



Obesity-Related Policy, Systems, and  
Environmental Research in the US

# Panel Discussions



# Food and Physical Activity Environments: Thinking Beyond Food Retail and Green Space



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# Maximizing the Influence of Choice-Architecture and Marketing-Mix Strategies for Healthy Diets and Physical Activity in Diverse Settings

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# Disclosures

- Dr. Kraak receives funding from the USDA NIFA Hatch Project VA-160189 focused on sustainable healthy diets, food systems and socially normalizing healthy portions in the U.S. using a I-PSE approach.
- No other financial or non-financial conflicts or competing interests to declare.

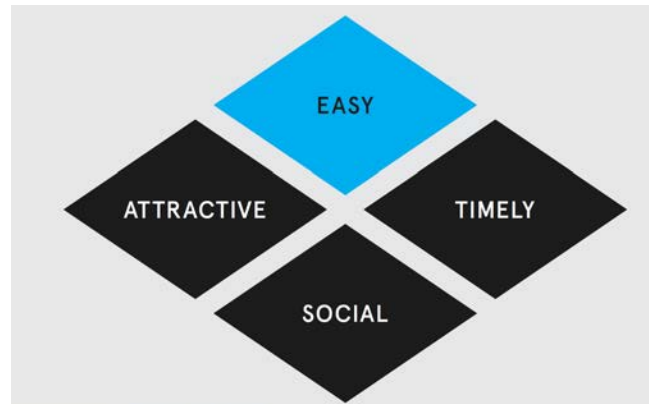
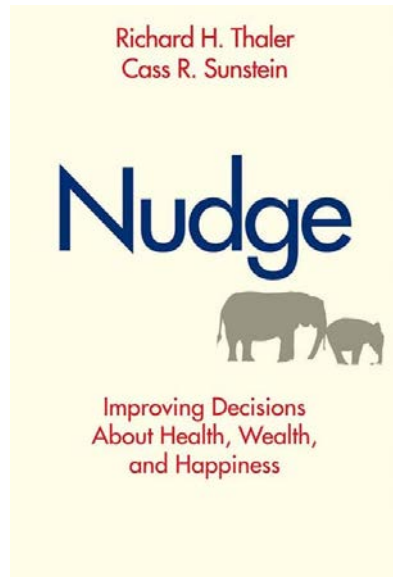


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# Nudge vs Nudging

*“Any aspect of **choice architecture** that alters people’s behavior without restricting any options or significantly changing their economic incentives.”* Thaler and Sunstein, 2008



**Nudge:** *“Any attempt to influence people’s judgment, choices or behaviors in a predictable way by using cognitive boundaries, biases, routines and habits.”*

