Making Healthy Choices Easier: Regulation versus Nudging

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Abstract

In recent years, the nudge approach to behavior change has emerged from the behavioral sciences to challenge the traditional use of regulation in public health strategies to address modifiable individual-level behaviors related to the rise of noncommunicable diseases and their treatment. However, integration and testing of the nudge approach as part of more comprehensive public health strategies aimed at making healthy choices easier are being threatened by inadequate understandings of its scientific character, its relationship with regulation, and its ethical implications. This article reviews this character and its ethical implication with a special emphasis on the compatibility of nudging with traditional regulation, special domains of experience, and the need for a more nuanced approach to the ethical debate. The aim is to advance readers' understanding and give guidance to those who have considered working with or incorporating the nudge approach into programs or policies aimed at making healthful choices easier.

INTRODUCTION

Throughout the world, societies face major challenges and massive governmental spending in the public health sector. In particular, the rise of noncommunicable diseases (NCDs)—notably cancers, cardiovascular diseases, and diabetes—has, for decades, presented a broad series of challenges to governments in terms of promoting health and reducing the economic and social burden of disease and disability (2). Although these challenges are clearly known to correlate with variables such as social level, age, and gender, among others, they are also known to be largely preventable by reducing exposure to four main risk factors—tobacco smoking, unhealthful diet, physical inactivity, and excessive alcohol consumption (67). Most of these challenges have in common that they are closely associated with the consequences of modifiable individual-level behaviors, where—looking at it from a public health perspective—people fail to perform rationally in their own declared self-interests.

Public health promotion has traditionally relied on education, information, guidelines, campaigns, social influences, school and workplace programs, and product labeling, not only to persuade the individual to prefer more healthy lifestyles, but also to make more rational decisions relative to these preferences (42). However, during the past four decades, advances in behavioral economics and cognitive and social psychology (henceforth, the behavioral and social sciences) have revealed how human behavior and decision making is boundedly rational, systematically biased, and unavoidably habitual owing to the interplay of psychological forces, with what ought to be, from the perspective of rationality, irrelevant features of complex decision-making contexts (21). Thus, one challenge, which has appeared relative to informed health policy, is determining how to modify individual-level behavior toward people's own declared self-interest despite that people are bound to make mistakes in conforming to rational standards in their behavior and decision making.

In their book *Nudge: Improving Decisions About Health, Wealth and Happiness* (53), behavioral economist Richard Thaler and legal scholar Cass R. Sunstein have suggested that the very cognitive boundaries, biases, and habits that cause these mistakes may be systematically utilized by private and public institutions to modify individual-level behaviors in people's own declared self-interests. They label any such intervention as a nudge and, in addition to effectively bridging gaps between preferences and behavior, they also suggest that nudges may avoid some of the challenges and potential pitfalls of traditional regulation, such as costly procedures and ineffective campaigning, unintended effects of incentivizing behaviors, and invasive choice regulation such as bans. In particular, the authors emphasize that despite their choice-preserving nature nudges may provide the basis for a wider regulatory strategy to modify individual-level behaviors in people's own declared self-interest, a concept known as libertarian paternalism.

Since the publication of *Nudge*, its ideas have gained widespread traction and have diffused or have been disseminated into many different sectors of public policy, including public health, where it has challenged assumptions of standard regulation efforts. It has led to the emergence of a field of applied behavioral science referred to as nudging, which is in its infancy and comprises a mix of cross-disciplinary academics, policy makers, practitioners, and consultants with a wide range of backgrounds, competencies, and ideas about what they are doing. Thus, the systematic use of nudges to induce behavior change, such as making healthful choices easier, has yet to develop. In particular, the process of implementing and testing the nudge approach, as an element of a comprehensive public health strategy, is currently being threatened by inadequate understandings of the scientific nature, status, and implications of nudging as well as a range of common speculations and suspicions about nudging relative to regulation in the public health community.

WHAT IS NUDGING?

Over the past four decades, advances in the behavioral sciences have revealed how human behavior and decision making is boundedly rational (i.e., the idea that rational decision making is limited by the contextually available information, the cognitive limitations of the decision maker, and the time available to make the decision), systematically biased, and unavoidably habitual owing to the interplay of psychological forces with what ought to be, from the perspective of rationality, irrelevant features of complex decision-making contexts (21). These behavioral insights teach us how decision-making contexts may systematically lead people to fail in acting on well-informed preferences and thus fail to achieve their preferred ends, e.g., by making people focus on short-term preferences for chocolate relative to long-term preferences for health and well-being. In the domain of public health, such advances may also teach us how neglecting these insights can be responsible for the failures of health policies to reach intended effects and why paying more attention to them may provide the key to dealing more effectively with the main preventive public health risk factors, problems in treatment, etc.

