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ORIGINAL ARTICLE – BREAST ONCOLOGY

Medical Maximizing–Minimizing Preferences in Relation to Low-Value Services for Older Women with Hormone Receptor-Positive Breast Cancer: A Qualitative Study

Nicole Mott, BS[1], Ton Wang, MD[2,3], Jacquelyn Miller, MA[3], Nicholas L. Berlin, MD, MPH[2,3], Sarah Hawley, PhD, MPH[3,4,5,7], Reshma Jagsi, MD, DPhil[3,6,7], Brian J. Zikmund-Fisher, PhD[4,5,7], and Lesly A. Dossett, MD, MPH[2,3,7]

[1]University of Michigan Medical School, Ann Arbor, MI; [2]Department of Surgery, University of Michigan, Ann Arbor, MI; [3]Institute for Healthcare Policy and Innovation, University of Michigan, Ann Arbor, MI; [4]Department of Internal Medicine, University of Michigan, Ann Arbor, MI; [5]Department of Health Education and Health Behavior, University of Michigan, Ann Arbor, MI; [6]Department of Radiation Oncology, University of Michigan, Ann Arbor, MI; [7]Center for Bioethics and Social Sciences in Medicine (CBSSM), Ann Arbor, MI

ABSTRACT

Background. Multiple studies have demonstrated the safety of omitting therapies in older women with breast cancer. Despite de-implementation guidelines, up to 65% of older women continue to receive one or more of these low-value services. Previous work has investigated the role of both provider and patient attitudes as barriers to de-implementation; however, the importance of the patient's maximizing–minimizing preferences within this context remains unclear.

Methods. In this qualitative study, we conducted 30 semi-structured interviews with women $\geq$ 70 years of age without a previous diagnosis of breast cancer to elicit perspectives on breast cancer treatment in relation to their medical maximizing–minimizing preferences, as determined by the single-item maximizer–minimizer elicitation question (MM1). We used an interpretive description approach in analysis to produce a thematic survey.

Results. Participants were relatively evenly distributed across the MM1 (minimizer, n = 8; neutral, n = 13; maximizer, n = 9). Despite being told of recommendations allowing for the safe omission of sentinel lymph node biopsy and post-lumpectomy radiotherapy, maximizers consistently stated preferences for more medical intervention and aggressive therapies over minimizers and neutral individuals.

Conclusion. Medical maximizing–minimizing preferences in older women correspond with preferences for breast cancer treatment options that guidelines identify as potentially unnecessary. Increased awareness of patient-level variability in maximizing–minimizing preferences may be valuable in developing optimal intervention strategies to reduce utilization of low-value care.

Low-value services incur excessive costs or expose patients to harm without a clear benefit over alternative treatments or the absence of treatment.[1] Initiatives such as the Choosing Wisely® campaign have aimed to reduce low-value services through evidence-based recommendations. Many surgical and oncology specialties have participated in Choosing Wisely®, recommending the de-implementation of low-value perioperative and surgical care practices.[2]

However, when presented with clear recommendations to omit certain medical services, some patients appear comfortable forgoing action, while others express resistance and request these services despite the

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L. A. Dossett, MD, MPH
e-mail: ldossett@umich.edu

recommendations. One way to understand the variability in patient responses is through the lens of medical maximizing–minimizing (MM) preferences.[3,4] Patients tend to have stable preferences for pursuing more versus less medical testing and treatments. Medical 'maximizers' seek healthcare intervention regardless of necessity, while medical 'minimizers' prefer not to receive testing or treatment unless deemed essential. Both maximizers and minimizers have been shown to pursue potentially inappropriate care by either pursing low-value interventions or by refusing high-value treatments, respectively.[5]

