Medical Decision Making

Combining deliberation and intuition in patient decision support

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ARTICLE INFO

Article history:
Received 11 July 2012
Received in revised form 31 October 2012
Accepted 24 November 2012

Keywords:
Patient decision aids (DAs)
Values clarification methods (VCMs)
Preference construction
Decision making
Intuition
Deliberation

ABSTRACT

Objective: To review the strengths and weaknesses of deliberative and intuitive processes in the context of patient decision support and to discuss implications for decision aid (DA) design.

Methods: Conceptual review of the strengths and weaknesses of intuitive and analytical decision making and applying these findings to the practice of DA design.

Results: DAs combine several important goals: providing information, helping to clarify treatment related values, supporting preference construction processes, and facilitating more active engagement in decision making. Many DAs encourage patients to approach a decision analytically, without solid theoretical or empirical grounding for this approach. Existing research in other domains suggests that both intuition and deliberation may support decision making. We discuss implications for patient decision support and challenge researchers to determine when combining these processes leads to better outcomes.

Conclusions: Intuitive and analytical decision processes may have complementary effects in achieving the desired outcomes of patient decision support.

Practice implications: DA developers should be aware that tools solely targeted at supporting deliberation may limit DA effectiveness and harm preference construction processes. Patients may be better served by combined strategies that draw on the strengths and minimize the weaknesses of both deliberative and intuitive processes.

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1. Introduction

1.1. Supporting patient decisions: current practices

In health care, individual treatment and screening decisions are often preference sensitive, involving important trade-offs. For example, available options can be equivalent in terms of medical efficacy, but involve trade-offs between length and quality of life or between comfort and efficacy of procedures. By taking individual patient values into account, treatment and screening decisions can be made so that they best fit an individual, with his/her unique situation, needs and desires [1–6]. However, putting this ideal into practice is challenging. First, clinicians have been found to be inaccurate at estimating patients’ values for health states [7] and treatment options [8,9]. Moreover, in the novel, unanticipated, and emotionally charged situations that many patients face, their values and preferences are often labile or non-existent and need to be clarified [10–12]. This clarification process can be complicated, because potential outcomes and risks can be hard to verbalize and imagine, and available options often involve trade-offs that make them incommensurable [1,2].

In order to help patients make informed medical decisions that reflect their personal values and circumstances, patient decision aids (DAs) have become an increasingly common tool [5,6,13–17]. DAs combine several important goals, such as informing patients about options, helping clarify patient values, supporting patients’ preference construction process, and enabling patients to more actively engage in shared decision making with their health care providers. DAs can, among other positive effects, enhance patients’
involvement in medical decisions [3,6,6], and increase patients’ knowledge and contentment with the decision-making process [4,5]. Yet the effects of DAs on decision quality and process measures (e.g., decisional conflict, feeling clear about one’s values) are not consistent [5].

DAs often incorporate values clarification methods (VCMs) to help elicit patients’ treatment values and help patients make decisions. Many VCMs encourage patients to follow deliberative, analytical processes in comparing available choice options, suggesting an assumption on the part of developers that deliberation is the preferable strategy for making medical decisions [18]. This assumption has strong historical precedent, but lacks a solid theoretical or empirical grounding, and is in conflict with what we know about natural human reasoning and action, which are not purely analytical and depend strongly on intuition [19–30].

In the present article we argue that the effectiveness of DAs, and of VCMs in particular, may be enhanced by drawing on the strengths and minimizing the weaknesses of both deliberative as well as intuitive decision processes. For the purposes of the present article, deliberative decision processes are defined as effortful, conscious and analytical and include decision strategies such as making lists of pros and cons, as well as explicitly rating and weighting these pros and cons. By contrast, intuitive processes are defined as less effortful and less conscious processes. For example, implicit and apparently effortless integration of available information can give rise to affective responses and gut feelings on which intuitive decisions can be based. Such affectively-based decisions are an important subset of intuitive decisions, but there are other types of intuitive decision processes, such as the reliance on fast-and-frugal heuristics, as we will discuss in more detail later [4,31–33]. Whereas deliberative and intuitive processes are not always entirely distinct, they clearly have been shown to have different effects on decision making [4,33,34].