Nudge

In *Nudge*, Thaler & Sunstein (53) suggest that nudges may avoid some of the challenges and potential pitfalls of traditional regulation, such as costly procedures and ineffective campaigning, unintended effects of incentivizing behaviors, and invasive choice regulation, such as bans. They suggest that, if a particular unfortunate behavioral pattern is the result of cognitive boundaries, biases, or habits, this pattern may instead be nudged toward improvement by integrating the very same kind of boundaries, biases, and habits into our physical, social, and mental contexts in ways that serve a more preferred behavior rather than obstruct it. The proclaimed advantage of applying nudges is that public policy makers might thus supplement—or, perhaps, even replace (53, p. 14)—traditional regulation with nudges to influence people's everyday choices and behaviors in cheaper, less invasive, and more effective ways. That is, nudging seems to offer policy makers an effective way to influence citizens' behavior without further restricting freedom of choice, imposing mandatory obligations, or introducing new taxations, or tax reliefs. Thaler & Sunstein coined the seemingly oxymoronic term, libertarian paternalism, to characterize the attractive regulation paradigm that intuitively arises out of the nudge strategy to behavioral change in public policy making, when enacted to serve the interests of the citizens as these are judged by themselves (20). In their original definition of a nudge, the absence of traditional (health) policy strategies is even invoked as a formal condition:

> A nudge, as we will use the term, is any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not mandates. Putting fruit at eye level counts as a nudge. Banning junk food does not. (53, p. 6)

However, later theoretical work has shown that this way of defining a nudge easily conflates what is a descriptive behavioral concept with that of a separate political doctrine of libertarian paternalism (20). Instead, a nudge may be defined in a more precise and consistent way, relative to the behavioral sciences, that avoids such conflation:

> A nudge is a function of (condition I) any attempt at influencing people's judgment, choice or behavior in a predictable way (condition a) that is made possible because of cognitive boundaries, biases, routines,

and habits in individual and social decision-making posing barriers for people to perform rationally in their own self-declared interests, and which (condition b) works by making use of those boundaries, biases, routines, and habits as integral parts of such attempts. (20, p. 37)

By this definition, the operational independence of nudges as to regulation is not a formal condition, but an implication. That is, the original definition of a nudge provided by Thaler & Sunstein (53) is actually a consequence of the more fundamental definition provided by Hansen (20), which is important to notice because this means that even though nudges can operate independently from regulation, they are not required to. Thus, a nudge may be combined with traditional regulation approaches but works independently of (*a*) forbidding or adding any rationally relevant choice options; (*b*) changing incentives, whether regarded in terms of time, trouble, social sanctions, economics, etc.; or (*c*) the provision of factual information and rational argumentation. A simple definition proposes that a nudge is any part of an intervention that should not mean anything in principle but does in practice.

Nudging

Today the systematic use of nudges in creating behavior change is referred to as the field of nudging and, as a discipline, is increasing its influence on public policy worldwide. A key institution in this development has been the establishment of the Behavioural Insights Team (BIT) in 2009 by UK Prime Minister David Cameron. The BIT rolled out of government to become partly privatized in 2014. Since 2009, nudge units, initiatives, and networks have followed, including the United States (66), Denmark (**http://danishnudgingnetwork.dk/Om/index.html**), Germany (44), and Canada (10), among others. Likewise the European Union, the OECD, and The World Bank have published reports, held meetings, and actively supported research to further examine the potential of nudging (36, 43, 68). Although these efforts have led to the emergence of the field, nudging is only in its infancy.

Still, a common scientific framework of reference unites these efforts. In particular, nudging relies heavily on theories and methodology from behavioral economics as well as from cognitive and social psychology, using microeconomic decision theory as a baseline. A central focus within the field is the biases and heuristics program of Nobel prize winner Daniel Kahneman and Amos Tversky, which is rooted in dual-process theories of cognition and information processing (32, 54–55) as made accessible to the wider public by Kahneman's (31) dual-system theory presented in his book, *Thinking, Fast and Slow*.