Breast cancer in older patients represents an ideal scenario in which to study how MM preferences may inform medical decisions within the context of low-value services. Over one-third of new breast cancer patients are ≥ 70 years of age,[6] and most of these cancers are early stage and hormone receptor-positive (HR+). These cancers have a favorable prognosis such that the probability of a woman ≥ 70 years of age dying from breast cancer is < 1.0%.[7] At the same time, the toxicities of cancer treatments pose dangers to these women given their age and comorbidities.[8] Multiple studies support the omission of previously routine therapies in these patients given the lack of a survival benefit; these conclusions have been followed by national recommendations allowing for, or outright recommending, omission of axillary staging with sentinel lymph node biopsy (SLNB) and post-lumpectomy radiotherapy since at least 2016. [9–11] Nevertheless, these interventions have been poorly de-implemented, with over 65% of eligible women continuing to receive one or more of these low-value services.[6,12,13].

Current investigations seek to explain this incomplete de-implementation from both provider and patient perspectives,[14–17] but have yet to examine the role of MM preferences. Medical MM preferences can be reliably assessed through either 10-item (MM-10) or 1-item (MM1) measures,[4,17] and have been shown to predict diverse self-reported utilization outcomes as well as hypothetical testing and treatment preferences.[4,5,17–19] The associations hold true even after adjusting for confounding factors related to healthcare-seeking behavior.[4] While there are clear cross-sectional associations between MM preferences and a variety of health behaviors, little is known about how variability in patients' MM preferences manifests in the ways they consider medical decisions. Better understanding of how MM preferences influence patients' perceptions of their medical options is needed to inform strategies to reduce utilization of low-value care.

As part of a qualitative study that explored older women's perspectives on breast cancer decision making and de-implementation, we performed a focal analysis to (1) determine how the MM1 might correspond with treatment preferences in the unique setting of elderly women with breast cancer, and (2) compare this relationship across different therapies. We sought to determine how future de-implementation strategies might acknowledge patient MM preferences.

METHODS

In a qualitative study that examined older women's decision making surrounding breast cancer broadly (Wang T, unpublished data), we conducted semi-structured phone interviews with women ≥ 70 years of age in Michigan without a history of breast cancer from October 2019 to January 2020. Participants were recruited through the UMHealthResearch.org website and were provided a $25 gift card as an incentive. Purposive sampling was used to increase the diversity of participants with respect to age, race and ethnicity, and education. The interviews followed a guide (see the electronic supplementary material) developed with subject and methodological experts based on factors hypothesized to influence breast cancer healthcare-seeking behavior. The guide was piloted and further refined for clarity. Questions were added following early interviews, to explore additional topics raised.

The interviews began with a hypothetical scenario in which a doctor diagnoses the participant with early-stage, HR + breast cancer and recommends surgery. Participants were asked about their preferences for lumpectomy, mastectomy, or no surgery. The doctor then presented information regarding the option for axillary staging with SLNB, including the recommendation that SLNB can be safely omitted because there is no survival benefit. Participants were asked their preferences and reasons for accepting or declining SLNB. They were also asked about their chemotherapy preferences in the case of positive SLNB. Participants were then asked to imagine receiving the same diagnosis and choosing lumpectomy. The doctor in the scenario presented information regarding radiotherapy, including the guideline supporting the omission of post-lumpectomy radiotherapy because there is no survival benefit. Participants were asked their preferences and their reasons for accepting or declining radiotherapy.

After these scenarios, we asked general questions to assess participants' approach to decision making. At the conclusion of the interview, we asked the validated, single-question medical MM measure (MM1)[17] as follows:

> Sometimes medical action is clearly necessary, and sometimes it is clearly not necessary. Other times, reasonable people differ in their beliefs about whether medical action is needed. In situations where it's not clear, on a scale of one to six where one is that you strongly lean towards waiting and seeing and six

is that you strongly lean towards taking action, where do you think you fall?

Based on their responses, we chose to classify participants as 'minimizers' (1 or 2), 'neutral' (3 or 4), or 'maximizers' (5 or 6). Finally, we administered a brief demographic survey.

