

# Why the Nutrition Label Fails to Inform Consumers

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Sherzod Abdukadirov

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## **Abstract**

As it becomes clear that the Nutrition Facts panel (NFP) and other information disclosure policies have failed to improve consumers' dietary choices, many health advocates have declared information-based policies ineffective and instead advocate measures that would manipulate consumers' choices. In contrast, this paper argues that health advocates are too quick to blame consumers for the ineffectiveness of information disclosure policies. Using the NFP as an example, the paper shows that information disclosures are often poorly designed and fail to actually inform consumers. They often fail to account for how consumers perceive and interpret information or for the differences in their socioeconomic backgrounds. Thus, it may not be consumers' behavioral biases but rather poor policy design and implementation that is responsible for the NFP's ineffectiveness. Consequently, the paper argues that nutrition labels should follow smart disclosure principles, which emphasize information salience and usability.

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## **Author Affiliation and Contact Information**

Sherzod Abdukadirov  
Research Fellow  
Mercatus Center at George Mason University  
sabdukadirov@mercatus.gmu.edu

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## Why the Nutrition Label Fails to Inform Consumers

Sherzod Abdukadirov

Americans make unhealthy dietary choices. Recent Institute of Medicine (IOM) reports show that, while American adults have improved their intake of vitamins A and C, they are still not getting enough of potassium, calcium, or vitamin D.<sup>1</sup> They still consume too much fat and sodium and not enough dietary fiber.<sup>2</sup> But the problem with Americans' diet that has attracted the most attention in recent years has less to do with specific nutrients and more with the overall amount of calories that people consume. According to the *Dietary Guidelines for Americans*, most Americans eat too much and exercise too little.<sup>3</sup> As a consequence, the number of obese and extremely obese has almost tripled in the past 50 years,<sup>4</sup> leading to a host of major health problems.<sup>5</sup>

The traditional response to the unhealthy dietary choices was to educate and inform consumers.<sup>6</sup> Toward that end, the US Department of Agriculture and US Department of Health and Human Services jointly publish *Dietary Guidelines for Americans* to provide consumers with dietary advice reflecting the latest nutrition science. Since 1994, the Food and Drug Administration (FDA) has required all food items to disclose key nutrition information on the

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<sup>1</sup> Food and Drug Administration, "Food Labeling: Revision of the Nutrition and Supplement Facts Labels; Proposed Rule," 79 Fed. Reg. 11880–987 (March 3, 2014).

<sup>2</sup> Id.

<sup>3</sup> US Department of Agriculture and US Department of Health and Human Services, *Dietary Guidelines for Americans, 2010* (Washington, DC: Government Printing Office, 2010).

<sup>4</sup> Cheryl D. Fryar, Margaret D. Carroll, and Cynthia L. Ogden, "Prevalence of Overweight, Obesity, and Extreme Obesity Among Adults: United States, Trends 1960–1962 through 2009–2010" (NCHS Health E-Stat, National Center for Health Statistics, September 2012).

<sup>5</sup> US Department of Agriculture and US Department of Health and Human Services, *Dietary Guidelines for Americans, 2010*.

<sup>6</sup> Ellen A. Wartella et al., *Front-of-Package Nutrition Rating Systems and Symbols: Promoting Healthier Choices* (Washington, DC: Institute of Medicine, 2011), 1.

Nutrition Facts panel (NFP).<sup>7</sup> In 2014, the FDA went further to require calorie disclosure on vending machines and restaurant menus.<sup>8</sup>

Yet, as the growth in obesity rates continued unabated, health advocates began to question the effectiveness of policy measures that focused on information disclosure and turned to behavioral economics for answers.<sup>9</sup> The growing literature on behavioral economics suggested that it was behavioral biases, not uninformed choices, that lead to increases in obesity rates.<sup>10</sup> According to behavioral economists, consumers find it hard to resist the immediate gratification of calorie-packed snacks over fruits and vegetables, even though they fully realize that the long-term benefits of a healthier diet outweigh its immediate costs. Thus, these economists conclude, it is lack of willpower, not lack of information, that undermines consumers' efforts to make better health choices.

As the nutrition label and other information-disclosure efforts failed to improve consumers' dietary choices, health advocates shifted to paternalistic measures.<sup>11</sup> They concluded that the failure of the nutrition label demonstrated that information disclosure did not work: even fully informed consumers were still making unhealthy choices.<sup>12</sup> Instead, they began advocating

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<sup>7</sup> Food and Drug Administration, "Food Labeling: Revision of the Nutrition and Supplement Facts Labels."

<sup>8</sup> Food and Drug Administration, "Food Labeling: Calorie Labeling of Articles of Food in Vending Machines," 79 Fed. Reg. 71259–93 (December 1, 2014); Food and Drug Administration, "Food Labeling: Nutrition Labeling of Standard Menu Items in Restaurants and Similar Retail Food Establishments," 79 Fed. Reg. 71156–59 (December 1, 2014).

<sup>9</sup> Colin Camerer et al., "Regulation for Conservatives: Behavioral Economics and the Case for 'Asymmetric Paternalism,'" *University of Pennsylvania Law Review* 151, no. 3 (2003): 1211–54; Cass R. Sunstein and Richard H. Thaler, "Libertarian Paternalism Is Not an Oxymoron," *University of Chicago Law Review* 70, no. 4 (2003): 1159–202.

<sup>10</sup> Richard Thaler and Cass R. Sunstein, *Nudge: Improving Decisions about Health, Wealth, and Happiness* (New Haven, CT: Yale University Press, 2008); Julie Downs, George Loewenstein, and Jessica Wisdom, "Strategies for Promoting Healthier Food Choices," *American Economic Review* 99, no. 2 (2009): 159–64.

<sup>11</sup> Thaler and Sunstein, *Nudge*; Downs, Loewenstein, and Wisdom, "Strategies for Promoting Healthier Food Choices."

<sup>12</sup> Downs, Loewenstein, and Wisdom, "Strategies for Promoting Healthier Food Choices"; Theresa M. Marteau, Gareth J. Hollands, and Paul C. Fletcher, "Changing Human Behavior to Prevent Disease: The Importance of Targeting Automatic Processes," *Science* 337, no. 6101 (2012): 1492–95; Thaler and Sunstein, *Nudge*; Bas Verplanken and Wendy Wood, "Interventions to Break and Create Consumer Habits," *Journal of Public Policy & Marketing* 25, no. 1 (2006): 90–103.

for policies that would actively manipulate consumers' choices to nudge them toward healthier diets. These measures varied in the degree of restrictiveness, from changing default options<sup>13</sup> to imposing bans or taxes on less desirable food choices or ingredients.<sup>14</sup> What all these measures had in common was that they no longer relied on consumers' decision-making but attempted to substitute regulators' decisions for consumers'.

One problem with these approaches is that they seek to blame consumers for failed government policies. While it is possible that consumer biases may be responsible for the failure of nutrition labeling and other information disclosure policies, it is equally plausible that the failure resulted from poor policy design and implementation. The paternalistic approach largely absolves health experts and policymakers from responsibility for producing ineffective policies. If experts can pin the blame for the failure of existing anti-obesity policies on consumers, they do not have to reevaluate the effectiveness of the regulatory process that has produced these disclosures. Nor do they have to question their ability to effectively intervene and enact policies that reduce obesity.

