Invited Commentary

Healthy eating: a matter of prioritisation by households or policymakers?

Abstract

I reflect upon the potential reasons why American low-income households do not spend an optimal proportion of their food budgets on fruits and vegetables, even though this would allow them to meet the recommended levels of fruit and vegetable consumption. Other priorities than health, automatic decision-making processes and access to healthy foods play a role, but solutions for the persistent socio-economic inequalities in diet should be sought in the wider food system which promotes cheap, mass-produced foods. I argue that, ultimately, healthy eating is not a matter of prioritisation by individual households but by policymakers.

Public Health Nutrition

Low fruit and vegetable (F&V) intake is a leading dietary risk factor for morbidity and mortality from non-communicable diseases $(NCD)^{(1)}$. Yet, consumption of F&V remains below the recommended levels in most countries^(2,3). Moreover, F&V consumption is socio-economically patterned, with individuals with lower education and income levels having lower levels of F&V consumption than those with higher socio-economic position^(4,5). One of the barriers to consuming sufficient levels of F&V is the (perceived) cost of healthy food^(6–13). The US Supplemental Nutrition Assistance Program (SNAP) addresses this barrier by providing nutrition benefits to supplement the food budget of families at or below 130 % of the poverty line⁽¹⁴⁾.

In their manuscript 'The More Households Prioritize Healthy Eating, The Better They Can Afford to Consume a Sufficient Quantity and Variety of Fruits and Vegetables', Stewart et al. suggest that low-income households that prioritise healthy eating by allocating around 40% of their SNAP benefits to F&V can consume a reasonable variety of F&V each week. However, actual proportion spending on F&V by American families is closer to 25 %⁽¹⁵⁾, which would make adhering to F&V guidelines only feasible by exclusively selecting the cheapest but potentially less palatable F&V. Of course, there are many explanations for why low-income families do not spend 40 % of their SNAP benefits on F&V, and the authors mention factors such as time constraints, lack of cooking skills, food preferences and lack of budgeting skills. Yet, even with additional education around budgeting, shopping and cooking skills, as also provided by SNAP-Ed⁽¹⁶⁾, SNAP recipients have a persistent poor diet score⁽¹⁷⁾.

Dual process theories^(18,19) offer an explanation for why individuals do not make 'optimal' choices given their budgetary constraints: food choices are not only the result of slow, deliberate thinking processes in which different options are carefully weighted, but also the result of a faster, reactive and intuitive process. Especially under financial and other types of stress, food choices are more likely to be automatic and less reason-based. And even if food choices are made rationally, reaching satiety, preventing food waste and taste preferences of household members may be considered more important than health considerations.

Stewart *et al.* also refer to the fact that some drivers of food choices are out of the control of the household: indeed, households are dependent on having access to lower-priced supermarkets in order to purchase F&V for prices that match their budgets^(20–22). This recognition of the wider upstream⁽²³⁾ and systemic⁽²⁴⁾ determinants of food choices is crucial in understanding and addressing the challenge of low F&V consumption. Indeed, for individuals living in 'obesogenic' food environments, where unhealthy foods are available everywhere and heavily marketed, automatic food choices are likely to be unhealthy.

Still, many policy responses, including SNAP-Ed, are highly 'agentic', i.e. they require individuals to use their personal resources to benefit from the intervention, even though these approaches have demonstrated low effectiveness⁽²⁵⁾. Changing the environments in which people make food choices (e.g. through 'choice architecture'⁽²⁶⁾ or 'nudging'⁽²⁷⁾) has therefore been proposed as a promising strategy to make healthier food choices easier and is gaining traction among researchers⁽²⁸⁾ and policymakers⁽²⁹⁾. The popularity of nudging among policymakers is attributable to its libertypreserving approach that rules out significant financial incentives or regulation to change individual behaviours⁽²⁹⁾.

However, policymakers are not the only actors trying to influence the food choice architecture; large food corporations may use 'dark nudges' to trick consumers into making food choices that are against their best interests⁽³⁰⁾.