A senior general surgery resident physician on the research team conducted all interviews to ensure the accuracy of medical information (TW). We transcribed interviews verbatim in a de-identified manner and analyzed them using the iterative approach of interpretive description, a qualitative research methodology that aims to explore clinical problems through participants' subjective experiences.[20–22] After 10 interviews, we performed a preliminary review to generate a framework matrix[23] and to assess the sufficiency of the sample size with respect to the aims of the study, using the qualitative 'information power' approach.[24] We used MAXQDA 2020 (VERBI Software) to support coding and analysis. We developed a codebook containing deductive structural and descriptive codes as well as inductive thematic codes. Each interview was coded independently by two researchers (either NM, NB, or JM), with differences resolved through discussion.

Qualitative analysis proceeded using data abstraction, side-by-side group comparison tools in MAXQDA, and writing memos on clusters of codes for the minimizer, neutral, and maximizer groups to develop a thematic survey.[25] The research team routinely discussed potential biases, outliers, and alternative interpretations.[20] The study was exempt from ongoing review per the University of Michigan Institutional Review Board (IRBMED) and is reported in accordance with the Standards for Reporting Qualitative Research (SRQR).[26]

RESULTS

Study Participants and Treatment Preferences

Interview participants ($n = 30$) ranged from 70 to 84 years of age (median 72 years). Most women were Caucasian (87%), consistent with the demographics of Michigan (79%).[27] Nearly all participants lived in a metropolitan area, and most were highly educated. Participant characteristics were similar across minimizers, neutral individuals, and maximizers, although the minimizer group contained the oldest participants and the maximizer group contained the least number of participants with an advanced degree. Demographics are summarized by group in Table 1. Treatment preferences are presented quantitatively in Table 2 and qualitatively in Table 3.

Participants were nearly evenly distributed across the MM1 (minimizer, $n = 8$; neutral, $n = 13$; maximizer, $n = 9$). Most minimizers stated an intent either to decline surgery or accept lumpectomy and to decline SLNB, chemotherapy, and radiotherapy; most neutral individuals stated an intent to accept lumpectomy, decline SLNB, accept chemotherapy, and decline radiotherapy; and most maximizers stated an intent to accept mastectomy, SLNB, and chemotherapy and to decline radiotherapy.

Maximizing–Minimizing (MM) Preferences in Relation to Age

In general, minimizers expressed value in quality over quantity of life. Many minimizers were unwilling to undergo treatment with severe or unpredictable adverse effects that could compromise their current state of well-being. They expressed no utility in prolonging life simply to live longer. For example, "I think the question is, would aggressive treatment improve the rest of my life, and if it extends my life, is this extended life independent of quality?" (Participant 28). In contrast, maximizers voiced a desire and willingness to extend life at any cost. One stated, "Why would I not take every chance I could to live? Can't say any more than that" (Participant 14).

However, regardless of MM preferences, nearly all participants said they would take a less aggressive approach to treatment at their current age than if they were younger and wanted to raise children or fulfill other life goals. Most participants, including maximizers, agreed with the general notion that it is acceptable for doctors to recommend less aggressive treatment for older patients based on biologic and sociologic factors, remarking "…They don't have to put an 85-year-old person through what they would put a 25-year-old person through" (Participant 26).

MM Preferences in Relation to Breast Cancer

Minimizers were more passive-minded in their approach to cancer care, stressing the importance of the natural order of the body in its ability both to fight and to succumb to disease when the time comes. For example, "I have always believed in as much as possible supporting the body to heal itself" (Participant 4). Maximizers were more active-minded, emphasizing the need to employ whatever medical interventions possible to fight cancer: "I would like to have whatever treatments are available for you if I had a cancer diagnosis" (Participant 7). Minimizers and neutral individuals were likely to note the favorable prognosis in the hypothetical scenarios, while maximizers often catastrophized the word 'cancer'. One maximizer noted, "Cancer is a loaded word … an emotional word, and I think I'm as susceptible to that emotion as anybody else. I'd want to make sure it was really gone" (Participant 23).