1.2. Intuition and deliberation in patient decision making

Evidence from psychological literatures suggests that at least in some contexts, deliberation may interfere with decision making, and intuitive decision strategies sometimes result in better outcomes [19,21,34]. As we will outline in more detail below, encouraging patients to extensively deliberate about their personal preferences may have some unintended, potentially harmful implications. Yet encouraging patients to deliberate also serves important goals, such as supporting patients in taking a more active role in the decision-making process with their health care providers.

In order to understand how to design DAs and VCMs so that they result in the intended outcomes, we underscore the need to better understand the nature of intuitive and deliberative decision processes that are involved in patient decision making, and that are likely to be affected by the design of DAs and VCMs [1,5,16,18,35]. In the present article we aim to (a) provide an in-depth treatment of this issue, as well as (b) clarify how existing research findings can serve as a framework for developing hypotheses about how these decision tools may influence outcomes.

2. Strengths and pitfalls of intuition and deliberation in patient decision support

Throughout western intellectual history, the dominant view has been that decisions are best made via analytical reasoning, and that feelings interfere with good, rational decision making [36]. Indeed, ample evidence has shown that reliance on heuristic processing or initial emotional reactions (e.g., fear, panic, anger) can cause bias and error [37–39]. However, an influential body of research also suggests that intuitions may be surprisingly accurate, because they can be based on an implicit integration of a large amount of information [4,19–24,32–34,40]. In fact, when it comes to making important personal decisions, rational reasoning seems to strongly depend on intuitive processes [19–24]. In the following sections, we will review literature that illuminates both these strengths and weaknesses of intuitive and deliberative decision making strategies.

2.1. Deliberative decision making: taxonomy of strengths and pitfalls

2.1.1. Strengths of deliberation

Deliberation serves several important goals in decision making. First, deliberation is likely to help people articulate their preferences. Deliberation may empower patients by enhancing their ability to engage in the shared decision-making process, and communicate what they want to physicians [6]. Moreover, deliberation may help decision-makers articulate reasons for their preferences, which may reduce uncertainty and decisional conflict, and help patients communicate why they have certain preferences [5].

A second advantage of deliberation is that after people analyze reasons for the values they find important, they act more value-congruently. For example, when people are asked to analyze their reasons for why they find the value “helpfulness” important, they later behave in a more helpful manner [41]. In the context of patient decision support, this could cause patients to make decisions that are more consistent with earlier-stated preferences and values. However, as we will discuss in more detail later on, the preferences that people report after deliberative reasoning may systematically weight attributes that are difficult to articulate, but that may nonetheless be important to the decision at hand.

A third benefit of deliberation is that it may fit patients’ expectations about how health decisions should be made. When a person feels good about how a decision is made, this can affect how the person feels about the quality of the decision itself [33,42,43]. For example, when people believe that mental effort is required to get the best decision outcome, they may interpret their exertion of mental effort as a signal that an optimal decision has been achieved [43]. This suggests that if a patient believes that deliberation is the optimal strategy for the decision at hand, then deliberative decisions will be viewed more favorably than intuitive decisions, irrespective of the actual benefit of either strategy.

Finally, DAs are explicitly designed to encourage patients to follow the logic of utilitarian decision-making, based on the assumption that this will help patients to make decisions that maximize utility. Hence, a fourth potential strength of encouraging patients to deliberate in a DA is that this encourages them to explicitly consider the likelihood of different outcomes and the values they attach to these outcomes, and to decide based on a logical integration of these. However, as outlined below, explicitly considering and integrating likelihoods and values associated with different outcomes is a complex and error-prone process that may not only help, but also harm decision making.

2.1.2. Pitfalls of deliberation

A growing body of evidence shows that deliberation also has several important limitations, and may even be harmful to preference construction. First, in the choices patients face, some choice attributes evoke strong immediate emotions, such as feelings of anxiety or depression. When experiencing negative emotions, subsequent thinking will be likely to be emotion-congruent, sustaining and possibly even intensifying these initial negative emotional reactions [44,45]. For example, prolonged elaborative processing when experiencing feelings of depression
can exacerbate depression, as this ruminative response allows depressed feelings to bias thinking in an emotion-congruent way [44]. Hence, a VCM that encourages patients to deliberate about emotion-evoking information immediately after being exposed to it may result in emotion-congruent thoughts, which may then sustain or intensify the initial emotional response. Immediate deliberation may thus overshadow other potentially important choice attributes, such as the likelihoods of risks and benefits. Interestingly, follow-up research has shown that distraction after exposure to emotion-evoking stimuli can attenuate negative feelings [46]. Later, we will discuss these findings’ potential usefulness for DA design.

