



THE ETHICS OF HEALTH-PROMOTING NUDGES

LA ÉTICA DE LOS IMPULSOS (“NUDGES”) QUE PROMUEVEN LA SALUD

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RESUMEN:

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El objetivo del documento es proporcionar una descripción general del conocimiento actual relacionado con la ética de los impulsos (literalmente empujar suavemente, (“nudges”, en inglés) que promueven la salud. Se realiza un análisis narrativo completo de las publicaciones sobre este tema con el objetivo de contribuir a su debate actual. Es difícil determinar si la autonomía de quien decide puede verse afectada por las incitaciones particulares (nudges) o no, ya que la línea de distinción entre las formas cognitivas del razonamiento humano y las formas automáticas de este —es decir, las emociones— permanece borrosa y los diversos tipos de “impulsos” recaen sobre una combinación de dos continuos: uno que va de transparente a no transparente y el otro que va de reflectante a automático. Por lo tanto, es probable que la mayoría de los “empujones” funcionen como influencias no argumentativas que eluden la razón y modifican, así, la autonomía de quien decide. Hay que aceptar que estos “impulsos o incitaciones” producen una alteración de la autonomía (individualista) en un grado proporcional al beneficio incontestable previsto para el paciente. Es posible que el interés del paciente no sea claro o que la incitación promueva más el interés de un tercero (no el de quien decide) o, incluso, el bien común. La ética del impulso no siempre está más allá de toda duda razonable. En tales casos, la parcialidad debe ser lo más mínima posible (es decir, limitarse a empujones o incitaciones transparentes o casi transparentes y que funcionen de manera reflexiva o casi reflexiva). Estas incitaciones o “empujoncitos” pueden usarse por ejemplo contra la pandemia de la COVID-19.

ABSTRACT:

Keywords:

Nudging / nudge(s);
health decision(s);
automatic reasoning;
intuition(s); emotional
nudge(s).

The paper aims to provide an overview of current knowledge related to the ethicality of health-promoting nudges and a further elaboration, particularly in terms of linking the interpretation of the findings of the study and the conclusions adopted. A comprehensive narrative review of literature on the topic of interest was undertaken, aiming to contribute to the current debate on the topic of interest. It is practically hard to determine whether or not the nudgee’s agency will be eroded by the particular nudge because the line of distinction between emotions or automatic ways of human reasoning and cognitive ways of human reasoning remains blurry, and the various types of nudges fall on a combination of two continuums: the one ranging from transparent to non-transparent and the other ranging from reflective to automatic. Therefore, the majority of nudges are *most likely* to work as reason-bypassing nonargumentative influences, thus eroding the nudgee’s agency. It is time to accept a deviation from the strict commitment to the principle of (individualistic) autonomy in degrees proportional to the incontestably anticipated patient’s

benefit. In case that patient's best interest is less than clear or the nudging promotes another individual's best interest (not the decider's one), or even the common good, the ethicality of nudging is not always beyond reasonable doubt. In such cases the deviation should be as minimal as possible (i.e. limited to nudges that are transparent or almost transparent and work reflectively or almost reflectively). Nudging may be used against the COVID-19 pandemic.

1. Introduction

1.1. The definition of nudges

"Nudges are subtle changes to the design of the environment or the framing of information that can influence our behavior"¹. "Libertarian paternalism describes the idea of *nudging*-that is, steering individual decision-making while preserving freedom of choice", namely, appropriately balancing "autonomy and paternalistic beneficence"². It has been well observed by Ubel and Rosenthal that "in recent years, health care leaders have increasingly turned to "nudges" to influence health-related behaviors"³. For instance, "nudges can improve chronic disease self-management"⁴. There may be "potential value of nudges for helping individuals receiving services from behavioral health programs"⁵. Nudges incentivize vaccinations without violating the individual's right to refuse unwanted treatment⁶.

According to the older and most influential definition provided by Thaler and Sunstein 'a nudge... is any aspect of the choice architecture that alters people's behavior

in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid'⁷. Nudges do not change the outcomes of available options or restrict individual's ability to choose⁸.

Niker et al., in line with the definition of Thaler and Sunstein, write that nudges are 'small changes to the environment or 'choice architecture', designed to promote particular welfare-promoting choices without coercively limiting the range of options'⁹. Simkulet writes that a nudge is any influence that is designed and expected to predictably alter a person's behavior without (substantively) limiting their options or giving them reasons to decide otherwise¹⁰.

Hansen et al. write that by the definition provided by Thaler and Sunstein nudges are operationally independent from regulation (i.e. bans), namely, from 'libertarian paternalism'¹¹. While this independence is a formal condition of the definition, it is simply an implication of a later definition provided by Hansen (2016)¹². This is noticed by Hansen et al. who characterize this definition as more 'precise', 'consistent', and 'fundamental'¹³. By this definition 'a nudge is a function of (condition I) any attempt at influencing people's judgment, choice

1 Harrison JD, Patel MS. Designing Nudges for Success in Health Care. *AMA J Ethics*. 2020;22(9):E796-801.

2 Soled D. Public health nudges: weighing individual liberty and population health benefits. *J Med Ethics*. 2020 Oct 30;medethics-2020-106077. doi: 10.1136/medethics-2020-106077. Epub ahead of print. PMID: 33127665.

3 Ubel PA, Rosenthal MB. Beyond Nudges - When Improving Health Calls for Greater Assertiveness. *N Engl J Med*. 2019 Jan 24;380(4):309-311.

4 Möllenkamp M, Zeppernick M, Schreyögg J. The effectiveness of nudges in improving the self-management of patients with chronic diseases: A systematic literature review. *Health Policy*. 2019 Dec;123(12):1199-1209. doi: 10.1016/j.healthpol.2019.09.008. Epub 2019 Oct 2. PMID: 31676042.

5 Nemeč PB, Swarbrick M, Spagnolo A, Brandow CL. Nudges to Support Health and Wellness for Individuals Served by Behavioral Health Programs. *J Psychosoc Nurs Ment Health Serv*. 2021 Jan 1;59(1):21-28. doi: 10.3928/02793695-20201015-03. Epub 2020 Oct 23. PMID: 33095264.

6 Dubov A, Phung C. Nudges or mandates? The ethics of mandatory flu vaccination. *Vaccine*. 2015 May 21;33(22):2530-5. doi: 10.1016/j.vaccine.2015.03.048. Epub 2015 Apr 11. PMID: 25869886.

7 Thaler R.H., Sunstein C.R. *Nudge: Improving Decisions about Health, Wealth, and Happiness*. Revised and Expanded Edition. New York: Penguin Books. 2008. p: 6.

8 Thaler R.H., Sunstein C.R. *Nudge: Improving Decisions... op.cit.*

9 Niker F, Reiner PB, Felsen G. Perceptions of Undue Influence Shed Light on the Folk Conception of Autonomy. *Front Psychol*. 2018; 9: 1400.

10 Simkulet W. Informed consent and nudging. *Bioethics* 2019; 33(1):169-84.

11 Hansen PG, Skov LR, Skov KL. Making Healthy Choices Easier: Regulation versus Nudging. *Annu Rev Public Health*. 2016; 37: 237-51.

12 Hansen P. The Definition of Nudge and Libertarian Paternalism: Does the Hand Fit the Glove? *European Journal of Risk Regulation* 2016; 7(1): 155-74.

13 Hansen PG, Skov LR, Skov KL. Making Healthy Choices Easier...*op.cit.*

or behavior in a predictable way (condition a) that is made possible because of cognitive boundaries, biases, routines, and habits in individual and social decision-making posing barriers for people to perform rationally in their own self-declared interests, and which (condition b) works by making use of those boundaries, biases, routines, and habits as integral parts of such attempts¹⁴.

Furthermore, it is worth noting that Saghai offers an insightful and operational definition of nudges. The author states: 'A nudges B when A makes it more likely that B will , primarily by triggering B's shallow cognitive processes, while A's influence preserves B's choice-set and is substantially non-controlling (i.e., preserves B's freedom of choice)¹⁵. Processes such as 'salience, loss aversion, conformism, akrasia, status quo bias, and so on' are referred to as 'shallow psychological processes'¹⁶.

1.2. Navigating the cognition - intuition divide: The dual-process theories

Vlaev et al. state (citing relevant literature in their paper) the 'dual process' model has been proposed as a theoretical basis for understanding health behaviors¹⁷. Importantly, nudge theory relies on the model of dual process of human reasoning in which people have two types of reasoning. Furthermore, nudges may be emotional nudges. Below, I go into the models of human reasoning.