The FDA's recent decision to update the NFP offers an opportunity to take stock of the agency's information-based approach to combatting obesity and improving the American diet.<sup>15</sup> This is the first major redesign of the NFP since it was introduced 20 years ago. The agency's proposed regulation comes at a time of increased awareness of the role that consumer psychology plays in food choice. The FDA's regulatory analysis reflects this awareness as it devotes considerable effort to making the label more salient and easier to understand.<sup>16</sup> Yet

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<sup>13</sup> Rhys Jones, Jessica Pykett, and Mark Whitehead, *Changing Behaviours: On the Rise of the Psychological State* (Cheltenham, UK: Edward Elgar, 2013), 111–34; Anne N. Thorndike et al., "Traffic-Light Labels and Choice Architecture," *American Journal of Preventive Medicine* 46, no. 2 (2014): 143–49.

<sup>14</sup> M. F. Jacobson and K. D. Brownell, "Small Taxes on Soft Drinks and Snack Foods to Promote Health," *American Journal of Public Health* 90, no. 6 (June 2000): 854–57.

<sup>15</sup> Food and Drug Administration, "Food Labeling: Revision of the Nutrition and Supplement Facts Labels."

<sup>16</sup> *Id.* at 11948–55.

despite the agency's effort, the proposed label still suffers from many of the shortcomings of the current NFP.

As we will see, the flaws in the NFP's design that prevent it from having a greater impact on consumers' choices. Advocates of paternalistic policies should not blame consumers' behavioral biases for the failed information-based anti-obesity efforts. The NFP's failure signals its poor design rather than flawed consumer decision-making. Treating the problem as the consumers' fault rather than as a design failure prevents policymakers from seeking better, more effective solutions.

### **Behavioral Biases and Nudges**

Traditionally, economists have assumed that consumers act rationally.<sup>17</sup> When faced with a choice, consumers carefully evaluate the benefits and costs of each alternative and then opt for the one that delivers the greatest benefit at the lowest cost. If consumers do not make the most efficient choices, economists assume the consumers simply do not have all the information necessary to make the rational decision. Consequently, most policy prescriptions that seek to change consumer behavior have focused on helping consumers evaluate their alternatives correctly through information-disclosure regulations.

In recent years, research in behavioral economics, which combines insights from the fields of psychology and economics, has cast doubt on the rational decision-making assumption.<sup>18</sup> Behavioral economists find that in some cases consumers make biased decisions that do not advance their own interests. For example, patients deciding whether to have surgery

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<sup>17</sup> Edward P. Lazear, "Economic Imperialism," *Quarterly Journal of Economics* 115, no. 1 (2000): 99–146.

<sup>18</sup> Dan Ariely, *Predictably Irrational* (New York: Harper Collins, 2009); Daniel Kahneman, *Thinking, Fast and Slow* (New York: Farrar, Straus and Giroux, 2011); Thaler and Sunstein, *Nudge*.

may be influenced by whether the surgery's outcome is framed in terms of success or failure, even though the framing of identical information should have no bearing on the patients' evaluation.<sup>19</sup> Similarly, employees selecting the contribution level to their retirement plan simply stick with whatever option their employer sets as the default, even if the default setting is not the best choice for the individual employee.<sup>20</sup> In such cases, consumers' cognitive biases keep them from choosing the optimal course of action, even if they have at their disposal all the information they need to make a better choice.

Food choice is one area in which many consumers may be prone to making biased decisions.<sup>21</sup> The most common bias is often called "hyperbolic discounting" or "time inconsistency bias."<sup>22</sup> In plain terms, the bias refers to consumers' limited willpower to resist temptations. For example, in the long term many consumers would prefer to maintain a healthy and nutritious diet and perhaps shed excess weight. Given that poor diets often contribute to a host of cardiovascular diseases, it would be rational for consumers to opt for a healthy diet. Yet despite their clear preference for healthier foods, many consumers find it extremely difficult to stick with the diet when faced with decadent desserts or fatty burgers. Thus, at the moment of choice, they reverse their preferences and opt for better-tasting but unhealthy foods.

Research on behavioral biases led policymakers to two distinct policy responses. In the first category is the idea of nudging, or "libertarian paternalism," popularized by Cass Sunstein

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<sup>19</sup> Amos Tversky and Daniel Kahneman, "Rational Choice and the Framing of Decisions," *Journal of Business* 59, no. 4 (1986): S251–78.

<sup>20</sup> Richard H. Thaler and Shlomo Benartzi, "Save More Tomorrow: Using Behavioral Economics to Increase Employee Saving," *Journal of Political Economy* 112, no. S1 (2004): S164–87.

<sup>21</sup> Brian Wansink, David Just, and Collin Payne, "Mindless Eating and Healthy Heuristics for the Irrational," *American Economic Review* 99, no. 2 (April 2009): 165–69; Marteau, Hollands, and Fletcher, "Changing Human Behavior to Prevent Disease."

<sup>22</sup> Robert L. Scharff, "Obesity and Hyperbolic Discounting: Evidence and Implications," *Journal of Consumer Policy* 32, no. 1 (2009): 3–21.

and Richard Thaler.<sup>23</sup> Nudge advocates propose to use biases to consumers' advantage. For example, they suggest that school cafeterias place fatty foods and sweets out of sight in the back of the cafeteria and place healthier foods in front. Consumers who want to eat junk food would have to make an extra effort to reach for it in the back. Consumers' behavioral biases ensure that even such minimal obstacles decrease the chances that consumers will choose less healthy foods. Nudge policies are paternalistic as they attempt to "correct" consumers' behavior and push consumers toward what regulators consider to be better choices. But, crucially, nudges are choice-preserving. Consumers have the ability to opt out of the nudge with minimal cost—for example, by walking a few extra steps to get the sweets from the back of the cafeteria.

In the second category are more traditional paternalistic policies, which are now justified by preliminary findings from behavioral economics.<sup>24</sup> Recent examples include New York City's failed attempt to ban the sale of large sodas.<sup>25</sup> Then-mayor Michael Bloomberg pointed to behavioral economics to justify the ban.<sup>26</sup> While consumers could still buy two smaller sodas to get around the ban, the extra cost and inconvenience of buying two drinks would dissuade most consumers from drinking large quantities of soda.<sup>27</sup> In contrast to nudges, however, the soda ban was not choice-preserving. It imposed a nontrivial penalty on consumers who wanted to purchase a large soda.

As previous policies aiming to get Americans to eat healthy diets through better information and education fail to yield visible results, health advocates have increasingly favored

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<sup>23</sup> Sunstein and Thaler, "Libertarian Paternalism Is Not an Oxymoron"; Thaler and Sunstein, *Nudge*.

<sup>24</sup> George Loewenstein et al., "Can Behavioural Economics Make Us Healthier?," *BMJ* 344 (May 23, 2012): e3482.

<sup>25</sup> Michael M. Grynbaum, "New York's Ban on Big Sodas Is Rejected by Final Court," *New York Times*, June 26, 2014, <http://nyti.ms/1pDUo9N>.

<sup>26</sup> Michael Bloomberg on Twitter, @MikeBloomberg, September 13, 2012, <https://twitter.com/MikeBloomberg/status/246271347867676672>.

<sup>27</sup> James Surowiecki, "Downsizing Supersize," *New Yorker*, August 13, 2012, <http://www.newyorker.com/magazine/2012/08/13/downsizing-supersize>.



nudges and shoves as alternatives. Proposals range from benign nudges such as delegating less-healthy options to the back of the menu in restaurants<sup>28</sup> to more intrusive policies like taxes on fat or sugary beverages.<sup>29</sup> Even though these policies have yet to demonstrate their effectiveness and some nudges have been shown to result in unintended consequences,<sup>30</sup> the enthusiasm for paternalism in food choice continues unabated.

