm than good. Public health initiatives should strive to find a balance between the need to protect and promote the health of the population and the need to avoid individual costs [5••]. It is those approaches that strike the optimal balance between high effectiveness and low ethical concern that are deserving of the greatest investment of resources because they are the approaches that will be most beneficial to the public.

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In this paper, we consider some of the potential ethical concerns that might arise in the context of public health approaches to targeting obesity. Rather than providing an exhaustive review of available obesity interventions, our aim is to provide some illustrative examples that will stimulate further consideration of these ethical issues when developing new intervention and prevention programs. To do so, we use the framework of Brownson et al. [6] for organizing public health interventions, focusing on three main domains: (1) changes to the socio-communicative environment, (2) changes to the economic environment, and (3) changes to the physical environment/access. Although interventions can include elements from more than one domain, there is often a central focus in one specific domain. For example, a school program that involves students building a vegetable garden could be classed as an intervention seeking to change the socio-communicative environment because its psychoeducational component is the main focus, but is also related to changing the physical environment because of the physical access students would have to a garden and its produce. For each of the three domains, illustrative examples of interventions are presented and the potential ethical concerns related to those interventions are highlighted.

In reviewing the literature, we noted several key ethical concerns that emerge when considering current public health approaches to obesity prevention. These include:

Negative Psychosocial Consequences Public health policies can intentionally or unintentionally single out individuals based on their weight, and the associated stigma can have negative consequences for the stigmatized individual. In this way, these interventions can do more harm than good [5••, 7••].

Paternalism and Autonomy Adults value the right to be autonomous and decide for themselves what lifestyle and health-related choices they make. Policies proposing to restrict access to, or even ban, certain products or behaviors may impinge on individuals' freedom and autonomy and can therefore be seen as paternalistic. The central question, then, is whether the health benefits of restricting autonomy outweigh the costs of paternalism.

Unintended Negative Effects Some interventions might "backfire," producing the direct opposite of what was the intended or expected outcome (e.g., an increase in unhealthy behaviors).

Disadvantaging Certain Groups Some policies may inadvertently establish unfavorable and disadvantageous conditions for certain groups (e.g., individuals from lower socio-economic backgrounds) and could thus harm some groups while benefiting others.

We now turn to our discussion of the three domains of public health intervention.

Socio-communicative Environment

The socio-communicative environment comprises not only the immediate interactions that people have with family and friends, but also the information that is communicated by the media and the wider global community. Interventions that utilize communicative tools, including public service announcements, must be cautious so as not to encourage negative social attitudes toward obese individuals. Public service announcements such as the anti-obesity advertisement "A lifetime of bad choices" [8] have the potential to reinforce negative stereotypes of individuals with obesity, which can in turn increase prejudice toward those individuals. In contemporary society, obese individuals are evaluated less favorably than are other socially stigmatized groups such as homeless people and people with mental illness [9], and stigmatizing media representations only serve to increase those negative evaluations [10]. Importantly, weight stigma can be harmful to the individual's mental state and physical health and can create barriers for obese individuals to use medical services [11]. Furthermore, there is evidence that stigmatizing messages are not very motivating [12]. Overall, then, these stigmatizing public health campaigns are unlikely to have the intended positive benefits and may even have unintended negative effects arising from the stigmatization.

In contrast to stigmatizing public health messages, there are other public service announcements that are associated with a lower risk of stigmatization because they encourage all members of society (not just obese individuals) to be proactive about leading a healthy lifestyle. For example, Michelle Obama's "Let's Move!" campaign does not specifically target groups based on weight, but provides information on why it is important to stay healthy and how people (particularly children and families) can go about achieving healthy lifestyles in their day-to-day lives. Approaches like this one are not only ethically sensible but also sensible from the perspective of public health because there is evidence that a substantial proportion of people, whether obese or not, fail to meet recommendations for physical activity [13, 14], and that physical fitness is a better predictor of morbidity than is weight status [15]. Thus, improvements in physical activity could benefit the entire population. Similarly, because most people do not meet recommendations for fruit and vegetable consumption [16, 17], campaigns designed to promote fruit and vegetable intake (e.g., "Fruit and Vegetables—More Matters") have the potential to increase people's health and well-being regardless of their weight status. Thus, shifting the focus away from obesity and onto the factors that contribute to obesity and associated health problems would be a more sound approach.