The so-called dual-process theories of human reasoning have increasingly been developed and received considerable attention throughout the past decades of research in cognitive psychology and science. Dual-process theories (DPT) are based on a popular distinction between intuitive and deliberate judgments that has been developed through years of study in cognitive and social psychology. Dual-process theories of higher cognition have been enjoying much success in literature¹⁸,

including the current. Dual-process theories distinguish two different types of cognitive processes (dual process typology) roughly corresponding to the classical distinction between intuition and deliberation. These two types of reasoning are 'two minds in one brain'¹⁹. In short, 'dual-process theories provide an architecture for the interaction between intuitive (type 1) and deliberate (type 2) thinking'²⁰.

Type 1 processing is automatic, fast, effortless, heuristic, and intuitive. It does not require 'controlled attention'. Type 1 processing enables emotion, impression and experience-based decision making. It is not attention-consuming.

Type 2 is slow, sequential, correlates with measures of general intelligence. It is reflective, stresses cognitive capacity and enables analytic and problem-solving thinking. Two levels of control are associated with the type-2 processing: The algorithmic mind (lower level) and the reflective mind (higher level), namely, the rational thinking dispositions (that tells us about the agent's goals and values). Type 2 processing enables consequential decision-making. Working memory is engaged in type 2 processing.

Default-interventionism (DI) kinds of dual-process theories²¹ seem to dominate in literature against the parallel-competitive theories where both types of processing have their say at the same time.

According to Kahneman, type 1 processing (what he calls system 1) continuously suggests for type 2 processing (what he calls system 2)²². If such a suggestion is endorsed by type 2 it turns into belief and then action. When type 1 processing runs into difficulty (i.e. it cannot give an answer to a question that arose), it calls on type 2 processing. In line with this approach, Evans and Stanovich coined the key concept in the 'default

14 Hansen P. The Definition of Nudge and Libertarian Paternalism...*op.cit.*

15 Saghai Y. Salvaging the concept of nudge. *Journal of Medical Ethics* 2013; 39: 487-93 (489).

16 Saghai Y. Salvaging the concept...*op.cit.*

17 Vlaev I, King D, Dolan, P, Darzi A. The theory and practice of "nudging": changing health behaviors. *Public Administration Review* 2016; 76 (4): 550-61.

18 Osman M. A Case Study: Dual-Process Theories of Higher Cognition-Commentary on Evans & Stanovich. *Perspect Psychol Sci.* 2013; 8(3): 248-52.

19 Evans J.S.B.T. *Thinking Twice: Two Minds in One Brain.* Oxford University Press 2010.

20 Ross BH. Series Page, *Psychology of Learning and Motivation - Advances in Research and Theory* 2014; 61. DOI: 10.1016/B978-0-12-800283-4.09989-5.

21 Evans JS, Stanovich KE. Dual-Process Theories of Higher Cognition: Advancing the Debate. *Perspect Psychol Sci.* 2013;8(3):223-41.; Kahneman D. *Thinking, fast and slow.* New York, NY, US: Farrar, Straus and Giroux. 2011.

22 Kahneman D. *Thinking, fast...op.cit.*

interventionism' kind of dual-process theories 'is that of intervention with reflective (type 2) reasoning on the default (type 1) intuition'²³. Type 2 override processing is used 'to block the attribute substitution of the cognitive miser.' 'Attribute substitution' is 'the substitution of an easy-to-evaluate characteristic for a harder one, even if the easier is less accurate'²⁴.

It is true that default-interventionism kinds of dual-process theories are easily confused with the so-called unimodal theories. Nevertheless, default-interventionism kinds of dual-process theories should be distinguished from continuous processing alone-system alternatives which, as opposed to dual-process theories, are theories that give a unique rule-based explanation for both intuitive and deliberative decisions. These theories argue for continuing processing, thus conflating type 1 and type 2 processes into one entity²⁵. Kruglanski and Gigerenzer argue that they offer convergent arguments and empirical evidence in support of a unified theoretical approach²⁶. The authors argue that not only deliberative judgments but also intuitive judgments are rule-based²⁷. Provided that (in authors' opinion) 'accuracy depends on the match between rule and environment', 'heuristics can be more accurate than cognitive strategies that have more information and computation.' Moreover the authors state 'the task itself and the individual's memory constrain the set of applicable rules'²⁸.

Mugg argues that the two dominate versions of dual-process theories, namely, type 1 processing and type 2 processing are not sharply distinct versions²⁹. Besides, she argues that default-interventionism version is not sharply distinguished from a one-system alternative.

The author sees type 1 processing, type 2 processing and one-system alternative as existing on a continuum, and suggests a flexible one-system alternative, which allows 'the properties used to distinguished Type-1 and Type-2 reasoning to cross-cut one another'³⁰.

Osman in her Commentary on Evans and Stanovich argues that the evidence for the essential defining characteristics of T1 and T2 processing may be taken to support quantitative rather than qualitative distinction between the two kinds of human reasoning³¹. Besides, Osman writes: 'If we look to what causal reasoning involves, mental simulation is often required to play out various scenarios and to imagine hypothetical consequences', and 'high level mental simulation can be achieved with very little processing cost'³². Interestingly, Osman writes that 'it is very likely that future research will show that' higher cognitive functions such as judgment, reasoning, problem-solving 'are built on other multifaceted processes'³³.

It is true that dual-process theories have received strong criticisms, such as the following addressed by Evans and Stanovich (2013):³⁴ There have been provided multiple and vague definitions, there are not discrete types but a continuum of processing styles, there may be offered single-process accounts, there is ambiguous or unconvincing evidence for dual-process theories, proposed attribute clusters are not reliably aligned. Evans and Stanovich have received criticism. For instance, Melnikoff and Bargh are skeptical until more empirical evidence is available³⁵. Moreover, it is argued that assumptions such as those regarding the 'speed of the two processes, have not been rigorously tested, and

23 Evans JS, Stanovich KE. Dual-Process Theories of Higher Cognition: Advancing the Debate...*op.cit.*

24 Evans JS, Stanovich KE. Dual-Process Theories of Higher Cognition: Advancing the Debate...*op.cit.*

25 Kruglanski AW, Gigerenzer G. Intuitive and deliberate judgments are based on common principles. *Psychol Rev.* 2011; 118(1): 97-109.

26 Kruglanski AW, Gigerenzer G. Intuitive and deliberate judgments...*op.cit.*

27 Kruglanski AW, Gigerenzer G. Intuitive and deliberate judgments...*op.cit.*

28 Kruglanski AW, Gigerenzer G. Intuitive and deliberate judgments...*op.cit.*

29 Mugg J. Two Minded Creatures and Dual-Process Theory. *Journal of Cognition and Neuroethics* 2015; 3 (3): 87-112. ; Mugg J. The dual-process turn: How recent defenses of dual-process theories of reasoning fail. *Philosophical Psychology* 2016; 29 (2): 300-9.

30 Mugg J. Two Minded Creatures and Dual-Process Theory. *Journal of Cognition and Neuroethics* 2015; 3 (3): 87-112. ; Mugg J. The dual-process turn: How recent defenses of dual-process theories of reasoning fail. *Philosophical Psychology* 2016; 29 (2): 300-9.

31 Osman M. A Case Study: Dual-Process Theories of Higher Cognition-Commentary on Evans & Stanovich. *Perspect Psychol Sci.* 2013; 8(3): 248-52.

32 Osman M. A Case Study: Dual-Process Theories of Higher Cognition-Commentary on Evans & Stanovich. *Perspect Psychol Sci.* 2013; 8(3): 248-52.

33 Osman M. A Case Study: Dual-Process Theories of Higher Cognition-Commentary on Evans & Stanovich. *Perspect Psychol Sci.* 2013; 8(3): 248-52.

34 Evans JS, Stanovich KE. Dual-Process Theories of Higher Cognition: Advancing the Debate...*op.cit.*

35 Melnikoff DE, Bargh JA. The Mythical Number Two. *Trends Cogn Sci.* 2018; 22(4): 280-93.

the early evidence³⁶ suggests that the situation may be more complex than is often assumed³⁷.

