Fulfilling the promise of choice architecture interventions for addictive behaviors

Choice architecture interventions alter problem behavior by changing decision-making contexts without restricting choices or economic incentives. Despite their appeal and seeming simplicity, choice architecture interventions for addictive behaviors have developed more slowly than anticipated due to complexities involved in translating interdisciplinary science on decision-making into scalable interventions with population impact.

In their book *Nudge* [1], Nobel Prize winner Richard Thaler and colleague Cass Sunstein presented a persuasive, innovative vision to alter problem behavior by changing decision-making contexts without restricting choices or economic incentives (e.g. money, time). Such ‘choice architecture’ approaches were hailed as the next generation of behavior change tools, augmenting existing clinical and public health interventions. Despite their appeal and seeming simplicity, choice architecture interventions have developed more slowly than anticipated. This editorial considers reasons why.

The scientific foundation for choice architecture approaches to behavior change germinated 40 years ago in the basic science of behavioral choice [2,3], now known as behavioral economics [4]. Behavioral economics is a robust transdiscipline that spans psychology, economics, financial planning and health policy, among other fields, and provides concepts and terminology applicable across disciplines and levels of analysis. At its core is the fact that biased choice is normative. Real people do not choose ‘rationally’ in line with classic economic models, and their ‘irrational’ deviations show reliable regularities [5], e.g. (1) shorter-term outcomes are weighed more heavily than delayed outcomes, even when the latter have higher value (delay discounting effect); (2) smaller rewards and positive outcomes are discounted more steeply than larger rewards and negative outcomes, respectively (magnitude and sign effects); (3) temporal courses of outcomes that end in gains are preferred to those that end in losses, even when overall sequence utilities are equivalent (sequence effect); and (4) people prefer avoiding losses over acquiring equivalent gains (loss aversion).

Choice architecture applications take these biases into account to promote choices with greater utility (benefits) over the longer term without constraining access to alternative selections. The special case of asymmetric paternalism [6] takes the approach a step further, arranging options so that people with greater biases make beneficial choices without constraining freedom of choice for less biased decision-makers. Following *Nudge* [1], the approach gained rapid acceptance among some governments to improve programs, policy and regulatory compliance. Notable early adopters included the United Kingdom, which has now spun off its Behavioural Insights Team or ‘Nudge Unit’ as a social purpose corporation, and the United States, where the Obama administration founded the Social and Behavioral Sciences Team as a subcommittee of the National Science and Technology Council.

There have been noteworthy successes in the health arena, but most predated these official initiatives. For example, offering treatment on demand for HIV/AIDS and substance misuse with minimal delays capitalizes on motivational shifts favoring pro-health behaviors and exploits delay discounting. Such programs do not incur higher attrition or worse outcomes than higher threshold programs [7], which has contributed to a ‘through any door’ treatment engagement approach. Changes in default options for HIV testing, from an opt-in approach requiring consent to an opt-out approach requiring a request not to be tested, have improved testing rates in at-risk populations [8]. Dietary practices are improved by securing food choices prior to food presentation and making micro-environmental changes such as presenting healthier foods earlier than calorie-dense/low nutrition foods during food selection [9].

Despite these successes, the development, implementation and impact of choice architecture interventions have been uneven at best and disappointing at worst. I offer considerations why and argue that addressing them will advance applications. First, achieving scalability of choice architecture interventions is critical for population health impact because most have modest effect sizes and impact = effect size × reach [10]. However, the involvement of large organizations (governments, health-care systems, worksites, schools, etc.) that is often essential for implementation poses a host of scientific, organizational and political issues discussed in the implementation science literature [11,12]. The involvement of large organizations also raises ethical and privacy issues (e.g. ‘nanny state’ concerns) that deter adoption.

Secondly, research guiding choice architecture applications is largely experimental and conducted at the individual participant level of analysis. This more readily supports individual-focused clinical interventions than
community, health-care system or population-based public health interventions that require understanding of population dynamics and prevention science and practice, which is essential for scalability. Successful translation will require multi-disciplinary collaborations that span individual and group levels of analysis and employ outcome measures suitable for each level, among other requirements [12].

Thirdly, given the modest effect sizes of many choice architecture interventions, a single approach will probably be insufficient, but the mix of tactics that maximizes benefits remains undetermined. Addressing this issue requires a functional typology of tactics, and efforts are in progress [5,13]. In developing a typology, it is important to distinguish among choice architecture interventions guided by behavioral economic research on biased decision-making, straightforward (micro-) environmental engineering and contingency management programs that are effective but resource-intensive and not readily scalable.

In the addictions area, two general approaches have been pursued [5]: (1) intervene to remediate choice biases and limit negative effects; and (2) accept that biased choice is normative and use the biases to promote healthier decisions and outcomes. The first approach is aligned with clinical interventions and has yielded some promising innovations: e.g. the Episodic Future Thinking (EFT) intervention to reduce delay discounting has been shown to decrease smoking [14], drinking [15] and unhealthy food intake [16]. Other examples include framing choices using social norms to promote pro-health decisions (e.g. comparing personal to peer drinking, which is often overestimated [17]) and enriching the environment with alternative rewards (e.g. Murphy and colleagues’ Substance-Free Activity Session, or SFAS [18]). The second approach is aligned with asymmetric paternalism and is epitomized by treatment on demand and opt-out HIV testing guidelines [5]. Otherwise, the second approach is less well developed in the addictions area, where application opportunities are ripe given that steep delay discounting is a defining feature of addictive disorders. For example, rapid treatment entry that exploits delay discounting followed by EFT and SFAS interventions to reduce discounting and enrich the environment with substance-free rewards may be a tactical mix that improves outcomes.

Choice architecture has much to offer to change addictive behavior. However, success will depend upon maintaining close connections with behavioral economic decision-making research and attention to the complexities involved in sound transdisciplinary science-to-practice translations.

Declaration of interests

None.

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References