A second disadvantage of deliberation is that people are often unaware of factors that influence their choices [19]. As a consequence, when probed for reasons why they favor or disfavor various options, patients may invent reasons that seem plausible, but that are not correct. Moreover, people frequently fail to identify the factors that actually do influence their choices. In one classic psychological experiment [47] participants were asked to choose from an array of identical stockings. Most people had a bias toward choosing one of the right-most stockings. However, when asked why they chose that particular stocking, none of the participants realized that the position influenced their choice, and instead they invented other reasons (e.g., “This one was the softest”). This phenomenon—given the apt title “telling more than we can know”—is particularly relevant for patient decision making, because it raises questions about patients’ ability to accurately articulate the reasons for their preferences. If decision makers cannot articulate the reasons for their preferences after a decision is made, then asking patients to do so as part of the decision making process could lead them to a decision they might not otherwise make.

A third drawback of deliberation is that the act of verbalization of reasons for one’s preferences can decrease decision satisfaction and agreement between people’s judgments and expert opinions [48–51]. Deliberation tends to cause people to focus on just a select few reasons for choosing one option over another. Because of failures of introspection, these reasons may not actually be the most important, or even the real reasons for one’s preferences. Instead, they are likely to be the reasons that are easiest to articulate. As a result, deliberative reasoning can temporarily alter one’s perception of which option is the best. This phenomenon has been shown across a range of judgments, ranging from choices between decorative posters to ratings of Olympic dives [48–51]. For example, in one experiment [48], students were brought into a research laboratory and asked to view five posters and select one to take home. Half of the students simply chose a poster, the rest were instructed to list what they liked and disliked about each poster prior to making their choice. Weeks later, the researchers contacted the students and asked them whether the poster was still on their wall. Students who chose the poster based on their intuition were happier with their choice, and were more likely to have it on their wall, than students who made lists. The deliberative decision-makers chose posters on the basis of the attributes that appeared on their lists, and these lists mostly included attributes that were easy to articulate. Hence, participants’ lists biased them toward choosing the posters on the basis of a particular attribute (e.g. humor) that was not related to long-term liking. This research suggests that deliberation can cause people to disproportionally focus on attributes that are obvious, accessible, and easy to articulate, but that are not necessarily most important [4,19].

One corollary finding involving deliberation is that more thought, and less reliance on emotive cues, leads to less stability in preferences across time. That is, people tend to change their mind more often when they deliberate [52,53]. Hence, when it comes to preference-based decisions, deliberative strategies often fail to arrive at judgments that consistently maximize utility.

2.1.3. Summary of the strengths and pitfalls of deliberative decision making

The second column of Table 1 represents an overview of the above mentioned strengths and pitfalls of deliberation. In sum, deliberation is likely to have several beneficial effects on decision making: (1) it may help patients verbalize and articulate their preferences and generate reasons for those preferences, (2) it may help patients make decisions that are more congruent with their stated preferences, (3) deliberation may help patients feel better about how the decision was made, because it fits their expectations about how such decisions ought to be made, and (4) it encourages patients to explicitly consider the likelihood of different outcomes and the values they attach to these outcomes, and to decide based on a presumably logical integration of these. However, deliberative strategies also possess a number of disadvantages, which together suggest that deliberation does not always lead to a rational integration of factual knowledge: (1) deliberative strategies may cause emotion-congruent thoughts that intensify, rather than abate, negative emotions, (2) they may cause patients to generate reasons for their preferences that are inaccurate, and (3) they may cause patients to focus on just a few salient treatment attributes, and under-weight attributes that may be equally important but more difficult to articulate.

2.2. Intuitive decision making: taxonomy of strengths and pitfalls

2.2.1. Strengths of intuition

Just like deliberation, intuitive processes also serve several important goals in decision making, with some potentially important implications for patient decision support. In particular, over the past 20 years psychological evidence has shown that compared to deliberative decision strategies, intuitive strategies often result in better judgments and decisions, are more in line with expert opinion, are more accurate, or result in higher satisfaction [4,19,21,22].

