

Promoting Reflection on Medical Maximizing-Minimizing Preferences May Create Undesired Effects on Decisions About Low-Benefit and High-Benefit Care

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Abstract

Background. Medical maximizing-minimizing (MM) preferences predict a variety of medical decisions. We tested whether informing people about their MM preferences and asking them to reflect on the pros and cons of that preference would improve medical decisions when clear clinical recommendations exist. **Methods.** We surveyed 1219 US adults age 40 + that were sampled to ensure a 50%/50% distribution of medical maximizers versus minimizers. Participants either received no MM feedback (Control) or received feedback about their MM type and instructions to reflect on how that MM type can be helpful in some circumstances and problematic in others (Reflection). All participants then completed five hypothetical decision scenarios regarding low-value care services (e.g., head computed tomography scan for mild concussion) and three about high-value care (e.g., flu vaccination). **Results.** There were no significant differences between the Control and Reflection groups in five of eight scenarios. In three scenarios (two low-benefit and one high-benefit), we observed small effects in the nonhypothesized direction for the MM subgroup least likely to follow the recommendation (e.g., maximizers in the Reflection group were more likely to request low-benefit care). **Conclusions.** Asking people to reflect on their MM preferences may be a counterproductive strategy for optimizing patient decision making around quality of care.

Keywords

decision making, education of patients

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Introduction

Measures of medical maximizing-minimizing (MM) preferences reliably distinguish between people who tend to prefer aggressive versus more passive approaches to health care.¹ Relative to minimizers, maximizers report taking more medications, receiving more medical tests, and visiting the doctor more frequently and for relatively minor reasons.¹ Such MM preferences are associated with preferences for prostate cancer screening,² use of imaging tests among thyroid cancer patients,³ and avoidance of health care services.⁴

It is not clear, however, how to leverage knowledge of a patient's MM preferences to improve decision making

in situations in which clear clinical recommendations exist. In particular, it is unclear how to address the fact that maximizers are at risk of overusing health care that is of minimal benefit, whereas minimizers are at risk of underusing beneficial health care.⁵

One plausible intervention approach is to promote reflection. For example, a maximizer could be made more aware of how their general preference for getting

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more medical tests and interventions might lead them to pursue unnecessary or even dangerous care. That awareness might subsequently reduce their tendencies to obtain such overutilized interventions. Conversely, a minimizer could be made aware of how their general preference might make them hesitant about obtaining necessary medical testing or treatment. Encouraging consideration of their MM preferences might then lead this individual to become more willing to accept needed care.

Methods

As a preliminary study of whether promoting reflection on MM preferences would affect people's hypothetical decisions about low- and high-benefit care, we created a short, online survey that first asked participants the validated MM1 question to measure their medical maximizing-minimizing preferences.⁶ The MM1 is a single item, measured on a 1- to 6-point Likert-type scale, in which lower numbers indicate more minimizing and higher numbers indicate more maximizing. (See the appendix for MM1 text.) Based on their responses, we classified participants as minimizers (1–3) or maximizers (4–6) for the purposes of providing tailored feedback. While medical maximizing-minimizing tendency can be considered a continuous variable, we wanted to provide participants receiving our reflection intervention with feedback that reflected their expressed primary tendency.

Half of the participants (Control group) then proceeded directly to the scenario part of the survey. However, the remaining half of the participants (Reflection group) first read three short pages of feedback that identified their MM type and discussed the advantages and disadvantages of that orientation. For example, maximizers read:

You said you tend to lean toward taking action when it comes to health care. Sometimes this is referred to as having a “medical maximizing” preference. . . . A maximizing preference has advantages: Maximizers tend to be very proactive about their health. . . . However, there are also drawbacks: Maximizers are more at risk than minimizers of getting healthcare that has uncertain benefit and may even be harmful. (See the appendix for the full text of the reflection intervention.)

All participants then read eight hypothetical medical decision scenarios, three focused on high-value care (influenza vaccination, anemia testing, and diabetes medication) and five focused on low-value care (full body computed tomography [CT] scans for screening, surgery for plantar fasciitis, head CT scan for mild concussion, starting an opioid for arthritis pain, continuing lorazepam for sleep). (See the appendix for full text of all scenarios.) All scenarios except for lorazepam were previously used to validate the MM1 measure.⁶ Each scenario presented a choice between doing or not doing the target action, and participants indicated their action preference using a 101-point horizontal slider bar labeled so that 0 = “definitely would not” do the indicated action and 100 = “definitely would” do the action.

We administered this survey to a demographically diverse, stratified random sample of US adults age 40 + recruited November 16 to December 3, 2019, from a panel of Internet users administered by the research company Dynata. In addition to demographic quotas, we used quotas based on responses to the MM1 question to ensure that the sample included approximately equal numbers of minimizers versus maximizers. The design, sampling process, data management procedures, and outcome measures received approval from the University of Michigan Health Sciences and Behavioral Sciences Institutional Review Board.