### **Policy Responses to Obesity**

Health research shows that no single factor explains the rise in obesity rates. Food choice, exercise, genetics, medical conditions, lifestyle, and various environmental factors all play a role in determining an individual's chances of becoming overweight or obese.<sup>31</sup> These factors sometimes interact, especially diet and exercise. For many, it is the combination of a sedentary lifestyle and high calorie consumption that leads to obesity, and improvements in either of these factors help them achieve a healthier weight.<sup>32</sup>

For simplicity's sake, I have chosen to focus exclusively on policies that target food choice as a way to reduce obesity rates. Specifically, I examine the rationale behind policies that aim to change consumers' grocery shopping behavior. I do not claim that changing consumers' food purchasing behavior is the most effective way to reduce obesity. Obviously, these policies will not be effective for individuals whose obesity is caused by factors other than their diet. In

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<sup>28</sup> Downs, Loewenstein, and Wisdom, "Strategies for Promoting Healthier Food Choices."

<sup>29</sup> Jacobson and Brownell, "Small Taxes on Soft Drinks and Snack Foods to Promote Health."

<sup>30</sup> Loewenstein et al., "Can Behavioural Economics Make Us Healthier?"

<sup>31</sup> Food and Drug Administration, "Calories Count: Report of the Working Group on Obesity," March 12, 2004, <http://www.fda.gov/Food/FoodScienceResearch/ConsumerBehaviorResearch/ucm081696.htm>; *The Surgeon General's Vision for a Healthy and Fit Nation, 2010* (Rockville, MD: US Department of Health and Human Services, Office of the Surgeon General, 2010); "Understanding Adult Overweight and Obesity" (NIH Publication No. 06-3690, US Department of Health and Human Services, November 2008).

<sup>32</sup> US Department of Agriculture and US Department of Health and Human Services, *Dietary Guidelines for Americans, 2010*.

addition, it is possible that other anti-obesity approaches, such as getting people to exercise more often, may be more effective. While important, these issues lie outside the scope of this paper.

To examine which policies are more effective for reducing obesity, there needs to be clear understanding about why consumers make unhealthy food choices. Broadly speaking, there are three possible scenarios that can explain consumers' choices.<sup>33</sup>

1. *Rational choice.* One important element that often gets lost in the discussion of anti-obesity policies is that food choice is a tradeoff. Health professionals often view sugary beverages and desserts as an unequivocally bad choice. In practice, consumers must weigh the benefits of a healthier but often less appealing diet against the pleasure of unhealthy snacks and desserts. While some consumers choose long-term health, others prefer to satisfy their appetites. Thus, it is possible for some consumers to be fully informed about the benefits and costs of either option and to rationally choose an unhealthy diet.

What this would mean in terms of policy is that the NFP achieved its goal, and no further policy is necessary. Based on the nutrition information, some consumers chose to reduce their calorie intake, while others decided that the benefits of a healthier diet were not worth the cost of forgoing their favorite foods.

2. *Uninformed choice.* In this case, consumers' choices are rational but uninformed. In theory, the NFP provides consumers with all the key nutrition information necessary to make healthy food choices. In practice, many consumers find the information confusing and overwhelming. Even if consumers wanted to eat healthy foods, they would find it difficult to choose foods using the NFP.

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<sup>33</sup> Stefan Mann, "Framing Obesity in Economic Theory and Policy," *Review of Social Economy* 66, no. 2 (2008): 163–79.

If this is the case, the NFP has failed at least some consumers. While the NFP provides consumers with nutrition information, it does not present it in a way that is usable and easy to interpret. The policy prescription in this case would be to reexamine the original NFP, identify its faults, and redesign the label to fit consumers' needs.

3. *Biased choice.* In this case, consumers are perfectly informed but not rational. They know which foods are healthy. They also want to maintain a healthy diet; they just find it difficult to stick to it.

If obesity is caused by irrational consumer behavior, then the nutrition label and other information disclosure policies are trying to solve the wrong problem. If anti-obesity policies are to be effective, they should focus instead on preventing consumers from buying unhealthy foods.

To date, the FDA has pursued multiple goals with regard to the nutrition label, only one of which was reducing obesity.<sup>34</sup> The failure of the NFP to achieve its goals discussed in the preceding paragraphs refers only to its failure with regard to reducing obesity. Nonetheless, obesity was at the top of the FDA's concerns, which is reflected in its decision to list calories at the top of the label (the agency listed nutrients in the order of decreasing importance).<sup>35</sup>

The scenarios outlined in the preceding section are not mutually exclusive. It is possible that some people make a rational choice to be obese. Yet evidence suggests that a substantial number of consumers want to achieve or maintain a healthy weight but are unable

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<sup>34</sup> Food and Drug Administration, "Food Labeling: Mandatory Status of Nutrition Labeling and Nutrient Content Revision," 5529487–517 (July 19, 1990).

<sup>35</sup> Food and Drug Administration, "Food Labeling: Mandatory Status of Nutrition Labeling and Nutrient Content Revision, Format for Nutrition Label," 58 Fed. Reg. 2079–205 (January 6, 1993).

to do so. A survey of the weight-loss industry shows that almost half of American adults (108 million) are trying to lose or maintain their weight.<sup>36</sup>

Advocates of paternalistic approach interpret this as evidence of consumer bias. Thus, they point to information disclosure regulations as proof that consumers are already well informed. According to the FDA's Health and Diet Survey, 54 percent of consumers report checking the NFP "often" when purchasing a product for the first time, and almost half of consumers report changing their purchase decision based on the label.<sup>37</sup> Consequently, the paternalists claim, unhealthy consumer choices must result from consumer biases.

Another possible interpretation is that existing disclosures such as the NFP are poorly designed. The NFP's failure to improve consumers' food choices could stem from policymakers' failure to create effective disclosure mechanisms—ones that consumers could easily understand and use. Thus, paternalists may be wrongly blaming consumers for the government policy's shortcomings.

Models of behavior modification include three key factors that determine success in altering consumer choices: motivation, ease of effort, and environmental cues.<sup>38</sup> Motivation on the part of consumers is evidenced by the high demand for weight-loss products; but motivation alone is not sufficient. If people cannot easily differentiate between healthy and nutrition-poor products, they are far less likely to improve their diets. In addition, the nutrition label will not be

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<sup>36</sup> *The U.S. Weight Loss & Diet Control Market* (Tampa, FL: Marketdata Enterprises Inc., 2013).

<sup>37</sup> Conrad J. Choinière and Amy Lando, "2008 Health and Diet Survey," Food and Drug Administration, 2008, <http://www.fda.gov/Food/FoodScienceResearch/ConsumerBehaviorResearch/ucm193895.htm>.

<sup>38</sup> Marteau, Hollands, and Fletcher, "Changing Human Behavior to Prevent Disease"; B. J. Fogg, "A Behavior Model for Persuasive Design," in *Proceedings of the 4th International Conference on Persuasive Technology*, ed. Samir Chatterjee (New York: Association for Computing Machinery, 2009); B. J. Fogg and Jason Hreha, "Behavior Wizard: A Method for Matching Target Behaviors with Solutions," in *Persuasive Technology*, ed. Thomas Ploug, Per Hasle, and Harri Oinas-Kukkonen, Lecture Notes in Computer Science 6137 (New York: Springer, 2010), 117–31.

effective unless it provides timely cues that help consumers break out of their current purchasing habits and actively consider their food choices.

The federal government recognizes the importance of usability and salience of the government's information disclosures. In 2010, the Office of Information and Regulatory Affairs (OIRA), a White House agency that oversees regulations, issued a memorandum instructing federal agencies to inform consumers through smart disclosures. The memo explains that "smart disclosure makes information not merely available, but also accessible and usable" and further states that "such data should also be timely."<sup>39</sup> In other words, OIRA asked federal agencies to consider how and when consumers would use the disclosed information to inform their decision-making.