**Nudging:** *“Systematic and evidence-based development and implementation of nudges to create behavior change.”*

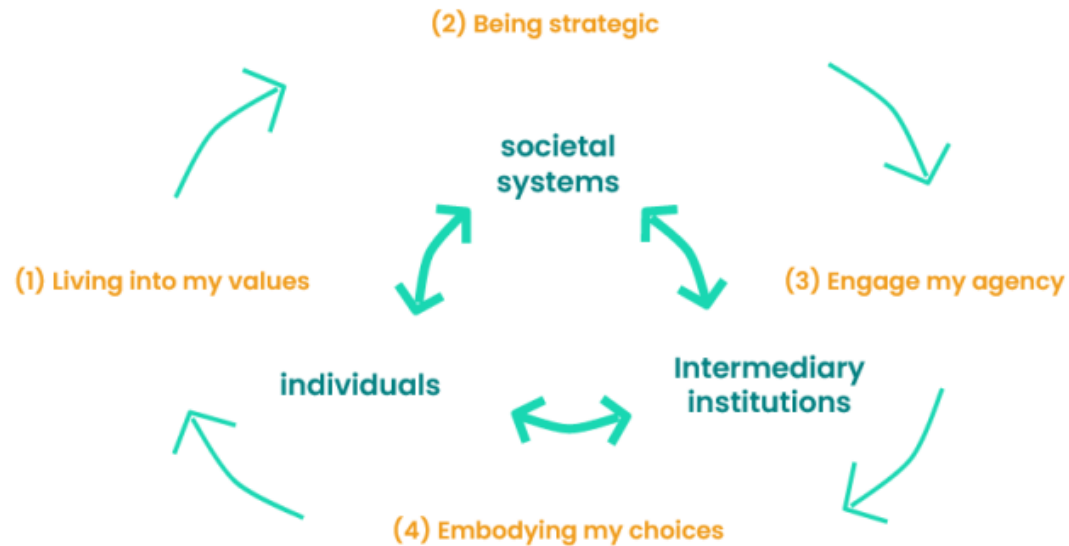


# Behavioral Scientist View

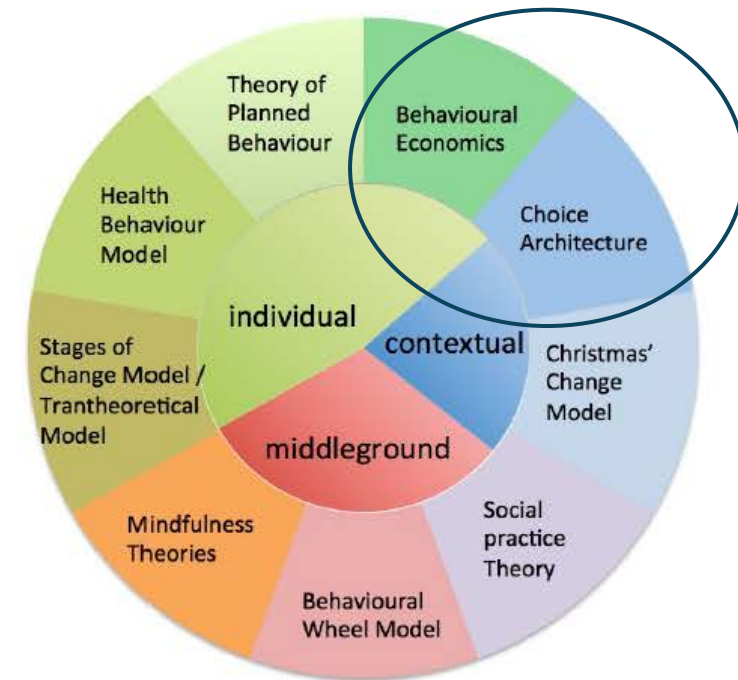
- **Nudge theory** is rooted in behavioral economics, consumer psychology and philosophy of **preserving a person's freedom of choice** (*libertarian paternalism*) without the need for government interventions (i.e., legislation, regulation, or litigation).
- **Choice** (*relational*) vs. **Agency** (*directional*) align with our values, beliefs, interests, and identity.
- **Nudges** alter choice architecture in microenvironments to influence people's judgment, choice or behavior in **predictable ways** because of cognitive biases, routines and habits through automatic processes (limited consciousness) but does not exclude reflective processes.
  - **Nudge strategies** alter the properties or placement of objects or stimuli in environments and settings to cue or change health-related behaviors.
  - Nudge strategies may influence peoples' default choices to encourage healthy-lifestyle behaviors.
  - **Nudge strategies exclude pricing** that research shows is a powerful marketing-mix strategy (i.e., product, price, place, and promotion) to reduce socioeconomic inequities to reduce health risks.
- **Nudge effectiveness** based on three assumptions
  - People will choose options that require the least amount of mental or physical effort
  - People will align their behaviors with prevailing social norms
  - People will identify with peer or cultural groups that reinforce specific behaviors

# Conceptual Frameworks

**Choice** (relational) vs. **Agency** (directional)



**Behavioral change across individual vs. context**



Summary Report

September 2014



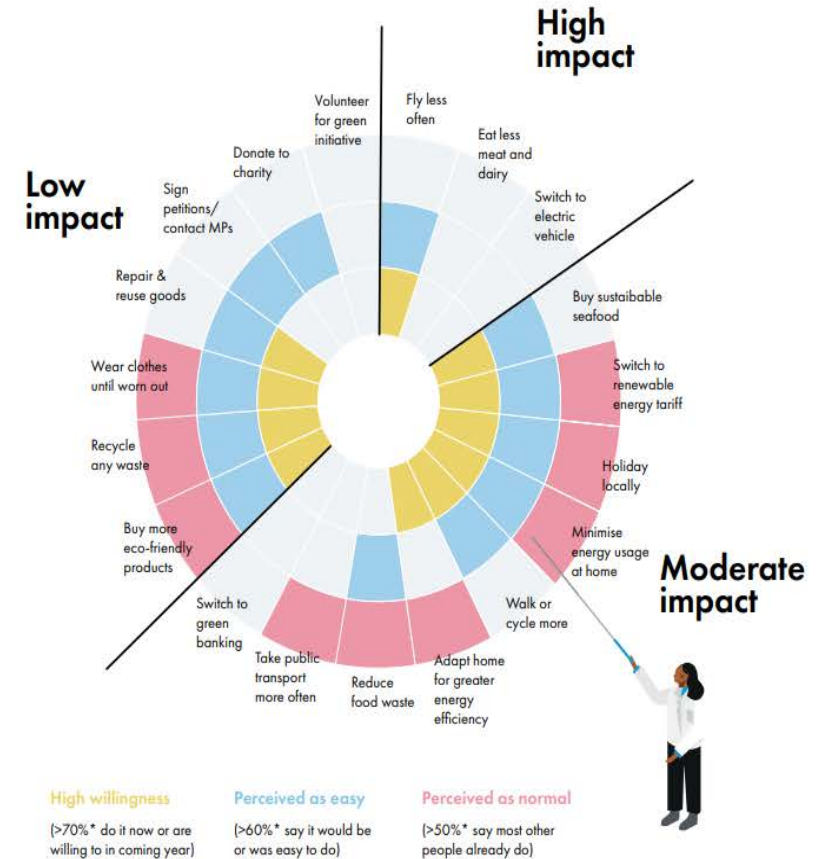


# Conceptual Frameworks



Figure 1. Where to focus - willingness, perceived ease, and normality of green actions

We want this figure to be filled with pink, blue and yellow. Where cells are grey, we need to explore what broadcasters can do to make those actions seem more normal, easy, and desirable.



