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## Consistency in Attitudes Across Cancer Screenings in Medically Underserved Minority Populations

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### Abstract

While a wide range of behavioral and psychosocial literature explores attitudes and beliefs towards cancer screenings, fewer studies examine attitudes across cancer screening types. We draw on quantitative and qualitative findings from a 4-year prospective study based at a community health center serving diverse, low-income patients. Methods included self-report surveys ( $n=297$ ), medical chart abstraction, and several qualitative methods with a subsample of participants. Participants included white, African–American, Vietnamese, and Latino patients who were diagnosed with diabetes, hypertension, or both. Patients' attitudes (both positive and negative) towards cancer screening types were remarkably consistent across cancer screening types. These effects were stronger among men than women. Never having had a cancer screening was generally associated with more unfavorable attitudes towards all screenings. Qualitative interviews indicate the importance of information circulated through social networks in shaping attitudes towards cancer screenings. *Condensed abstract:* In a multi-method study of attitudes towards cancer screening among medically underserved patients in a primary care setting, we

found that attitudes (both positive and negative) were remarkably consistent across cancer screening types.

### Keywords

Health knowledge; attitudes; practice; Cancer screening tests; Medically underserved; Minority health; Health care disparities; Breast cancer; Prostate cancer; Colon cancer

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### Background

Ethnic and racial disparities have been identified in access to and utilization of a range of cancer screenings [17, 21, 24, 33]. A wide range of behavioral and psychosocial studies have investigated factors associated with patient attitudes towards cancer screenings [7, 10, 18], such as the way benefits or risks are explained [11, 28, 30], social networks [31], and acculturation and familism [15, 32], among many others [27]. Much of this literature describes patients' attitudes towards site-specific cancer screenings [2] or individual screening methods [3]. Experience with a cancer screening may lead people to be positively inclined to continue with a schedule of cancer screenings in the future [1, 7, 14, 16, 29]. Less is known about minority patients' attitudes across cancer types. Racial and ethnic cancer disparities may be exacerbated by community attitudes and other factors that lead minorities and those with limited access to health care to miss recommended screenings [12]. Our mixed-method study aimed to explore attitudes towards screenings for three cancer types among ethnically diverse, low-income patients at a safety-net clinic. To our knowledge, this is the first study that examines attitudes towards breast, prostate, and colon cancer screenings in this population.

### Methods

Funded by the National Cancer Institute, the Culture and Health Literacy study employed self-report surveys regarding cancer screening behaviors and attitudes ( $n=297$ ), medical chart abstraction, and several qualitative methods. The study was based at Caring Health Center in Springfield, Massachusetts, a primary care clinic located in a medically underserved area. Following informed consent, quantitative surveys were orally administered in the language of the patient's choice (English, Spanish, or Vietnamese) by bilingual, bicultural interviewers. Self-reported experiences with cancer screening were measured using items adapted from the BRFSS [4]. Attitudes towards cancer screenings were measured using items adapted from breast cancer [5, 6] and colorectal cancer [26] screening scales.

For each cancer type (breast, prostate, colorectal), participants were asked about their experience with two screening methods (for example, breast self-exam and mammogram for breast cancer), including whether a test was recommended to them by their health care provider, and whether they had the test. To the extent possible, equivalent questions were asked about each test and were intended to reflect either favorable (e.g., having the test will reduce my chances of dying from cancer, I don't worry as much about breast/prostate/colon cancer) or unfavorable attitudes (e.g., the test will be painful, embarrassing, take too much

time, cost too much) towards the test in question. For breast cancer screenings, we also asked whether participants agreed that either a mammogram or breast self-exam “will help me find a lump” and whether each is still necessary if the other screening is performed.

The categorical format of these questions (yes/no) allowed us to add the number of items endorsed to create indices of positive (range 0–2 for all screenings except breast cancer, where range 0–4) and negative (range 0–5) attitudes toward each screening type. Female and male attitudes were thus assessed for a total of four screening tests, two of which were gender-specific (breast cancer screening in women; prostate cancer screening in men). For women, we thus created a total of eight scales reflecting positive (4) and negative (4) attitudes towards mammography, breast self-exam (BSE), blood stool test (BST), and colonoscopy (COL). Eight additional scales were created for men reflecting their attitudes towards prostate-specific antigen test (PSA), digital rectal exam (DRE), blood stool test (BST), and colonoscopy (COL). These scales served as the dependent measure in analyses presented below.