### **Problems with the Nutrition Label Design**

Whether policymakers should follow paternalistic or information-disclosure policies to combat obesity depends largely on whether the existing information disclosure policies were successful at informing consumers. Thus, before advocating soda taxes or rearranging foods in supermarkets, policymakers must first examine whether the NFP was in fact properly designed and reflected the smart disclosure principles outlined in the OIRA memo.

In their reference book on user-centered design, human computer interaction researchers Frank Ritter, Gordon Baxter, and Elizabeth Churchill note that "many designers and developers make two fundamental errors. They assume that understanding how a technology will be used can be derived from introspection: from imagining how it will be used. This assumption is based

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<sup>39</sup> Cass R. Sunstein, "Informing Consumers through Smart Disclosure," Memorandum for the Heads of Executive Departments and Agencies, September 8, 2011.

on a second error—that everyone is the same.”<sup>40</sup> Both errors are reflected in the nutrition label’s design. The FDA analysts seem to have designed the nutrition label that fits how they, health and nutrition experts, would use the label. The label does not accommodate consumers who do not have the same knowledge or familiarity to weigh the nutrition information presented on the label or even the same motivation to choose the healthiest foods as the health experts.

*Information overload.* While the NFP includes the crucial information that consumers need, the label’s design and composition make it difficult for consumers to understand it, let alone base their decisions on the label’s information (see figure 1). Currently, many consumers, particularly infrequent label users and less educated individuals, struggle to interpret the label.<sup>41</sup> In addition, some consumers find the amount of information on the label overwhelming.<sup>42</sup>

The NFP’s design does not compensate for the complexity of the task facing consumers. The label requires consumers to actively think about their purchases, remember a considerable amount of information or invest time in obtaining it, weigh different options, and usually plan food choices far ahead.<sup>43</sup> Yet the labels offer no guidance about how important each element is or how consumers should weigh higher calories against low sodium or higher dietary fiber content. Importantly, the label provides no clues about how consumers should combine the nutrition information into a single answer identifying whether the food item is

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<sup>40</sup> Frank E. Ritter, Gordon D. Baxter, and Elizabeth F. Churchill, *Foundations for Designing User-Centered Systems: What System Designers Need to Know about People* (New York: Springer, 2014), 4.

<sup>41</sup> Sarah Campos, Juliana Doxey, and David Hammond, “Nutrition Labels on Pre-packaged Foods: A Systematic Review,” *Public Health Nutrition* 14, no. 8 (2011): 1496–506; Gill Cowburn and Lynn Stockley, “Consumer Understanding and Use of Nutrition Labelling: A Systematic Review,” *Public Health Nutrition* 8, no. 1 (2005): 21–28.

<sup>42</sup> Cowburn and Stockley, “Consumer Understanding and Use of Nutrition Labelling”; Klaus G. Grunert and Josephine M. Wills, “A Review of European Research on Consumer Response to Nutrition Information on Food Labels,” *Journal of Public Health* 15, no. 5 (2007): 385–99.

<sup>43</sup> See, for example, the FDA’s guidelines explaining the numerous steps required to evaluate the nutrition quality of the food item using the NFP. “How to Understand and Use the Nutrition Facts Label,” Food and Drug Administration, November 2004, <http://www.fda.gov/Food/IngredientsPackagingLabeling/LabelingNutrition/ucm274593.htm>.

healthy. However, that is what consumers ultimately need to know in order to decide whether to buy the food item.

Digging through the FDA's website, consumers might stumble upon a guide that provides rules of thumb for easier label interpretation.<sup>44</sup> The guide color-codes nutrition into "limit these" and "eat more of these" categories (see figure 2). It also gives a quick and easy rule for interpreting nutrient daily values: less than 5 percent is low; more than 20 percent is high. While not perfect, the guide would give consumers some direction on how to evaluate different food items. Yet none of these quick references are found on the NFP.

The current nutrition label presents consumers with a complex set of information disclosures and no easy way to incorporate the information into decisions. As a consequence of information overload, consumers resort to heuristics in order to simplify the task.<sup>45</sup> Typically, they pick one nutrient, such as calories or fat content, and base their decision entirely on that.<sup>46</sup> This means that many people do not use most of the nutrition information on the label.

*Confusing visual clues.* Beyond the sheer volume of complex nutrition information, the label's graphic design is misleading. The visual composition of the label influences how consumers perceive and interpret the information contained in it. As design expert Susan Weinschenk points out, "What our eyes physically perceive is only one part of the story. The images coming into

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<sup>44</sup> Ibid.

<sup>45</sup> Cowburn and Stockley, "Consumer Understanding and Use of Nutrition Labelling"; C. S. Higginson et al., "How Do Consumers Use Nutrition Label Information?," *Nutrition and Food Science* 32, no. 4/5 (October 2002): 145–52; Michael Schulte-Mecklenbeck et al., "A Lack of Appetite for Information and Computation: Simple Heuristics in Food Choice," *Appetite* 71 (December 2013): 242–51.

<sup>46</sup> Cowburn and Stockley, "Consumer Understanding and Use of Nutrition Labelling"; Higginson et al., "How Do Consumers Use Nutrition Label Information?"; Schulte-Mecklenbeck et al., "Lack of Appetite for Information and Computation."

our brains are changed and interpreted.”<sup>47</sup> Thus, the choice between text and symbols, different font sizes and colors, the use of white space and grouping can all influence the way consumers interpret the information.<sup>48</sup>

For example, items that are grouped together are normally interpreted to be similar.<sup>49</sup> On the label, however, various nutrients are interspersed. Nutrition guidelines recommend limiting sugar,<sup>50</sup> but the sugar line is split away from other nutrients to be limited, such as cholesterol and fat. In contrast, guidelines encourage consumers to eat enough dietary fiber,<sup>51</sup> but it is separate from other nutrients, like calcium and iron, in which many consumers may be deficient. Further, both sugar and dietary fiber are grouped as carbohydrates. This might be useful to a health expert trying to categorize nutrients by type but not to a consumer looking for guidance on whether to avoid a particular nutrient.

*Misguided criteria for effectiveness.* The criteria used to judge the nutrition label effectiveness betray its health expert–centric design. The studies that evaluate the label’s success typically do not measure its impact on the label’s ultimate goal—healthier individual overall diet. Instead, the studies consider the nutrition label successful if consumers can correctly infer and manipulate nutrition information on the label.<sup>52</sup> Alternatively, in a less stringent scenario, the label is

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<sup>47</sup> Susan Weinschenk, *100 Things Every Designer Needs to Know about People* (Berkeley, CA: New Riders, 2011), 1.

<sup>48</sup> Campos, Doxey, and Hammond, “Nutrition Labels on Pre-packaged Foods”; Judith R. Cornelisse-Vermaat et al., “Food-Allergic Consumers’ Labelling Preferences: A Cross-Cultural Comparison,” *European Journal of Public Health* 18, no. 2 (2007): 115–20; Dan J. Graham, Jacob L. Orquin, and Vivianne H. M. Visschers, “Eye Tracking and Nutrition Label Use: A Review of the Literature and Recommendations for Label Enhancement,” *Food Policy* 37, no. 4 (2012): 378–82.

<sup>49</sup> Ritter, Baxter, and Churchill, *Foundations for Designing User-Centered Systems*, 103; Weinschenk, *100 Things Every Designer Needs to Know*, 21.

<sup>50</sup> US Department of Agriculture and US Department of Health and Human Services, *Dietary Guidelines for Americans, 2010*, 27–29.

<sup>51</sup> *Ibid.*, 40–41.