UNIVERSITY OF  
CAMBRIDGE

TIPPME for changing selection, purchase and consumption of food, alcohol and tobacco.

Marteau et al. BMC Public Health (2021) 21:1531  
<https://doi.org/10.1186/s12889-021-11382-8>

BMC Public Health

COMMENTARY

Open Access

Beyond choice architecture: advancing the science of changing behaviour at scale

Theresa M. Marteau<sup>1\*</sup>, Paul C. Fletcher<sup>2</sup>, Marcus R. Munafò<sup>3</sup> and Gareth J. Hollands<sup>4</sup>

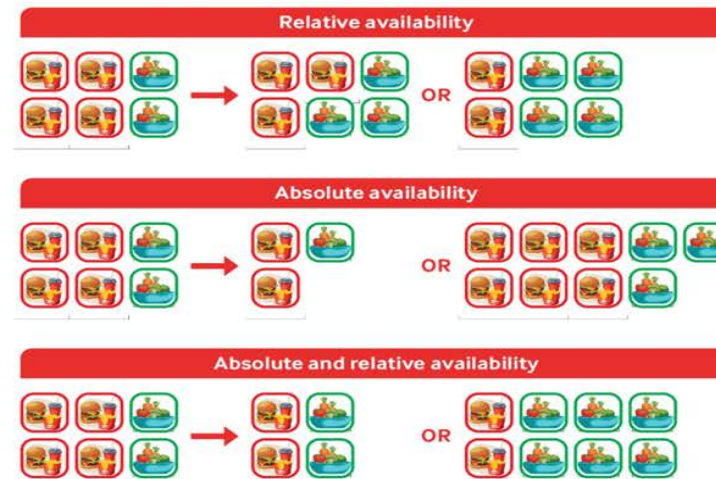


Fig 1 | Availability interventions. Burger and salad images are used to represent any option of less healthy or healthier foods, respectively.

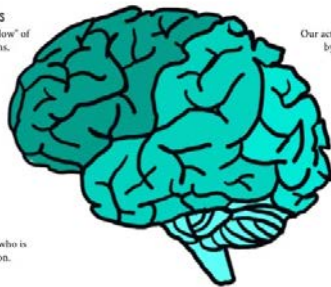
MINDSPACE

Influencing behaviour through public policy



THE  
BEHAVIOURAL  
INSIGHTS  
TEAM

Nudge Unit  
(2010-2024)



**SALIENCE**  
Our attention is drawn to novel things that seem relevant to us.

**DEFAULTS**  
We "go with the flow" of pre-set options.

**NORMS**  
We are heavily influenced by what others do.

**INCENTIVES**  
Our responses to incentives are shaped by predictable mental shortcuts, such as the strong desire to avoid losses.

**MESSENGER**  
We are heavily influenced by who is communicating information.

**PRIMING**  
Our actions are often influenced by subconscious cues.

**AFFECT**  
Our actions can be powerfully shaped by our emotional associations.

**COMMITMENTS**  
We seek to be consistent with our public promises and to reciprocate actions.

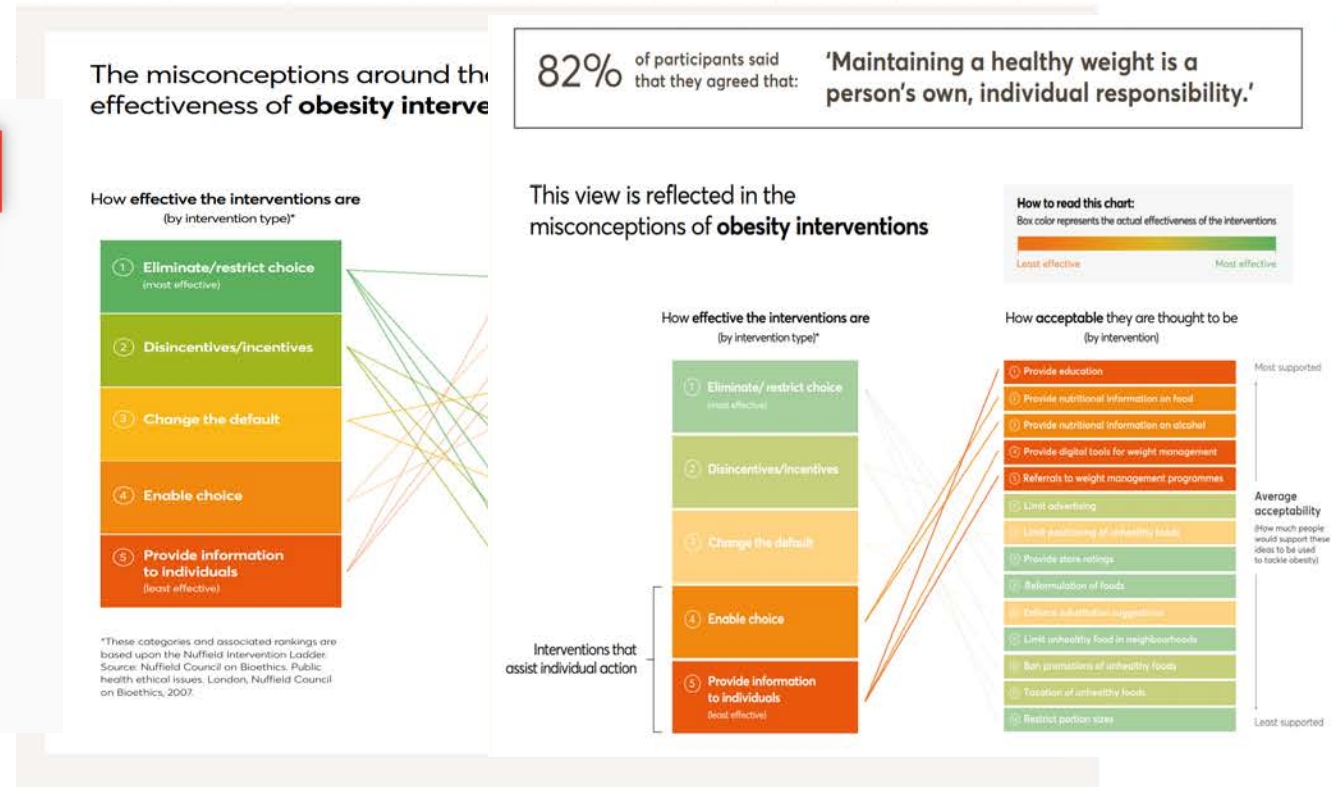
**EGO**  
We act in ways that make us feel better about ourselves.