TABLE 1 Summary of participant demographics

	Minimizers [n = 8] 1 [n = 3]; 2 [n = 5]	Neutral [n = 13] 3 [n = 7]; 4 [n = 6]	Maximizers [n = 9] 5 [n = 5]; 6 [n = 4]
Age, years (mean = 74; median = 72)			
70–74	3 (37.5)	9 (69)	8 (89)
75–79	3 (37.5)	3 (23)	1 (11)
80–84	0 (0)	1 (8)	0 (0)
85–89	2 (25)	0 (0)	0 (0)
Race and ethnicity (self-identified)			
Caucasian (non-Hispanic)	8 (100)	11 (84)	7 (78)
African American	0 (0)	1 (8)	1 (11)
Asian (Japanese)	0 (0)	0 (0)	1 (11)
Hispanic	0 (0)	1 (8)	0 (0)
Education			
High school	0 (0)	1 (8)	1 (11)
Some college or Associates Degree	3 (37.5)	3 (23)	2 (22)
Bachelor's Degree	0 (0)	2 (15)	4 (45)
Masters or Graduate education	5 (62.5)	7 (54)	2 (22)
Geographic area[a]			
Metropolitan	8 (100)	12 (92)	9 (100)
Non-metropolitan	0 (0)	1 (8)	0 (0)

Data are expressed as n (%)

[a]Census-defined based on ZIP code

TABLE 2 Summary of participant treatment preferences

	Minimizers	Neutral	Maximizers
Surgery			
Mastectomy	2 (25)	0 (0)	5 (56)
Lumpectomy	3 (37.5)	13 (100)	4 (44)
No surgery	3 (37.5)	0 (0)	0 (0)
Sentinel lymph node biopsy			
Yes	2 (25)	2 (15)	8 (89)
No	5 (62.5)	10 (77)	0 (0)
Unsure	1 (12.5)	1 (8)	1 (11)
Chemotherapy			
Yes	1 (12.5)	8 (62)	6 (67)
No	5 (62.5)	2 (15)	0 (0)
Unsure	2 (25)	3 (23)	3 (33)
Radiotherapy			
Yes	0 (0)	3 (23)	3 (33)
No	6 (75)	10 (77)	6 (67)
Unsure	2 (25)	0 (0)	0 (0)

Data are expressed as n (%)

When participants were asked if they would always treat their breast cancer, nearly all minimizers and neutral individuals acknowledged situations in which they would abstain from treatment based on an unfavorable prognosis, advanced age, or poor general health and functional status. In contrast, over two-thirds of maximizers stated they would always seek treatment regardless of situational factors, with one asserting, "I would fight. I would always want to treat it. I would not want to just watch and wait" (Participant 22).

MM Preferences for Surgery

Minimizers were the only group in which participants stated an intent to decline recommended surgery for breast cancer, acknowledging their older age and accepting that they may die from breast cancer or another unrelated cause in the relatively near future. A few minimizers also stated a preference for mastectomy because they viewed it as a definitive treatment option that would mitigate the need for future intervention, including post-lumpectomy radiotherapy or additional modalities if the cancer were to spread. All neutral individuals said they would opt for lumpectomy, which they viewed as the least invasive means of surgically treating breast cancer. Maximizers preferred either lumpectomy or mastectomy; however, when comparing the three groups, maximizers had the highest number of respondents choosing mastectomy because they felt it offered a better chance than lumpectomy of eradicating all cancer from their bodies (see Table 3 for participant quotes).