These approaches may be particularly beneficial if they focus on multiple behavioral components simultaneously (e.g., physical activity *and* improved diet).

Another example of a socio-communicative intervention is providing the public with the information they need to make educated and informed decisions about their health behaviors. One such intervention is nutrition labeling, the disclosure of clear nutritional information on food packages. Nutrition labeling could help regulate consumer behavior by providing people with meaningful guidelines for their food intake [18]. Many countries, including Mexico, Chile, Australia, the UK, and the USA, have seen a push for legislative changes to include clear nutritional information on packaged foods and on fast-food menus [2]. The proposed legislative changes would require that food companies provide information indicating the amount of energy, fat, saturated fat, carbohydrates, sugars, proteins, and salt on the front of food packages. There has also been an emphasis on providing clear labels that use standardized units of measurement that consumers can understand [19]. Other similar approaches include food traffic light systems, as well as calorie labeling on restaurant menus. Legislation enforcing clear nutrition information is characteristic of a low ethical risk intervention for reducing obesity because it preserves the autonomy of consumers and allows them to make their own informed decisions regarding their diet. Unfortunately, there has not been sufficient evaluation of the effectiveness of these approaches. For example, the available evidence on calorie labels on restaurant menus suggests that this calorie information does not have the intended effect of decreasing intake [20] and may even have the unintended consequence of increasing unhealthy choices in some cases [21]. With respect to front-of-pack labeling on packaged foods, research indicates that consumers find them less helpful than the current nutrition facts panel and also report that front-of-pack systems are less likely to influence their purchasing decisions [22]. Furthermore, traffic light systems do not appear to have any observable impact on food purchases [23, 24]. It is important to thoroughly evaluate these types of interventions because an intervention that has low impact is not a good use of resources even if it is low in ethical concern.

Finally, school-based initiatives that involve psycho-education programs promoting healthy eating habits can also be considered an approach that targets the socio-communicative environment. The Stephanie Alexander Kitchen Garden (SAKG) program is one such example that 824 Australian primary schools have adopted since 2001, and the program continues to grow [25, 26]. The SAKG program involves teaching students how to grow, harvest, prepare, and share fresh food. The program achieves these aims by giving students ample opportunities to practice what they learn through regular access to a school garden and kitchen, subsequently encouraging positive lifelong eating habits. A preliminary evaluation of the program showed that students involved in the program improved their knowledge and confidence in both gardening and cooking and showed greater interest in experimenting with new foods compared to students not involved in the program [25].

A potential ethical concern relevant to school programs such as the SAKG is the economic cost involved. Government school funding can be limited and may require funding cuts to other primary school subject areas in order to implement the program. Furthermore, incorporating the program's expenses into school fees may not be a viable option for many government schools and may place a strain on parents that could discourage them from allowing their children to participate in the SAKG. This could mean that only students from relatively advantaged backgrounds would benefit from the program, introducing further disparity to an already unequal system. These financial considerations aside, school-based programs like the SAKG are low in ethical concerns because they promote healthy eating practices to an entire population and have no other adverse ethical concerns. These programs have the potential to benefit society in the long term by establishing good practices at an early age, particularly if they form a part of a comprehensive school health program [27]. Of course, it is imperative that any such programs are founded on a base of reliable and accurate information about healthy eating.

