Food Policy 85 (2019) 1–6

Contents lists available at ScienceDirect

Food Policy

journal homepage: www.elsevier.com/locate/foodpol

Review

Viewpoint: Effectiveness or consumer acceptance? Tradeoffs in selecting healthy eating nudges

Romain Cadario[a,b,*], Pierre Chandon[c,d]

[a] IESEG School of Management, 1 Parvis de la Défense, 92044 Paris La Défense, France
[b] LEM-CNRS 9221, France
[c] INSEAD, Boulevard de Constance, 77300 Fontainebleau, France
[d] INSEAD Sorbonne University Behavioral Lab, France

ARTICLE INFO

Keywords:
Nudges
Choice architecture
Healthy eating
Public opinion
Effectiveness

ABSTRACT

Governments and companies that want to promote healthier eating must consider both the effectiveness and the acceptance of the 'nudges' given to consumers. Our review of the literature uncovers a wide range of nudges towards healthy eating, from nutrition labeling to portion size reductions, which are found to vary greatly in effectiveness and levels of public acceptance (64% of women; 52% of men). Acceptance of a nudge is inversely related to its effectiveness: only 43% of respondents approved the most effective intervention – portion and package size reductions. Approval levels increased with the *perceived* effectiveness of the nudge and with the perception that the nudge is good for both health and business (as opposed to only one of the two), especially among respondents who identify as conservatives. To encourage acceptance of the most effective nudge strategies, governments and companies should therefore correct misconceptions about which nudges work best, and should underscore the win-win potential for health and business.

1. Introduction

A growing number of governments as well as private organizations, such as food producers and retailers, are considering implementing nudges promoting healthier eating. A nudge can be defined as "any aspect of the choice architecture that alters people's behavior in a predictable way (1) without forbidding any options, or (2) significantly changing their economic incentives. Putting fruit at eye level counts as a nudge; banning junk food does not" (Thaler and Sunstein, 2008). Healthy eating nudges reject both libertarian *laissez-faire* attitudes (e.g., "*caveat emptor*") and paternalistic interventions such as food prohibition (Capacci et al., 2012).

We draw attention to two important issues regarding healthy eating nudges. First, that using "nudge" as a generic term may be misleading as it covers a wide variety of interventions, including various labeling schemes, changes to the visibility of different food options, convenience of selection or consumption, and reductions in the size of food portions, packaging or containers. Second, that there are major differences between these nudges, both in terms of their effectiveness and their acceptance by citizens and consumers alike. In our view, it is time that policy makers and managers move beyond discussing the value of healthy eating nudges in general to consider both the expected effectiveness and public acceptance of specific types of nudges.

To achieve these goals, we first review the large literature on the effectiveness of nudges to promote healthier eating and on the public acceptance of nudges in general. We then present the results of a survey of consumers' perceptions of seven types of healthy eating nudges, which we use to examine the drivers of nudge approval. Our analyses highlight the existence of a tradeoff between consumer acceptance and nudge effectiveness, but also provide new insights for policy makers and managers intending on promoting healthier eating, as well as for research on food nudges.

2. The diversity of healthy eating nudges

2.1. Categorizing healthy eating nudges

Researchers have tested dozens of different interventions aiming to promote healthy eating (Bauer and Reisch, 2019). These can be classified in many ways, based on the intervention instrument (e.g., changes to the product itself or to its environment, see for example Dolan et al., 2012; Hollands et al., 2017; Hollands et al., 2013; Kraak et al., 2017) or hypothesized mechanisms of action (e.g., attention or social norms, see for example BIT, 2014; Chance et al., 2014; Ly et al.,

* Corresponding author.
E-mail addresses: r.cadario@ieseg.fr (R. Cadario), pierre.chandon@insead.edu (P. Chandon).

https://doi.org/10.1016/j.foodpol.2019.04.002
Received 6 December 2018; Received in revised form 27 March 2019; Accepted 4 April 2019
Available online 08 April 2019
0306-9192/

Table 1
Seven types of healthy eating nudges.