Dual-process theories vary greatly but generally share the overarching structure of positing two types of human information processing—automatic and nonautomatic—in explaining and predicting human behavior (12). Using David Marr's (38) distinction between computational, algorithmic, and implementation-level theories of psychology, the explanatory function of dual-process theories may be located at the algorithmic level of analysis where mental mechanisms that translate inputs into outputs are identified. Identifying processes according to the simplified distinction of whether they operate in an automatic and nonautomatic fashion—i.e., (*a*) when there is conscious awareness, (*b*) when there is no goal to start the effort, (*c*) when cognitive resources are reduced, and (*d*) when there is no goal to alter or stop the process—these theories thus seek to explain how supposedly irrelevant features of decision-making contexts systematically influence human decision making and behavior (15).

In addition to the shared psychological underpinnings, the widespread efforts falling under the auspices of nudging are unified by the ambition to apply quantitative experimental approaches to validate field research results. The choice of this methodological approach may be ascribed

to the intellectual origins in the standard laboratory experiments used in behavioral economics. Randomized controlled trials (RCTs) are explicitly formulated as the ideal in, for example, the BIT's 2012 report, *Test*, *Learn*, *Adapt* (27). However, the objective of nudging is just as much about evaluating the efficacy and policy implications of nudge interventions and examining the potential real-world feasibility and applicability of behavioral insights as it is about extending the boundaries of scientific knowledge. Hence, the aspirations of nudging as currently carried out have much in common with what is generally referred to as real-world research, and the research relationship sought between stakeholders may best be characterized by Hall & Hall (1996)[1]:

> The research relationship is between equals, and is not exploitative: the client organization is not being "used" merely to develop academic theory or careers nor is the academic community being "used" (brains being picked). There is genuine *exchange*. The research is negotiated. (17)

Despite the various versions of this ideal being adopted by core practitioners of nudging, the cross-sectorial nature of current efforts has undoubtedly prompted some speculation and suspicion. One set of worries pertains to the threat of science being utilized by policy makers to manipulate citizens. Another set of worries pertains to whether nudging is being used as an excuse to roll back traditional regulatory efforts. This latter worry has been most prominent in Europeans' response to nudging; the US response has been worried more about the paternalistic aspects of the approach. Not surprisingly, the issue of nudging versus traditional regulation has perhaps been most outspoken within the sector of public health.

MAKING HEALTHY CHOICES EASIER

Throughout the world, societies currently face major challenges and massive governmental spending in the medical care sector, in particular with regard to the rise of NCDs that are closely associated with the consequences of modifiable individual-level behaviors, where—looking at it from a public health perspective—people fail to perform rationally in their own declared self-interests. This perspective seems reasonable because, given a trivial choice, few citizens probably prefer to live unhealthfully or suffer from disability and disease. Hence, public health has been perceived as a natural candidate for nudging [cf. condition (a) of the definition of a nudge].

Against this background, one of the basic slogans of nudging—"make it easy"—could not be better timed in health policy, although practitioners or researchers may deem it to be too vague, over simplified, potentially deceptive, over reliant on individuals making the right choice, and too weak to lead to sustainable behavior change. Although it is true that when simplified, nudging is very much about promoting certain choices by making them easy, this concept is intended in the technical sense of developing evidence-based clever ways of making target choices cognitively "easy" or "intuitive" to perform against the background of dual-process theories. This is done, for example, by making target choices psychologically salient, intuitive to navigate, associatively attractive, and clearly endorsed by the social environment in the context of often counterintuitive theoretical insights. The background of the public health challenges themselves is a useful place to determine the efficacy of this strategy.

[1]This sentiment and method has become pervasive and operationalized in community-based participatory research (e.g. 29, 39) and in public health program evaluation and medical quality-improvement studies.

Making Unhealthful Choices Easier

Public health challenges may be considered, in part, the result of nudging, albeit as a consequence of nudges that are not conducive to health. For example, within the world of food and beverages, producers and retailers are highly aware of the importance of consumer preferences and habits in influencing purchasing behaviors. Although the prevailing view among economic operators is that marketing acts solely to facilitate consumer choice by providing information about different brands and products, evidence in the public health and psychology literatures suggest that marketing and other forms of promotion can alter perceptions and attitudes and can increase preferences for both branded and nonbranded foods; they can also influence consumption patterns and diet-related behaviors (e.g., can affect generic food selection patterns and dietary intake) (5–6, 16, 26).

