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Medical mistrust and patient satisfaction with mammography: The mediating effects of perceived self-efficacy among navigated African American women

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Abstract

Background—Medical mistrust is salient among African American women, given historic and contemporary racism within medical settings. Mistrust may influence satisfaction among navigated women by affecting women's preferences and perceptions of their healthcare self-efficacy and their providers' roles in follow-up of abnormal test results.

Objectives—To a) examine if general medical mistrust and healthcare self-efficacy predict satisfaction with mammography services; and b) test the mediating effects of health-related self-efficacy.

Design—The current study is a part of a randomized controlled patient navigation trial for medically underserved women who had received a physician referral to obtain a mammogram in three community hospitals in Chicago, IL. After consent, 671 African American women with no history of cancer completed questionnaires concerning medical mistrust and received navigation services. After their mammography appointment, women completed healthcare self-efficacy and patient satisfaction questionnaires.

Results—Women with lower medical mistrust and greater perceived self-efficacy reported greater satisfaction with care. Medical mistrust was directly and indirectly related to patient satisfaction through self-efficacy.

Conclusions—Preliminary findings suggest future programs designed to increase healthcare self-efficacy may improve patient satisfaction among African American women with high levels of medical mistrust. Our findings add to a growing body of literature indicating the importance of self-efficacy and active participation in healthcare, especially among the underserved.

Keywords

self-efficacy; medical mistrust; patient satisfaction; mammogram; patient navigation

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Introduction

Patient navigation is a well-documented strategy toward the mitigation of racial/ethnic and socioeconomic disparities in access to early detection, diagnosis, and treatment, and survivorship of cancer(1-4). Patient navigators serve multiple roles throughout the breast cancer care continuum, including care management (e.g., logistic and financial assistance), mediation of provider-patient interactions, as well as patient education and counseling (e.g., self-efficacy, trust)(5). Determining which of these roles is important for medically underserved patients to optimize existing navigation programs.

The importance of patient satisfaction among navigated women

Recent efforts have sought to gain consensus and identify metrics toward realizing the promise of navigation: to these ends, identified primary outcomes of the National Cancer Institute-supported Patient Navigation Research Program include 1) timeliness of diagnosis (i.e., receipt of screening and diagnostic mammography); 2) timeliness of cancer treatment; 3) patient satisfaction and quality of life; and 4) cost-effectiveness analysis(2, 6). The majority of interventions have focused on the first two outcomes. Systematic and qualitative reviews have indicated that recipients of navigation are more likely to have timely adherence to recommended breast cancer screening, diagnostic procedures, and treatment(4, 5). However, relatively less research has focused on perceived quality of care and patient satisfaction. Further investigation concerning predictors of patient satisfaction among navigated women is warranted, as satisfaction has been tied to patient health status, quality of life, and adherence to recommended care(7). Furthermore, satisfaction has been incorporated into quality assessment and accreditation reports; these data can serve as evidence to inform organizational policy decisions on continuation and adaptation of services(8).

Navigated women report particularly high levels of satisfaction with breast health care, including navigation pertaining to mammography appointments(9-12). Notably, studies have had relatively low proportion of ethnic minority women(9, 10, 12). Available studies suggest racial/ethnic differences in satisfaction exist among navigated women, wherein minority women report lower satisfaction than non-Hispanic White counterparts(13, 14). Furthermore, there has been some suggestion that the impact of navigation on satisfaction may differ across ethnic groups(13). Identifying predictors of patient satisfaction within different underserved and marginalized populations, including African Americans, is integral to inform policy decisions to adapt existing patient navigation programs for this population. The current study examines the importance of medical trust and self-efficacy in existing navigation training programs to promote timely follow-up mammography among African American women.

Medical mistrust and patient satisfaction

Interpersonal factors, and provider-patient relationships specifically, are major predictors of patient satisfaction in the cancer care context(8). Trust in providers has important implications for satisfaction, and may be particularly relevant for African Americans, who live in the context of historic and contemporary forms of racism in medical settings(15-18).