A subsample of participants also completed in-depth interviews ( $n=35$ ), focus groups ( $n=47$ ), chronic disease diaries ( $n=15$ ), and home observations ( $n=12$ ). Qualitative interviews were recorded, transcribed, translated into English if required, and analyzed in a two-step coding process using Atlas.ti, a qualitative data analysis program. Intercoder agreement was achieved through regular meetings among the PI, ethnographer, and qualitative data manager, who periodically coded the same transcripts and met to discuss their coding decisions to ensure that all coders understood how to apply particular codes to the data [20].

## Results

Our study sample included white ( $n=40$ ), African–American ( $n=64$ ), Latino ( $n=100$ ), and Vietnamese ( $n=93$ ) participants who had been diagnosed with hypertension and/or diabetes. Nearly three quarters (74%) of our sample estimated their household income to be between \$400 and \$1,200 a month. Over half (59%) reported that they were disabled, and over two thirds (67%) rated their health as fair or poor. More than one third (34%) had an eighth-grade education or less, with Vietnamese and Latino patients having fewer years of schooling, on average, than white or African–American participants.

For both women and men, stronger unfavorable attitudes were consistently expressed by those who have never had/done the test in question (see Table 1). The most striking differences concerned unfavorable attitudes towards colonoscopy expressed by those who have never had the test vs. those who have (see Table 1). Favorable attitudes were similarly compared according to experience with tests. No significant differences were found between those men or women who have and have not had/done the test in question. The association between attitudes and experience with a test was thus restricted to the negative dimension of the attitudinal measure. In other words, lack of experience with a screening test was associated with negative attitudes toward the test.

To assess consistency in attitudes across screening types, we produced separate correlation matrices for men and women that display associations among the four positive attitudinal indices and among the four negative attitudinal indices. As shown in Table 2, below, women's positive attitudes towards each screening type were positively associated with each other (mean inter-item correlation = .38). In addition, combining the four positive indices yielded an internally consistent scale ( $\alpha = .70$ ), reflecting a positive disposition towards all screening tests surveyed. A virtually identical pattern of association was found between women's negative attitudes towards screening types (mean inter-item  $r = .37$ ;  $\alpha = .68$ ). This pattern of consistency in positive and negative attitudes across screening types was even stronger for men, with mean inter-item correlations ranging from ( $r = .57$  to  $.62$ ) for positive and negative attitudes, respectively. Combining men's positive and negative attitudes also yielded internally consistent scales ( $\alpha = .84$ ,  $\alpha = .87$ ). These findings suggest that the more negative (or positive) participants' attitudes were towards one screening type, the more negative (or positive) their attitudes were towards all screening types.

These correlational data seem to suggest that the range of attitudinal measures capture a more general positive or negative orientation towards cancer screening across screening types. If this were the case, we would expect a factor analysis to identify clusters of items associated with this more general positive or negative orientation. To explore this further, we submitted the eight positive and negative attitudinal indices to principal components analysis with varimax rotation for men and women separately. In each case, a clear two-component solution was obtained accounting for 69.83% of the variance for men and 54.11% for women. As expected, these two components very clearly reflect a favorable and an unfavorable disposition towards cancer screenings on the whole (see Table 3). For both women and men, high component loadings were consistently associated with the positive attitudinal indices for the first component and with the negative indices for the second component. This pattern of loadings suggests that our measures of cancer screening attitudes detected a more general underlying orientation towards screening that is not necessarily test-specific.

In sum, we found remarkable consistency in attitudes towards cancer screening insofar as attitudes towards any one screening type were positively associated with attitudes toward any other screening. We now turn to findings from qualitative methods to further contextualize these quantitative findings.

## Qualitative Findings

Qualitative, in-depth interviews followed a similar pattern of questions as the survey items, first exploring a participant's experience with a given cancer screening before turning to a discussion of what the participant learned from the test and what she had heard from others about the test. We specifically asked about each of the six cancer screenings discussed above. While participants described a range of encounters with the health care system, several themes were common across all participants' discussions of cancer screenings, including fear, anxiety, and a proactive orientation towards learning about their cancer risk (Armin et al., in preparation). Most relevant to the quantitative findings presented above,

however, was the importance of social networks in participants' perceptions of cancer screenings. These themes are presented below.

Participants we interviewed seemed to integrate health information from a variety of sources in their decision making about cancer screenings. Information exchanged within participants' social networks contributed to their knowledge, beliefs, and attitudes towards cancer screenings. Participants described both giving and receiving information about cancer risk, treatment, and the physical experience of a screening. For example, one Vietnamese participant described her fears about having a colonoscopy based on stories she had heard from friends: "it was so scary when they talked about it." Once she completed the test, however, she felt these fears were unfounded and now she encourages her friends to have the test, explaining that they do not have to be worried because "it's nothing." Chi Nguyen,<sup>1</sup> another Vietnamese participant, elaborated conflicted feelings about whether or not to get a colonoscopy because of what she had heard from other people:

**Nguyen:** Fifty percent one and 50% the other, go or not? After I heard the doctor mention it, I wanted to go. But I heard from other people that the test was painful. So I was like, 50%... go or not.