Evidence also indicates that providers of goods and services use prices for differentiated products to nudge consumer preferences and habits (9). A company may thus design the entire marketing mix around its prices to raise demand, such as by identifying that the target market, say low-income consumers, can afford only a certain price for a product, and then design and position the product around that price. Such strategies used by food companies to achieve marketing objectives include price skimming (setting a relatively high price at first and then lowering the price over time), penetration pricing (setting a relatively low initial entry price to attract new customers), prestige pricing (setting a high price for a product to evoke high quality), and promotional pricing (e.g., sales promotions, loss leaders) (11). Industry argues that such price promotions are necessary in a competitive market, but evidence shows that the principal effect is to cause consumers to purchase more frequently or to buy more on each visit; thus, the effect on demand is much greater than that on brand switching (24, 47). Hence, conscious strategies, such as supersized plates in fast-food outlets, sizing-up of portions for packaged foods and fizzy drinks, when combined with what Brian Wansink (61) has famously dubbed "mindless eating" in his book by the same name, may lead to a mindless increase in consumption.

Furthermore, an emerging body of evidence suggests that food companies create products that aim to maximize appeal to innate taste preferences, thus contributing to the creation of habits for foods high in saturated fat, sugar, and/or salt, which have been implicated in the rise of obesity and diet-related NCDs; repeated exposure to specific food products or ingredients may heighten people's appetites and can induce overeating, which may very well lead to weight gain. Possible mechanisms include influencing taste and texture perception and sensory reward, which in turn affects our ability to regulate food intake as sensory signals from food are disconnected from metabolic properties (28, 34–35, 37, 59).

The evidence discussed above has been complemented by public health literature that has considered the importance of "food environments" and "food deserts" in determining the availability and affordability of food options for consumers, which influence dietary patterns and the nutritional quality of diets (25, 48, 52). The assumption is that far from being consumer driven, what consumers eat is being shaped by the food market environment (i.e., the decisions and actions of producers and retailers), whether it be through advertising and marketing, the availability of high-calorie food, and of course their relatively low prices. Hence, claiming that no evidence has shown that nudging works to create sustainable behavior change is difficult to defend when, in fact, nudges have played a crucial role in food companies making unhealthful choices easier.

Making Healthful Choices Easier

The question is not so much, then, whether nudges work effectively for creating sustainable behavior change, but rather whether nudging is an effective and ethically admissible strategy to

pursue when it comes to promoting healthful choices relative to the public health perception. To assess the potential effectiveness of nudging in making healthful choices easier, we consider some of the instructive domains within or close to public health to which real-world nudge experiments and interventions have recently been or are currently being devised.

Registering for organ donation. In countries where people can register to be organ donors, surveys have shown many times how citizens who prefer to be registered as organ donors have, in fact, failed to follow through with registration (23). Thus registering for organ donation has been perceived as a natural candidate for nudging [cf. condition (a) of the definition]. In their classic article, Johnson & Goldstein (30) showed how opt-out schemes produce much higher registration levels for organ donation relative to opt-in schemes. This occurrence aligns with a robust finding in the behavioral sciences that inertia leads to a status quo bias, i.e., a strong tendency for humans to go with whatever is the default option. That is, even though defaults ought not to play any role in decision making in principle, it does so in practice. Changing the default of a given decision-making context is considered a basic and strong nudge function within the nudge approach. For this reason, it seems logical that any integrated and comprehensive public health strategy wanting to implement nudging could consider nudging registration for organ donation by changing the default.

Although Thaler & Sunstein have often been presumed to agree with this position, this assumption is actually not true; they prefer to nudge this kind of issue using prompted choice because of ethical considerations similar to those addressed below and because they feel that the real behavioral problem is not getting people to say yes, but is instead getting citizens to register their stance on organ donation—whether that is a "yes" or "no"—a case of negotiating the problem as mentioned above (18). Wanting to test prompted choice for organ donation, which itself may be considered a nudge (18), the Danish Nudging Network together with the Danish Ministry of Health and the main public webpage addressing public health issues (**https://www.sundhed.dk/**) tested, in 2015, the effect of adding a pop-up window to this webpage for one month—a pop-up merely encouraging visitors to take a stance-on-taking-a-stance on their organ donor registration status. About 11,000 more updates were made to the donor registry compared with the previous four-month average, an increase of more than 250%. The number of clicks on the pop-up window during the intervention month translated to 7% of overall front-page landings for the webpage that month (P.G. Hansen, unpublished findings; data available on request). These observations strongly suggest that the pop-up window nudged relatively more Danes into action in a relatively cheap way, namely by checking in with their registration status, which in Denmark is set to a default "no," and presumably aligning it with their preferences.