I come back to the two most influential types of human reason processing. It should be stressed that it would be fallacy to assume that type 1 processing is invariably non-normative (ineffective, error, bad), while type 2 processing is invariably normative (effective, optimal response, good). In some circumstances, type 1 processing can lead to right answers and type 2 to biases. Indeed, as Pennycook et al. write, type 2 may come in the form of motivated reasoning that perpetuates biases or cognitive decoupling (and lacks ability to override and correct biases)³⁸.

Automatic processes may be helpful since conscious processes have limited capacity to effectively cope with our complex and ever-changing environment³⁹. Furthermore, it has been arguably suggested (although not yet proven beyond doubt) that unconscious thought (using mere intuitive than deliberate decision-making approach), might produce better decisions when addressing very complex decision-making scenarios⁴⁰.

1.3. Cognitive miserliness

Note, however, that the cognitive miserliness (inherent in human reasoning) may lead to suboptimal outcomes. Levy arguably states that people under various circumstances may be 'systematically bad reasoners', due to 'fallibilities of human reasoning' as 'myopia for the future', 'motivated reasoning' and 'biases' in 'assessing probabilities...exacerbated'⁴¹.

36 Handley SJ, Newstead SE, Trippas D. Logic, beliefs, and instruction: a test of the default interventionist account of belief bias. *J Exp Psychol Learn Mem Cogn*. 2011; 37(1): 28-43; Pennycook G, Thompson VA. Reasoning with base rates is routine, relatively effortless, and context dependent. *Psychon Bull Rev*. 2012;19(3):528-34.

37 Ross BH. Series Page, *Psychology of Learning and Motivation...op.cit*.

38 Pennycook G, Fugelsang JA, Koehler DJ. What makes us think? A three-stage dual-process model of analytic engagement. *Cogn Psychol*. 2015; 80:34-72.

39 Hassin R.R., Uleman J.S., Bargh J.A. (Eds.). *The new unconscious*, in *Oxford series in social cognition and social neuroscience*, ed Hassin R.R., Series editor, New York, NY, US: Oxford University Press. 2005.

40 Bijksterhuis A., Bos M.W., Nordgren L.F., van Baaren R.B. On making the right choice: the deliberation-without-attention effect. *Science* 2006; 311(5763): 1005-1007.

41 Levy N. Forced to be free? Increasing patient autonomy by constraining it. *J Med Ethics* 2014; 40: 293-300.

Importantly, behavioral sciences argue for a strong tendency of people to go with whatever is the default option⁴². People have the tendency (cognitive miserliness) to default to reasoning processes of low computational expense. Such a tendency leads people who are confronted with novel questions to jump to intuitive conclusions that are prompted quickly, automatically and with little effort (type 1 processing). These conclusions are relied on causal connections between events based on memories and associations, which however, may be spurious in certain types of hostile environments, and hence, leading to inappropriate conclusions which fail to meet the goal set. The distinguishing characteristics of what is called 'hostile environment' in the context of human reasoning, based on the relevant literature⁴³ are briefly presented below. Hostile is considered an environment in which there are a few cues that are usable by type-1 processing or there are cues that are misleading or even intentionally presented by other agents to trigger miserly defaults to a decider, thus taking advantage over him. Hostile environment may be the probabilistic reasoning task of judging whether the decision which healthcare setting to join should be based on abstract statistics or experience-based narrative interpretation.

Evans and Stanovich who are interested in higher order cognition processes related to human reasoning, such as judgment and decision-making, state that 'when the decision matters, being a cognitive miser may lead us astray'⁴⁴. These errors (suboptimal outcomes) are due to unsuccessful performance (incorrect responding) on heuristics and biases tasks. However, these errors do not always result from miserly processing. Stanovich goes even further and considers that incorrect responding on heuristics and biases tasks is dependent on stored knowledge (learned knowledge structures, namely, learned 'mindware')⁴⁵. The author

42 Hansen PG, Skov LR, Skov KL. Making Healthy Choices Easier...*op.cit*.

43 Evans JS, Stanovich KE. Dual-Process Theories of Higher Cognition: Advancing the Debate...*op.cit*.

44 Evans JS, Stanovich KE. Dual-Process Theories of Higher Cognition: Advancing the Debate...*op.cit*.

45 Stanovich KE. Miserliness in human cognition: The interaction of detection, override and mindware. *Thinking & Reasoning* 2018; 24(4): 423-44. Advance online publication.

identifies three possible processing defects: 'inadequately learned mindware; failure to detect the necessity of overriding the miserly response; and failure to sustain the override process once initiated'⁴⁶. Interestingly, he argues for a strong dependence between mindware, detection and override. The author states that 'the degree of mindware instantiation is strongly related to the probability of successful detection and override'⁴⁷. On the other hand, optimal outcomes do not always result from computationally expensive cognition.

Note, besides, that De Neys proposes that when people engage in a reasoning task intuitive probabilistic knowledge is activated automatically⁴⁸. Patterson found that 'intuitive cognition dominates human reasoning and decision making in all situations examined'⁴⁹. Bago and De Neys write that their findings suggest that 'fast and automatic Type 1 processing also cues a correct logical response from the start'⁵⁰. However, as Pennycook puts it 'pendulum has swung too far toward intuitionism'⁵¹.

1.4. Emotions

Furthermore, some nudges may be emotional nudges. For instance, in a project of emotional reinforcement for healthy foods effective emotional nudges may be used for making the healthy product more attractive. I go into the role of emotions in decision making.

While emotions are peripheral to decision-making process, they are strongly thought (at both theoretical and empirical level) as playing significant role in decision-making. It is of great importance that emotions and cognitive procedure of decision-making are strictly interwoven. Emotions are not separate from cognition. Sharp distinction between rational and emotional de-

isions would be a false dichotomy. Emotions underpin every aspect of a decision-making process. Without emotional involvement practical thought (judgment) 'knows neither when to start nor when to stop evaluating costs and benefits'⁵², and hence, it may be at a loss as to how to proceed due to the fact that it is in the face of an endless number of potential alternative options. Nonetheless, it is crucial to bear in mind that the specific way in which emotions affect decision-making process remain by and large unknown. They may affect decision-making in substantive or procedural way⁵³. Note, however, that these two ways are overlapping and the distinction between them remains blurred⁵⁴.

Lufityanto et al. argue that non-conscious emotional information can boost accuracy and confidence in a concurrent non-emotional decision task⁵⁵. Nevertheless, emotions can interfere with decision-making⁵⁶. Lerner et al. arguably concluded that 'emotions constitute potent, pervasive, predictable, sometimes harmful and sometimes beneficial drivers of decision making'⁵⁷. Whilst emotions facilitate smooth-running autonomous decision-making processes, they may impede them by affecting the internal consistency between first and second order desires / choices (e.g. in states of phobias or addiction)⁵⁸.

Not surprisingly, health decisions and behaviour often take place in emotionally-laden contexts⁵⁹. Emotions seem to play a crucial role in decision making. Mazzocco et al. put it best in saying that 'emotions (like several other factors, such as, for example, personal knowledge, past experiences, individual differen-

52 de Sousa R. *The rationality of emotion*. Cambridge, MA: MIT Press. 1990.

53 Hermann H., Trachsel M., Elger B.S., Biller-Andorno N. Emotion and Value in the Evaluation of Medical Decision-Making Capacity: A Narrative Review of Arguments. *Front Psychol.* 2016; 7: 765.

54 Hermann H., Trachsel M., Elger B.S., Biller-Andorno N. Emotion and Value...*op.cit.*

55 Lufityanto G, Donkin C, Pearson J. Measuring Intuition: Nonconscious Emotional Information Boosts Decision Accuracy and Confidence. *Psychol Sci.* 2016; 27(5):622-34.

56 Paulus MP, Yu AJ. Emotion and decision-making: affect-driven belief systems in anxiety and depression. *Trends Cogn Sci.* 2012; 16(9): 476-83.

57 Lerner JS, Li Y, Valdesolo P, Kassam KS. Emotion and Decision Making. *Annual Review of Psychology* 2015; 66(1): 799-823.

58 Hermann H., Trachsel M., Elger B.S., Biller-Andorno N. Emotion and Value...*op.cit.*

59 Ferrer R.A., Mendes W.B. (2018) Emotion, health decision making, and health behaviour, *Psychology & Health*, 33:1, 1-16.

46 Stanovich KE. Miserliness in human cognition...*op.cit.*

47 Stanovich KE. Miserliness in human cognition...*op.cit.*

48 De Neys W. Bias and Conflict: A Case for Logical Intuitions. *Perspectives on Psychological Science* 2012; 7(1): 28-38.

