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A Survey of Nudges for Improving Health Outcomes

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Abstract: Nudges are being employed worldwide to influence behavioral changes to achieve successful implementation of programs and policies. Apart from emerging as a low-cost method, nudges do not interfere with the freedom of the individual. Their effectiveness lies in the way they change the choice architecture of an individual such that in the given context, the person moves towards the optimal decision herself. In this article, we undertake a survey of the literature on nudges to understand their contribution to improving health outcomes. We find that although result on the degree of impact varies across studies, studies using a combination of nudges do ensure greater success.

Keywords: nudges, health outcomes, incentives.

Introduction

Over the past two decades, there has been a growing appreciation worldwide of the use and importance of behavioral science in successful implementation of public policies. This realization has not come easy. It is a result of persistent failure of programmes, projects and policies despite national and local governments spending enormous amount of money on their planning, implementation and execution. The gap although not fully closed, has been narrowing through a better understanding of how human mind works and consequently how human beings behave.

Kahneman and Tversky in their prominent work (Tversky and Kahneman, 1974; Tversky et al., 1982) demonstrated several examples of 'cognitive illusion' which provides a possible explanation for errors in the logical judgement made by otherwise rational economic agents. Human mind has two systems of thinking: one, which is uncontrolled, fast and unconscious and the other one that is controlled, effortful, rule-based and slow (Ivo et al., 2016). To influence behavioural change in individuals through the way the human mind thinks, the Mindspace framework proposes use of interventions based on the following nine elements: messenger, incentives, norms, defaults, salience, priming, affect, commitment and ego. As we shall see these interventions have produced mixed results in the context of health.

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Data and Methodology

The data for this paper has been sourced through secondary sources. Published papers related to health in the realm of behavioural science were extracted by conducting a detailed search of databases like Econlit, JSTOR, Scholar Google etc. The articles were shortlisted for this survey keeping in mind their contribution to an extensive coverage of the topic. Additionally, reports of various governmental agencies and Behavioural Insight Units now operating in several parts of the world were analyzed for a deeper understanding of the use of nudges for public policy making in the area of health.

Nudges for Health

Aarestrup et al. (2016) conducted a field experiment in a Denmark hospital to test a simple nudge aimed at improving hand hygiene amongst hospital visitors to ward off hospital-acquired-infections (HAIs). The intervention included the use of nudges around three different aspects of a hand sanitizer: its placement, colour and displaying of a normative message "Here we use HAND DISINFECTANT in order to protect your relatives". The authors find a substantial 67 percent increase in hand hygiene compliance among visitors compared to the baseline. The study, thus, shows that changing the default placement and providing a salient sign with a positively framed message can be an effective way to increase hand hygiene amongst hospital visitors, thereby drastically bringing down the instances of HAIs.

To promote the usage of digital services and consequently increase online health renewals, the Behavioural Insights Unit partnered with ServiceOntario, Ministry of Health and Ministry of Transportation in 2018. After understanding the reason behind low uptake which was the confusing language and format of the notice, four behaviourally-informed notices were designed incorporating the findings from usability testing. The language was simplified and the form stated more clear instructions for renewal. Graphical icons, colour gradients, different formatting and call outs were used to increase salience. Compared to the control standard notice, the behaviourally-informed notices resulted in a 1 percent increase in uptake of online health renewal equivalent to additional 16,000 transactions online per year. However, due to operational considerations, ServiceOntario continued with the standard notice.

Seah et al. (2018) conducted an 11-week randomized crossover trial in Singapore in 2015 to study the effect of framing on purchase decisions of individuals. Twenty-one beverage vending machines offering high sugar and low sugar beverage options were used to administer the intervention involving either a 'tax message' or a 'subsidy message' or 'no message' (control): 'a tax for high sugar beverages' or 'a subsidy for lower sugar beverages'. The lower-sugar beverage options were priced 10 percent lower than the corresponding high-sugar option. The authors find that the percentage of high-sugar beverages sold was 54% in the control, 53% in the tax, and 54% in the subsidy message condition. Thus, neither the tax message nor the subsidy message conditions influenced weekly sales of beverages as compared to the control group. The authors discuss the possible reasons for no effect: credibility issue arising due to absence of information on the source of taxation/ subsidy and strong preferences of consumers for a particular beverage.