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Similarly, the term 'sludge' refers to the practice of using individuals' cognitive biases to make health-promoting behavioural changes harder⁽³⁰⁾. This is reflected by the fact that half of the calories consumed by Americans come from ultra-processed foods⁽³¹⁾ despite its associated health risks⁽³²⁾. These challenges highlight the fundamental misalignment between public health goals and the wider food system⁽³³⁾, and using nudges to get people to eat healthier may be regarded as a superficial repair of a food system that promotes the consumption of cheap, appealing, ultra-processed and energy-dense products^(24,34,35).

To truly address persistent poor dietary intake and its health consequences, a significant shift in thinking, focused on transforming the food system rather than patchwork solutions, is required. By providing SNAP benefits, the government is essentially competing with the artificially low prices of unhealthy foods that do not reflect the external costs to society such as obesity and greenhouse gas emissions⁽³⁶⁾. Without governmental regulations, it is likely that a complex adaptive system such as the food system will maintain an equilibrium that benefits large food companies rather than public health^(35,37). Shifting this equilibrium in such a way that it provides a solid basis for healthier food choices and creates new and sustainable business models for food industry actors will likely take fiscal policies such as taxes on sugary drinks and junk food, regulation of unhealthy food marketing, mandating front-of-pack food labelling and reducing commercial influences on food policies^(24,30,35). Of course, what this requires is bold prioritisation by policymakers, rather than by individual households.

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References

- GBD (2019) Health effects of dietary risks in 195 countries, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet* 393, 1958–1972.
- 2. Miller V, Mente A, Dehghan M *et al.* (2017) Fruit, vegetable, and legume intake, and cardiovascular disease and deaths in 18 countries (PURE): a prospective cohort study. *Lancet* **390**, 2037–2049.
- 3. Imamura F, Micha R, Khatibzadeh S *et al.* (2015) Dietary quality among men and women in 187 countries in 1990 and 2010: a systematic assessment. *Lancet Glob Heal* **3**, e132–e142.
- Giskes K, Turrell G, Patterson C et al. (2002) Socio-economic differences in fruit, vegetable consumption among Australian adolescents, adults. Public Heal Nutr 5, 663–669.
- Lee-Kwan SH, Moore LV, Blanck HM *et al.* (2017) Disparities in state-specific adult fruit and vegetable consumption-United States, 2015. *MMWR Morb Mortal Wkly Rep* 66, 1241–1247.
- Aggarwal A, Monsivais P, Cook AJ *et al.* (2011) Does diet cost mediate the relation between socioeconomic position and diet quality? *Eur J Clin Nutr* **65**, 1059–1066.
- Dijkstra SC, Neter JE, van Stralen MM *et al.* (2015) The role of perceived barriers in explaining socio-economic status differences in adherence to the fruit, vegetable and fish guidelines in older adults: a mediation study. *Public Health Nutr* 18, 797–808.
- Monsivais P, Aggarwal A & Drewnowski A (2012) Are socioeconomic disparities in diet quality explained by diet cost? *J Epidemiol Community Health* 66, 530–535.
- Steenhuis IH, Waterlander WE & de Mul A (2011) Consumer food choices: the role of price and pricing strategies. *Public Health Nutr* 14, 2220–2226.
- Pinho MGM, Mackenbach JD, Charreire H *et al.* (2018) Exploring the relationship between perceived barriers to healthy eating and dietary behaviours in European adults. *Eur J Nutr* 57, 1761–1770.
- 11. Mackenbach JD, Brage S, Forouhi NG *et al.* (2015) Does the importance of dietary costs for fruit and vegetable intake vary by socioeconomic position? *Br J Nutr* **114**, 1464–1470.
- Hoenink JC, Beulens JWJ, Harbers MC *et al.* (2020) To what extent do dietary costs explain socio-economic differences in dietary behavior? *Nutr J* 19, 88.
- 13. Rao M, Afshin A, Singh G *et al.* (2013) Do healthier foods and diet patterns cost more than less healthy options? A systematic review and meta-analysis. *BMJ Open* **3**, e004277.
- USDA Supplemental Nutrition Assistance Program (2021) Supplemental Nutrition Assistance Program (SNAP). https:// www.fns.usda.gov/snap/supplemental-nutrition-assistanceprogram (accessed January 2021).
- Carlson A & Frazao E (2012) Are healthy foods really more expensive? It depends on how you measure the price. USDA; Econ Inf Bull Published online: 01 May 2012. doi: 10.2139/ssrn.2199553.
- 16. USDA SNAP Education (2021) SNAP Education (SNAP-Ed). https://snaped.fns.usda.gov/ (accessed January 2021).
- 17. Zhang FF, Liu J, Rehm CD *et al.* (2018) Trends and disparities in diet quality among US adults by supplemental nutrition assistance program participation status. *JAMA Netw Open* **1**, e180237.
- Strack F & Deutsch R (2004) Reflective and impulsive determinants of social behavior. *Pers Soc Psychol Rev* 8, 220–247.
- 19. Kahneman D ((2011)) *Thinking, Fast and Slow.* London: Allen Lane.
- Jetter KM, Adkins J, Cortez S *et al.* (2019) Yes we can: eating healthy on a limited budget. *J Nutr Educ Behav* 51, 268–276.