49 Patterson RE. Intuitive Cognition and Models of Human-Automation Interaction. *Hum Factors.* 2017; 59(1): 101-15.

50 Bago B, De Neys W. Fast logic?: Examining the time course assumption of dual process theory. *Cognition* 2017; 158: 90-109.

51 Pennycook G (ed). *The New Reflectionism in Cognitive Psychology: Why Reason Matters*. New York, NY: Routledge. 2018. pp: 6-8.

ces) seem to influence the way that options and the surrounding information are interpreted and used⁶⁰.

Emotions may interact with situational factors to improve or degrade health-related decisions⁶¹. Mazzocco et al. found that 'emotion's intensity level' and 'cognitive appraisal' interact in shaping the decision⁶². Low and high levels of anxiety and worry tended to have no effect or a hindering effect on cancer-related decision making, respectively⁶³. Ferrer and Mendes put it best in writing that 'the relative dearth of research focused on how affective states contribute to and influence health decision-making and behaviour is an important gap in the literature'⁶⁴.

Furthermore, in relation to the role of emotions and intuitions in decision making it is worth mentioning that Reyna et al. state: 'Verbatim representations are encoded in parallel with gist and capture the surface form of information.' 'Gist representations support the fuzzy, parallel, usually unconscious processes of intuition.' Besides, the authors write: "'Emotional gist" is a mental representation that incorporates emotion as part of meaning'⁶⁵.

Conclusion: From the above overview of the relevant literature regarding the role of emotions or automatic human reasoning in decision making we can draw the conclusion that the line of distinction between cognitive and automatic ways of human reasoning remains blurry. Moreover, emotions and cognitive procedure of decision-making are strictly interwoven. At any rate, it is crucial to bear in mind that it is also difficult to separate conscious processes from unconscious processes⁶⁶.

60 Mazzocco K, Masiero M, Carriero MC, Pravettoni G. The role of emotions in cancer patients' decision-making. *Ecancelmedscalscience*. 2019; 13: 914.

61 Ferrer, R., Klein, W., Lerner, J. S., Reyna, V. F., Keltner, D. (in press). Emotions and Health Decision-Making: Extending the Appraisal Tendency Framework to Improve Health and Healthcare. In C. Roberto & I. Kawachi (Eds.), *Behavioral economics and public health*. New York, NY: Oxford University Press. 2016. pp: 101-133.

62 Mazzocco K, Masiero M, Carriero MC, Pravettoni G. The role of emotions in cancer patients' decision-making. *Ecancelmedscalscience*. 2019; 13: 914.

63 Mazzocco K, Masiero M, Carriero MC, Pravettoni G. The role of emotions in cancer patients' decision-making. *Ecancelmedscalscience*. 2019; 13: 914.

64 Ferrer R.A., Mendes W.B. (2018) Emotion, health decision making...*op.cit*.

65 Reyna VF, Nelson WL, Han PK, Pignone MP. Decision Making and Cancer. *Am Psychol*. 2015; 70(2): 105-18.

66 Pockett S. Consciousness Is a Thing, Not a Process. *Appl. Sci*. 2017; 7(12): 1248.

In the next section of this paper, I discuss the ethics of the use of nudges in health decision contexts. For the purposes of this paper the notion 'patient' is broadly understood, namely, in the context of health care where the notion health is conceived in the broad sense of the term (that is to say positively-holistically, so that it can hardly be distinguished from the notion of well-being).

2. Discussion

2.1. The ethicality of nudges

Nudges raise some ethical concerns. At first blush, it is raised the important question whether physician nudging may promote or instead always undermines patient's well-being and autonomy. Nudges, such as setting defaults, may 'push' decision-makers to make one choice rather than another through non-argumentative reason-bypassing procedures. That is to say that nudges may undermine an agent's autonomy because they undermine the extent to which an agent's preferences are ones that she has decided upon for herself. For instance, nudges are not ethically problematic if they benefit nudgees by positively affecting their reflective choice making capabilities. However, nudges may be ethically problematic if they work by circumventing nudgee's reflective capabilities⁶⁷. Nudges may induce erosion of agent's deliberative processes⁶⁸, thus employing reason-bypassing nonargumentative influence on autonomous decision-making capacity⁶⁹, especially when conceptualizing autonomy as self-governance⁷⁰. Importantly, it is argued that nudging does not equally corrupt all agents' deliberative functions because it is a matter of agency⁷¹.

67 Busch J, Madsen EK, Fage-Butler AM, Kjær M, Ledderer L. Dilemmas of nudging in public health: an ethical analysis of a Danish pamphlet. *Health Promot Int*. 2020 Dec 26;daaa146. doi: 10.1093/heapro/daaa146. Epub ahead of print. PMID: 33367635.

68 Robichaud P. Getting Degrees of Wrongness Right: Nudges and Value of Agency. *Am J Bioeth*. 2016; 16(11): 28-30.

69 MacKay D, Robinson A. The Ethics of Organ Donor Registration Policies: Nudges and Respect for Autonomy. *Am J Bioeth*. 2016; 16(11): 3-12.

70 uradzki T, Marchewka K. Organ Donor Registration Policies and the Wrongness of Forcing People to Think of Their Own Death. *Am J Bioeth*. 2016; 16(11): 35-7.

71 Robichaud P. Getting Degrees of Wrongness...*op.cit*.

Nudges may employ reason-bypassing nonargumentative influence on nudgee's deliberative processes, thus inducing erosion of nudgee's agency. However, the degree to which a particular nudge is problematic due to the fact that it induces erosion of nudgee's agency varies. The degree to which the agent's decision-making is affected by the nudge depends on the way by which the nudge works. The agent may invest much of their (eroded) agency in making a particular decision. However, the decision may remain non autonomous on the majority of the accounts of autonomy. Furthermore, the agency of a patient may be impaired by the disease itself. The conceptualization of (relational) autonomy as a standalone notion is inescapable task when considering the use of nudges in patients' decision-making process. It should be included in any further research into the topic. In connection to this consideration it is to be highlighted that nudges may be used for encouraging or discouraging certain impulsive health-related behaviors. Note, however, that strong impulses may act as impediments of autonomy on any account of it. There may be impulses that are strongly motivated or based on intuition, or even based on conformity-based biases, thus keeping agent's preferences never cultivated and hence, making agent move toward a goal in the conviction that 'doing so is the norm.' As it is presented below, in this paper it is suggested that a degree of deviating from the strict commitment to the principle of autonomy should be accepted in the context of bioethics.

Below, a brief overview of the relevant literature on the topic is presented. Hence, it is important to distinguish between those decision-makers who respond to nudges (nudge-sensitive) and those who do not⁷². Besides, similar nudges are likely to not equally affect all nudged individuals for a relational reason coined by Niker et al.⁷³. The authors provide a new construct, pre-authorization. If two individuals, the nudger and the nudged share the same basic type of worldview the

nudge may be perceived as more welcome. The filer that the certain nudged individual applies to information deriving from the certain nudger (whom Niker et al. call preauthorized agent) is relaxed and makes it easier for him to influence the decision-making process of the nudged individual. This assumption highlights the relational dimension of nudging and implicates that the autonomy of the nudged individual should be conceived as relational autonomy, and this is important when considering the ethical plausibility of nudging.

Not surprisingly, nonargumentative influences are all around us. More specifically, in the context of clinical practice there are several unintentional non-rational influences on patients' decision making (which have been regarded by Miyata – Sturm (2019) as 'neglected cousins' of nudges⁷⁴) that happen constantly as physicians bump their patients. Such environmental influences may intrude but not restrict a person's autonomy since they may influence but not persuade her⁷⁵. Strong-willed agents are probably more resilient to nonargumentative influences. The will of an agent will plays a crucial role in establishing an individual's autonomy conceived as self-governance. Fischer, who shares this account of autonomy, states that 'the more robust notion of autonomy is inconsistent with weakness of the will.' Note, besides, that in certain contexts 'active choosing and personal agency are essential' and 'certain kinds of losses must occur only after an explicit expression of a person's will'⁷⁶. The strength of an agent's will (conceived as the ability to do otherwise) is a matter of degree. For instance, it may depend on the power of one's motives to which one may become a simple bystander. Importantly, the degree of external impacts on one's agency that are considered ethically acceptable vary considerably and may range across a continuum. In the literature regarding the use of nudges to make better health-affecting decisions it is noticeable that Saghai subtly distinguishes between choices that are 'so fundamental for leading a self-determining life that

72 Goldin J. Which way to nudge? Uncovering Preferences in the Behavioral Age. *Yale Law Journal* 2015; 125(1): 226-70.

73 Niker F, Reiner PB, Felsen G. Perceptions of Undue Influence Shed Light on the Folk Conception of Autonomy. *Front Psychol.* 2018; 9: 1400.