As shown by an RCT conducted by the BIT in the UK, however, even the presentation of the request in a pop-up—in this case, to join the register—may be a platform for nudging by means of using framing effects (23). The framing effect is a hallmark of Tversky & Kahneman's (55) research, which shows that often choices are not as much about outcomes as they are about the formulation of outcomes. That is, the framing effect is a cognitive bias by which people react to a particular choice in different ways depending on how it is presented to them—e.g., whether expressed in terms of losses or of gains. In the UK experiment, more than 1,000,000 individuals were presented with 1 of 8 different prompts (more than 135,000 individuals per prompt), each framing separate nudge functions such as reciprocity, losses, gains, and social proof (with and without pictures of people) as well as a control prompt. During the trial, 1,203 more people registered under the best-performing variant, compared with the control group. This difference would lead to ~96,000 additional completed registrations compared with the control (assuming all other factors are equal) over the course of a year. Hence, the mere presentation and formulation of a prompt to register for organ donation are candidates for nudging.

Making healthful consumption choices easier. As indicated in the example of organ donation registration, nudging tends to be a hands-on or context-specific approach to behavior change. As such, it differs, both in its development and proximity to context, from more traditional regulations that attempt to change behavior from a distance by providing information, incentives, and rules that generalize across contexts. This context specificity becomes even more obvious when the goal is to make healthful choices easier relative to consumption patterns related to NCDs.

For instance, during the past decades, observational data demonstrate that plate sizes have increased significantly (3, 57, 64). This increase is problematic with regard to healthy consumption because plate sizes interact with habits in the sense that they create the visual context that determines the success feedback signal, i.e., the stop signal, with regard to filling one's plate. Hence, plate size functions as a determinant of portion size (49, 63) owing to the tendency of individuals to misjudge relative self-service [cf. the Delboeuf Illusion (41)]. Thus, one may help reverse the road to obesity by making plates smaller in canteen and restaurant settings, which is supported by laboratory experiment findings showing that reducing plate size led to reductions in calorie intake (50, 60). In addition to such habit effects, various order and arrangement effects may also be used to nudge healthful choices to become easier during out-of-home eating. In a real-world controlled experiment on conference snacking, investigators invoked the order effect (by offering fruit at the front of the table) together with a default serving size during coffee breaks that offered fruit and cake to 400 executives. The results showed a 30% decrease in cake consumption and an 84% increase in fruit consumption (22). In another laboratory experiment (62), renaming and labeling vegetable dishes with fun or attractive names resulted in a 16% increase in consumption, suggesting that even the mere labeling of choices may be used to nudge more healthful consumption, and in the setting of a recent supermarket experiment, sales of sliced fruit went up by 3,095% by placing it at the counter (P.G. Hansen, unpublished findings; data available on request). However, even though an abundance of such successful experiments has shown the potential effects of isolated nudge functions in making healthful choices easier, more comprehensive studies of the effect of bundling these approaches in particular contexts are rare. However, in a recent experiment where a broad series of nudges, based on everything from signs encouraging consumers to combine particular popular vegetables with particular less known ones to space management based on cognitive maps, were implemented in an average Danish supermarket for 5 weeks, total fruit sales went up by 29% and total vegetable sales went up by 21% (a review of these findings is under way).

Such nudge functions are so context specific, however, that the only way to integrate them into a comprehensive public health strategy seems to be by incorporating them as part of food outlet staff education. But would counter interests in businesses hamper such attempts, as is often thought? Not necessarily. Experiments such as that of labeling vegetables have led to increased sales of the isolated good. Also, in the supermarket study mentioned above, the total turnover of the supermarket went up by 2.6%. Even positive side effects may result, as illustrated by an experiment implementing smaller plates in a Nordic hotel chain; the experiment's goal was to reduce food waste and resulted in not only 22% reductions in food waste, but also significant economic savings (33). Thus, the interests of profit may not contradict attempts to make healthful choices easier.