Economic Environment

Public health approaches can also utilize the economic environment in an attempt to curb the obesity epidemic. This approach is based on two main premises: (1) that obesity is higher (and engagement in healthy behaviors is lower) among individuals from lower socio-economic backgrounds and (2) that economic incentives play a prominent role in people's behavioral decisions. Foods that are low-cost, pre-prepared, and easily accessed are more appealing to the consumer than are those that require greater effort to purchase and prepare [28]. One approach that has been considered as a means of steering consumers away from unhealthy foods is to introduce a tax on certain types of foods (often referred to as a "junk food tax," "soda tax," or "fat tax"). Taxation as a means of reducing unhealthy behaviors has been successfully implemented in the domains of alcohol and tobacco [29, 30] and is promising in the context of food as well [31]. One potential ethical concern with this approach, however, is that these taxes will be more likely to disadvantage the already economically disadvantaged. Countering that concern, some have suggested that the poor are also most likely to suffer from diet-related diseases and therefore stand to benefit most from reduced consumption of, for example, soft drinks [32]. There are also

data from research on tobacco consumption indicating that change in demand for cigarettes is actually greater among individuals from the lowest income brackets (i.e., they show the greatest price elasticity [33, 34]). Another factor that must be considered, however, is that individuals from lower income brackets might engage in unhealthy behaviors (e.g., smoking and drinking alcohol) as a means of coping with their daily stress [35]; indeed, stress is known to contribute to unhealthy eating patterns [36]. Also pertinent to the current discussion is that individuals from lower income brackets might not have access to healthier alternatives [37], which means that they would be paying more for what they do have available to them. In these ways, individuals from lower socio-economic backgrounds might be even more disadvantaged by taxes on unhealthy foods (see also [38]).

One solution to the potential negative effects of taxing unhealthy foods is to concurrently subsidize healthy foods [39]. Ensuring that a supply of affordable healthy food is accessible to all may increase the attractiveness of healthy foods and reduce the risk of unintended negative effects of taxation. Taxation and subsidies would have to work in concert in order to maximize the benefits, making healthy foods more accessible and more appealing compared to junk foods. The food industry in Australia (and other countries) has criticized this proposed intervention as paternalistic because it interferes with the individual's rights to choose what they eat [18]. That position, of course, conveniently ignores the fact that the food industry benefits from government subsidies that allow for unhealthy, energy-dense, processed foods to be manufactured, sold, and purchased at low cost [40], effectively interfering with the individual's right to choose healthy foods. It would seem that adding taxes to unhealthy foods, along with complementary subsidies on healthier foods, places a less severe restriction on autonomy than does banning specific items. Ethically, balancing taxes and subsidies is of low concern because it encourages and rewards healthy eating as opposed to completely restricting unhealthy consumer behavior.

Another form of modification of the economic environment involves a series of incentives/disincentives to obesity and obesity-related behaviors. For example, it has been suggested that obese individuals should pay higher health insurance premiums than non-obese individuals because obese people consume more medical resources [41]. This perspective seems to treat obesity as a lifestyle choice, much like smoking or alcohol consumption, and ignores the multiple factors (including genetics, the food environment, etc.) that play a role in determining weight status [42]. Importantly, that perspective also overlooks the fact that obesity itself is perhaps not as much of a problem as is the collection of behaviors that contributes to weight gain and obesity, including physical activity and diet-related factors. An alternate approach, then, is to provide financial incentives for people to engage in healthy behaviors, such as by providing a *discount* on insurance premiums for individuals who regularly exercise, providing tax *rebates* for gym memberships, and so on. Of course, these approaches are not without their concerns: providing financial incentives can decrease intrinsic motivation to engage in healthy behaviors [43] and providing tax rebates (particularly non-refundable tax rebates) might only benefit people from higher income brackets [44]. Nonetheless, the focus on behavior instead of weight is not only sensible from an ethical standpoint, but is also consistent with evidence indicating that lean people who are unfit are at increased risk of morbidity and mortality compared to lean people who are fit, and even compared to obese people who are fit [15].