74 Miyata-Sturm A. Blameworthy bumping? Investigating nudge's neglected cousin. *J Med Ethics.* 2019; 45(4): 257-64.

75 Sunstein CR. Autonomy by Default. *Am J Bioeth.* 2016a; 16(11): 1-2.

76 Sunstein CR. *Autonomy...op.cit.*

they ought to be as fully noncontrolled by others as possible' and those that are not so fundamental for it⁷⁷.

During the process of informed consent in the clinical context physicians may knowingly influence patient decision making through means other than argument and reasoning, that is, through 'nudges'⁷⁸. Physicians may 'try to nudge their patients towards consenting to the option the physician believes best'⁷⁹. A range of unconventional physician communication instruments ('nudges') may be used to shape patients' voluntary choices in order to lead them to the option the physicians most prefer. Physicians may be influential in getting patients to opt for the option they believe best, thus hindering their ability to make healthcare decisions that are irrational from the perspective of physicians. This involves a kind of medical paternalism. The use of nudges founded in libertarian paternalism is said to be beneficial and necessary for effectively promoting patient's personal autonomy through informed consent⁸⁰. Notwithstanding, it is argued that 'nudging is incompatible with obtaining informed consent'⁸¹ through which personal autonomy of decider is adequately protected. Simkulet argues that 'nudging is incompatible with genuine informed consent, as it violates a physician's obligation to tell their patients the truth, the whole truth, and nothing but the truth during adequate disclosure'⁸². This seems to be a weak argument in the modern context of informed consent where authors shift the focus from information towards the communication and interactive relationships between patients and physicians or other healthcare workers, implicating that more information does not mean better decision⁸³. Besides, it is crucial to bear in mind that physician's nudging may not reveal 'indi-

ference to how things really are'⁸⁴ but intention 'to enhance patient understanding at the same time they try to influence patients' choices'⁸⁵.

Who speaks about paternalism should bear in mind that physician nudging is not designed to pass physician's values on to a patient but to serve a patient's best interest which, however, the particular patient may not be able to fully understand or appreciate from their own perspective insofar as they cannot fully understand and appreciate things such as their accurate situation, the exact nature of their illness or the available treatments or the possible risks. Besides, due to inherent human fallibilities some people may overestimate their personal immunity from harm, thus running risks because of unrealistic optimism. These people might be able to benefit from a nudge⁸⁶. Nudges may be regarded as a promising tool to assist patients in preventing cognitive errors, correct their individual biases and thus shifting their decisions to ones more consistent with their best interest. Nudging may be successful to a greater extent compared to other strategies to influence patient's choices. Dual-process theories may enable us to design nudging strategies. Nudges⁸⁷ and other strategies based on dual-process theories⁸⁸ may be used to correct individual biases and assist patients in navigating their own decision-making processes, preventing cognitive errors or correcting their individual biases, and finally making decisions that are aligned with their true values, beliefs, goals and preferences. In the context of economics it has been argued that little nudge may lead to better decisions⁸⁹. Beshears et al. argue that simple changes to defaults can tackle people's failures and hence, can

77 Saghai Y. *Salvaging the concept...op.cit.*

78 Simkulet W. *Nudging, informed consent and bullshit.* *J Med Ethics* 2018; 44(8): 536-42.

79 Simkulet W. *Nudging, informed consent...op.cit.*

80 Ploug T, Holm S. *Doctors, Patients, and Nudging in the Clinical Context--Four Views on Nudging and Informed Consent.* *Am J Bioeth.* 2015; 15(10): 28-38.

81 Simkulet W. *Informed consent...op.cit.*

82 Simkulet W. *Informed consent...op.cit.*

83 Milligan E, Jones J. *Rethinking Autonomy and Consent in Healthcare Ethics.* In: Clark P.A. (Ed.) *Bioethics - Medical, Ethical and Legal Perspectives.* London: Intech Open; 2016. pp: 21-38.

84 Frankfurt HG. *On Bullshit.* Princeton: Princeton University Press. 2005.; Frankfurt HG. *On Truth.* N. York: Knopf. pp: 15-35. 2006.

85 Blumenthal-Barby JS, Ubel PA. *Truth be told: not all nudging is bullshit.* *J Med Ethics* 2018; 44(8): 547.

86 Thaler R.H., Sunstein C.R. *Nudge: Improving Decisions...op.cit.*

87 Blumenthal-Barby JS, Cantor SB, Russell HV, Naik AD, Volk RJ. *Decision aids: when 'nudging' patients to make a particular choice is more ethical than balanced, nondirective content.* *Health Aff (Millwood).* 2013; 32(2):303-10.

88 Evans JS, Stanovich KE. *Dual-Process Theories of Higher Cognition: Advancing the Debate...op.cit.*; Stanovich KE. *Miserliness in human cognition...op.cit.*

89 Thaler R.H., Sunstein C.R. *Nudge: Improving Decisions...op.cit.*

dramatically improve their decisions⁹⁰. Communication strategies and communication nudges might be used in the context of informed consent, aiming at activating and empowering a patient who is engaged in a shared medical decision making, thus helping them become fully engaged in their own decision⁹¹. Managing the alignment between a patient's decision and their true values, preferences, emotions and goals is something that apparently serves their best interest. Hence, the use of nudges in this perspective is not only desirable, but also ethical and publicly acceptable.

Avitzour writes that physicians and patients may consider the nudging towards 'healthy behavior and better health-related choices' from different point of view⁹². This may weaken the argument that nudging can be used in making healthful choices easier and unhealthful choices more difficult. Besides, it may suggest limitations for using nudges in medical decisions. Fridman et al. explored the perspectives of key stakeholders (in medical decision making context) on using communication nudges in physician-patient relationships. They conducted an experimental study among non-clinicians and resident-physicians⁹³. They found that these stakeholders support 'the use of nudges by physicians to promote choices that are intended to serve patients' best interest,' even in complex, end-of-life decision making where there is a less clear 'best choice' for patients⁹⁴. The authors conclude that further research is needed to explore stakeholders' perspectives when nudges are 'applied to actual clinical settings and examine the effects of nudges on choices and patient outcome'⁹⁵.

Moreover, as Helfrich et al. argue, dual-process theories of human reasoning may enable us to design strategies to 'de-implement ineffective and harmful clinical practices' and 'avoid the unintended consequence of psychological reactance'⁹⁶. The authors state: 'We will need to consider how 'de-implementation strategies at different levels can be designed synergistically with unlearning and/or substitution strategies'⁹⁷.

Nudging may be used in promoting healthier choices. Further research is needed with regard to understanding the use nudging in making healthful choices easier and unhealthy ones more difficult⁹⁸. Friis et al. provide such a study by comparing three nudge interventions (priming, default option and perceived variety) to promote healthier eating behavior⁹⁹.

Physician's nudging can be viewed as ethically plausible for the sake of the patient's beneficence, provided that in the context of modern medical ethics the principle of beneficence (and solidarity) has been enhanced, especially when the relation between the individual and the community is highlighted (i.e. when a communitarian approach is adopted). It is worth noting that in modern bio-medical ethics the predominant role of the principle of autonomy tends to be somehow in decline due to the fact that it has been realized that excessive (perhaps obsessive) commitment to autonomy hinders healers' ability to benefit their patients and researchers' ability to promote beneficence in terms of finding new medicaments.

The use of nudges gives rise not only to ethical, but also to policy concerns. It may be seen as manipulative or giving the state or technocrats an opportunity for

90 Beshears J, Choi JJ, Laibson D, Madrian BC. How Are Preferences Revealed? *J Public Econ*. 2008; 92(8-9): 1787-94.

91 Ubel PA, Scherr KA, Fagerlin A. Empowerment Failure: How Shortcomings in Physician Communication Unwittingly Undermine Patient Autonomy. *Am J Bioeth*. 2017; 17(11): 31-9.