Johnson and Goldstein (2004) find that the way the default option is worded or framed has a significant impact on organ donation decisions. They conducted an online experiment with 161 respondents where they were asked whether they would be donors under a given condition. Three different conditions for default were considered: one, the 'opt-in condition' where participants were told that the default option was 'to not be an organ donor' and they were given a choice to either confirm or change that status; the second one was the 'opt-out condition' where the default was 'to be a donor' and the third one was the 'neutral condition' which required them to choose and offered no prior default option. The regression analysis reports statistically significant 16.3 percent increase in actual donation when donation is the default option.

The authors attribute higher levels of organ donation in Netherlands vis-a-vis the United States to the

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differences in default option offered in the two countries.

The Penn Nudge Unit implemented a change in the Electronic Health Record (EHR) defaults in all University of Pennsylvania Health System for a period of 7 months. They put an opt-out checkbox labeled as "dispense as written" to the prescription screen which, if left unchecked, meant that patient would receive the generic medicine. During this period, a 23% increase in generic prescription rates were observed resulting in higher adherence, lower costs to patients, and improved clinical outcomes. The impact was sustained and resulted in large savings of over $32 million as confirmed through evaluation of prescription rates two and half years later.

In spite of widespread awareness and availability of COVID-19 vaccines, it was observed that many developed nations struggled to increase vaccination rates beyond 70 percent. In May 2021, Campos-Mercade et al. (2021) ran a randomized controlled trial on Swedish population. 8286 individuals from 18 to 49 years of age participated in the experiment. The objective of the experiment was to examine the conditions to improve vaccination uptake among individuals. For this, participants were randomly assigned to five different treatment conditions and one control condition.

The five treatment conditions were: (i) 'Monetary incentive' only wherein each participant received 200 Swedish kronor (around US$24) as an incentive to get vaccinated; (ii) 'Nudge 1: Social Impact' which involved listing four people who would benefit from the participant getting vaccinated; (iii) 'Nudge 2: Argument' which required the individual to write down arguments for convincing a fellow mate to get vaccinated; (iv) 'Nudge 3: Information' under which the individual had to participate in a quiz on safety and effectiveness of COVID-19 vaccines; and (v) All three nudges combined. Lastly, the control group was earmarked to the 'No-reminders' condition that did not include any nudges or reminders. The authors find that the monetary incentives increased vaccination rates by around 4 percent compared to the control group. Although some behavioral nudges were statistically significant in increasing participants' intentions to become vaccinated, none of them increased the actual uptake of vaccination.

Dhawan et al. (2020) highlight the use of affect or sentiments by the Indian Prime Minister Narendra Modi to nudge the Indian population to abide by quarantine rules. The use of words like 'nationalism' and 'values' in PM's speeches led to a positive result in constraining movement by people and ensuring that they follow the covid-19 protocols. Banerjee et al. (2020) report enormous effects with significant spillover for a large-scale randomized controlled trial involving 25 million people conducted in West Bengal during Covid-19 pandemic. The treatment consisted sending an SMS containing a 2.5-minute clip of Nobel Laureate Abhijit Banerjee, a native of West Bengal, informing people about social distancing, hygiene, ostracism of the infected and effects on self and everyone. The results point out that affective messages by respected public figures can have large direct and indirect effects in influencing the behaviour of people in addition to constant messaging. However, Bahety et al. (2021) in their study discover SMS-based information campaigns or message framing nudges to be less effective six months after the onset of Covid-19 pandemic.

Gerrad et al. (2005) consider a prototype model to understand about risk behaviour like smoking, drinking, driving under influence, unprotected sex etc. in adolescents and its impact on their health. The model suggests two pathways to health risk behavior: the reasoned path and the social reaction path. While the former involves planning or intention, the latter is guided by images of smokers and one's own social image. In fact, these smoking cognitions mediate the impact of other factors like family environment, context etc. when children undertake risk behaviours outlined above.

Bhattacharya et al. (2015) emphasize the use of commitment as a nudge device to instill the habit of exercising in people. They examine the issue of exercise habit formation in time-inconsistent individuals through a randomized control trial. They find that longer duration nudges not only increase the duration of

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the exercise contracts chosen but also ensure greater likelihood of the goal to be achieved. In addition, longer duration nudges see greater enrollment into subsequent exercise commitment contract once the initial contract expires.