Nudge type	Logo	Definition and example
Cognitive nudges		
Descriptive nutritional labeling		• The government requires calorie and nutrition labels in supermarkets, cafeterias, and chain restaurants (such as McDonald's, Pizza Hut). • For example, the shelf label or the menu board provide information about calorie, fat, sugar and salt content.
Evaluative nutritional labeling		• The government requires labels in supermarkets, cafeterias, and chain restaurants (such as McDonald's, Pizza Hut) providing color-coded nutrition information that easily identifies healthier foods. • For example, the shelf label or the menu board provide information about calorie and fat content and a green sticker if the food is healthy or a red sticker if the food is unhealthy.
Visibility enhancements		• The government requires supermarkets, cafeterias, and chain restaurants (such as McDonald's, Pizza Hut) to make healthy food more visible and unhealthy food less visible. • For example, supermarkets place healthy food rather than unhealthy food near cash registers and cafeteria or restaurant make healthy food visible and easy to find on their menu and unhealthy food harder to find on their menu.
Affective nudges		
Healthy eating calls		• The government requires staff in supermarkets, cafeterias, and chain restaurants (such as McDonald's, Pizza Hut) to prod consumers to eat more healthily. • For example, supermarket or cafeteria cashiers or restaurant waiters ask customers if they would like to have fruits or vegetables.
Hedonic enhancements		• The government requires supermarkets, cafeterias, and chain restaurants (such as McDonald's, Pizza Hut) to make healthy food more appealing and unhealthy food less appealing. • For example, healthy foods are displayed more attractively in cafeteria counters or are described in a more appealing and appetizing way on menus.
Behavioral nudges		
Convenience enhancements		• The government requires cafeterias and chain restaurants (such as McDonald's, Pizza Hut) to include healthy food as default in their menu and supermarkets to make unhealthy food physically harder to reach on the shelves. • For example, vegetables are included by default in combo meals or in fixed menus in cafeterias and chain restaurants, but customers can ask for a replacement.
Size enhancements		• The government requires supermarkets, cafeterias and chain restaurants (such as McDonald's, Pizza Hut) to reduce the size of the packages or portions of unhealthy food that they sell and to increase the size of the packages or portions of healthy foods that they sell. • For example, cafeterias and restaurants serve smaller portions of fries and larger portions of vegetables or supermarkets sell smaller candy bars and larger strawberry trays.

2013; Wansink, 2015). Over the years, these classifications have tended to make finer and finer distinctions, which are not necessarily grounded in theory.

In a previous article (Cadario and Chandon, 2019), we offered a classification of healthy eating nudges based on the classic tripartite classification of mental activities: cognition, affect, behavior. We thus distinguished between interventions that seek to influence what people know (cognitive nudges), how they feel (affective nudges), or what they do (behavior nudges). We further distinguished between two or three subtypes for each category, leading to seven types of nudges. Cognitive nudges include "descriptive nutritional labeling," "evaluative nutritional labeling," and "visibility enhancements. Affective nudges consist of "healthy eating calls" and "hedonic enhancements". Behavioral nudges include "convenience enhancements" and "size enhancements." Table 1 provides a definition and examples for each of the seven types.

Our meta-analysis of 299 effect sizes from 90 articles found a standardized mean difference (Cohen's d) of 0.23 (equivalent to −124 kcal/day), indicating that healthy-eating nudges are moderately effective at improving food choices (Cadario and Chandon, 2019). It also revealed wide variations in the effectiveness of these nudges, which tended to increase as the focus of the nudges shifted from cognition ($d = 0.12$, −64 kcal) to affect ($d = 0.24$, −129 kcal) to behavior ($d = 0.39$, −209 kcal).

2.2. Existing evidence on the acceptability of nudges

Selecting the best nudge is not a matter of simply choosing the most effective. Decision makers must also take into account whether the intervention will be accepted by the target population (Sugden, 2018; Sunstein et al., 2017). Although nudges are generally well received (Reisch and Sunstein, 2016; Reisch et al., 2017), acceptance varies with the type of nudge, the beneficiary (public or private), and the political orientation of the respondents.

In the domain of food policy, little is known about public support for different types of healthy eating nudges (such as whether nudges that win public approval are those that are most effective) or what drives public acceptance of different types of nudge. In general, informative "system 2" nudges which require a deliberate action on the part of people, are better accepted than "system 1" nudges which influence people automatically without being necessarily aware of their impact (Felsen et al., 2013; Jung and Mellers, 2016). Similarly, a systematic review of the public acceptability of government interventions to change health concluded that "public acceptability of government interventions to change behavior is greatest for the least intrusive interventions, which are often the least effective" (Diepeveen et al., 2013). This suggests that nutritional labeling should get more support than changes to the size of plates and portions. However, it does not allow us to make predictions about other nudges such as visibility or convenience enhancements, whose intrusiveness is more difficult to assess.