92 Avitzour D, Barnea R, Avitzour E, Cohen H, Nissan-Rozen I. Nudging in the clinic: the ethical implications of differences in doctors' and patients' point of view. *J Med Ethics*. 2019; 45(3):183-9.

93 Fridman I, Hart JL, Yadav KN, Higgins ET. Perspectives on using decision-making nudges in physician-patient communications. *PLoS One*. 2018; 13(9): e0202874.

94 Fridman I, Hart JL, Yadav KN, Higgins ET. Perspectives on using decision-making nudges...*op.cit*.

95 Fridman I, Hart JL, Yadav KN, Higgins ET. Perspectives on using decision-making nudges...*op.cit*.

96 Helfrich CD, Rose AJ, Hartmann CW, van Bodegom-Vos L, Graham ID, Wood SJ, et al. How the dual process model of human cognition can inform efforts to de-implement ineffective and harmful clinical practices: A preliminary model of unlearning and substitution. *J Eval Clin Pract*. 2018;24(1):198-205.

97 Helfrich CD, Rose AJ, Hartmann CW, van Bodegom-Vos L, Graham ID, Wood SJ, et al. How the dual process model of human cognition...*op.cit*.

98 Hansen PG, Skov LR, Skov KL. Making Healthy Choices Easier...*op.cit*.

99 Friis R, Skov LR, Olsen A, Appleton KM, Saulais L, Dinnella C, et al. Comparison of three nudge interventions (priming, default option, and perceived variety) to promote vegetable consumption in a self-service buffet setting. *PLoS One*. 2017 May 31;12(5):e0176028. doi: 10.1371/journal.pone.0176028. eCollection 2017.

exercising more invisible power or abuse of power, respectively¹⁰⁰. Note, however, that the use of tools such as nudges may aim not only to yield patient benefit (in the nudged individual's best interest, i.e. in the contexts of a shared medical decision making or creating behavioral changes such as making healthful choices easier and unhealthy choices more difficult), but also to yield public health benefit (thus serving the idea of solidarity and common good i.e. in the contexts of organ donor registration or donation of biological material to research bio-banks). For instance, in the context of the opt-out system where the intended change of behavior does aim to yield public health benefit, the use of nudges should aim at affecting organ donor registration rates. Nudges might correct individual bias (i.e. status quo, conformity-based or loss aversion biases) and prevent cognitive errors (bias-based or not) that (in some categories of potential donors as anticipated above) disrespect a potential organ donor's autonomy. However, these nudges should be respectful of nudged peoples' autonomy to the greatest possible extent. Public health ethics requires balancing protection for individual autonomy against the public good. Note, however, that MacKay and Robinson arguably state that 'the use of nudges in this context is morally problematic. It is disrespectful of people's autonomy to take advantage of their cognitive biases since doing so involves bypassing, not engaging, their rational capacities'¹⁰¹. In this respect, I suggest that nudges which according to the conceptual framework coined by Hansen, Skov and Skov (2016)¹⁰² are (to a great extent or fully) transparent and reflective might be used without interfering with the engagement of the nudged individual's rational capacities. Engelen proposed ethical criteria for health-promoting nudges according to which in case-by-case analysis nudges are more legitimate the more a) endorsed and consented by nudgees, b) based on people's reflective preferences, c)

easily resistible, as well as d) the more nudgees actually value health, and e) the bigger the health benefits they predictably generate¹⁰³. The author of this paper proposes that in case of other-regarding health-promoting nudges, the following criteria should join the aforementioned Engelen's criteria: nudges are more legitimate the more reflective and nontransparent they are. As to nudges which along the continuum represented by the aforementioned conceptual framework offered by Hansen, Skov and Skov (2016)¹⁰⁴ are not situated close to its extremes 'reflective' and 'transparent', a case-by-case investigation is needed for assessing the efficacy and ethicality of the use of these nudges. However, this suggestion may not be beyond question, for the following reasons. It is argued that people believe that if conscious processing is involved the resulting decisions reflect the decider's own agency and hence, these decisions are more authentic¹⁰⁵. However this is not always the case. For instance, when people want help or are aware that they were suffering from a problem of self-control, they may be equally favorable to conscious and unconscious ways of reasoning¹⁰⁶. As Bijksterhuis et al. put it, 'contrary to conventional wisdom, it is not always advantageous to engage in thorough conscious deliberation before choosing'¹⁰⁷. In light of this assumption and given the truth of the above exhibited assumption that automatic or unconscious reasoning may result in right decisions, the ethical acceptability of the use of nontransparent and intuitively working nudges (of which the nudged individual is not aware) aiming to yield public health benefit cannot be ruled out.

Moreover, it should be highlighted the use of other strategies aiming at sharpening potential donors' rational capacities, i.e. enhancing the algorithmic mind that

100 Hansen PG, Skov LR, Skov KL. Making Healthy Choices Easier...*op.cit.*

101 MacKay D, Robinson A. The Ethics of Organ Donor Registration Policies: Nudges and Respect for Autonomy. *Am J Bioeth.* 2016; 16(11): 3-12.

102 Hansen PG, Skov LR, Skov KL. Making Healthy Choices Easier...*op.cit.*

103 Engelen B. Ethical Criteria for Health-Promoting Nudges: A Case-by-Case Analysis, *The American Journal of Bioethics* 2019; 19(5): 48-59.

104 Hansen PG, Skov LR, Skov KL. Making Healthy Choices Easier...*op.cit.*

105 Felsen G, Castelo N, Reiner PB. Decisional enhancement and autonomy: Public attitudes towards overt and covert nudges. *Judgment and Decision Making* 2013; 8(3): 202-13.

106 Sunstein CR. *The Ethics of Influence: Government in the Age of Behavioral Science.* Cambridge University Press. 2016 b. pp: 144.

107 Bijksterhuis A., Bos M.W., Nordgren L.F., van Baaren R.B. On making the right choice...*op.cit.*

plays crucial role in correcting biases and cognitive errors according to the dual-process theories model provided by both Evans and Stanovich (2013)¹⁰⁸ and Stanovich (2018)¹⁰⁹, and raise awareness of their motivations that may give rise to cognitive errors such as motivated reasoning that perpetuates biases or cognitive decoupling.

Nevertheless, the line of distinction between beneficial and consent-invalidating nudging is blurry. At any rate, it is true that the defense of nudges is less than perfect. Claims such as the following: our choices are always being influenced by our environment and nudges do not limit the set of choices of a nudged individual are valid¹¹⁰, but do not rule out that the agency of a nudged individual may be unacceptably impaired by nudges. As Hansen et al. write in the context of registering for organ donation, while an opt-out system might facilitate the registration of those individuals who want to be registered (their status quo bias may move them towards becoming potential donors), it might negatively affect those who are not willing (their status quo bias may deter them from declaring their preference)¹¹¹.

2.2. A conceptual framework for nudges

Interestingly, Hansen et al. provide a conceptual framework for assessing the ethical acceptability of nudges¹¹². They start from the consideration that nudges target both reflective choices and 'automatic kinds of behavior' and, hence, their implications to the individuals targeted by nudges vary considerably. The authors provide a conceptual framework to classify the types of nudges by combining two continuums: the one ranging from transparent to nontransparent (regarding 'manipulation') and the other ranging from reflective to automatic (regarding 'ascribed responsibility'). Importantly, the authors highlight that the assumption that 'nudges work best in the dark' is not true. They arguably state

that transparency 'may operate as an ethical filter' since it allows targeted individuals to check the alignment between the nudge and their best interest.