<sup>52</sup> See, for example, Scot Burton, Judith A. Garreston, and Anne M. Velliquette, “Implications of Accurate Usage of Nutrition Facts Panel Information for Food Product Evaluations and Purchase Intentions,” *Journal of the Academy*



considered successful if consumers correctly choose the healthier option among the products in front of them.<sup>53</sup> Thus, these studies expect consumers to optimize decisions for every single purchase in the hope that the sum of optimal purchases will result in a healthier overall diet. Essentially, they expect consumers to be like health experts and spend an extraordinary amount of time and effort on their food choices.

However, such a level of decision accuracy is hardly necessary for dietary improvement. The average consumer's shopping cart on a typical shopping trip will contain a mix of foods that could be categorized as healthy and unhealthy. What ultimately indicates the label's success is whether the average consumer's overall diet shows fewer calories, less fat, and cholesterol and more dietary fiber, vitamins, and minerals. A more realistic indication of the label's effectiveness would be that consumers optimize their overall diet over many food choices, rather than on any particular food item.

*Consumer differences.* Another well-documented shortcoming of the nutrition label is that it fails to accommodate differences among consumers in their ability to comprehend and interpret the information.<sup>54</sup> Consumers with inadequate literacy and numeracy skills have a harder time

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*of Marketing Science* 27, no. 4 (Fall 1999): 470–80; Carol Byrd-Bredbenner et al., “The Inherent Educational Qualities of Nutrition Labels,” *Family and Consumer Sciences Research Journal* 29, no. 3 (2001): 265–80; Dian A. Dooley, Rachel Novotny, and Patricia Britten, “Integrating Research into the Undergraduate Nutrition Curriculum: Improving Shoppers’ Awareness and Understanding of Nutrition Facts Labels,” *Journal of Nutrition Education* 30, no. 4 (1998): 225–31; Lauren Haldeman et al., “Development of a Color-Coded Bilingual Food Label for Low-Literacy Latino Caretakers,” *Journal of Nutrition Education* 32, no. 3 (2000): 152–60; Alan S. Levy and Sara B. Fein, “Consumers’ Ability to Perform Tasks Using Nutrition Labels,” *Journal of Nutrition Education* 30, no. 4 (1998): 210–17; Angela Shine, Seamus O’Reilly, and Kathleen O’Sullivan, “Consumer Attitudes to Nutrition Labelling,” *British Food Journal* 99, no. 8 (1997): 283–89.

<sup>53</sup> See, for example, Carol Byrd-Bredbenner, “Designing a Consumer Friendly Nutrition Label,” *Journal of Nutrition Education* 26, no. 4 (July 1994): 180–90; Higginson et al., “How Do Consumers Use Nutrition Label Information?”; Levy and Fein, “Consumers’ Ability to Perform Tasks Using Nutrition Labels.”

<sup>54</sup> Campos, Doxey, and Hammond, “Nutrition Labels on Pre-packaged Foods”; Cowburn and Stockley, “Consumer Understanding and Use of Nutrition Labelling.”

understanding the nutrition information.<sup>55</sup> They are more likely to make wrong calculations, misapply serving size, and be confused by extraneous information. They are also less likely to use the NFP because of their inability to understand the nutrition information. Consequently, these consumers are less able to choose healthier foods.

*Portion size.* Beyond its failure to condense the nutrition information, the NFP fails to incorporate portion size information. Healthy dietary choice depends not only on the nutrition characteristics of foods but also on quantities consumed.<sup>56</sup> One can have a diet of Twinkies and Doritos and still lose weight, as long as one controls the portion size and ensures that the total calorie intake is lower than the amount of calories burned.<sup>57</sup>

Yet clues regarding the appropriate portion size are nowhere to be found on the label. The label fails to integrate the two critical components of a healthy diet into a single index that would incorporate the tradeoffs between nutritional value and portion size. Instead, the label presents all nutrition information for a particular serving size, which is confusing to most consumers.<sup>58</sup>

Consumers are expected to calculate for themselves the nutrition value of the entire package or whatever portion they choose to consume. Thus, both a bucket and a small cup of low-fat yogurt have nearly identical NFP. With the exception of barely noticeable number of servings per package, the label provides consumers with no visual cues that considering portion size is important.

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<sup>55</sup> Mary Margaret Huizinga et al., “Literacy, Numeracy, and Portion-Size Estimation Skills,” *American Journal of Preventive Medicine* 36, no. 4 (2009): 324–28; Russell L. Rothman et al., “Patient Understanding of Food Labels: The Role of Literacy and Numeracy,” *American Journal of Preventive Medicine* 31, no. 5 (November 2006): 391–98.

<sup>56</sup> US Department of Agriculture and US Department of Health and Human Services, *Dietary Guidelines for Americans, 2010*.

<sup>57</sup> James S. Fell, “A Twinkie Diet? It Comes Down to Calories,” *Los Angeles Times*, December 6, 2010, <http://articles.latimes.com/2010/dec/06/health/la-he-fitness-twinkie-diet-20101206>.

<sup>58</sup> Huizinga et al., “Literacy, Numeracy, and Portion-Size Estimation Skills”; Allen L. Pelletier et al., “Patients’ Understanding and Use of Snack Food Package Nutrition Labels,” *Journal of the American Board of Family Medicine* 17, no. 5 (2004): 319–23; Rothman et al., “Patient Understanding of Food Labels.”

The NFP presents the nutrition information divorced from portion size. It confuses consumers and prevents them from making better dietary choices. For example, several studies found that foods with “low-fat” labels can lead to excess consumption and increased obesity.<sup>59</sup> The “low-fat” label on a food item signals to consumers that the product is a healthier alternative. But because nothing on the label is linked to portion size, consumers assume that considerably larger portions of these foods are still appropriate and healthy.

*Triggers.* In supermarkets and restaurants, consumer decisions are often driven not by a conscious decision-making process but by habits that are cued by the shopping environment.<sup>60</sup> Even when consumers resolve to choose healthier foods, their triggered habits simply take over the decision-making process.<sup>61</sup> Consumers need well-timed cues to trigger the desired behavior.<sup>62</sup> For example, priming consumers with cues that remind them about their dieting goals can help them stay clear of tempting foods and stick with their weight-loss plans.<sup>63</sup> Similarly, subtle diet reminders at the time of purchase lead consumers to choose lower-calorie foods when shopping and to eat less when dining out.<sup>64</sup>

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<sup>59</sup> Kelly Geyskens et al., “The Backdoor to Overconsumption: The Effect of Associating ‘Low-Fat’ Food with Health References,” *Journal of Public Policy & Marketing* 26, no. 1 (2007): 118–25; Brian Wansink and Pierre Chandon, “Can ‘Low-Fat’ Nutrition Labels Lead to Obesity?,” *Journal of Marketing Research* 43, no. 4 (2006): 605–17.

<sup>60</sup> Alexander J. Rothman, Paschal Sheeran, and Wendy Wood, “Reflective and Automatic Processes in the Initiation and Maintenance of Dietary Change,” *Annals of Behavioral Medicine* 38, no. Supplement 1 (2009): S4–S17; Paschal Sheeran, Peter M. Gollwitzer, and John A. Bargh, “Nonconscious Processes and Health,” *Health Psychology* 32, no. 5 (2013): 460–73.

<sup>61</sup> Rothman, Sheeran, and Wood, “Reflective and Automatic Processes in the Initiation and Maintenance of Dietary Change”; Verplanken and Wood, “Interventions to Break and Create Consumer Habits.”

<sup>62</sup> Fogg, “Behavior Model for Persuasive Design”; Marteau, Hollands, and Fletcher, “Changing Human Behavior to Prevent Disease.”