The first advantage of intuitive decision making is that it is more likely than deliberation to rely on automatic and/or unconscious cognitive processes. Many of our mental processes take place automatically, and in our everyday behavior we are largely dependent on these automatic processes [20]. Importantly, these processes are thought to be less limited in capacity than deliberation, and therefore to be able to integrate larger amounts of information [23,24,54–57]. Implicit integration of information thereby results in a feeling toward various options that can reflect the optimal choice with remarkable accuracy [23,24,41,55,57,58]. To illustrate this phenomenon, one study [40] asked participants to view advertisements for an upcoming memory test. While viewing the advertisements, information about stocks ran at the bottom of a computer screen (stock information was irrelevant to the main task). At the end of the experiment, participants were not able to report which stock had the highest value, but when asked how they felt toward each stock, their ratings accurately reflected the actual stock value [40]. Such findings suggest that automatic integration of information can result in feelings that do not necessarily have a consciously accessible explanation but that are nonetheless accurate [23,24,40,47,55].

Second, intuition may also provide an advantage in decision making because compared to deliberation it is more sensitive to—and better able to incorporate—feelings and affective cues in the process of preference construction. That is, intuitive processing not only results in feelings towards choice options in the form of overall impressions of decision options, but it may also rely more strongly on affective cues that can be of vital importance in


preference construction processes. Indeed, there is growing acknowledgement that feelings and emotions are critical sources of information for decision making [1,4,23,24]. As a classic example, patients who have damage to the ventromedial prefrontal cortex of the brain show impaired decision making, in spite of having intact intellect and moral reasoning [58]. According to the “somatic marker hypothesis,” these patients have deficits in emotional processing, and this emotion-specific deficit makes it impossible to decide which option should be chosen, or which course of action is best [24].

To illustrate this point empirically, researchers developed a gambling task in which participants draw from four decks of cards. On each draw, participants either lose or gain play money. Two of the decks are stacked so that there are large gains, but also large losses (the risky decks), resulting in a net loss of money. The other two decks are stacked so that the gains are initially smaller than those of the risky decks, but over time there is a net gain of money, as losses are also smaller in these decks. Findings consistently show that healthy participants learn to avoid the risky decks, and show physiological signs of anxiety (e.g. sweating) before drawing from that deck, even before they can explicitly articulate why they prefer one deck over the other. However, patients with damage to the prefrontal cortex do not learn to avoid the risky decks, and show no physiological signs of emotional distress when drawing from those decks. These findings suggest that emotional cues, so called “somatic markers” (e.g., sweating), can serve as an important signal for making effective decisions [23,24]. Consistent with the idea that affective cues can guide decision-making, it has recently been proposed that affect may help patients make trade-offs between options that are difficult to compare, such as choosing between the quality versus quantity of life. In these situations, our intuitive feelings help by serving as the “common currency” between logically incommensurable options [2].

It is important to note that intuition serves as an umbrella term, referring to the implicit and apparently effortless integration of information [4]. One example of automatic processing has been widely influential—yet also highly controversial—in promoting intuition as an advantageous decision strategy. This research suggests that after exposure to a decision problem, a brief period of distraction can result in improved judgments and decisions [59–62]. For example, in one experiment, participants were asked to consider four hypothetical apartments, each of which was described by twelve attributes [59]. One of the apartments was an objectively better choice than the others, but this best choice was not obvious, due to the large amount of information presented. Participants who performed a distracting task for a few minutes prior to their choice were more likely to choose the objectively better apartment than participants who deliberated and participants who decided immediately. This effect has been labeled the Unconscious Thought Effect (UTE), because it is assumed that the distracting task allows the unconscious mind to integrate and weigh the relevant information. Yet a recent meta-analysis of 92 studies concluded that distraction does not universally lead to better decisions. Instead, distraction is most likely to lead to better decisions when the decision is complex, when verbal and pictorial information formats are combined, and when the information is ordered by choice option rather than by attributes [62].

2.2. Pitfalls of intuition

Despite the importance of intuitive processes in decision making, there are also some critical pitfalls associated with reliance on intuition. First, decades of research have shown that reliance on heuristic strategies and on strong, immediate emotional reactions can cause bias and error in decision making [38,39,63]. At this point there are countless biases that have been documented in human judgment (e.g. recognition, framing,
anchoring, availability, conjunction fallacy, contrast effects), and many of these biases have been attributed to failures of human intuition. Consistent with this idea, research has shown that the activation of deliberative processing can indeed reduce the prevalence of various biases and heuristics [64]. However, some heuristics (e.g., recognition) are actually more likely when judgments are made deliberatively rather than intuitively [65]. Furthermore, although individuals who habitually use rational/analytic processing are less likely to succumb to some types of biases, they are equally—if not more—susceptible to other biases [66–68]. In fact, recent evidence suggests that individuals who are high in both rational and intuitive thinking styles are less susceptible to heuristic biases than individuals who are highly rational but not intuitive [69]. Hence, heuristics and biases are indeed a disadvantage of intuition, but it appears that some biases are not specific to intuition and rather are errors of human judgment more generally.