Gillebaart and De Ridder (2017, 2019) research to track the role of self-control in people. The study was conducted in the Netherlands. At the start of the study, participants selected a specific behavior they wanted to turn into a habit over the course of the study (choices covered health, interpersonal, financial, and ecological behaviors like eating fruit, being patient, saving money, recycling). Although their study offered new directions for future research on self-control and other potential moderators in the formation of good habits, they do not find evidence for self-control as a facilitator of habit formation. In fact, their study highlights the role played by 'perceived' self-control among individuals from disadvantaged neighbourhoods which is a function of their current sub-optimal circumstances. Further, they suggest designing intervention for public health policy in the form of training programmes on developing coping skills of disadvantaged individuals.

Herman and Polivy (2005) deliberate upon the normative influences on food intake by individuals. Besides personal norms, over-eating is often influenced by situational norms like portion size and social influence. Kallbekken and Saelen (2013) demonstrate through their study that two simple nonintrusive 'nudges' – reducing plate size and providing social cues – not just reduce the amount of food wasted in restaurants but also diminish private costs to individuals related to total spending and obesity. Contrary to this, nudges can often be used either to promote healthy eating or junk eating depending on how and where food is positioned or placed on a food counter in a cafeteria (Van Gestel et al., 2018).

A paper by the Nudge Unit of World Bank (2019) focuses on using behavioral insights to increase safer birth deliveries in Haiti which has highest maternal and neo-natal mortality in Latin America. It finds existence of behavioural barriers to safer birth delivery campaigns and parental checkups like optimism bias and stereotype threat. The paper suggests overcoming these behavioural barriers by employing nudges. It discusses the use of behaviorally informed pregnancy risk messages to nudge pregnant women to get screened and be monitored. Further, it mentions incentivizing matrons through social recognition when they refer pregnant women to health institutions.

Harrison and Patel (2020) discuss designing of nudges to improve patient outcomes and healthcare delivery. The authors highlight an intervention ladder and the differential impact of the nudges across the ladder. The ladder begins at 'doing nothing' to providing information through infrequent messaging to influence everyday decision like sending a single peer comparison message. As we move to the middle of the intervention ladder, more impactful nudges involve framing existing information and prompting goal-directed implementation intentions through the use of pre-commitment devices. At the top, nudges involve enabling active choice or default selection. These nudges are more impactful and typically more aggressive. They are delivered at the time of making decision. Further, for finding out the optimal nudge design that is impactful, it is important to embed these interventions into the clinical workflow and engage all concerned stakeholders.

Discussion and Conclusion

A review of the papers above portray how widely nudges are being used to influence behaviour in the domain of health. The review tries to provide a flavour of different tools used to design nudges as per the Mindspace framework first developed in UK. The results appear to be mixed. However, some general takeaway from the analysis can certainly be attempted. The success of any program requires understanding of the behaviour and involvement of the stakeholders at different stages of the program ranging from conceptualization to execution. Most effective interventions are those that can be sustained over longer periods of time. Short term nudges can lead to changes in behaviour in the very short run but their long-

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term impact is weak (Gottschalk et al., 2014). Also, different types of nudges may impact people differently depending upon space, time and context in which they are used. It is important to be mindful of this fact and the fact that at times for successful outcomes different types of nudges may have to be combined.