# Changing Minds About Changing Behavior



## Nuffield Policy Intervention Ladder



- Government non-intervention promotes individual liberty the most over eliminating unhealthy choices.
- People are unwilling to support government policies that target higher-level ladders strategies.

# Types of Nudges

- **Blue nudges**
  - Encourage diet, physical activity, and health behaviors across sectors and settings
- **Green nudges**
  - Encourage environmentally sustainable behaviors across sectors and settings
- **Algorithmic or digital nudges**
  - AI-driven technology that influences what we buy online (i.e., groceries, meals, products)
- **Dark nudges**
  - Marketing vague or misleading information that encourages unhealthy foods, sugary beverages, alcohol, tobacco, and gambling



**SODIUM WARNING**



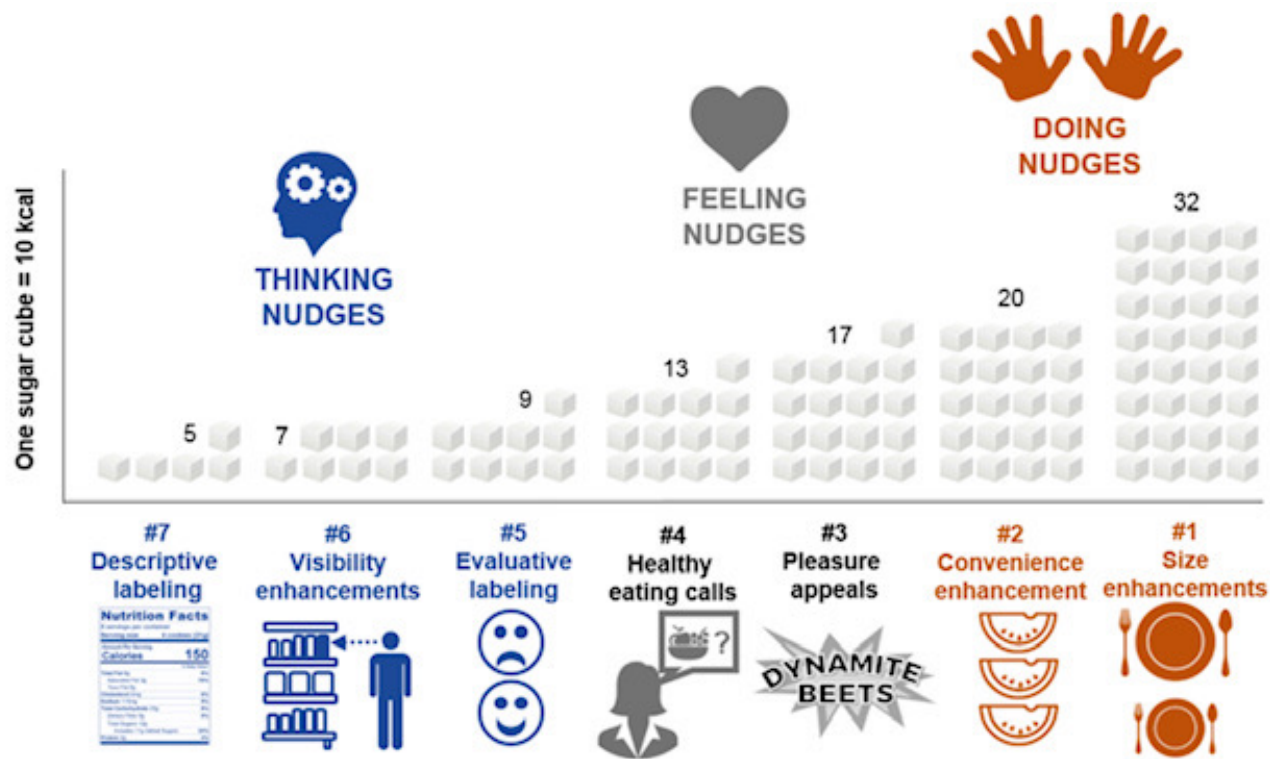
From 'algorithmic nudging' to virtual cross-selling: Is ecommerce changing the rules in grocery?