A second disadvantage of intuitive decision strategies is that may make it difficult for patients to articulate the reasons for their preferences. When patients lack plausible-sounding reasons for their decisions, it may invite skepticism from health care professionals, family and friends, or cause patients to feel uncertain themselves.

Third, intuitive strategies may be more or less appropriate at different stages of the decision-making process. Recently, Pieterse and De Vries [4] provided an analysis of the suitability of fast–and-frugal heuristics in the patient decision support context, concluding that heuristics can be detrimental when they encourage patient decision-makers to focus only on a subset of the information provided in the DA. In other words, when fast, intuitive strategies cause people to fail to acquire relevant information, this can result in uninformed, poor decisions.

2.2.3. Summary of the strengths and pitfalls of intuitive decision making

In this section, we reviewed theorizing and research addressing the strengths and pitfalls of intuition in preference construction and decision making (see Table 1, third column, for an overview). In sum, intuitive strategies have at least two powerful advantages: (1) intuitive decisions are often based on implicit information integration, which can integrate large amounts of information and result in feelings that are surprisingly accurate, and (2) intuitive decision making may be relatively more influenced by, and depend on, the presence of lower-order, subtle affective cues. Indeed, the human mind seems to be wired so that higher-order processes cannot function properly without being grounded in lower-order, intuitive processes. However, intuitive strategies also have a number of drawbacks: (1) they can be influenced by heuristics and biases (but this may also be true of deliberative strategies), (2) they lack logical-sounding reasons that could help to convince others (and possibly also oneself) that the decision is good, and (3) when intuitive strategies are applied to early stages of decision making, such as information accrual, they may lead to uninformed decisions.

3. Discussion and conclusion

3.1. Discussion: targeting intuition and deliberation in patient decision support

A long-held assumption in patient decision making research is that careful thought and reflection about medical choices should lead to more positive outcomes, greater choice satisfaction, less uncertainty, and less anxiety. Yet, our review of the decision literature reveals a more nuanced picture. The evidence reviewed in this paper suggests that deliberation may have intended beneficial effects on facilitation of patient engagement. It also encourages patients to become well-informed and follow the logic of utilitarian decision-making. Patients may believe that deliberation is more appropriate than intuition, and therefore deliberation may be viewed more favorably regardless of its actual effect on decisions. However, deliberation can also produce biases and error of its own: In particular, it can cause people to generate erroneous reasoning which may negatively affect their preferences and decisions, as well as cause people to focus on a few accessible attributes that are not actually the most important. Our review of the strengths and pitfalls of intuitive decision processes complements this picture. It indicates that, while heuristic processing and reliance on strong, immediate emotional reactions can cause bias and error, more sophisticated intuitive processes play a crucial role in preference construction. Intuitive processes may also allow people to integrate larger amounts of information and to better use accurate affective cues, thereby helping patients make difficult trade-offs between dimensions that are hard to compare (e.g., the quality vs. quantity of life; 1, 2, 4).

Some of the findings reviewed in this manuscript stem from other research areas such as basic psychology and consumer research. One objection to applying these findings to medical decision making is that the decisions studied in basic research are more complex—less the simple-land decision under consideration.Deliberative decision processes in a consumer context may in some respects be inherently different from choosing between medical options. For example, medical decisions are sometimes made under distressing conditions and can evoke strong emotions. Due to these strong emotions these decisions are often avoided or approached in a defensive manner. Even less dramatic medical decisions often involve qualitatively different options than decisions made in a consumer context. That is, unlike consumer choices where decisions are being made about gains (i.e., goods or services a consumer wishes to acquire), medical decisions typically involve zero-gain or loss-minimizing options.