**Interviewer:** What kinds of things did you hear from other people who had gone to have the test?

**Nguyen:** [sigh] Okay, they're talking, talking and then they sleep. And when they're done, they don't know what happened. Something like that. Some people told me the test was painful. Other people said they were put to sleep, so they didn't know anything.

**Interviewer:** When your doctor recommended a colonoscopy...what did he or she tell you about it?

**Nguyen:** They said when I get old, over 50, we must go do the test because it happens to old ladies and old men.

**Interviewer:** Did the doctor tell you much about the test and how it would work?

**Nguyen:** I can't remember what they said.

Note that Nguyen has a fairly detailed recollection of what she learned from others regarding getting a colonoscopy, but she has little recollection of what her doctor told her about colonoscopy beyond, "We must do the test because it happens to old ladies and old men." This seems to indicate the relative strength—as she puts it, "50–50"—of social network inputs in relation to medical information. Despite concerns raised by information from others in their social networks, both the participants above had positive experiences with cancer screenings that led them to eventually recommend them to others. Similarly, negative experiences may ramify outwards through individuals' social networks. For example, Alysya Rodriguez, a Latina participant living with hypertension and psoriasis,

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<sup>1</sup>A pseudonym, as are all names of individuals presented here.

described her sister's experience to explain why she declined her doctor's recommendation to obtain a screening colonoscopy:

**Rodriguez:** The doctor said that he should have scheduled me for one. But I told him, no, not yet, I didn't have to. There's no reason for it... I told him no, because my sister had one, and it was—she was in a lot of pain and stuff and I've seen what she went through. And I says, why should I go to one? I mean, I don't need it right now. I have 50 million things before that, so let me just adjust to this, get used to everything else! So many medications, I mean, don't keep throwing at me—If you throw too many balls, I only got two hands.

**Interviewer:** Can you tell me a little more about your sister's experience? Did you go with her to have the test done?

**Rodriguez:** Um, yes, and then she was numbed up or whatever, but she says she was still feeling—it was painful and she was still feeling stuff you know. It was really, really uncomfortable. I didn't want to go through that because I been going through so much with everything else.

For this participant, observing her sister's experience with a colonoscopy compounded her own reluctance to address what she saw as yet another medical issue when her hands were already full coping with other chronic conditions.

Individual fears or negative experiences may extend from one type of cancer screening to another, leading to the similarities in attitudes across screening types demonstrated in the quantitative data. For example, another Latina participant explained her reluctance to undergo a colonoscopy by describing a bad experience she had after an endoscopy more than 20 years earlier in Puerto Rico. African-American participants in another focus group described how they imagined these fears might spread from one kind of test to another:

**P2:** Like, [people] might think they might have something, or they scared they might find something, you know. Then they gonna put it off, uh-huh, nobody want to hear that they sick or they got something. Yeah.

**P3:** In denial! In denial of the truth. When all they doing is making it worse if it is the case.

**P4:** I mean you hear so much stories about how cancer destroys people.

However, fears may motivate some participants to be adherent, as described by a Latina participant who explained that she does breast self-exam while watching TV “but I know I have to do the mammogram either way... It's just that I'm fearful, that's why I do [BSE].”

At the same time, positive experiences also seem to support adherence for future screenings [22]. For example, Latina focus group participants describe their breast cancer screening practices:

**P4:** I always do both. So annually a mammogram, and thank god I have come out negative.

**P5:** And monthly I will check myself as well [demonstrating the movement of her hand on her breast].

**Q:** Monthly, okay.

**P4:** And me too.

**P5:** I'll do the mammogram annually but monthly, well...

**P4:** And thank God I come out negative and in the self-check also.

Positive experiences such as these and participants' willingness to circulate their experiences and recommendations through their social networks provide an opening for health care providers to reach medically underserved patients to bring them into regular cancer screening care.

## Discussion

Our quantitative results confirm other researchers' findings that experience with a cancer screening may lead people to continue with a schedule of cancer screenings in the future [7, 22, 29] while negative attitudes are associated with lack of experience with cancer screenings [14]. Our research extends these findings by showing that patients' positive attitudes towards cancer screenings also seem to be generalized across screening types.

Qualitative interviews reveal a range of perspectives on cancer screenings. The findings reported above indicate that social networks seem to play an important role in patient knowledge, beliefs, and attitudes. Information transmitted through social networks can both reinforce patients' positive attitudes towards cancer screenings and convey others' experiences with barriers [3, 27], which may include lack of knowledge, fear, mistrust of health care providers, and fatalism [9, 13]. This research supports the work of others who point to the need for better understanding of the role of social context and relational norms in cancer screening utilization among diverse ethnic groups [23, 24].