2.3. Reconsidering the autonomy of the person who is nudged

As is the case with several types of environmental influences on people's autonomy, nudging may or may not qualify as impediment to the current autonomy of the person who is nudged, on any account of it. From the perspective of the individualistic concepts of autonomy (namely, the post-Kant ones), that is to say that nudging may invalidate a person's autonomy when the authenticity and/or independence of the particular person is limited beyond a certain extent. This varies by the account of autonomy and the distinct mechanism by which a particular nudge affects the decision making process. In the author's opinion, the following considerations undergird the ethicality of nudges in making better health decisions:

In modern medical ethics it is time to reconsider the 'triumph' of autonomy, namely, the central and dominant position that autonomy has been holding over the last decades in the context of medical ethics. The belief that patient's autonomy reflects his or her independency and authenticity in reality is an illusion. A patient has limited or very limited medical knowledge, is under several types of environmental influences as well as a state of stress and anxiety and perhaps a state of unhomelike-being-in-the-world (from a phenomenological viewpoint)¹¹³. Hence, a patient can understand and appreciate only a part of the information provided in a short timeframe. Furthermore, in the clinical context a patient rarely is provided with adequate, concise, clear and unbiased information. Besides, a patient rarely becomes fully (with his or her values, emotions, preferences and beliefs) engaged in the decision-making procedure that regards his or her treatment¹¹⁴. The assump-

108 Evans JS, Stanovich KE. Dual-Process Theories of Higher Cognition: Advancing the Debate...*op.cit.*

109 Stanovich KE. Miserliness in human cognition...*op.cit.*

110 Thaler R.H., Sunstein C.R. Nudge: Improving Decisions...*op.cit.*

111 Hansen PG, Skov LR, Skov KL. Making Healthy Choices Easier...*op.cit.*

112 Hansen PG, Skov LR, Skov KL. Making Healthy Choices Easier...*op.cit.*

113 Svenaeus F. Illness as unhomelike being-in-the-world: Heidegger and the phenomenology of medicine. *Med Health Care Philos.* 2011; 14(3): 333-43.

114 Ubel PA, Scherr KA, Fagerlin A. Empowerment Failure...*op.cit.*

tion that patient's autonomy keeps a check on medical (professional) authority is an illusion¹¹⁵. Moreover, the strict adherence to patient's autonomy undermines primarily the trust between patient and physicians, which is necessary for good medical practice¹¹⁶. Besides, it undermines the trust between patient and healthcare system, health providers' professional associations and the state. Moreover, it exculpates the state, healthcare system, health providers and society by passing on the ultimate responsibility onto patients. Already, in the context of modern bioethics there is a tendency of deviating from the strict commitment to the rule of informed consent for the sake of beneficence, solidarity and public health interest (i.e. opt out system for organ donation, donor's broad consent to secondary and initially unforeseeable research with his or her biospecimen and data in the context of research biobanks). Moreover, it seems reasonable that some authors shift the focus from the consent that is informed to the greatest extent possible towards the interaction and communication, which is highlighted as the central notion in the relationship between health providers and patient¹¹⁷. Autonomy should not be conceptualized either as an instrument serving the purposes of a 'consumerist' (I borrow this description from O'Neill) world (where autonomy is conceptualized in a minimalist way as being almost identical to formalistic informed consent), or as an individualistic concept (conceived in an ideal philosophical way) of perfect independence and authenticity which, however, in the real world is an utopia. In the real context of clinical ethics where the principles of beneficence, solidarity, responsibility and trustworthiness are highlighted, the ultimate rationale for showing respect for patient's (as anyone's other than a patient) autonomy is primarily to promote his or her well-being which may be regarded as identical to the concept of health (broadly, namely, holistically and positively understood). A context of me-

dical ethics that places clear and considerable emphasis on the principle of beneficence ought to enhance vulnerable patients' capacity for making better treatment decisions even if this entails a degree of deviation from the rule of autonomy (rigorously understood). There are some examples drawn from clinical ethics where (under the particular circumstances) the specific weight of the principle of beneficence is greater than the specific weight of the principle of autonomy. For instance, this is the case in the context of informed consent where the provided information is not 'full' but 'adequate', thus serving the purpose of patient's best interest (health-related benefit). Moreover, this is the case with the use of nudges for making better health decisions, when a) the anticipated health benefit is incontestable and the patient's best interest is clear, b) the role of autonomy in clinical ethics has been acceptably reconsidered, and c) it is practically extremely difficult (for reasons anticipated above) to determine whether or not the nudgee's agency will be eroded by the particular nudge. It would be a serious violation of patient rights to deny the use of beneficial nudges in clinical contexts for the sake of the triumph of autonomy (individualistically understood) in bioethics. Further empirical and analytical research is needed to explore whether O'Neil (2002)¹¹⁸ put it best in saying that non individualistic Kantian autonomy would greatly increase trust in the relationships between patient and physicians (micro-level), institutions (meso-level) and government policy makers (macro-level). Indeed, it is likely that in a democracy institutions and government policy makers deserve greater trust.

2.4. Patients are particularly vulnerable when making treatment decision

Patients need help in making decisions about their medical treatment. Patients are individuals that are likely to be constrained from becoming fully engaged in their own decision-making with regard to their medical treatments and from making decisions that are in line with their best interest. Their power over their

115 O'Neill O. *Autonomy and Trust in Bioethics*. Cambridge: Cambridge University Press. 2002.

116 O'Neill O. *Autonomy and Trust in Bioethics*. Cambridge: Cambridge University Press. 2002.

117 Milligan E, Jones J. Rethinking Autonomy and Consent in Healthcare Ethics. In: Clark P.A. (Ed.) *Bioethics - Medical, Ethical and Legal Perspectives*. London: Intech Open; 2016. pp: 21-38.

118 O'Neill O. *Autonomy and Trust in Bioethics*. Cambridge: Cambridge University Press. 2002.

thoughts as well as their ability to correct their individual biases and prevent their cognitive errors may be impaired due to a number of distinct factors, situational or not.

Often a patient engaged in shared decision-making has to balance burdens and benefits under uncertainty and stress¹¹⁹ i.e. in case of a recent diagnosis of cancer. It is arguably stated that high levels of anxiety and worry may be factors hindering effective decision making in the context of oncology¹²⁰. Requarth states: 'The patient's frailty, delirium and/or dementia, and end-of-life concerns and expectations can make informed consent a difficult task'¹²¹. Seriously ill patients are most likely to be put under the 'cognitive burden' of making choices between options going along with overwhelming information which cannot fully understand and process appropriately. Besides, a patient may have to cope with strong negative emotions in case of unavailable options of radical treatment. These conditions may take up the brain bandwidth of a patient, thus limiting it severely. Note, besides, that the state of illness itself is an unfamiliar to patient event¹²² that causes worry, anxiety and intrusive negative thoughts, thereby taking up cognitive and evaluative bandwidth (thus severely limiting it) that allows patients to reason and keep focusing throughout the decision-making process on their pattern of values that are closely allied to their identity. It is to be stressed that when a patient has to make a complex and difficult decision may be in continuous decision making that may send his or her mind into mind fatigue, thus hindering his or her overall cognitive functions.

Jecker and Ko put it best in saying that 'a person's power over their thoughts' may be thought of as falling along a continuum in the between 'the ordinary

authority people exercise' and the 'internal and external constraints' that adversely affect such authority¹²³. Patients diagnosed with a medical problem that requires very expensive treatment who live in a country with an investor-owned healthcare system may be forced to choose between their financial status and their health. When an individual is forced to do something, he or she is less able to exert self-control because of depletion of his or her cognitive resources (ego depletion effect). Interestingly, it is argued for a domain-specific conception of the ego depletion effect, which however, is strongly affected by individual differences¹²⁴. In addition, time and costs constraints limit the quality and quantity of the information that is available to us (Simon's, bounded rationality)¹²⁵. Time and cost constraints may be inescapable for a patient in the context of 'for-profit' healthcare systems. In that connection, it must be noted that Chugh and Bazerman suggest that people fail to notice obvious and important information that is available to them¹²⁶. Besides, there is small amount of information in our usable memory.

In terms of dual-process theories, illness may weaken the Type-2 processing of reasoning. For these reasons, patients might be thought of as being constrained from being aware of and from navigating their own values, beliefs and emotions, namely, from giving insight into their situation by using their self-exploration (where the relationship between awareness and introspective attention matters) and hence, from having active role in a shared decision making regarding their medical treatment. Hence, they are constrained from becoming fully engaged in their decision-making procedure that affects their medical treatment as well as from correcting their individual biases and preventing cognitive

119 Starcke K, Brand M. Effects of stress on decisions under uncertainty: A meta analysis. *Psychological Bulletin* 2016; 142(9): 909-33.

120 Mazzocco K, Masiero M, Carriero MC, Pravettoni G. The role of emotions in cancer patients' decision-making. *Ecanccermedicallscience*. 2019; 13: 914.

121 Requarth JA. Informed Consent Challenges in Frail, Delirious, Demented, and Do-Not-Resuscitate Adult Patients. *J Vasc Interv Radiol*. 2015; 26(11): 1647-51.

122 Pellegrino ED. Toward a reconstruction of medical morality. *Am J Bioeth*. 2006; 6(2): 65-71.

123 Jecker NS, Ko AL. Is that the Same Person? The Problem of Identity Following Neurosurgical Interventions. *AJOB Neuroscience* 2017; 8(3): 160-70.