TABLE 3 Illustrative examples for treatment preferences

	Minimizers	Neutral	Maximizers
Surgery Always recommended, equivalent outcomes between lumpectomy and mastectomy (standard of care[29])	"I'm 86 years old, and I've lived a good full life, and I guess I just don't want to do something like that" (P9[a]) "I'm 85 years old. It's a very good life. You have to die from something and that's as good as anything to die from" (P8)	"Of course I'd prefer a lumpectomy if the statistics were just as good for survival and recurrence and all that …. It's a much more minor surgery" (P6) "I would prefer the lumpectomy because I prefer the least invasive of the procedures available to me based on the type of cancer I have" (P25)	"Well … then it'd get rid of it more totally and [there] wouldn't be a chance for recurrence" (P26) "I'm one of those people that if something's bad inside of me, get it out." (P12)
Sentinel lymph node biopsy Should not be routinely performed (Choosing Wisely® recommendation and Society of Surgical Oncology guideline[10])	"Is [SLNB] really worth it? You know, would I learn something that's worth the risks?" (P15)	"Well, if the doctor doesn't think that it would help in the outcome, I would go by what he's recommending" (P5) "I guess I'd take that recommendation and probably not do it then if they didn't think that it was going to make any difference" (P20)	"Just to make sure it isn't spreading and just to be safe" (P3) "There's a chance that it might find more breast cancer that they need to treat" (P26)
Chemotherapy Very rarely indicated in women over 70 years of age[35]	"At my age, if they think I need chemo, that means that there's something pretty aggressive, and I'm just going to go out naturally and I'm not going to let the chemo destroy what's left in my life" (P4) "There's more side effects and complications. So I would opt not to have the chemotherapy" (P21)	"I would because certainly going through chemotherapy is a challenge, but they monitor your health" (P10)	"If that's the final option that might enhance or prolong life, yes" (P7) "I would feel like it gives me more control over what might happen, and I would be willing" (P23)
Radiotherapy Should not be routinely performed (National Cancer Center Network guideline[11])	"And if it's being recommended to me that I don't really need it, why should I take that risk of being uncomfortable?" (P2)	"I just don't believe there would be a benefit, especially since the studies show that to extend life there's really not a reason to do radiation, so" (P13)	"I would do everything I could, including radiation, if that was going to increase my chances, I'd do it regardless. I'd fight" (P14)

[a]The letter 'P' followed by a number indicates the participant code

MM Preferences for Axillary Staging with Sentinel Lymph Node Biopsy

The majority of minimizers and neutral individuals said they would decline optional SLNB in the scenario. Neutral individuals were apt to cite the importance of the doctor's recommendation to follow the guideline that SLNB does not offer a survival benefit for older women. Notably, one minimizer and one neutral individual who were conflicted regarding SLNB subsequently declined it after the interviewer reinforced the positive prognosis and the age-related guideline. All maximizers, with the exception of one who was unsure, said they would accept SLNB in the scenario out of a desire to know if the cancer had spread, which would provide additional treatment options if positive or allow for peace of mind if negative (see Table 3 for illustrative examples).

MM Preferences for Chemotherapy

In the case of positive SLNB, most minimizers stated an intent to decline chemotherapy and did so at higher numbers than the neutral or maximizer groups. Minimizers viewed chemotherapy as an aggressive therapy with negative adverse effects that could hinder their quality of life. Neutral individuals mainly stated an intent to accept chemotherapy out of a desire to treat remaining cancer in the case of positive SLNB. Nearly all maximizers accepted chemotherapy in the scenario; although a couple of maximizers were unsure, none of them declined. They expressed a need to eradicate any cancerous cells in their bodies despite potential downstream consequences of the medical intervention (see Table 3 for participant quotes).

MM Preferences for Radiotherapy

Regardless of MM preferences, most participants did not want optional radiotherapy in the scenario out of an inherent fear of the therapy and its adverse effects; one remarked, "Yeah, I just don't trust radiation. I mean, it's a scary thing" (Participant 3). Neutral individuals were more explicit than minimizers in referencing the doctor's recommendation following the age-related guideline that post-lumpectomy radiotherapy does not offer a survival benefit. Even within this context, one-third of maximizers said they would want radiotherapy in the scenario. This finding is in contrast to the minimizer group in which no-one stated a preference for radiotherapy, and the neutral group in which only a select few individuals stated that they would prefer radiotherapy to avoid taking daily oral endocrine therapy. Maximizers who wanted to receive radiotherapy hoped to prevent any chance of cancer-related death, disregarding the evidence stating the lack of its survival benefit in this scenario (see Table 3 for illustrative examples).