Research has also found that support for nudges increases when they are aimed at influencing individuals, rather than society as a whole (Cornwell and Krantz, 2014; Hagman et al., 2015), when they are targeted at children (Evans et al., 2005) rather than at the self (Oliver and Lee, 2005), and when they are aligned with people's political orientation (Sunstein et al., 2017; Tannenbaum et al., 2017). For example, Tannenbaum et al. (2017) demonstrate a "partisan nudge bias" – i.e.,

people perceive behavioral intervention as more ethical when illustrated by examples that accord with their politics. However, in the absence of information about the perception of healthy eating nudges on these dimensions, it is difficult to make predictions about their level of acceptance.

3. New evidence on the tradeoff in selecting healthy eating nudges

In the absence of research on the acceptance of healthy eating nudges, we surveyed American citizens about their acceptance of different types of healthy eating nudges. To investigate the drivers of their acceptance, we asked them about their perceptions of the effectiveness of each nudge and of the beneficiaries of the nudge (good for health, good for business, or both).

3.1. Method

We recruited 118 Americans via Amazon's Mechanical Turk in exchange for $0.80. Respondents recruited via this online portal have been found to be representative of the general population across most psychological dimensions, with the exception of higher negative affect and lower social engagement (McCredie and Morey, 2018). They are slightly younger, more educated, and more liberal than the general population. Their answers tend to be reliable (Paolacci and Chandler, 2014).

In our sample, 35% of the respondents were women, 12% were between 18 and 24 years old, 38% were between 25 and 30, 31% between 31 and 40, and 19% were above 40; 11% of respondents had a high-school degree or less, 31% had some college education, 13% had a 2-year college degree, 36% had a 4-year college degree, and 9% had a master's degree or more. To the question "How would you categorize your political identity?" 39% chose "conservative" and 61% chose "liberal" (Ordabayeva and Fernandes, 2018).

We first showed the label, logo, and description of one the nudges shown in Table 1, selected in random order, and asked participants to answer two questions: "Do you approve or disapprove of the following policy?" (Approve/disapprove) and "Do you think that this policy will make people eat better?" (Yes it will/No it will not). This was repeated for the six other nudges. We then showed the same information about each nudge, again one nudge at a time, and asked respondents to grade the nudge on a 13-point scale labeled from to A+ to F. To obtain a continuous measure of the effectiveness of each nudge, we asked the following question: "Knowing that people are supposed to eat about 2000 calories per day, please estimate the amount of calorie reduction that this policy would lead to". Respondents had to move a cursor on a horizontal scale ranging from 0 to 400 calories. Next, we asked people who would be the primary beneficiary of each nudge, from three options: (1) "Primarily consumer health (little or negative impact on business)," (2) "Primarily business (little or negative impact on health)," (3) "It will be a win-win (both health and business will benefit)". Finally, we collected socio-demographic and political orientation information.

3.2. Descriptive results

As shown in Table 2, the average approval rate across the seven nudges was 56% (64% of women, 52% of men) and, a statistically significant difference $z = 2.89$, $p = .004$). Approval ranged between 43% for size enhancements to 85% for descriptive nutrition labeling. The perceived effectiveness was also low: on average, 51% of respondents expected the nudge to make people eat better, with scores ranging from 38% for calls for healthy eating to 64% for descriptive labeling. A Cochran's Q test revealed that these differences were statistically significant for both approval ($\chi^2(6) = 125$, $p < .001$) and perceived effectiveness ($\chi^2(6) = 29.27$, $p < .001$).

To explore the relationship between these scores and the actual effectiveness of the nudge, we plotted on the Y-axis of Fig. 1 the mean percentage of respondents who approved the nudge (in black) or who thought that it would be effective (in blue). The X-axis shows the actual effect size of each nudge estimated by Cadario and Chandon (2019). Fig. 1 shows that the actual effectiveness of these nudges was inversely related to their mean approval rating ($r = -0.57$) as well as to their perceived effectiveness ($r = -0.49$). Similar results are obtained when computing the correlation at the individual level: actual effectiveness has a -0.18 correlation with approval and a -0.08 correlation with perceived effectiveness.

3.3. Predicting nudge approval

To examine the drivers of nudge approval we estimated two random-effects regressions, which take into account that each respondent estimated multiple nudges. Both used the 13-point measure of approval as the dependent variable because it is highly correlated with the binary measure ($r = 0.97$ at the aggregate level and $r = 0.71$ at the individual level) but provides a more granular measure of approval. In Model 1, the predictor variables consisted of the actual effectiveness of the nudge (the standardized mean difference reported in the meta-analysis), its perceived effectiveness, two binary variables capturing the effects of the perceived beneficiary of the nudge, and the individual characteristics.[1] We obtained similar results with the continuous measure of effectiveness (the estimated number of calories saved by the nudge) but with a lower R^2. Model 2 used the same predictors but also examined the interaction between political ideology and beneficiary. The results are provided in Table 3.