124 Dang J. Commentary "A multi-lab pre-registered replication of the ego-depletion effect". *Front. Psychol*. 2016; 7: 1155.; Dang J, Dewitte S, Mao L, Xiao S, Shi Y. Adapting to an initial self-regulatory task cancels the ego depletion effect. *Conscious. Cogn*. 2013; 22: 816-21.

125 Bazerman MH, Moore DA. *Judgment in Managerial Decision Making*, 8th Edition. Wiley Global Education. 2012.

126 Chugh D. and Bazerman M.H. Bounded awareness: what you fail to see can hurt you. *Mind and Society* 2007; 6 (1), 1-18.

errors (based on individual biases or not), thus making decisions consistent with their best interest. However, the best interest of an individual is not always clear. Thaler suggests that our immediate motivations are often inconsistent with our long-term interest, in a variety of ways¹²⁷. Our self-interest is bounded such that we care about the outcomes of others. In addition, in ethically challenging situations such as the end-of-life ones, the best interest of the patient may be less of clear. At any rate it should be highlighted that hyper-cognitive functions, namely, perfect understanding and appreciation of the information provided are not necessarily requirements for decision-making capacity. Friedman states that 'autonomous choice...does not need to be highly deliberate or deliberated'¹²⁸.

While patients' power over their thoughts as well as their ability to correct their individual biases and prevent their cognitive errors may be impaired, their ability to make autonomous decisions may be regarded as based on their values and emotions. The definition of relevant criteria of decision making capacity may be concerned in terms of values and emotions. However, nudges or unconscious influences of the environment in the patient's making decisions may erode the patient's ability to make autonomous decisions. It is true that manipulation of emotions is being used sometimes. Therefore, the principle of beneficence does not always justify the use of whatever means to achieve healing. However, there may be compatibility between the nudges or unconscious influences of the environment in the patient's making decisions and the principle of autonomy. In this paper it is suggested that the use of nudges to achieve better health may be justified by the principle of beneficence when the three following conditions are concurrently met: a) the anticipated health benefit is incontestable and the patient's best interest is clear, b) the health benefit is traditionally understood, namely in the strict sense of the term "health", and c) the patient is able to organize their core values

and find a balance between extreme emotions, namely has practical wisdom, even if their cognitive functions are less than perfect. In these conditions, the expected health-related benefit overrides the possibility of eroding patient's decision making competence. Note that the vast majority of patients have practical wisdom. The ability of patients with mental disorders to organize their core values, find a balance between extreme emotions, and enact their core values and emotions in what they consider a good and meaningful personal life has been proposed as the criterion for having practical wisdom, which might be a reliable criterion for assessing these patients as decision-making competent¹²⁹.

2.5. *Nudging in the battle against the COVID-19 pandemic*

In case of promoting another individual's best interest (not the nudgee's one), or even the common good, the ethicality of nudging is not always beyond reasonable doubt. However, in the special circumstances because of the COVID-19 pandemic the ethicality of common good-promoting nudging may often be beyond reasonable doubt. The principle of nonmaleficence may sometimes be taken to be a reason for moral obligation to get vaccinated against COVID-19 (aiming to contribute to creating "herd immunity" or reduce one's chances of being infected or spreading COVID-19)¹³⁰. Furthermore, as fair contribution to the "public good" of herd immunity is compulsory, fairness may also be taken to be a reason for moral obligation to get vaccinated against COVID-19 even if herd immunity has already been created¹³¹. However, as the widely accepted in public health ethics principle of "least restrictive alternative"¹³² calls for the implementation of the less restrictive polices (including nudging polices) to

129 Widdershoven GAM, Ruissen A, van Balkom AJLM, et al. Competence in chronic mental illness: the relevance of practical wisdom *Journal of Medical Ethics* 2017; 43:374-378

130 Giubilini A. Vaccination ethics. *Br Med Bull.* 2020 Dec 26: ldaa036. doi: 10.1093/bmb/ldaa036. Epub ahead of print. PMID: 33367873; PMCID: PMC7799313 Giubilini, 2020.

131 Giubilini A. Vaccination ethics...*op.cit.*

132 Childress JF, Faden RR, Gaare RD, Gostin LO, Kahn J, Bonnie RJ, Kass NE, Mastroianni AC, Moreno JD, Nieburg P. Public health ethics: mapping the terrain. *J Law Med Ethics.* 2002 Summer;30(2):170-8.

127 Thaler RH. From Homo Economicus to Homo Sapiens. *Journal of Economic Perspectives* 2000; 14 (1): 133-41.

128 Friedman M. *Autonomy, Gender, Politics.* New York, NY: Oxford University Press. 2003. pp: 8, 10.

immunize the minimum percentage of population required for herd immunity, before making the vaccination compulsory¹³³. Mandatory vaccination policies are public health interventions which stir debates, especially in the COVID-19 pandemic¹³⁴. The principle of “least restrictive alternative” requires “to implement the policy characterized by the lowest degree of coerciveness possible”¹³⁵. If this is the case, vaccination-promoting nudging should be considered ethically acceptable even though it promotes the common good than the individual best interest. At any rate, it is crucial to bear in mind that Harrison and Patel recently put it best in saying that “nudges are more likely to be successful when they fit well into the workflow of key decision makers.” Furthermore, the authors state that engaging a range of right stakeholders and focusing on carefully designed experimentation are necessary¹³⁶.

3. Conclusion

This paper defends the ethicality of nudges in health decisions being in line with a large number of scholars providing, however, a distinct approach. Nudging techniques aim to nudge patients to make better decisions in line with their best interest, healthy people to make healthful (not unhealthy choices) in line of their long-term best interest, as well as citizens to make choices in favor of the public or common good while having their autonomous wishes respected.

This paper is one more contribution in support of nudge’s ethicality. It argues that the use of nudges for making better health decisions is an example drawn from clinical ethics where (under the particular circumstances) the specific weight of the principle of beneficence is greater than the specific weight of the principle of beneficence. From this perspective, the paper argues that the use of nudges is completely ethical when a) the anticipated health benefit is incontestable and the patient’s best interest is clear, b) the role of autonomy in clinical ethics has been acceptably recon-

sidered. Besides, please note that it is practically hard to determine whether or not the nudgee’s agency will be eroded by the particular nudge because the line of distinction between emotions or automatic ways of human reasoning and cognitive ways of human reasoning remains blurry, and the various types of nudges fall on a combination of two continuums: the one ranging from transparent to nontransparent and the other ranging from reflective to automatic. Therefore, the overwhelming majority of nudges are *most likely* to work as reason-bypassing nonargumentative influences, thus eroding the nudgee’s agency. In the context of clinical ethics it is time to be accepted a deviation from the strict commitment to the principle of autonomy (individualistically understood) in degrees proportional to the incontestably anticipated patient’s benefit.

Notwithstanding, in case the patient’s best interest is less than clear or if the nudging serves the purpose of promoting another individual’s best interest (not the decider’s one), or even the common good, the ethicality of nudging is not always beyond reasonable doubt. In such cases the deviation should be as minimal as possible (perhaps limited to nudges that are almost transparent and work almost reflectively).

The use of nudges may be informed by their possibility to promote patients’ best interest and wellbeing. In case of promoting the public health, the divergence from the principle of autonomy should be little (i.e. using nudges that are almost transparent and reflective). Decisions of whether and how this should be done need to take into consideration the relational dimension of nudging (the mechanism by which nudges work is likely to have a relational part if the assumption of preauthorization is true), the agency of the nudged individual as well as her heuristics, biases or internal representations.

At any rate, Hansen et al. put it best in writing that further research and a case-by-case investigation is needed for assessing the efficacy and ethicality of the use of nudges¹³⁷.

133 Giubilini A. Vaccination ethics...*op.cit.*

134 Dubov A, Phung C. Nudges or mandates? ...*op.cit.*

135 Giubilini A. Vaccination ethics...*op.cit.*

136 Harrison JD, Patel MS. Designing Nudges for Success...*op.cit.*

137 Hansen PG, Skov LR, Skov KL. Making Healthy Choices Easier...*op.cit.*

4. Abbreviations

DPT=Dual-Process Theories

DI= Default-Interventionism

5. Declarations

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5.4. Authors' contributions

PV is the only author of the manuscript.

5.5. Ethics approval and consent to participate

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5.6. Consent for publication

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