<sup>63</sup> Ayelet Fishbach, Ronald S. Friedman, and Arie W. Kruglanski, “Leading Us Not unto Temptation: Momentary Allurements Elicit Overriding Goal Activation,” *Journal of Personality and Social Psychology* 84, no. 2 (2003): 296–309.

<sup>64</sup> Thomas A. Brunner and Michael Siegrist, “Reduced Food Intake after Exposure to Subtle Weight-Related Cues,” *Appetite* 58, no. 3 (2012): 1109–12; Esther K. Papies and Harm Veling, “Healthy Dining: Subtle Diet Reminders at the Point of Purchase Increase Low-Calorie Food Choices among Both Chronic and Current Dieters,” *Appetite* 61,

In this regard, the NFP has had mixed success. On the one hand, the NFP is displayed on each food item. Thus, the information is easily available at the time of purchase. On the other hand, the labels are designed to be purely informative. They consist of text and can be easily crowded out by all the other information and graphics present on the food item.<sup>65</sup> They are not designed to cue consumers to think about their health.

### **The FDA's Proposed Label Changes**

The FDA's recent decision to overhaul the NFP presents an opportunity to improve its effectiveness. Unfortunately, the proposed new label falls far short of the agency's goal. Like the current label, it fails to account for mental heuristics that consumers employ when evaluating nutrition labels.

The FDA seems to understand that the NFP's design is a key to its relatively limited impact.<sup>66</sup> Thus, in the proposed regulation, the FDA attempts to redesign the label's format. But the agency mostly limits itself to marginal changes in font, available white space, and the placement of some nutrition information. The regulators fail to consider who would use the nutrition label and why.

On the positive side, the FDA chose to eliminate the line for "Calories from fat," which the agency found did not affect consumers' ability to make healthier choices.<sup>67</sup> This reduces the amount of information that consumers have to evaluate in order to choose between different foods. In addition, the FDA attempted to make the new label cleaner and more

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no. 1 (2013): 1–7; Harm Veling, Henk Aarts, and Esther K. Papies, "Using Stop Signals to Inhibit Chronic Dieters' Responses toward Palatable Foods," *Behaviour Research and Therapy* 49, no. 11 (2011): 771–80.

<sup>65</sup> Graham, Orquin, and Visschers, "Eye Tracking and Nutrition Label Use."

<sup>66</sup> Food and Drug Administration, "Revision of the Nutrition and Supplement Facts Labels," 11948.

<sup>67</sup> *Ibid.*, 11891.

readable by increasing white space and adding quantitative amounts next to daily value disclosures.<sup>68</sup>

On the other hand, the new NFP still suffers from information overload, while offering no guidance to consumers about how to evaluate the label's content. It provides no visual clues to guide consumers' decision-making.<sup>69</sup> Essentially, the new label is still designed by health experts for health experts and fails to account for consumers' needs.

The FDA's new requirement that the NFP disclose added sugar content in addition to total sugar content illustrates the problems that continue to plague the label.<sup>70</sup> The agency's goal in highlighting the added sugars is to alert consumers to potentially unhealthy foods, like sodas, that have poor nutritional value but high added sugar.<sup>71</sup> The FDA points to the claim in the *Dietary Guidelines for Americans* that sodas are one of the main causes of obesity in youth.<sup>72</sup> It hopes that by highlighting the added sugar content of sodas, the nutrition label will persuade consumers to opt for a healthier drink.

The problem with this measure is that it fails to consider the way consumers interpret the information. Recent studies show that health claims on food packages confer health halos on foods.<sup>73</sup> In other words, the claims lead consumers to view foods as healthier than they actually are. For example, consumers viewed foods with a "no sugar added" claim as less likely to

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<sup>68</sup> Ibid., 11948–55.

<sup>69</sup> To the FDA's credit, the agency solicited comments on a cleaner alternative label that would group nutrients into categories to avoid or to consume more of, but at the time of this writing the FDA has given no indication whether it plans to use the alternative.

<sup>70</sup> Food and Drug Administration, "Revision of the Nutrition and Supplement Facts Labels," 11936.

<sup>71</sup> Ibid., 11903–04.

<sup>72</sup> Ibid., 11904.

<sup>73</sup> Peter Williams, "Consumer Understanding and Use of Health Claims for Foods," *Nutrition Reviews* 63, no. 7 (2005): 256–64; Wansink and Chandon, "Can 'Low-Fat' Nutrition Labels Lead to Obesity?"

contain sugar than foods with a “reduced sugar” claim.<sup>74</sup> In general, consumers preferred no-added-sugar foods to reduced-sugar foods, even though foods with no added sugars could still be high in naturally occurring sugars. In a similar study, researchers found that consumers interpreted a “low fat” claim as “healthy,” leading them to overconsume.<sup>75</sup>

Ironically, this concern is not new; some health advocates pushed for added sugars to be included on the label back in 1990s when the FDA first introduced the current nutrition label.<sup>76</sup> The FDA rejected the proposal then because it feared that an added-sugar declaration might confuse consumers and lead them to underestimate the total sugar content. Yet the agency has chosen to reverse its decision with the new label.

In its analysis, the FDA stated that it was guided by behavioral research in designing the new label.<sup>77</sup> The agency acknowledged that it was important to go beyond merely presenting information and to consider how consumers were likely to perceive and interpret new disclosures. Despite that, it failed to analyze potential consumer confusion due to the added sugar declaration. In contrast to the other changes meant to improve label comprehension (e.g., a larger font for the calorie declaration), the agency did not test the impact of the added-sugar declaration.<sup>78</sup>

### **Alternative Approaches to the Nutrition Information Disclosure**

In 2011, the federal government attempted to address the flaws in the NFP’s design. The Institute of Medicine (IOM) examined front-of-pack (FOP) labels as a way to address the information

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<sup>74</sup> N. J. Patterson, M. J. Sadler, and J. M. Cooper, “Consumer Understanding of Sugars Claims on Food and Drink Products,” *Nutrition Bulletin* 37, no. 2 (2012): 121–30.

<sup>75</sup> Wansink and Chandon, “Can ‘Low-Fat’ Nutrition Labels Lead to Obesity?”

<sup>76</sup> Christine Lewis Taylor and Virginia L. Wilkening, “How the Nutrition Food Label Was Developed, Part 1: The Nutrition Facts Panel,” *Journal of the American Dietetic Association* 108, no. 3 (2008): 437–42.

<sup>77</sup> Food and Drug Administration, *Analysis of Impacts* [RIA] (February 24, 2014, available in the docket at [regulations.gov](http://www.regulations.gov)): 6–8.

<sup>78</sup> Food and Drug Administration, *Analysis of Impacts*, 49–53.

overload and confusing design of the nutrition label.<sup>79</sup> The IOM initiated the study at the request of congressional lawmakers, who turned to FOP labels as a promising solution to complement the nutrition label.<sup>80</sup>

The IOM report examined a variety of different FOPs already on the market as well as numerous studies that evaluated the impact of different label designs in lab settings. A typical FOP label combines all the nutrition information to provide consumers with a simple, intuitively accessible indicator of the food's healthfulness.<sup>81</sup> Some FOP labels employ the familiar traffic light symbol to communicate the nutrition information; others assign stars or checkmarks to products when they meet healthy food criteria along one or more dimensions.<sup>82</sup>

The report found that, while no single FOP label was flawless, many systems showed considerable promise.<sup>83</sup> The IOM review found that effective FOP labels shared the following characteristics.<sup>84</sup> First, the labels were simple and did not require special nutrition knowledge. Second, the labels focused on guiding consumers instead of presenting factual information. Third, they presented health attributes of each food item in the form of ranking or scales. Finally, they used easily recognizable symbols or names to help consumers comprehend the nutrition information.