By Elaine Watson  
17-Jul-2018 - Last updated on 17-Jul-2018 at 04:19 GMT





# Healthy Eating Nudges



informs  
http://pubsonline.informs.org/journal/mkac

MARKETING SCIENCE  
Vol. 38, No. 3, May–June 2020, pp. 465–486  
ISSN 0732-2399 (print), ISSN 1526-548X (online)

Which Healthy Eating Nudges Work Best? A Meta-Analysis of Field Experiments

Romain Cadario,\* Pierre Chandon\*

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Contact: r.cadario@iesege.fr, <https://orcid.org/0000-0002-5676-9906> (RC); pierre.chandon@insead.edu (PC)



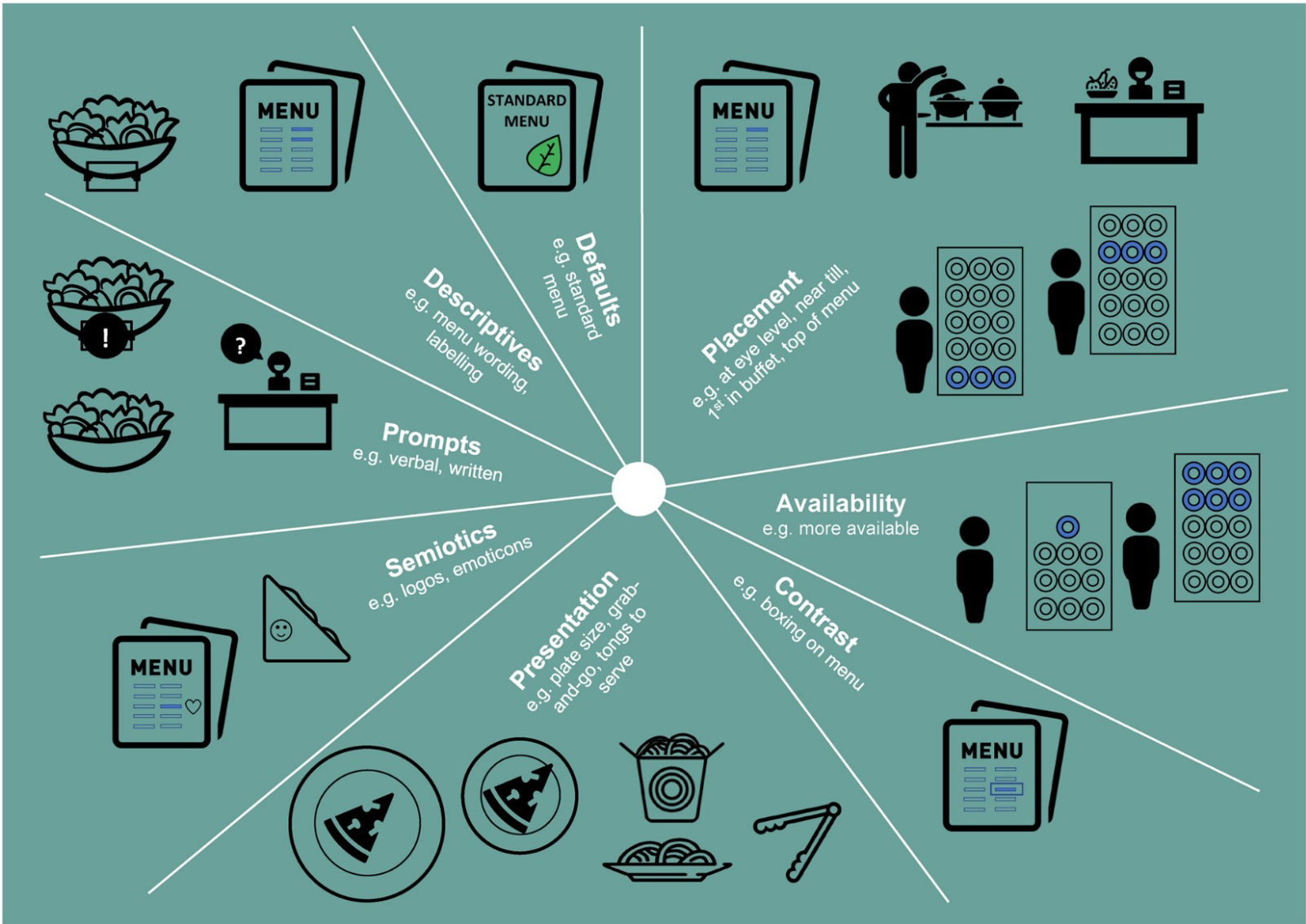
Lower Impact,  
Give Less Emphasis

Higher Impact,  
Give More Emphasis

What People **KNOW**  
Fact and Skills

What People **FEEL**  
Desires and Emotions

What People **DO**  
Routines, Plans, Impulses,  
Trial and Conversations



Symposium four: Protein sources: impact on environment and sustainability.