Decision-Making Engagement and Views on Doctors

When asked about their typical level of involvement in medical decision making and how heavily they relied on their own opinions versus doctors' opinions, minimizers, neutral individuals, and maximizers all felt they participated actively in their healthcare decisions, stressing the importance of shared decision making and patient autonomy.

However, minimizers and maximizers, compared with neutral individuals, were more likely to express apprehension in engaging with doctors, although for different reasons. Minimizers voiced concern for overtreatment in medicine, especially in cancer or end-of-life care where minimizers felt doctors often attempt to solve problems or cure patients through measures that only inflict suffering when the outcome is inevitable. For example, "It's my belief and experience that oncologists always want to treat whether it's to the patient's benefit or not" (Participant 4), and "It just drags the whole thing out, and a good percentage of the time, the person eventually passes on, and they've been through a lot" (Participant 9). Others commented on doctors' potential fear of litigation as a source of overtreatment, stating, "I think they go overboard now. They all, legally, they don't take a chance" (Participant 17). Maximizers discounted the recommendation of their physicians particularly when that advice was discordant with their own beliefs, leading them to suspect they were more knowledgeable and to perform their own research or to seek a second opinion. Comments included: "I'm not crazy about just his opinion" (Participant 26); "I'm always a little skeptical if doctors know better than me" (Participant 14); and "I think I can tell people who know what they're doing" (Participant 12).

DISCUSSION

Understanding medical MM preferences in the context of evidence-based recommendations will help determine whether policy initiatives and health communications result in appropriate care, alleviating medical waste and harm.[5] As presented here, MM preferences provide important insight into medical decision making in the context of early-stage, HR + breast cancer in women $\geq$ 70 years of age.

Moreover, this study highlights that these preferences manifest in various ways for different medical decisions. We observed that older adult minimizers, neutral individuals, and maximizers varied in their logic for the intent to accept or decline surgery, SLNB, chemotherapy, or radiotherapy. For example, even the majority of women with maximizing tendencies were able to see potential risks of radiotherapy outweighing benefits. However, none of those individuals could appreciate the same risk–benefit trade-off for SLNB, which they viewed as a minor diagnostic procedure. This reasoning is consistent with studies of patient views on tests versus other interventions.[28] In this setting, raising awareness of and targeting a patient's MM preferences is even more important when the patient, and perhaps the provider, view the low-value intervention to be relatively harmless despite financial waste or possible downstream clinical harms not considered.

Furthermore, if stated treatment preferences are viewed through the lens of patients' desire to be consistent with their underlying MM preferences, seemingly discordant choices likely result from knowledge gaps related to those treatment choices. For example, minimizers who stated a preference for mastectomy because they viewed it as a one-step solution should be reminded of the increased morbidity and mortality of the procedure and that even women who have mastectomies face possible recurrence, future testing, or even intervention.[29] Thus, choosing mastectomy may not align with minimizer values. Conversely, maximizers who seek mastectomy because they believe it better treats the cancer may need to be reminded that lumpectomy and mastectomy have equivalent overall survival rates.[30]

Simply providing this information may be insufficient to change preferences, however. Neutral individuals were the only group that overwhelmingly relied on their doctors' recommendations and practiced guideline-concordant healthcare behavior with respect to SLNB and post-lumpectomy radiotherapy. These findings suggest that neutral individuals, who perhaps waver in their decisions to either 'watch and wait' or 'take action', may be more

willing to accept the information and guidance provided in the clinical scenario and require the least amount of targeted intervention. By contrast, minimizers and maximizers likely have stronger opinions and more firmly pursue consistency with their beliefs, reflecting the psychological literature that suggests individuals seek out, remember, and act upon information consistent with their pre-existing beliefs or desired conclusions.[18] It is unclear whether individuals might actually become more maximizing or minimizing in their decisions after being informed of their MM preferences. It is important to note, however, participants' stated treatment preferences prior to being asked the MM1, indicating that these internal drivers are already at play prior to the patient's consultation with the provider.