Based on its analysis, the IOM recommended that the FDA produce a “simple, standard symbol translating information from the NFP on each product into a quickly and easily grasped health meaning, making healthier options unmistakable.”<sup>85</sup> The IOM found that a simple symbol

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<sup>79</sup> Wartella et al., *Front-of-Package Nutrition Rating Systems and Symbols*.

<sup>80</sup> Omnibus Appropriations Act, 2009; Division F: Labor, Health and Human Services and Education, and Related Agencies Appropriations Act, 2009 on Public Law No. 111-8, House Appropriations Committee Print, p. 1398.

<sup>81</sup> Wartella et al., *Front-of-Package Nutrition Rating Systems and Symbols*, 3.

<sup>82</sup> *Ibid.*, 36–37.

<sup>83</sup> *Ibid.*, 74.

<sup>84</sup> *Ibid.*, 106.

<sup>85</sup> *Ibid.*, 107.

would be easily understood by consumers at different literacy levels and would act as a cue to opt for healthier choices.

Going beyond the field of nutrition, the IOM report pointed to the success of the Energy Star program run jointly by the Department of Energy and the Environmental Protection Agency.<sup>86</sup> Studies have shown that the Energy Star label prompted consumers to consider future energy costs and incorporate them into their decision-making in addition to the appliances' sticker price.<sup>87</sup> The Energy Star example demonstrates that a well-designed label can be effective in countering the impact of present-biased preferences.

Based on its review, IOM recommended that the FDA shift its strategy away from focusing exclusively on providing detailed nutrition information and toward guiding and prompting consumers to make healthier choices.<sup>88</sup> The IOM recommended that the FOP label be closely integrated with the NFP, so that the two labels would be mutually reinforcing.<sup>89</sup> Unfortunately, none of the IOM report's insights are reflected in the FDA proposed rule to redesign the nutrition label.

### **Blaming Consumers for Policy Failure**

University of California, San Diego, cognitive scientist and design expert Don Norman claims that analysts are often too quick to blame failure on human error.<sup>90</sup> He argues that when people using a system or technology do not use it in the way intended by its designers, the fault often

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<sup>86</sup> Ibid., 65–66.

<sup>87</sup> Richard G. Newell and Juha V. Siikamäki, *Nudging Energy Efficiency Behavior: The Role of Information Labels* (NBER Working Paper 19224, National Bureau of Economic Research, Cambridge, MA, July 2013), <http://www.nber.org/papers/w19224>.

<sup>88</sup> Wartella et al., *Front-of-Package Nutrition Rating Systems and Symbols*, 1.

<sup>89</sup> Ibid., 107.

<sup>90</sup> Donald A. Norman, *The Design of Everyday Things*, revised and expanded edition (New York: Basic Books, 2013), 65–68.



lies with the system's design and not the users.<sup>91</sup> It is the designer's failure to consider how users would actually perceive and use the technology that leads to what are ultimately preventable errors.

When policies requiring nutrition information disclosure fail to result in dietary improvements, health advocates blame consumers for the failure.<sup>92</sup> Their conclusion is anchored in a false assumption that, in order to communicate information to consumers, policymakers must merely ensure that the information can be found in some form somewhere on the product.<sup>93</sup> They implicitly assume that the way the information is presented, as well as the type and amount of information conveyed to consumers, does not play a significant role in consumers' ability to process that information. In other words, they assume that there is no design error; any wrong choices, no matter how ubiquitous, must be the result of human error.

Prominent British psychologist James Reason explains this phenomenon in his work tracing the causes of human error.<sup>94</sup> He notes that "blaming individuals is emotionally more satisfying than targeting institutions. . . . If something goes wrong, it seems obvious that an individual (or group of individuals) must have been responsible."<sup>95</sup> But Reason also points to

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<sup>91</sup> Ibid., 162–216.

<sup>92</sup> See, for example, Kelly D. Brownell et al., "The Public Health and Economic Benefits of Taxing Sugar-Sweetened Beverages," *New England Journal of Medicine* 361, no. 16 (2009): 1599–605; Downs, Loewenstein, and Wisdom, "Strategies for Promoting Healthier Food Choices"; Loewenstein et al., "Can Behavioural Economics Make Us Healthier?"; John G. Lynch and Gal Zauberman, "When Do You Want It? Time, Decisions, and Public Policy," *Journal of Public Policy & Marketing* 25, no. 1 (2006): 67–78; Marteau, Hollands, and Fletcher, "Changing Human Behavior to Prevent Disease"; Verplanken and Wood, "Interventions to Break and Create Consumer Habits."

<sup>93</sup> Although some nudge advocates acknowledge that smart disclosure could be effective in helping consumers make better choices, they ultimately see it as a limited tool that should not substitute more intrusive policies. See, for example, George Loewenstein, Cass R. Sunstein, and Russell Golman, "Disclosure: Psychology Changes Everything," *Annual Review of Economics* 6, no. 1 (2014): 391–419; George Loewenstein and Peter Ubel, "Economics Behaving Badly," *New York Times*, July 14, 2010, <http://nyti.ms/1HxtJWY>.

<sup>94</sup> Reason and others cited in this section discuss human errors in the context of industrial and medial accidents, but his insights are directly relevant to discussion of behavioral biases. In both cases, the interaction of humans with their environment causes mistakes that have large negative public health outcomes.

<sup>95</sup> James Reason, "Human Error: Models and Management," *BMJ* 320, no. 7237 (2000): 768.

another motive behind policymakers laying the blame exclusively on consumers. He points out that to “uncouple a person’s unsafe acts from any institutional responsibility is clearly in the interests of managers. It is also legally more convenient.”<sup>96</sup>

Faced with the apparent failure of nutrition labels to improve the American diet, health experts and policymakers take an easy way out. They blame consumers for errors in judgment and the negative health outcomes these errors lead to. And if the problem is clearly consumers’ fault, then the solution is to penalize the guilty party through policies that restrict consumers’ control over their decisions. The newly fashionable paternalistic policies, including a variety of sugar and fat taxes and the ban on large sodas, are in fact attempts to blame and punish consumers for what are essentially failures of health and policy experts.

This approach suits the experts not only because it absolves them of any responsibility for the failure of the previous policies but also because it does not challenge their expertise or ability to develop effective public health remedies. Health experts move on to ever more punitive anti-obesity policies without stopping to examine the implication of their earlier failures. The lesson they draw from the failure of the previous anti-obesity policies is that consumers are even more helpless and irrational than the experts originally thought. Therefore, consumers need to be prodded and shoved more aggressively. At no point do these experts question whether the process through which they formulate their anti-obesity policies is flawed. Given the choice between making the existing policies more effective and imposing new, more restrictive policies, they opt for the latter.

The danger of this approach is that it prevents policymakers from addressing the underlying systemic factors that lead to failures. Massachusetts Institute of Technology safety

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<sup>96</sup> Ibid.

engineering expert Nancy Leveson notes that “most people . . . are simply trying to do the best they can under the circumstances and with the information they have. Understanding why those efforts were not enough will help in changing features of the system and environment so that sincere efforts are more successful in the future.”<sup>97</sup> The analysts’ ultimate goal should be to understand why failures happen and how the system can be changed to prevent such failures from being repeated. Similarly, Ohio State University human factor engineering expert David D. Woods and his colleagues suggest that in order to get to the core of the problem and develop successful solutions, policymakers need to go beyond the “human error” label.<sup>98</sup> They need to understand the uncertainties, tradeoffs, and attention demands that consumers face, which lead them to make less optimal choices.