A nudge in the right direction: the role of food choice architecture in changing populations' diets.

H. Ensaff, Nutritional Sciences and Epidemiology, School of Food Science and Nutrition, University of Leeds, Leeds LS2 9JT, UK

COMMENTARY

Open Access

# Beyond choice architecture: advancing the science of changing behaviour at scale

Theresa M. Marteau<sup>1\*</sup>, Paul C. Fletcher<sup>2</sup>, Marcus R. Munaf <sup>3</sup> and Gareth J. Hollands<sup>4</sup>

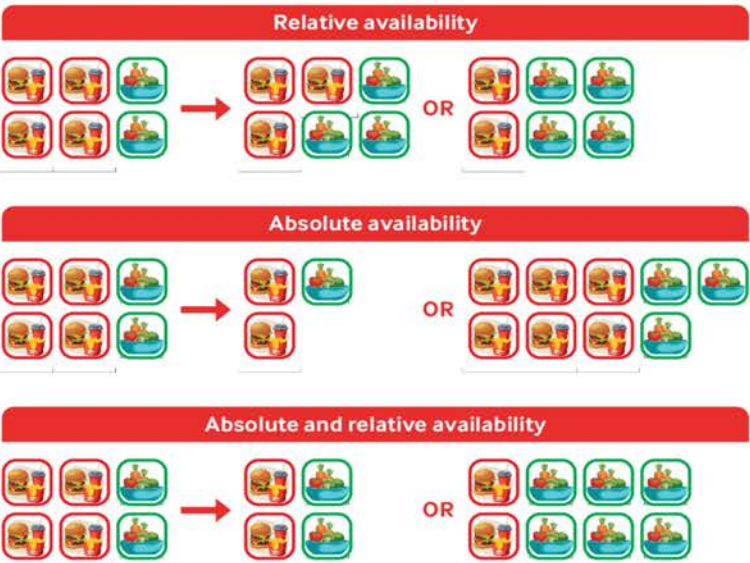


Fig 1 | Availability interventions. Burger and salad images are used to represent any option of less healthy or healthier foods, respectively.



# Strategies to Address Unhealthy Food and Beverage Marketing to Children



## Retail Environment

- Healthy zoning
- Improving the in-store marketing environment
- Improving the in-restaurant marketing environment
- Taxation and tax incentives

## Childcare & Schools

- Improving the food environment in childcare and schools
- Nutrition standards for government procurement and vending

## Government Property

- Nutrition standards for government procurement and vending
- Reducing unhealthy marketing on government property and public transit
- Adopting a policy to guide government sponsorship

## Community-Wide

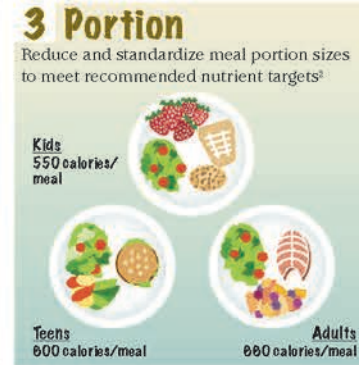
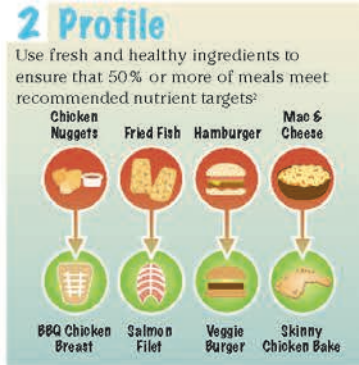
- Improving the outdoor advertising environment
- Reducing unhealthy advertising in broadcast media
- Reducing unhealthy marketing in digital media
- Improving the print media advertising environment

# Voluntary Marketing Mix and Nudge Strategies to Promote Healthy Restaurants<sup>1</sup>

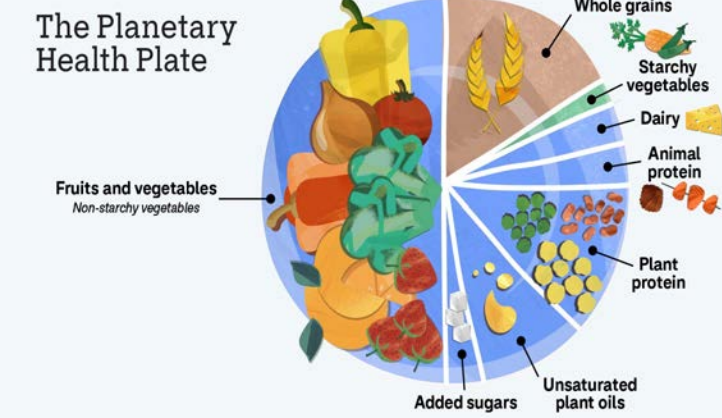


## Healthy Meals for Kids < 13 years

January 22, 2019  
Water, Milk Now the Default Drinks on Kid's Menus in California