Making unhealthful choices more difficult. Although healthful choices are theoretically the opposite of unhealthful choices (choosing an apple is the opposite of choosing not to take the apple), there is a psychological difference between actions that need to be taken and actions that result from inhibiting action. Thus it makes sense to talk not only about making healthful choices easier, but also about making unhealthful choices more difficult.

In a recent experiment in the United Kingdom and closer to the discipline of behavioral economics, two programs for quitting cigarettes were pitched: (*a*) one where smokers deposit $150, which they can get back if they stop smoking, along with $650 extra, and (*b*) one in which people receive $800 if they stop smoking. Although investigators expected no difference from a standard economic point of view, the behavioral economics hypothesis based on loss aversion was confirmed, such that 52.3% of those enrolled in the deposit program had sustained abstinence for 6 months, as compared with just 17.1% of those enrolled in the reward program. However, only 13.7% of the participants assigned to the deposit program chose to enroll in it, whereas 90.0% of those assigned to the reward program chose to enroll (51). Even though the nudge program based on loss aversion was highly effective in getting subjects to abstain, the low adoption rate made for a lesser overall effect compared with that of the reward program. An experiment such as this, in addition to being a case of making unhealthful choices more difficult, points out two key observations. First, we should expect that nudge interventions, which are different from more traditional regulation, are bound to be developed in incremental steps—e.g., in the experiment mentioned above, additional work needs to be done to increase adoption rates. Second, even if interventions are successful, such nudges need to be evaluated relative to alternatives of regulation and incentive-based strategies in order to choose the most effective means to make unhealthful choices more difficult and healthful choices easier.

As a second and final illustrative example of nudges aimed at making unhealthful choices more difficult, we consider the proposed Big Gulp Ban of New York Mayor Bloomberg. Close to defaults lies the use of signaling or communicating standards by ranges (i.e., large, medium, small) and orders (first dish, second dish, third dish in a buffet sequence), among others. For instance, default choices may, in themselves, create a signal, i.e., produce expectations, of what is standard or what is reasonable and acceptable. A well-known example of this effect is found by increasing the default sizes of fizzy drinks, for example, which lead to significant health effects by increasing consumption (58). Thus, the idea that decreasing default sizes and available ranges to nudge a decrease in consumption seems quite reasonable within an integrated and comprehensive public health strategy. Thus, New York Mayor Bloomberg suggested banning Big Gulp soft drinks in out-of-home settings to nudge down consumption. Although Thaler, author of *Nudge*, argued that this strategy would not be a nudge but a ban, the revised definition of a nudge actually shows how the Big Gulp Ban qualifies as a nudge, at least for that part of the decrease in consumption that may not be fully explained by price effects; one can buy two Half Gulps instead of one Big Gulp, and the ban is on the industry, not on the citizen. Furthermore, Wansink, author of *Mindless Eating*, was quick to argue that the strategy would not be effective because people would always get what they want; however, most commentators did not agree that it would not be effective. Ultimately, industry lobbying successfully prevented the Big Gulp ban, but any integrated and comprehensive public health strategy wanting to implement nudging should look seriously to possible regulations of standards (1).

THE ETHICS OF NUDGING

With its widespread traction and dissemination into public policy combined with its straightforward challenge of the assumptions of traditional regulation, nudging has not surprisingly provoked political, practical, and ethical skepticism and criticism from academics and public commentators alike (21). Especially the ethics of nudging has turned out to be a recurring theme, as nudging aims to create behavioral changes, including choices, by subtle interventions in the very contexts in which people work and live. Unfortunately, the debate about the ethics of nudging has often been sidetracked by repeated theoretical misunderstandings made by commentators coming from

outside this new and emerging field who have misinterpreted the premises and who have been allowed to make various claims about nudging without being required to commit themselves to a fixed and consistent position. Thus, by now a series of standard accusations pertaining to the ethics of nudging have been rehearsed. To help anyone who considers working with nudging as part of a public health strategy with regard to the ethics of nudge, we have highlighted some of the main themes and answers.

Ethical Concerns

A persistent and central accusation in the ethical debate has been the claim that nudging works by manipulating people's choices (4, 56, 65). This claim is important for two reasons. First, it seems to make the approach incompatible with public policy making in a modern democracy. Second, it is fundamental to various other criticisms of the approach, such as the claim "that the psychological mechanisms that are exploited work best in the dark," and thus the effects of nudges are likely to decrease or even disappear if nudges become transparent, and the claim that nudging invites abuse of power by technocrats (13, 46). In Europe, this criticism has been accompanied by a concern that nudging will be used as an excuse to roll back regulation toward a more libertarian state, whereas opponents in the United States are concerned predominantly with whether nudging is state paternalism in disguise (40, 46) [and that nudging impairs our autonomy and our ability to make moral choices for ourselves (14)].