Thus, before entering the gray area of choice manipulation and outright paternalism, policymakers should first examine whether the fault truly lies with consumers or whether the failure of the existing policies stems from their poor design and execution. Blaming consumers may be emotionally satisfying, but it does not help policymakers figure out how to improve these policies and make them more effective. If policymakers simply move on to the newly fashionable policies without carefully examining and understanding consumer behavior, the new policies will likely fail as well.

## **Conclusion**

In 1994, the FDA mandated nutrition information disclosure on virtually all foods in response to growing concerns over public health and rising obesity rates. Twenty years later, research shows

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<sup>97</sup> Nancy Leveson, *Engineering a Safer World: Systems Thinking Applied to Safety* (Cambridge, MA: MIT Press, 2011), 56.

<sup>98</sup> David D. Woods et al., *Behind Human Error* (Burlington, VT: Ashgate, 2010), 16.

that some of these health concerns have diminished (e.g., vitamin A and C deficiencies), while others continue unabated. In particular, significant increases in obesity rates prompted a wide range of policy responses, including a variety of paternalistic policies that would manipulate consumers' choices or penalize consumers for choosing unhealthy foods. Advocates of such approaches consider information disclosures ineffective and often point to the failure of the nutrition label to reduce obesity as a typical example.

Proponents of paternalistic policies are too quick to blame consumers for the failures of anti-obesity policies. When consumer mistakes are so ubiquitous, it is likely that failures stem from ineffective system design. By placing the blame on consumers, health experts conveniently avoid facing their own failures in designing policies. They also miss the chance to improve the policy and make it more effective.

Before rushing into ever more restrictive policies, health experts should first examine the existing policies and try to understand the deeper causes of their failure. In particular, policymakers need to examine the ways in which current policies fail to account for consumer behavior. Otherwise, they risk repeating the same mistakes and creating policies that will similarly fail.

Currently, the nutrition label discloses information but fails to inform consumers. It simply lists nutrition content but offers no guidance about how to interpret the disclosed information. Proper use of the NFP requires considerable nutrition knowledge and extensive mental effort at the time of purchase, which time-pressed consumers at the grocery store do not have. In addition, the label does not account for the difficulties that less educated or elderly consumers could have interpreting the label.

The FDA attempts to address some of these issues in its proposed major redesign of the nutrition label. The label's most significant changes aim primarily at helping consumers lose

weight through healthier food choices (e.g., it uses larger font for the calorie count, includes a mandatory added-sugar declaration, and modifies serving-size definitions). While well intentioned, the proposed label redesign fails to correct the original label's flaws.

To be effective, the FDA should embrace smart disclosure principles outlined by OIRA and explored in detail by the IOM. The FDA should ensure that its disclosures are easy to understand and interpret in order to accommodate consumers with different nutrition knowledge and literacy levels. In addition, the disclosures should be salient and displayed in a way that triggers consumers to think of their health and opt for healthier food choices.

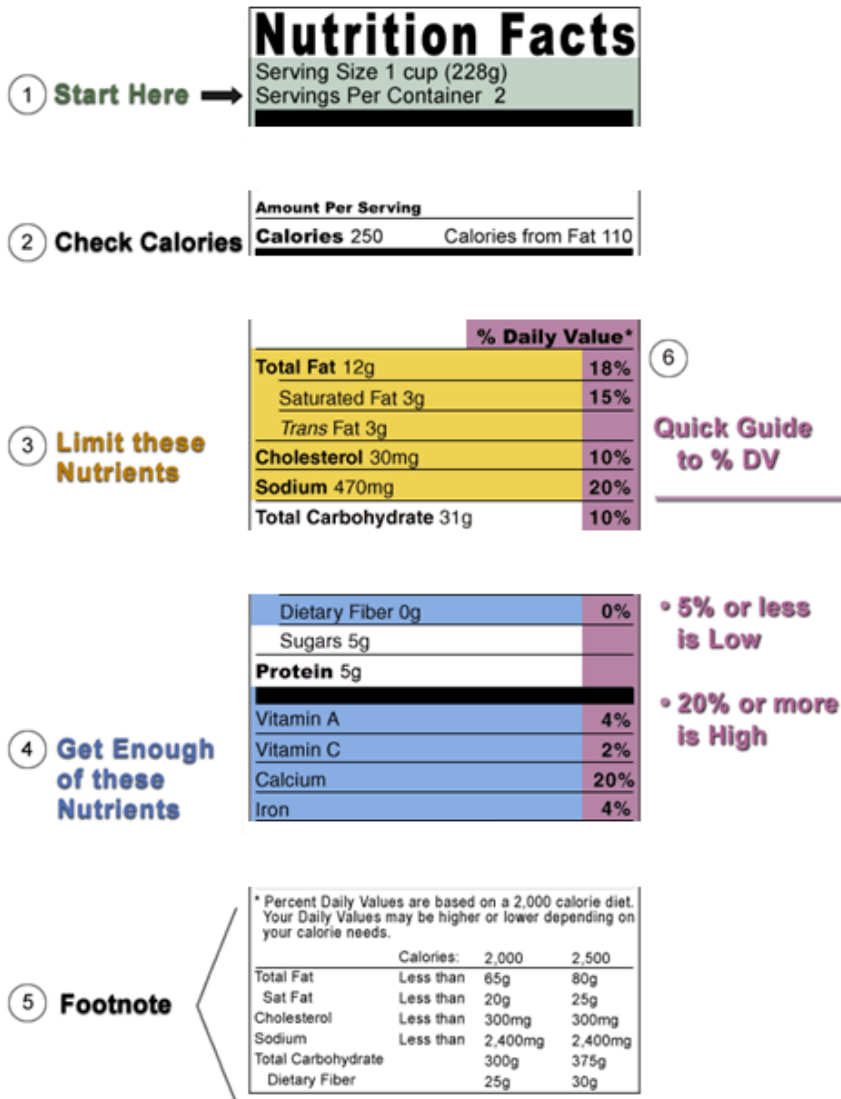
## Appendix A: Figures

**Figure 1. Nutrition Facts Panel**

<b>Nutrition Facts</b>	
Serving Size 2/3 cup (55g)	
Servings Per Container About 8	
<b>Amount Per Serving</b>	
<b>Calories</b> 230	Calories from Fat 40
<b>% Daily Value*</b>	
<b>Total Fat</b> 8g	<b>12%</b>
Saturated Fat 1g	<b>5%</b>
<i>Trans</i> Fat 0g	
<b>Cholesterol</b> 0mg	<b>0%</b>
<b>Sodium</b> 160mg	<b>7%</b>
<b>Total Carbohydrate</b> 37g	<b>12%</b>
Dietary Fiber 4g	<b>16%</b>
Sugars 1g	
<b>Protein</b> 3g	
Vitamin A	10%
Vitamin C	8%
Calcium	20%
Iron	45%
* Percent Daily Values are based on a 2,000 calorie diet. Your daily value may be higher or lower depending on your calorie needs.	
	Calories: 2,000    2,500
Total Fat	Less than 65g    80g
Sat Fat	Less than 20g    25g
Cholesterol	Less than 300mg    300mg
Sodium	Less than 2,400mg    2,400mg
Total Carbohydrate	300g    375g
Dietary Fiber	25g    30g

Source: Food and Drug Administration, "FDA Proposes Updates to Nutrition Facts Label on Food Packages, news release, February 27, 2014, <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm387418.htm>.

Figure 2. FDA Guide to Understanding the Nutrition Label



Source: Food and Drug Administration, “How to Understand and Use the Nutrition Facts Label,” last updated April 9, 2015, <http://www.fda.gov/Food/IngredientsPackagingLabeling/LabelingNutrition/ucm274593.htm>.