Table 3 shows that approval was positively associated with perceived effectiveness, as one would expect, but negatively associated with actual effectiveness. Even after controlling for individual characteristics and people's beliefs about the primary perceived beneficiary of the intervention, approval decreased as the actual effectiveness of the nudge increased.

Table 3 also shows that interventions perceived as a "win-win" for business and health had higher approval than interventions perceived as benefiting either health or business, and that there were no differences in approval between each of these respectively. Model 2 further showed that, although political affiliation was unrelated to approval, its interaction with the perceived beneficiary was statistically significant. The higher approval of nudges benefiting both health and business (compared to those that only benefited one or the other) was even larger among conservative than liberal respondents. Age and education were unrelated to approval, but approval rates were, on average, 1.07 points higher for women than for men. Gender and political orientation were not associated ($\chi^2(1) < 0.1$, $p = .97$).

4. Discussion

4.1. Selecting healthy eating nudges

The average approval rate of the seven healthy eating nudges was only 56%, a lower rate than we would expect based on prior results suggesting that the United States is a "pro-nudge" country (Sunstein et al., 2017). More importantly, there were large variations in approval across nudges. Consistent with prior research, there was higher approval for deliberative ("system 2") than for automatic ("system 1")

[1] They were coded as follows: female = 2 if female, 1 otherwise; conservative = ½ if conservative, -½ if liberal. For education we used 1 = Less than high school degree, 2 = High school graduate (high school diploma or equivalent including GED, 3 = Some college but no degree, 4 = Associate degree in college (2-year), 5 = Bachelor's degree in college (4-year), 6 = Master's degree, 7 = Doctoral degree, 8 = Professional degree (JD, MD). Using a categorical coding for education did not change the results.

Table 2
Descriptive results (means and standard deviations).

	Actual effectiveness*		Public approval		Perceived effectiveness		Perceived primary beneficiary of the nudge		
	SMD	kcal	%	Grade 1–13	%	kcal	Business %	Health %	Win-win %
Descriptive labeling	0.10	54	85	10.9 (2.9)	64	176 (110)	9	49	42
Evaluative labeling	0.17	91	76	9.3 (3.5)	59	172 (100)	7	66	27
Salience enhancements	0.13	70	48	7.3 (3.8)	51	132 (91)	11	58	31
Healthy eating calls	0.24	129	40	6.4 (4.2)	38	117 (98)	9	53	38
Hedonic enhancements	0.32	172	48	6.9 (4.0)	49	128 (90)	13	45	42
Convenience enhancements	0.37	199	53	7.5 (4.0)	52	150 (96)	10	56	34
Size enhancements	0.59	317	43	7.2 (4.5)	46	199 (102)	16	44	40
Mean and SD across nudges	0.27 (0.17)	147 (91)	56 (17)	7.9 (1.6)	51 (8)	153 (30)	11 (3)	53 (8)	36 (6)

* Actual effectiveness is obtained from Cadario and Chandon (2019). SMD = standardized mean difference. Kcal is an estimate of the maximum impact of the nudge on energy intake, based on the standard deviation in daily energy intake of 1727 ± 537 kcal reported in Hollands et al. (2015).