## Sustainable Dining Practices



Article  
Progress Evaluation for the Restaurant Industry Assessed by a Voluntary Marketing-Mix and Choice-Architecture Framework That Offers Strategies to Nudge American Customers toward Healthy Food Environments, 2006–2017

Vivica Kraak <sup>1,\*</sup>, Tessa England <sup>1</sup>, Sarah Misyak <sup>2</sup> and Elena Szemzo <sup>3</sup>

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Received: 21 May 2017; Accepted: 4 July 2017; Published: 12 July 2017

<sup>1</sup> Quick-service, fast-casual and full-service chain restaurants and non-chain restaurants.

<sup>2</sup> Recommended nutrient targets: calories ( $\leq 600$  calories/meal for children and  $\leq 700$  calories/meal for teens and adults); fat ( $\leq 35\%$  calories), saturated fat ( $\leq 10\%$  calories), added sugars ( $\leq 35\%$  calories) and sodium ( $\leq 210$  mg–450 mg/meal item).

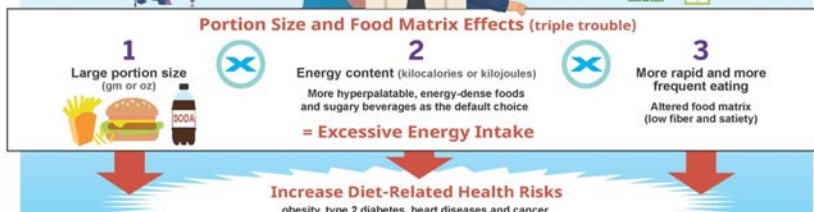
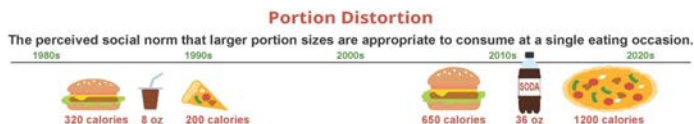
<sup>3</sup> For children: 1,200 to 1,400 calories a day is used for general nutrition advice for ages 4 to 8 years and 1,400 to 2,000 calories a day for ages 9 to 13 years, but calorie needs vary. For adults: 2,000 calories a day is used for general nutrition advice, but calorie needs vary.

Upon customer's request, restaurants must provide written nutrition information for total calories, fat, saturated fat, trans fat, cholesterol, sodium, protein, carbohydrates, fiber, and added sugars.





### Portion distortion vulnerabilities in U.S. eating environments linked to diet-related health risks



## Apply the I + PSE Framework for Action to Establish Healthy Portion Size Norms to Help Americans Achieve a Healthy Weight

### I + PSE Framework

Assess determinants of health (i.e., social, commercial and political)



Formulate and implement strategies



Evaluate impacts (i.e., individual, practice, program, organization, policy and population)



### Build Resiliency Factors

- Establish new dietary preferences
- Change external marketing cues
- Demographic & psychographic profile
- Knowledge, skills and motivation
- Learn new behaviors (slower eating rate, smaller bite size)
- Socioeconomic and health status



### Establish Healthy Portion Size Norms

**1**  
Reduce portion size (gm or oz)



**2**  
Balance energy intake with nutrient-dense foods (kilocalories or kilojoules)  
Choose less hyperpalatable and more nutrient-dense foods and drink water with meals as the healthy default  
**= Reduce Energy Intake**



**3**  
Eat slowly and less frequently  
Intact food matrix (high fiber & satiety)



**Decrease Diet-Related Health Risks**  
obesity, type 2 diabetes, heart diseases and cancer



Current Developments in Nutrition

Journal homepage: [www.journals.elsevier.com/current-developments-in-nutrition](http://www.journals.elsevier.com/current-developments-in-nutrition)

Perspectives

Multisectoral Strategies Needed to Establish Healthy Portion Size Norms That Disincentivize Hyperpalatable, Energy-Dense Foods and Sugary Beverages in Food Environments Linked to Obesity and Diet-Related Chronic Diseases in the United States