Physical Environment/Access

The physical environment is the material and tangible condition in which we live, including the natural and built environments [45•]. People's lifestyles are highly influenced by the resources made available to them in their environment, and thus a food-rich environment combined with lack of opportunities for physical activity can contribute to the obesity epidemic [46]. Changing the physical environment and/or access to opportunities to engage in healthy behaviors can be used as a strategy to reduce rates of obesity. For example, the public health system has initiated primary school programs that encourage healthy eating by providing access to healthy foods, such as school lunch programs and healthy canteens [47]. Other approaches focus instead on restricting access to certain foods, including the push to remove junk foods and soft drinks from primary schools and high schools [48], and mayor Michael Bloomberg's failed attempt to ban supersized soft drinks (i.e., those larger than 16 ounces) in New York City. Placing restrictions on what foods can be purchased again raises concerns about paternalism. This may be less of a concern when it comes to decisions about food availability in schools because people recognize that children are not always able to make the best (i.e., healthiest) decisions for themselves. However, among adults who value the freedom to make their own decisions about what, when, and how much to eat, these restrictions will be faced with resistance. One solution that would satisfy people's desire to make their own choices, and could also potentially benefit people's health, is to ensure that healthy options are just as readily available and just as affordable as the unhealthy options. The challenge here is a pragmatic one: Although it might be relatively simple to offer water and low-calorie beverage options along with the higher-calorie beverages in vending machines, or to offer smaller portions at an equivalent unit cost to larger portions, it would be relatively difficult to increase the availability of fresh food options that are comparable in price to processed foods.

In addition to changes in food availability, the physical environment can also be manipulated to encourage physical

activity. Physical exercise is an important component of maintaining a healthy weight [49, 50]. In order to encourage healthy behaviors such as physical exercise, individuals need to have access to adequate exercising opportunities. Infrastructural urban developments such as bicycle paths would promote physical activity by providing areas to engage in physical activity [47]. Encouraging walking or cycling for transportation can be beneficial not only by reducing road congestion and air pollution, but also by promoting health [6]. In fact, countries that have higher active transports such as cycling have lower obesity rates than countries with lower active transports [51]. Furthermore, individuals who walk or cycle to work are 13 % less likely to be overweight compared to individuals who drive [52]. Drawing from these correlational data, increasing the availability of bicycle paths may be an effective preventative measure to increase physical activity prospects and reduce obesity rates. Bicycle paths are also of low ethical concern as they do not target any specific group and are free to access. Although bicycle paths do not disadvantage any segments of the population, it could be argued that they only benefit some groups of individuals—those who own bicycles. A related approach that could be even more widely adopted is the installation of exercise parks. Exercise parks are becoming more common across Australia and are typically located alongside walking/running paths. Exercise parks have been designed so that individuals utilize their own body weight to do different exercises at several stations [53]. Several exercise stations are placed a few hundred meters apart designed in this way to encourage walking and running in between each station. This is an intervention that has no foreseeable ethical concerns and appears to promote physical exercise without costs to the individual. An evaluation of the usefulness and the amount of traffic that exercise parks attract would allow for a better understanding of the effectiveness of these installations.

Conclusions

The ethical implications of any public health intervention for obesity need to be thoroughly evaluated, and these considerations should be balanced against the feasibility and potential benefits of the proposed intervention. Those interventions that have the greatest likelihood of success and the lowest ethical concern should be the ones that are invested in most heavily. We suggest interventions that target the physical environment/access (especially those that make it easier for people to engage in healthy behaviors), that target the entire population (rather than just individuals with obesity), and that focus on health behaviors (rather than on weight) have the least potential for ethical concerns. Interventions introduced by the public health system that adequately consider the ethical implications will have the greatest potential to reduce rates of obesity and improve population health in countries worldwide.

Compliance with Ethics Guidelines

Conflict of Interest Suzanna M. Azevedo and Lenny R. Vartanian declare that they have no conflict of interest.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

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