The unique and severe forms of racism African Americans experience, including segregated healthcare systems and overt interpersonal racism by providers, can contribute to elevated levels of medical mistrust and non-adherence as well as lower satisfaction and quality of life(3, 17, 19-24). The medical mistrust observed among African Americans can be considered a consequence of collective disempowerment and marginalization as well as daily exposure to implicit and explicit interpersonal and systemic forms of racism(22, 25). Medical mistrust with the healthcare system in general has been associated with anxiety, depression, and perceived lower quality care among African American breast cancer patients(24, 26), but little is known about its role in the context of early detection practices and diagnostic procedures (i.e., mammography).

Navigation services provide an opportunity to address disparities in breast healthcare use resulting from medical mistrust(3). Culturally competent navigators have been thought to increase trust among patients and positive outcomes, as they are perceived to be conduits between patient communities and the healthcare industry. Nonetheless, little research has documented the general level of medical mistrust among navigated women, nor assessed the effect of medical mistrust on patient satisfaction with mammography services. Such research may serve to inform decisions concerning the importance of facilitating self-efficacy in navigation services, especially among populations with high levels of medical mistrust.

A conceptual model of medical mistrust and patient satisfaction

Identifying psychological processes and mechanisms in associations between mistrust and satisfaction has important implications for refinement of existing navigator roles. For example, medical mistrust may impact patient preferences and perceptions concerning their own and their providers' roles in seeking care including mammography, which in turn may influence satisfaction with care. Figure 1 depicts a potential conceptual model to understand the potential mediating roles of perceptions about roles and subsequent decision-making patterns in the relationship between medical mistrust and patient satisfaction. This framework offers a conceptualization to understand how greater medical mistrust may translate into lower patient satisfaction. Our conceptual model is adapted from the theoretical framework developed by Pascoe and Richman(28), wherein anticipation and perceptions of discrimination (e.g., medical mistrust) may influence subsequent health outcomes through psychological, behavioral, and physiological mediating factors. We hypothesize that medical mistrust is related to patient satisfaction through general perceptions about the roles of patient and care provider, which in turn influence patient perceptions and actions during specific instances of care(27). Women with greater medical mistrust may perceive themselves as less able to engage with providers (e.g., lower healthcare self-efficacy, shared decision-making preferences). Lower general perceived decision-making ability in medical settings may influence patient actions and perceptions of received care, including cancer screening and diagnostic appointments. Specifically, lower healthcare self-efficacy and shared decision-making preferences may result in lower participation in care and subsequently comprehension of procedures and information provided during health-related interactions(28, 29). Lower levels of shared decision-making practices and patient comprehension may be associated with lower patient satisfaction(27, 30-32). The current study provides a preliminary test of this framework and examines the

mediating effect of healthcare self-efficacy in the relationship between medical mistrust and patient satisfaction.

The current study defines *healthcare self-efficacy* as the patient's perceived ability to obtain, understand, and act on information in medical settings(23, 33). Through this lens, women with higher levels of medical mistrust in general may perceive themselves less able to acquire, understand, and act on health information. Simultaneously, women with higher levels of healthcare self-efficacy may have greater satisfaction with care. Consequently, higher levels of medical mistrust may result in lower satisfaction, in part, because of lower healthcare self-efficacy. In addition to case management and informational support, another component of navigation services is patient empowerment and facilitating self-efficacy and medical advocacy(3, 34). This component may be particularly relevant for patients with higher levels of medical mistrust. If navigated women with high levels of general medical mistrust report lower satisfaction with mammography services due to lower perceived general healthcare self-efficacy, recommended modifications to navigation services may include assessing patients' medical mistrust and emphasizing educational components concerning patient empowerment to increase self-efficacy among patients with documented high levels of medical mistrust.

Current study

The current study provides preliminary evidence concerning the importance of patient perceptions and confidence in active participation in care for healthcare utilization among African American women. We hypothesize that, among women who receive navigation services for mammography services, African American women with higher levels of general medical mistrust and lower levels of general healthcare self-efficacy will report lower satisfaction with mammography services. Second, we hypothesize greater general medical mistrust may be related to lower satisfaction with mammography services indirectly through lower general self-efficacy.