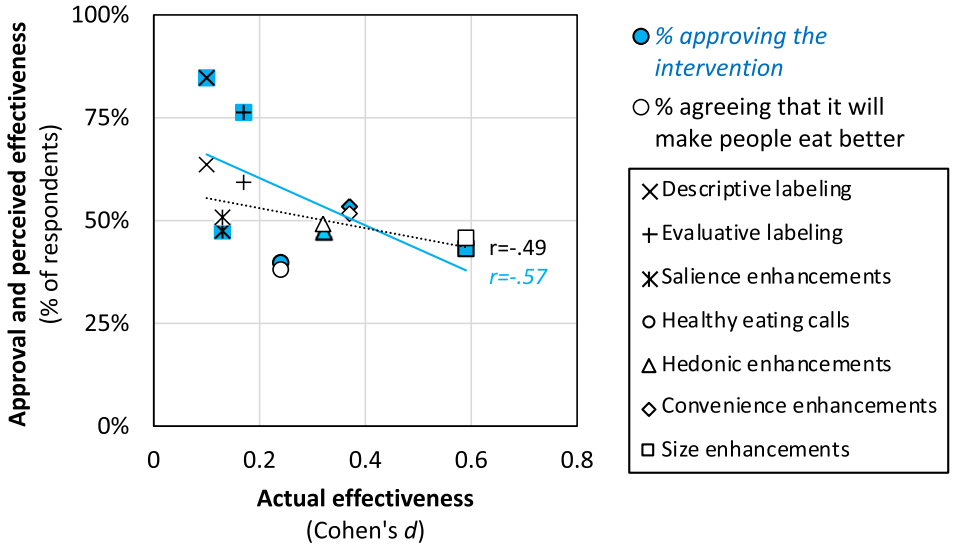

Fig. 1. The Effectiveness of Healthy Eating Nudges is Inversely Related to their Approval and Perceived Effectiveness.

nudges (Felsen et al., 2013; Jung and Mellers, 2016). Nudges with the highest approval (85%) were those that simply inform consumers, such as descriptive nutrition labels. The addition of interpretive symbols (such as color-coding) to shift from description to prescription reduced approval levels from 85% to 76%.

Our results extend this research by showing that the most effective healthy eating nudges receive significantly lower approval than the rest. The average approval rate of the two most effective nudges, convenience enhancements and portion and package size reductions, was 43%, indicating that when asked to choose between healthy eating nudges, there is a tradeoff between approval and effectiveness.

What, then, drives the approval of healthy eating nudges? Our analyses rule out that people simply reject nudges that they deem to be the most effective – for example because they do not want to be influenced. In fact, approval ratings increased with *perceived* effectiveness, consistent with earlier results (Mazzocchi et al., 2015). This suggests that the problem is not that people dislike being nudged but that they are poor judges of which nudges are effective.

We also found that nudges perceived to benefit both business and health received a higher approval rating than those that benefit either one or the other. Given the preference for win-win nudges, priority should go to nudges that achieve multiple goals, such as "Epicurean nudges" focused on the pleasure (vs. health benefits) of portion control, which deliver both business and health benefits (Cornil and Chandon, 2016). In addition, it is interesting that approval levels were not higher for nudges perceived to benefit health with "little or negative impact on business" than for those perceived to primarily benefit business with "little or negative impact on health." This suggests either that respondents wanted to protect the interests of the food industry or that they considered nudges that only benefit health (and not business) to be unsustainable or unlikely to be implemented.

Future research on the approval of healthy eating nudges should address the following limitations of our study. First, approval was only self-reported; it remains to be seen whether people would show their disapproval by engaging in costly responses such as boycotting retailers or restaurants that implement healthy eating nudges. Second, our results are based on a short description of the nudge; people may respond differently upon experiencing the intervention in their daily life. Finally, factors other than those studied may play a role. For example, given that people on lower-incomes have a higher BMI and respond less

Table 3
Drivers of nudge approval.

	Model 1		Model 2	
	Coef.	Z	Coef.	Z
Intercept	5.46		5.39	
Actual effectiveness	−3.89	−5.91**	−3.86	−5.87**
Perceived effectiveness	3.58	14.56**	3.50	14.29**
Perceived beneficiary				
Win-win (vs. not)	1.10	3.95**	1.41	4.88**
Health (vs. business)	0.50	1.29	0.49	1.26
Political orientation				
Conservative	−0.49	−1.32	−0.73	−1.83
Conservative × Win-win (vs. not)			2.08	3.61**
Conservative × Health (vs. business)			0.80	1.04
Individual characteristics				
Education	0.16	1.09	0.17	1.22
Age	−0.21	−1.3	−0.19	−1.21
Female	1.07	2.89**	1.07	2.93**
N observations	826		826	
N respondents	118		118	
R-square	35%		36%	

Note: $^{*}p < .05$, $^{***}p < .001$.
** $p < .01$.

to informational nudges such as calorie labeling (Bonanno et al., 2018), it is important to study the role of income and to measure nudge approval among this segment of the population (Just and Gabrielyan, 2018; Mancino et al., 2018). Similarly, future research is needed to better understand the role of group norms and minorities on public acceptance of healthy eating nudges (Pe'er et al., 2019).