Vivica I. Kraak, Brenda M. Davy





# Competing Persuasive Marketing (IMC) Messages

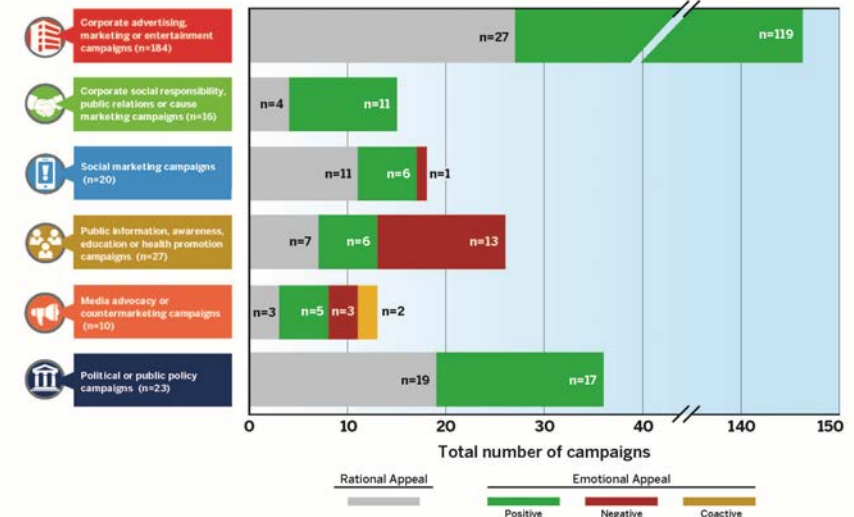
## A Typology of U.S. Media Campaigns Used to Promote or Discourage Sugary Beverages and Encourage Water to Americans



Adapted from: Kraak VI, Consavage Stanley K. A systematic scoping review of media campaigns to develop a typology to evaluate their collective impact on promoting healthy hydration behaviors and reducing sugary beverage health risks. Int J Environ Res Public Health. 2021;18:1040. <https://doi.org/10.3390/ijerph18031040>.

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Frequency of Persuasive and Rational Appeals Used in 280 Media Campaigns to Promote or Discourage Sugary Beverages and Promote Water Across the Six Categories of the Media Campaign Typology



International Journal of  
Environmental Research  
and Public Health



Article

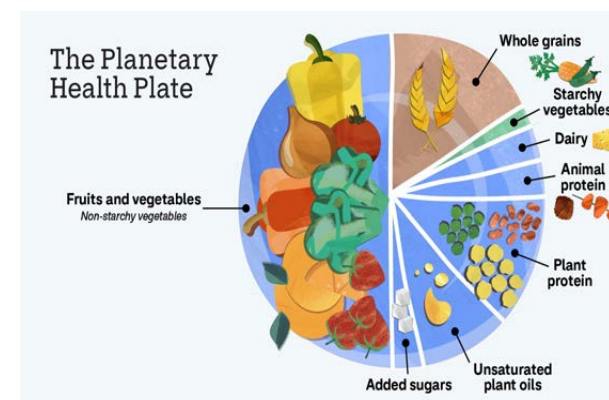
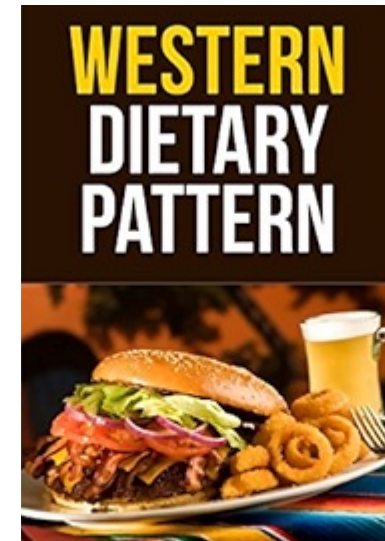
## A Content Analysis of Persuasive Appeals Used in Media Campaigns to Encourage and Discourage Sugary Beverages and Water in the United States

Vivica I. Kraak <sup>1,\*</sup>, Adrienne Holz <sup>2</sup>, Chelsea L. Woods <sup>2</sup>, Ann R. Whitlow <sup>2</sup> and Nicole Leary <sup>1</sup>



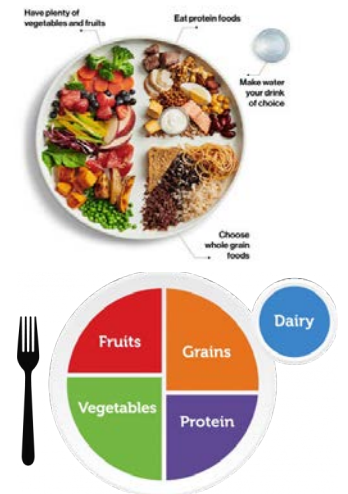


# Competing Persuasive Marketing (IMC) Messages



# Conclusion

- Choice architecture nudges are **most effective** when:
  - Behaviors require small and subconscious changes
  - Behaviors are frequent and habitual for targeted populations
  - Behaviors are perceived to be positive (not negative or neutral)
  - Use pricing strategies (marketing-mix) and policies (taxes and subsidies)
  - **Behaviors are socially normalized, incentivized and reinforced by I-PSE change strategies, at scale, across settings and sectors and persuasive messages reinforce healthy and sustainable diet and activity choices.**
- Choice architecture nudges are **least effective** when:
  - Behaviors require complex multi-step decision-making
  - Target a long-standing habit or perceived to be negative
  - Require significant effort or expense (time, money or resources)
  - **Behaviors are NOT socially normalized, incentivized and reinforced by I-PSE change strategies, at scale, and persuasive messages compete with healthy and sustainable diet and activity decisions.**
- **Future research**
  - Combine PSE change strategies and evaluate for feasibility, acceptability and effectiveness for targeted populations in real-life settings, scaled up and sustained as the social norm.





### Choice Architecture Conceptual Frameworks

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# Thank you!