Physicians have an obligation to practice evidence-based medicine and to reduce low-value care.[31] Research in behavioral economics has shown patients often make choices that are not logical or in their best interests.[32] The potential ethical tension between eliminating low-value care and patient autonomy is therefore central to any de-implementation efforts. While some patients may persist in requesting problematic low-value care, thorough and preference-sensitive counseling can help reduce this proportion.

In this context, patient variability in MM preferences can be leveraged to align the goals of reducing uptake of low-value services and supporting value-concordant decisions. The principle of beneficent persuasion offers a framework for understanding how to accomplish this alignment ethically.[33] The approach may require tailoring messages to patients based on their MM preferences. For example, even those maximizers who expressed the desire for less aggressive treatment at their current age, and supported the idea of less aggressive treatment in older versus younger patients, still stated a preference for SLNB and post-lumpectomy radiotherapy at substantial rates. In such situations, the key is to equip providers and patients with appropriate language to discuss how guidelines recommending avoidance of low-value care are or are not consistent with patients' underlying MM preferences. By helping patients better understand the potentially serious risks and limited benefits of low-value therapies, we can support them to make high-quality decisions. Furthermore, addressing patients' MM preferences through measures such as the MM1 offers a patient-centered approach by actively involving the patient in conversations surrounding low-value care.

Limitations and Questions for Future Research

This study intentionally included women without a history of breast cancer to avoid bias from personal experience, and thus a limitation is the hypothetical decision making required in the scenarios. It is possible that participants would make different decisions when faced with an actual breast cancer diagnosis and evaluated in a real-world medical setting. However, the Medical Maximizer-Minimizer Scale has been shown to predict both self-reported utilization outcomes and hypothetical treatment preferences, suggesting applicability to actual medical scenarios, as an individual's MM preference is considered a stable inherent trait.[4] Other factors found to influence participants' decision making, such as their age and general approach to cancer care, are unlikely to differ significantly in hypothetical versus real scenarios.

Although a general surgery physician conducted the interviews to simulate a new clinic visit, the medical specialty of the interviewer may influence study results. For example, women may be more inclined to pursue radiotherapy after detailed discussion of risks versus benefits with a radiation oncologist. However, this study represents the common circumstance in which a surgical oncologist is the first clinician to see a patient after a new diagnosis of breast cancer, and must discuss national recommendations for adjuvant therapies.

This qualitative study allowed for in-depth interviews exploring individuals' approaches to decision making, providing rich and nuanced data; however, the results would need to be validated in a larger quantitative sample. Participants were roughly spread evenly among minimizers, neutral individuals, and maximizers, although the distribution of these preference types may or may not be representative of the larger population. Most participants in this study were highly educated, Caucasian women aged 70–74 years (i.e. young for this cohort) from metropolitan areas, whose views may systematically differ from other demographic groups in ways we were unable to determine in the scope of this study. All participants were recruited via a web-based research volunteer portal, which may have skewed the sample further towards patients with a preference for active engagement in healthcare decisions.[34] However, we anticipate that such women may be at greater risk for overtreatment given their functional status and access to resources; thus, their preferences are very salient. Future studies with larger sample sizes are needed to examine how MM preferences vary with respect to demographics and clinical scenarios.

CONCLUSION

This qualitative study explored how patients' MM preferences inform their treatment decisions in the case of women ≥ 70 years of age diagnosed with early stage, HR + breast cancer. Despite evidence-based

recommendations regarding appropriate use of surgery, SLNB, chemotherapy, and radiotherapy, maximizers consistently stated a preference for more medical intervention and aggressive therapies compared with minimizers and neutral individuals. Reducing the use of low-value services in this patient population will require an open dialog between providers and patients to address these preferences.

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