4.2. Improving the acceptance of nudges

In our view, some of the conclusions of the literature on nudge acceptance should be reassessed. Jung and Mellers (2016) argued that policymakers should "consider and use greater transparency in nudging and take advantage of informational, system 2 nudges that might be more effective in long-term behavioral change". Our results show that being transparent about nudges can impair their implementation as the majority of people disapprove of them. Moreover, while such nudges show higher average public acceptance, they can also lead to negative emotions or "emotional tax" (Thunström, 2019). Second, our results show that not all "system 2" informational nudges are equally liked. For example, "salience enhancements" are typical "system 2" nudges because they inform people of the availability of healthier options by making them more visible on a menu or in a store, yet only 48% of respondents approved of them, compared to 85% for descriptive nutrition labeling.

More generally, we believe that education (not just information) is necessary to advance nudge acceptance. Our findings demonstrate the importance of correcting erroneous beliefs about the effectiveness of healthy eating nudges. Since people tend to approve of nudges they perceive to be effective, approval rates for powerful nudges like size and convenience enhancements should improve if people learn that they are three times more effective than descriptive or prescriptive labeling.

Educational messages should also underscore that nudges vary more in effectiveness than people expect. Although respondents calibrated well when estimating the average reduction in energy intake anticipated from the implementation of the seven nudges (153 kcal vs. 147 for actual calorie reduction), they strongly underestimated variance across nudges (the estimated standard deviation was 30 kcal vs. 91 in reality).

4.3. Implications for research on nudges in general

More generally, scientist should pay more attention to the role of individual beliefs in understanding the causes of and solutions to obesity (André et al., 2019; Barry et al., 2009; McFerran and Mukhopadhyay, 2013; Ogden and Flanagan, 2008). We support the "choice architecture 2.0" framework, arguing that policy makers " should also be aware of the implicit interaction taking place between the targets of the choice architecture and themselves" (Krijnen et al., 2017). For example, when people draw negative inferences about the benevolence and competence of the choice architect, they may become skeptical about the options the choice architects appear to endorse. This explains why defaults from distrusted choice architects can fail or even backfire (Agnew and Szykman, 2005; Brown et al., 2004).

Examining the role of personal beliefs opens up several opportunities for research on nudges in general. In particular, it would be interesting to examine how nudge approval would be influenced by making people aware of (1) the goal of the intervention (e.g., making people healthier vs. more productive), (2) the intervention itself (e.g., portion size reduction, hedonic labeling of healthy food options), (3) the effectiveness of the nudge, or (4) the problem of self-control.

To conclude, we believe that healthy eating nudges and other interventions from the field of behavioral science and policy (Lepenies et al., 2018; Sanders et al., 2018) are a valuable addition to the traditional public policy toolbox of tax incentives and regulations (Benartzi et al., 2017). However, the controversy over the newsfeed experiments conducted at Facebook without explicit consent (Verma, 2014) reminds us that we can no longer assume that people will accept to be nudged as long as the objective of the nudge is commendable. Rather than framing the debate as opposing nudging and traditional tools, specific nudges should be compared to specific tools on both their effects and their acceptance. Like for nudges, there is a high level of heterogeneity in the effectiveness and public acceptance of traditional tools (Hagmann et al., 2018), making general conclusions less relevant to targeted public policy.

References

Agnew, Julie R, Szykman, Lisa R, 2005. Asset allocation and information overload: the influence of information display, asset choice, and investor experience. J. Behav. Finance 6 (2), 57–70.

André, Quentin, Chandon, Pierre, Haws, Kelly, 2019. Healthy through presence or absence, nature or science? A framework for understanding front-of-package food claims. J. Publ. Policy Mark. 38 (2), 172–191.

Barry, Colleen I., Brescoll, Victoria I., Brownell, Kelly d., Schlesinger, Mark, 2009. Obesity metaphors: how beliefs about the causes of obesity affect support for public policy. Milbank Quart. 87 (1), 7–47.

Bauer, J.M., Reisch, L.A., 2019. Behavioural insights and (un)healthy dietary choices: a review of current evidence. J. Consum. Policy 42 (1), 3–45.

Benartzi, Shlomo, Beshears, John, Milkman, Katherine L., Sunstein, Cass R., Thaler, Richard H., Shankar, Maya, Tucker-Ray, Will, Congdon, William J., Galing, Steven, 2017. Should governments invest more in nudging? Psychol. Sci. 28 (8), 1041–1055.

BIT, 2014. EAST: Four Simple Ways to Apply Behavioural Insights. Behavioural Insight Team, London.