Our findings are subject to some limitations. Conducting in-depth interviews and surveys with diverse language groups, including those whose first language is not English, does present barriers between participants and some members of the research staff. To address this, in-depth interviews were conducted with the aid of bilingual research assistants who provided on-the-spot translation into English, and who reviewed transcripts and recordings to ensure that this on-the-spot translation captured the entirety of the participants' original comments. In addition, we were unable to track the outcomes of referrals outside the clinic to assess actual adherence to cancer screenings, and were thus forced to rely on participants' self-reported experience with cancer screenings. In addition, we used breast cancer [5, 6] and colon cancer [26] screening scales to measure attitudes towards prostate cancer screenings. Finally, because we translated our attitudinal questions into Vietnamese and Spanish, we did not have the benefit of psychometric research establishing their reliability and validity in these language groups. But while the reliability of Vietnamese endorsements may be in doubt, discussions of attitudes towards cancer screenings in in-depth interviews

and focus groups with Vietnamese speakers corresponded to attitudes presented in quantitative data, increasing our confidence in the validity of these findings.

## Conclusions and Recommendations

Consistency in attitudes across cancer screenings is an important finding with broad significance for early identification efforts, especially among medically underserved patients. Since patients who have never had any cancer screening tend to have the most negative attitudes towards all screenings, our findings suggest that primary care providers should refer patients with limited screening experience to the most accessible screening possible to ensure their participation. In addition, like other peer education models to increase cancer screenings [8, 19, 25], primary care clinics should seek to draw on and mobilize social networks where diverse individuals can share their positive cancer screening experience with members of their community. A testimonial from a community member citing a good experience with cancer screenings may lend legitimacy to the screening process. Such a program could also serve as a forum for patients and providers to increase patient understanding of cancer risks and the role of screenings in early detection and survival [28].

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**Table 1**

Experience with cancer screenings and unfavorable attitudes

<b>Unfavorable attitudes towards cancer screening</b>				
Women	Mammogram	BSE	BST	Colonoscopy
Had test	1.34	.62	1.06	1.42
No test	2.70	1.10	1.82	3.41
Sig	.002	.04	.05	.0001
Men	PSA	DRE	BST	Colonoscopy
Had test	1.24	1.36	.50	.81
No test	1.76	2.23	1.88	2.40
Sig	n.s.	.03	.001	.0001

Cell means reflect a negative attitude towards the various screening tests. Thus, higher numbers reflect more unfavorable attitudes

Table 2

Consistency in attitudes across cancer screening types

	Women (n=147)				Men (n=150)			
	MAM	BSE	BST	COL	PSA	DRE	BST	COL
Positive attitudes								
Mammogram	–			PSA	–			
BSE	.39**	–		DRE	.63**	–		
BST	.29*	.42**	–	BST	.56**	.50**	–	
Colonoscopy	.39**	.32*	.47**	Colonoscopy	.52**	.64**	.56**	–
$\alpha=.70$				$\alpha=.84$				
Negative attitudes								
Mammogram	–			PSA	–			
BSE	.41**	–		DRE	.56**	–		
BST	.30*	.41**	–	BST	.51**	.69**	–	
Colonoscopy	.31*	.40**	.53**	Colonoscopy	.52**	.78**	.70**	–
$\alpha=.68$				$\alpha=.87$				

\*\*  
 $p<.0001$ ;\*  
 $p<.001$

**Table 3**

## Principal components of cancer screening attitudes

Scale	Women	Scale	Men
Component 1 Positive orientation towards cancer screening			
Mammogram (+)	.685	PSA (+)	.817
Mammogram (-)	-.159	PSA (-)	-.065
BSE (+)	.721	DRE (+)	.831
BSE (-)	.116	DRE (-)	-.103
BST (+)	.745	BST (+)	.796
BST (-)	-.161	BST (-)	.010
Colonoscopy (+)	.756	Colonoscopy (+)	.832
Colonoscopy (-)	.056	Colonoscopy (-)	-.083
Component 2 Negative orientation towards cancer screening			
Mammogram (+)	-.159	PSA (+)	-.090
Mammogram (-)	.587	PSA (-)	.726
BSE (+)	-.027	DRE (+)	-.140
BSE (-)	.723	DRE (-)	.885
BST (+)	.000	BST (+)	-.019
BST (-)	.786	BST (-)	.867
Colonoscopy (+)	.035	Colonoscopy (+)	.006
Colonoscopy (-)	.796	Colonoscopy (-)	.889