However, findings from other research areas nevertheless illustrate important features of the architecture of the human mind, such as how faulty reasoning can influence preference construction, and how deliberation can focus attention on just a few salient attributes. The existence of these psychological processes calls into question the assumption that deliberative thought necessarily renders optimal preferences and utility-maximizing judgments. Moreover, these literatures suggest that there are a number of counterintuitive ways in which intuitive and deliberative thought modes influence decision making, which are not yet fully realized in theoretical approaches to decision aids. Even though medical decisions may indeed often be more emotional than decisions that have been studied in other contexts and involve zero-gain or loss-minimizing instead of gain-maximizing options, we would still expect many of the psychological phenomena to apply. For example, so long as the less important decision attributes are easier to articulate than the more important attributes, then we might expect that deliberation can bias decision making. In fact, if anything, these effects might be stronger when the situation is more emotionally evocative, as deliberation may cause emotion-congruent thoughts that intensify these emotions. Yet clearly future research should investigate whether the same basic psychological mechanisms, for example, cause patients to disproportionally focus on attributes that are emotionally evocative, salient, or easy to articulate, overshadowing other important attributes to the detriment of their eventual decision. The challenge, therefore, is to gain a more fundamental understanding of how we can support patients to be more engaged and informed decision-makers, without causing unintended side-effects that may harm their preference construction processes.

Together, the literatures that we reviewed suggest that both intuition and deliberation are critical components in patient decision making, but serve different goals in the patient decision support context. Indeed, these processes might work best when working together. Recently there has been evidence for precisely this idea, insofar as experimental tests of the effects of intuitive and deliberative decision strategies have shown that a combination of both resulted in the best decision outcomes [70]. It could very well be the case that decision support is most effective when it targets deliberative as well as intuitive processes. How can we combine the best of both intuition and deliberation in patient decision making? In the right column of Table 1, we provide an overview of potential implications for patient decision support based on the identified strengths and pitfalls of deliberation and intuition. The first two recommendations that follow from our analysis are already being implemented by DA developers: First, as many DA developers already know, it is important to explicitly encourage patients to become informed and learn about each option before making a decision. This is because decision heuristics that are applied before patients are informed are quite error-prone. Second, care should be taken so that information is presented in such a way that heuristics and biases are minimized. For example, people generally have more favorable impressions of a treatment if they learn it has a 90% survival rate rather than a 10% death rate [71]. Hence, numerical information should be presented in both formats (survival and death rates) in order to prevent this bias from occurring.

Yet there are a number of additional and unique insights that follow from the preceding review. First, although it may indeed be helpful to encourage patients to articulate their preferences and the reasons they have for their preferences, this exercise may be better placed late in the decision process. This is because reasoning about preferences early in the decision process (e.g. right after exposure to new information) may be harmful to preference construction, as it can focus attention away from decision attributes that are relatively difficult to verbalize.

Second, when introduced too early, reasoning may cause bias through the intensification of strong emotions evoked by the content of the DA. Hence, patients could be encouraged (through instructions in the DA) to delay making a decision and instead to allow themselves to form more nuanced feelings and general impressions of each of the options. Patients could benefit from being encouraged to consider these overall impressions and feelings about choice options, even if they cannot provide reasons for them.

A third and related implication of this review is that a distraction or delay could be useful after information has been provided, because it could allow strong emotions to abate prior to deliberation. This way, strong emotions that are linked to only a part of the picture (e.g., fear for a potential outcome) would be less likely to overshadow the rest of the decision.

3.2. Conclusion

The available findings reviewed here suggest that intuitive and analytical decision processes have complementary effects in achieving the desired outcomes of patient decision support. It is our hope that this analysis of the strengths and weaknesses of intuitive and deliberative decision processes, and their potential implications for DA design, will contribute to the understanding of how DAs—and VCMs in particular—can be designed and evaluated. The ultimate goal is that DAs fit more closely with how the human mind is naturally wired, resulting in increased effectiveness.

3.3. Practice implications

DA developers should be aware that the current common practice to encourage patients to extensively analyze available choice options, typically immediately after information exposure, lacks solid theoretical and empirical grounding. This practice may limit potential DA effectiveness in supporting patient decision making, and may even have some harmful side effects to preference construction processes. Therefore, developers should be encouraged to target, and evaluate the strengths and weaknesses of, both deliberative and intuitive decision processes, so that future DAs and VCMs make the best use of all of patients’ decision making capabilities.

Conflict of interest

None.

Acknowledgements and funding

This work has been supported by an EASP Seedcorn Grant to Marieke de Vries and Informed Medical Decisions Foundation George Bennett Postdoctoral Grants to Laura Scherer and Holly Witteman.

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