- 21. Walker RE, Keane CR & Burke JG (2010) Disparities and access to healthy food in the United States: a review of food deserts literature. *Heal Place* **16**, 876–884.
- 22. Mackenbach JD, Burgoine T, Lakerveld J *et al.* (2017) Accessibility and affordability of supermarkets: associations with the DASH diet. *Am J Prev Med* **53**, 55–62.
- 23. Lakerveld J & Mackenbach JD (2017) The upstream determinants of adult obesity. *Obes Facts* **10**, 216–222.
- 24. Swinburn BA, Kraak VI, Allender S *et al.* (2019) The global syndemic of obesity, undernutrition, and climate change: the lancet commission report. *Lancet* **393**, 791–846.
- 25. Adams J, Mytton O, White M *et al.* (2016) Why are some population interventions for diet and obesity more equitable and effective than others? The role of individual agency. *PLoS Med* **13**, 1–7.
- Hollands GJ, Bignardi G, Johnston M *et al.* (2017) The TIPPME intervention typology for changing environments to change behaviour. *Nat Hum Behav* 1, 0140.
- 27. Thaler RH, & Sunstein CR (2008) *Nudge: Improving Decisions about Health, Wealth, and Happiness.* Yale: Yale University Press.
- Harbers MC, Beulens JWJ, Rutters F *et al.* (2020) The effects of nudges on purchases, food choice, and energy intake or content of purchases in real-life food purchasing environments: a systematic review and evidence synthesis. *Nutr J* 19, 103.
- 29. Adam O ((2015)) Nudging, shoving and budging: behavioural economic-informed policy. *Public Adm* **93**, 700–714.

- Pettigrew M, Maani N, Pettigrew L *et al.* (2020) Dark nudges and sludge in Big Alcohol: behavioral economics, cognitive biases, and alcohol industry corporate social responsibility. *Milbank Q.* Published online: 15 September 2020. doi: 10. 1111/1468-0009.12475.
- Steele EM, Baraldi LG, Da Costa Louzada ML *et al.* (2016) Ultra-processed foods, added sugars in the US diet: evidence from a nationally representative cross-sectional study. *BMJ Open* 6, 1–8.
- 32. Lane MM, Davis JA, Beattie S *et al.* (2020) Ultraprocessed food and chronic noncommunicable diseases: a systematic review and meta-analysis of 43 observational studies. *Obes Rev* **22**, e13146.
- 33. Middel CNH, Schuitmaker-Warnaar TJ, Mackenbach JD *et al.* (2019) Systematic review: a systems innovation perspective on barriers and facilitators for the implementation of healthy food-store interventions. *Int J Behav Nutr Phys Act* 16, 1–15.
- Meder B, Fleischhut N & Osman M (2018) Beyond the confines of choice architecture: a critical analysis. *J Econ Psychol* 68, 36–44.
- 35. White M, Aguirre E, Finegood DT *et al.* (2020) What role should the commercial food system play in promoting health through better diet? *BMJ* **368**, 1–12.
- 36. Lang T (2003) Food industrialisation and food power: implications for food governance. *Dev Policy Rev* **21**, 555–568.
- 37. Rutter H, Savona N, Glonti K *et al.* (2017) The need for a complex systems model of evidence for public health. *Lancet* **390**, 2602–2604.