Thaler & Sunstein (53) seem to admit as much: Nudging is about manipulation of choices (p. 82). But they generally dismiss the above criticisms with a three-pronged defense. First, they claim that our choices are always being influenced by the context of choice, whether we like it or not, making the antinudge position a literal nonstarter (53, p. 10). This is backed by a second claim, that because nudges work without limiting the original set of choices, or without fiddling with existing incentives, citizens remain free to choose the less healthy option. When even these two claims do not put worries to rest, the final claim is that, if nudging is guided by libertarian paternalism and a Rawlsian publicity principle (which can be summarized as a principle that bans government from selecting a policy that it would not be able or willing to defend publicly to its own citizens), the relevant political and normative concerns are met (53, pp. 244–45).

However, some opponents have argued that this line of defense is less than perfect and easily comes to serve as a decoy (21). Although it is true that our choices and, more generally, our behavior are always influenced by the decision-making context, the intentional character of nudge interventions being aimed at affecting behavior change unavoidably ascribes one with certain responsibilities. Any configuration of space management in supermarkets or default setting of fizzy drink sizes may, in fact, influence behavior and choices; however, if someone intentionally arranges these to modify individual-level behaviors, responsibilities accrue. This observation, in particular, pinpoints that antinudging arguments are rarely about nudging per se, but rather seek to guard against someone (e.g., the state) taking responsibility in unwarranted contexts (i.e., what and how much we should eat or drink in private). Claiming that we are always being nudged may be used by proponents of nudging to avoid that debate.

In addition, these responsibilities cannot be dismissed by merely pointing out that nudges are liberty preserving as a matter of principle. Although the perception of preserving liberty is accurate in principle, that citizens are free to choose otherwise, one can hardly apply this perception in every practical context because the nudge approach to behavior change is applied exactly in contexts where we tend to fall short of such principles. This point becomes especially clear in the context of organ donation registration (18). The transition from an opt-in system to an opt-out system may be liberty preserving in principle. In practice, such a transition may be expected to move toward

registration those individuals who prefer to be registered; however, the change also affects those who do not prefer to be registered such that status quo bias will now work against this portion of the population. Of course, one may come up with utilitarian reasons for endorsing such a policy, but then the defense is no longer one that concerns the principal liberty-preserving nature of nudges.

Finally, relying on Rawls' publicity principle may seem to be an ethically insufficient safeguard. Governments may, and have been willing to, defend many policies publicly that did not hold up to ethical scrutiny. In addition, if nudging is manipulation of choice and invites abuse by policy makers, then the need to make such a defense would hardly come into play because, if manipulative, nobody would likely notice.

A Framework for Assessing the Ethical Acceptability and Implications of Nudges

One could argue that nudges are not necessarily manipulative in the ethically relevant sense, i.e., the psychological sense of manipulation whereby intervention, intention, and means are epistemologically nontransparent (21). Rather, many nudges are straightforwardly transparent, such as the function of placing sliced-up fruit in a fridge at the supermarket check-out counter [an increase of purchases of sliced-up fruit by 3,095% (a review of these findings is under way)] or setting up a prominent cauliflower sign to suggest boiling it with potatoes [purchases of cauliflower up 45% (a review of these findings is under way)]. Hence introducing an epistemic distinction between transparent and nontransparent nudges may serve as a basis for distinguishing the manipulative use of nudges from other types of uses, as well as for preserving liberty, not only in principle but also in practice. Still, many nudges may be regarded as manipulative in the psychological sense, e.g., reducing or increasing plate size imperceptibly or using framing to get patients or doctors to favor a certain treatment, and epistemic transparency depends on individual variables, such as when the effects of default size or ordering of options for fizzy drinks may be transparent to behavioral economists but not to their kids.