Bonanno, Alessandro, Bimbo, Francesco, Cleary, Rebecca, Castellari, Elena, 2018. Food labels and adult BMI in Italy – an unconditional quantile regression approach. Food Policy 74, 199–211.

Brown, Christina L., Krishna, Aradhna, 2004. The skeptical shopper: a metacognitive account for the effects of default options on choice. J. Consum. Res. 31 (3), 529–539.

Cadario, Romain, Chandon, Pierre, 2019. Which healthy eating nudges work best? A meta-analysis of field experiments. Mark. Sci (in press).

Capacci, Sara, Mazzocchi, Mario, Shankar, Bhavani, Macias, José Brambila, Verbeke, Wim, Pérez-Cueto, Federico Ja, Kozioł-Kozakowska, Agnieszka, Piórecka, Beata, Niedzwiedzka, Barbara, D'Addesa, Dina, Saba, Anna, Turrini, Aida, Aschemann-Witzel, Jessica, Bech-Larsen, Tino, Strand, Mathias, Smillie, Laura, Wills, Josephine, Bruce Traill, W., 2012. Policies to promote healthy eating in Europe: a structured review of policies and their effectiveness. Nutr. Rev. 70 (3), 188–200.

Chance, Zoe, Gorlin, Margarita, Dhar, Ravi, 2014. Why choosing healthy foods is hard, and how to help: presenting the 4Ps framework for behavior change. Customer Needs Solut. 1 (4), 253–262.

Cornil, Yann, Chandon, Pierre, 2016. Pleasure as a substitute for size: how multisensory imagery can make people happier with smaller food portions. J. Mark. Res. 53 (5), 847–864.

Cornwell, James FM, Krantz, David H, 2014. Public policy for thee, but not for me:

Varying the grammatical person of public policy justifications influences their support. Judgment and Decision Making 9 (5), 433–444.
Diepeveen, Stephanie, Ling, Tom, Suhrcke, Marc, Roland, Martin, Marteau, Theresa M., 2013. Public acceptability of government intervention to change health-related behaviours: a systematic review and narrative synthesis. BMC Public Health 13, 756–768.
Dolan, Paul, Hallsworth, Michael, Halpern, David, King, Dominic, Metcalfe, Robert, Vlaev, Ivo, 2012. Influencing behaviour: the mindspace way. J. Econ. Psychol. 33 (1), 264–277.
Evans, W. Douglas, Finkelstein, Eric A., Kamerow, Douglas B., Renaud, Jeanette M., 2005. Public perceptions of childhood obesity. Am. J. Prev. Med. 28 (1), 26–32.
Felsen, Gidon, Castelo, Noah, Reiner, Peter B, 2013. Decisional enhancement and autonomy: public attitudes towards overt and covert nudges. Judgment Deci. Making 8 (3), 202–213.
Hagman, William, Andersson, David, Västfjäll, Daniel, Tinghög, Gustav, 2015. Public views on policies involving nudges. Rev. Philos. Psychol. 6 (3), 439–453.
Hagmann, Désirée, Siegrist, Michael, Hartmann, Christina, 2018. Taxes, labels, or nudges? Public acceptance of various interventions designed to reduce sugar intake. Food Policy 79, 156–165.
Hollands, G.J., Shemilt, I., Marteau, T.M., Jebb, S.A., Lewis, H.B., Wei, Y., Higgins, J.P., Ogilvie, D., 2015. Portion, package or tableware size for changing selection and consumption of food, alcohol and tobacco. Cochrane Database Syst. Rev. 9, CD011045.
Hollands, Gareth J, Shemilt, Ian, Marteau, Theresa M, Jebb, Susan A, Kelly, Michael P, Nakamura, Ryota, Suhrcke, Marc, Ogilvie, David, 2013. Altering micro-environments to change population health behaviour: towards an evidence base for choice architecture interventions. BMC Publ. Health 13, 1218–1223.
Hollands, G.J., Bignardi, G., Johnston, M., Kelly, M.P., Ogilvie, D., Petticrew, M., Prestwich, A., Shemilt, I., Sutton, S., Marteau, T.M., 2017. The TIPPME intervention typology for changing environments to change behaviour. Nat. Hum. Behav. 1, 0140.
Jung, Janice Y, Mellers, Barbara A, 2016. American attitudes toward nudges. Judgment Decis. Making 11 (1), 62–74.
Just, David R., Gabrielyan, Gnel, 2018. Influencing the food choices of SNAP consumers: lessons from economics, psychology and marketing. Food Policy 79, 309–317.
Kraak, V.I., Englund, T., Misyak, S., Serrano, E.L., 2017. A novel marketing mix and choice architecture framework to nudge restaurant customers toward healthy food environments to reduce obesity in the United States. Obes Rev 18 (8), 852–868.
Krijnen, Job MT, Tannenbaum, David, Fox, Craig R, 2017. Choice architecture 2.0: Behavioral policy as an implicit social interaction. Behav. Sci. Policy 3 (2), i–18.
Lepenies, Robert, Mackay, Kathryn, Quigley, Muireann, 2018. Three challenges for behavioural science and policy: the empirical, the normative and the political. Behav. Publ. Policy 2 (2), 174–182.
Ly, Kim, Mazar, Nina, Zhao, Min, Soman, Dilip, 2013. A practitioner's guide to nudging. Research Report Series, Behavioural Economics in Action. University of Toronto.
Mancino, Lisa, Guthrie, Joanne, Just, David R., 2018. Overview: Exploring ways to encourage healthier food purchases by low-income consumers—lessons from behavioral economics and marketing. Food Policy 79, 297–299.
Mazzocchi, M., Cagnone, S., Bech-Larsen, T., Niedzwiedzka, B., Saba, A., Shankar, B., Verbeke, W., Traill, W.B., 2015. What is the public appetite for healthy eating policies? Evidence from a cross-European survey. Health Econ. Policy Law 10 (3), 267–292.
McCredie, Morgan N., Morey, Leslie C., 2018. Who are the Turkers? A characterization of MTurk workers using the personality assessment inventory. Assessment (in press).
McFerran, Brent, Mukhopadhyay, Anirban, 2013. Lay theories of obesity predict actual body mass. Psychol. Sci. 24 (8), 1428–1436.
Ogden, Jane, Flanagan, Zakk, 2008. Beliefs about the causes and solutions to obesity: a comparison of GPs and lay people. Patient Educ. Couns. 71 (1), 72–78.
Oliver, J.E., Lee, T., 2005. Public opinion and the politics of obesity in America. J. Health Polit. Policy Law 30 (5), 923–954.
Ordabayeva, Nailya, Fernandes, Daniel, 2018. Better or different? How political ideology shapes preferences for differentiation in the social hierarchy. J. Consum. Res. 45 (2), 227–250.
Paolacci, Gabriele, Chandler, Jesse, 2014. Inside the turk: understanding mechanical turk as a participant pool. Curr. Dir. Psychol. Sci. 23 (3), 184–188.
Pe'er, Eyal, Feldman, Yuval, Gamliel, Eyal, Sahar, Limor, Tikotsky, Ariel, Hod, Nurit, Schupak, Hilla, 2019. Do minorities like nudges? The role of group norms in attitudes towards behavioral policy. Judgment Decis. Making 14 (1), 40–50.
Reisch, Lucia A, Sunstein, Cass R, Gwozdz, Wencke, 2017. Beyond carrots and sticks: Europeans support health nudges. Food Policy 69, 1–10.
Reisch, Lucia, Sunstein, Cass, 2016. Do Europeans like nudges? Judgment Decis. Making 11 (4), 310–325.
Sanders, Michael, Snijders, Veerle, Hallsworth, Michael, 2018. Behavioural science and policy: where are we now and where are we going? Behav. Publ. Policy 2 (2), 144–167.
Sugden, Robert, 2018. 'Better off, as judged by themselves': a reply to Cass Sunstein. Int. Rev. Econ. 65 (1), 9–13.
Sunstein, Cass R., Reisch, Lucia A., Rauber, Julius, 2017. Behavioral insights all over the world? Public attitudes toward nudging in a multi-country study," in Working Paper.
Tannenbaum, David, Fox, Craig R, Rogers, Todd, 2017. On the misplaced politics of behavioural policy interventions. Nat. Hum. Behav. 1 (7), 0130.
Thaler, Richard H., Sunstein, Cass R., 2008. Nudge: Improving Decisions about Health, Wealth, and Happiness. Penguin Books, New York.
Thunström, Linda, 2019. Welfare effects of nudges: The emotional tax of calorie menu labeling. Judgment Decis Making 14 (1), 11–25.
Verma, Inder M., 2014. Editorial expression of concern: experimental evidence of massivescale emotional contagion through social networks. Proc. Natl. Acad. Sci. 111 (29), 10779–10879.
Wansink, Brian, 2015. Change their choice! Changing behavior using the CAN approach and activism research. Psychol. Mark. 32 (5), 486–500.