To ensure participants had attended to our materials reasonably well, we included an attention check question that told respondents to give a specific response. After our question proved excessively difficult (screening out a large number of respondents) in the initial data collection, we replaced it with a slightly easier question. (See the appendix for text of both questions.) We also a priori planned to exclude participants who completed the survey excessively quickly as compared to the median time to complete. Specifically, we excluded participants who completed the survey in <3 minutes (v. median of 7.5 minutes) as unable to have processed the scenarios with sufficient detail, as well as those who completed the survey in <5 minutes and who also failed the attention check.

Our analytical strategy was simple: Within each of the maximizing or minimizing participant groups, we used *t*

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Table 1 Average Action Preference Ratings (0–100 Scale) Regarding Taking or Not Taking Medical Actions, by MM1 Category and Experimental Condition^a

	Minimizers (<i>n</i> = 608)			Maximizers (<i>n</i> = 611)		
	Control	Reflection	<i>P</i> Value	Control	Reflection	<i>P</i> Value
High-benefit care scenarios						
Annual flu vaccination	60.6	64.7	0.22	75.5	79.4	0.16
Anemia testing	74.7	69.2	0.02	86.1	83.9	0.21
Diabetes medication	60.4	59.4	0.70	64.2	67.6	0.15
Low-benefit care scenarios						
Full body CT for screening	44.1	42.8	0.64	55.2	56.2	0.72
Surgery for plantar fasciitis	22.5	25.7	0.16	32.3	39.5	0.005
Head CT for mild concussion	62.5	60.3	0.40	75.5	73.2	0.31
Starting opioid for arthritis pain	33.4	32.7	0.79	38.0	37.9	0.98
Continuing lorazepam for sleep	21.8	25.0	0.18	21.3	27.0	0.02

CT, computed tomography.

^aRatings were elicited on a horizontal slider bar with the endpoints labeled as 0 = “definitely would not” do the indicated action and 100 = “definitely would” do the action.

tests to test the effect of the reflection intervention on participants’ ratings of each medical action.

Results

A total of 1626 respondents completed the survey. We excluded participants who provided ages younger than 40 or over 99 years of age (*n* = 57), participants who completed the survey in <5 minutes and who failed an attention check question (*n* = 248), and those who completed the survey in <3 minutes regardless of answers (*n* = 102). The final analytical sample included 608 maximizers and 611 minimizers and was approximately 49% female, 16% Hispanic/Latinx, 15% Black/African American, and 5% Asian American. About half (49%) had completed a bachelor’s degree or higher level of education.

Table 1 presents the average action preference ratings among minimizers and among maximizers in each experimental condition (reflection v. control). As expected, maximizers had significantly higher average action preference ratings than minimizers did in all scenarios except the novel lorazepam scenario. However, among the three high-benefit scenarios, the only statistically significant finding regarding the reflection manipulation was in the opposite direction than hypothesized: Minimizers in the reflection condition had lower action preference ratings regarding getting an anemia test than minimizers in the control condition had. Among the five low-benefit scenarios, there were only two significant differences, again both in the nonhypothesized direction: Maximizers in the reflection condition had higher action preference ratings for seeking

a head CT scan for headache and for continuing lorazepam than maximizers in the control condition had.

Acknowledging the continuous nature of MM preferences, we replicated these analyses after excluding participants who reported relatively neutral MM preferences (3 or 4 on the 1–6 scale). The aforementioned patterns continued to hold with two changes: In the high-benefit anemia testing scenario, stronger maximizers (MM1 = 5 or 6) who reflected on their MM type were significantly less likely to choose testing than control participants (Reflection: 86.2% v. Control: 91.0%, *P* = 0.02), replicating the pattern already seen in minimizers. Second, the difference in choices about low-benefit plantar fasciitis surgery among Stronger Maximizers was not quite statistically significant (Reflection: 41.1% v. Control: 34.5%, *P* = 0.07) due to the smaller sample size.

Discussion

Promoting reflection about the pros and cons of a person’s medical maximizing-minimizing type did not increase uptake of high-benefit care or reduce utilization of low-benefit care in our hypothetical scenarios. In fact, in three out of eight scenarios, our reflection intervention led more participants to make the nonoptimal decision. We speculate that the reflection exercise led people (consciously or unconsciously) to feel that they needed to make decisions that would be consistent with their MM type. This type of consistency effect would tend to amplify people’s preexisting tendencies toward either under- or overutilization of care.


Although the reflection intervention may have been too short or nonoptimally written to achieve our intended effects, the complete lack of positive changes to our participants' choices does not instill confidence in reflection as a strategy to help maximizers avoid low-benefit care or minimizers pursue needed high-benefit care. It could be that more deeply reflective strategies that evoke people's intrinsic motivations (e.g., through motivational interviewing) would be necessary to allow people to understand why they have a particular maximizing or minimizing type and how medical choices that might seem in conflict with that type may nonetheless align with other personal values. Alternately, more directive strategies, such as those that specifically highlight downsides of medical actions to maximizers and the downsides of inaction to minimizers, may be required to leverage knowledge of patient MM preferences into better medical decisions in contexts where clinical guidance is clear.


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Supplemental Material

Supplementary material for this article is available on the *MDM Policy & Practice* website at <https://journals.sagepub.com/home/mpp>.

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