Likewise, one could argue that because nudges target reflective choices as well as automatic kinds of behaviors, such as attention, routines, and habits, the responsibilities and expectations attributed (or transferred) to the individuals targeted by the nudge differ accordingly. That is, whereas the nontransparent framing (i.e., manipulation) of medical treatment as well as the transparent salience-making and suggestion of cauliflower both aim to attribute the responsibility of choice to individuals, the nontransparent reduction of plate size to lower consumption by tapping into automatic cues or the transparent playing of music when airplanes take off to relax passengers aims at more automatic behavioral responses that do not usually attribute responsibility to the individuals targeted.

Combining these two distinctions—transparent/nontransparent, with regard to manipulation, and reflective/automatic, with regard to ascribed responsibility—provides a conceptual framework to characterize four types of nudges (see **Figure 1**). This framework may provide a central component for more nuanced ethical considerations, clear up some of the confusion that surrounds the ethical discussion of the nudge approach to behavior change, and better inform its adoption in the attempt to make healthful choices easier, within an integrated and comprehensive public health strategy (21). In addition, the framework also reveals why it is not true that nudges work best in the dark or that effects are likely to decrease or disappear if nudges become transparent (fruit at the counter seems to make the opposite case). Rather, the feature of transparency may operate as an ethical filter, making individuals immune when nudges are not aligned with the targeted individual's interest. In the same manner, the framework may be used to evaluate the ethics of possible side effects with regard to autonomy.

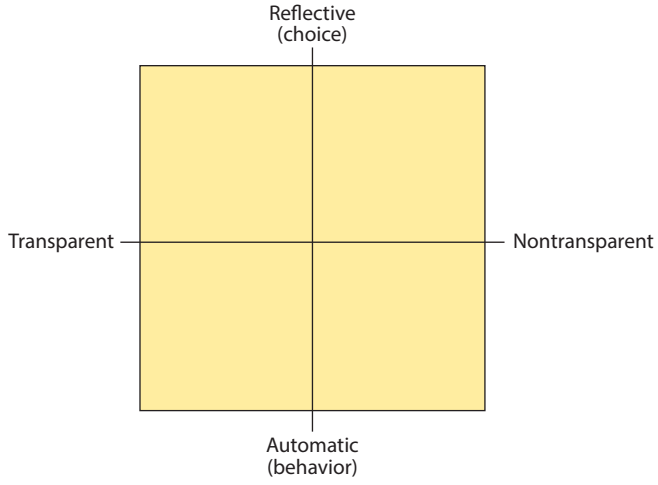

Figure 1

A framework for assessing attributed responsibility and manipulation to assign functions of interventions into one of four categories.

Policy Concerns

Still, this framework does not satisfy the policy concerns regarding the potential abuse of power by technocrats, nudging as paternalism in disguise, nudging as an excuse to roll back the state to a more libertarian one or to give the state more invisible power, and the impact of nudging on autonomy. However, many of the claims against nudging actually pertain to regulating systems at large (19), an important point that is usually overlooked in discussions about the ethics of nudging. For instance, most incentive schemes are practically nontransparent to citizens as well as to stakeholders in the relevant decision-making contexts. Few people know which taxes pertain to a chocolate bar or are familiar with the detailed information about cancer therapy and how the associated risk portfolio has been calculated. Likewise, Microsoft Windows and Apple iOS systems certainly impaired most people's ability to write in DOS code; Google created a similar limitation for library references. Yet, we do not feel as though our autonomy has been impaired or that we lost our ability to make moral choices for ourselves. But more importantly, such concerns show that the issues do not pertain to nudging alone.

That said, among these more complex policy discussions, one issue remains a widespread concern within public health circles: that nudging is an approach that aims to roll back the state to a more libertarian one. At the root of this concern is confusion among researchers about the relation between nudging and the concept of libertarian paternalism, where nudges and libertarian paternalism are often discussed as synonymous (see also 7–8, 45). Libertarian paternalism is not clear in whether it aims to substitute hard regulation with soft paternalism as a target in itself, but we must stress, as argued at length elsewhere (20), that nudging and libertarian paternalism are two very different things that should not be conflated. Nudges do not need to be cases of libertarian paternalism (we may nudge you to eat too many chocolate bars) nor do interventions that qualify as cases of libertarian paternalism need to be nudges (the government may send you a very dry informational brochure about health and nutrition standards). Nudging is a new and aspiring scientific field that offers evidence-based approaches aimed to create behavioral changes in many ways that may potentially supplement as well as substitute existing regulation in a comprehensive

health strategy. Decisions of whether and how this should be done need to be based on case-by-case assessment relative to the effectiveness and public acceptability of the nudge in question.

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