References

1. Aarestrup, S. C., Moesgaard, F., & Schuldt-Jensen, J. (2016). Nudging hospital visitors' hand hygiene compliance. Retrieved July, 21, 2020.
2. Bahety, G., Bauhoff, S., Patel, D., & Potter, J. (2021). Texts don't nudge: An adaptive trial to prevent the spread of COVID-19 in India. Journal of Development Economics, 153, 102747.
3. Banerjee, A., Alsan, M., Breza, E., Chandrasekhar, A. G., Chowdhury, A., Duflo, E., ... & Olken, B. A. (2020). Messages on COVID-19 prevention in India increased symptoms reporting and adherence to preventive behaviors among 25 million recipients with similar effects on non-recipient members of their communities (No. w27496). National Bureau of Economic Research.
4. Bhattacharya, J., Garber, A. M., & Goldhaber-Fiebert, J. D. (2015). Nudges in exercise commitment contracts: a randomized trial (No. w21406). National Bureau of Economic Research.
5. Campos-Mercade, P., Meir, A. N., Schneider, F., Meier, S., Pope, D., & Wengström, E. (2021). Monetary incentives increase COVID-19 vaccinations, nudges do not. VoxEU. org, 19.
6. De Ridder, D., & Gillebaart, M. (2017). Lessons learned from trait self-control in well-being: Making the case for routines and initiation as important components of trait self-control. Health psychology review, 11(1), 89-99.
7. Dhawan, L., Bhattacharyya, S., & Mukherjee, H. Analysing the Utilisation of Nudge Theory in India's Fight against the COVID-19 Pandemic. International Journal, 1(4).
8. Gerrard, M., Gibbons, F. X., Stock, M. L., Lune, L. S. V., & Cleveland, M. J. (2005). Images of smokers and willingness to smoke among African American pre-adolescents: An application of the prototype/willingness model of adolescent health risk behavior to smoking initiation. Journal of Pediatric Psychology, 30(4), 305-318.
9. Gillebaart, M., & De Ridder, D. T. (2019). Distinguishing between self-control and perceived control over the environment to understand disadvantaged neighbourhood health and lifestyle outcomes. Psychology & health, 34(11), 1282-1293.
10. Gottschalk, L. B., & Ortayli, N. (2014). Interventions to improve adolescents' contraceptive behaviors in low-and middle-income countries: a review of the evidence base. Contraception, 90(3), 211-225.
11. Harrison, J. D., & Patel, M. S. (2020). Designing nudges for success in health care. AMA Journal of Ethics, 22(9), 796-801.
12. Herman, C. P., & Polivy, J. (2005). Normative influences on food intake. Physiology & behavior, 86(5), 762-772.
13. Ince, P., Tai, S., & Haddock, G. (2015). Using plain English and behaviourally specific language to increase the implementation of clinical guidelines for psychological treatments in schizophrenia. Journal of Mental Health, 24(3), 129-133.
14. Johnson, E. J., & Goldstein, D. G. (2004). Defaults and donation decisions. Transplantation, 78(12), 1713-1716.
15. Kallbekken, S., & Sælen, H. (2013). 'Nudging'hotel guests to reduce food waste as a win–win

ISSN 2576-5973 (online), Published by "Global Research Network LLC"
under Volume: 6 Issue: 10 in Oct-2023 https://globalresearchnetwork.us/index.php/ajebm

environmental measure. Economics Letters, 119(3), 325-327.

16. Seah, S. S. Y., Rebello, S. A., Tai, B. C., Tay, Z., Finkelstein, E. A., & van Dam, R. M. (2018). Impact of tax and subsidy framed messages on high-and lower-sugar beverages sold in vending machines: a randomized crossover trial. International Journal of Behavioral Nutrition and Physical Activity, 15, 1-9.
17. Tversky, A., & Kahneman, D. (1974). Judgment under Uncertainty: Heuristics and Biases: Biases in judgments reveal some heuristics of thinking under uncertainty. science, 185(4157), 1124-1131.
18. Tversky, A., Kahneman, D., & Slovic, P. (1982). Judgment under uncertainty: Heuristics and biases (pp. 3-20).
19. Van Gestel, L. C., Kroese, F. M., & De Ridder, D. T. (2018). Nudging at the checkout counter–A longitudinal study of the effect of a food repositioning nudge on healthy food choice. Psychology & health, 33(6), 800-809.
20. V. Ivo, K. Dominic, D. Paul & D. Ara (2016). The theory and practice of "Nudging" changing health behaviors
21. https://csbc.org.in/reports.php
22. https://chti.upenn.edu/default-options-increase-generic-prescribing-rates
23. https://documents1.worldbank.org/curated/ar/704141561618181549/pdf/Using-Behavioral-Insights-to-Increase-Safer-Birth-Deliveries-in-Haiti.pdf
24. https://files.ontario.ca/tbs-behavioural-insights-in-ontario-update-report-en-2020-11-30.pdf

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