Materials and Methods

Procedures

The current study is part of a 5-year patient navigation intervention for female patients with primary care provider referrals for screening and diagnostic mammography across three community hospitals located in Chicago, Illinois (“Patient Navigation in Medically Underserved Areas Project”). All study procedures and content were approved by the participating research institution's Institutional Review Board. Potential participants were identified from breast imaging departments' patient lists of individuals who had scheduled a screening or diagnostic mammography appointment. Study staff randomized women into standard care and navigation arms. Women who were randomized into the navigation arm subsequently interacted with one of four patient navigators who were lay community residents, but affiliated with one of the participating hospitals. Study staff with years of experience in training navigators monitored study navigators with regard to intervention fidelity and interview processes. Navigators then contacted potential participants for screening and to obtain informed consent.

Navigated women interacted at least twice with navigators, unless they missed an appointment or initiated contact. During the first interaction, women underwent screening, consent, baseline questionnaires, and navigation services. Baseline questionnaires included socio-demographic information as well as the instrument for medical mistrust. Navigators provided assistance with appointment/information verification, correcting potential systemic errors (e.g., delayed scheduling), and counseling women with regard to communication concerns (e.g., confusion about recommended mammography) and attitudes toward providers (e.g., perceived disrespect from staff). Navigators also utilized a “teach back” method to ensure comprehension of upcoming appointments and to encourage patients to actively engage health care staff for further information. After completing their mammography appointments, women interacted with navigators a second time to complete questionnaires concerning general healthcare self-efficacy and patient satisfaction.

The current study uses a subset of the larger study's sample (n = 671), which was identified from baseline and follow-up survey answers using the following criteria: 1) identification as African American; 2) randomization into the navigation arm of the larger project; 3) no previous cancer history; and 4) completion of the patient satisfaction questionnaire. There was no age eligibility criterion for the trial.

Measures

Socio-demographic and clinical variables: During the first interaction, age, education level, and household income data were collected. In addition, women were asked about the type of insurance they had, whether they had a medical home/regular source of care, and if they had ever received a mammogram prior to study enrollment.

General medical mistrust: During the first interaction, we administered the 10-item Health Care System Distrust Scale, which has been validated in several studies including a substantial proportion of African American participants(16). Sample items include “*If a mistake were made in my health care, the health care system would try to hide it from me*” and “*The health care system cares more about holding costs down than it does about doing what is needed for my health.*” Response categories were on a 5-point Likert scale, as follows: 1 = Strongly disagree, 2 = Strongly disagree, 3 = Not sure, 4 = Agree, and 5 = Agree. Cronbach's alpha for this sample was 0.80. Summary scores were calculated such that higher scores indicated greater distrust in the healthcare system.

General healthcare self-efficacy: During the second interaction, women completed the 12-item Communication and Attitudinal Self-efficacy Scale, which was developed and validated among a sample with a large proportion of African Americans(35). Sample items include “*I know that I will be able to actively participate in decisions about my health*” and “*It is easy for me to get health information.*” Response categories were on a 5-point Likert scale, as follows: 1 = Strongly disagree, 2 = Slightly disagree, 3 = Slightly agree, and 4 = Strongly agree. Preliminary distribution of individual items suggested non-normal distribution; given this, we recoded options to be 1 = Strongly disagree/slightly disagree, 2 = Slightly agree, and 3 = Strongly agree. Cronbach's alpha for this scale was 0.84. Summary scores were calculated such that higher scores indicated greater healthcare self-efficacy.

Patient satisfaction with mammography services: During the second interaction, the Patient Satisfaction with Cancer-Related Care is an instrument developed by investigators from the ten-site National Cancer Institute Patient Navigation Research Program(2, 7). This instrument was developed to assess satisfaction throughout the breast cancer care continuum. The content of all items is general and can be applied to different types of breast cancer care, from screening mammography to breast cancer treatment. Sample items include “*My questions were answered to my satisfaction*” and “*I received all the services I needed.*” Response categories included: 1= Strongly disagree, 2= Disagree, 3=Undecided, 4= Agree, and 5 = Strongly agree. Cronbach's alpha for the overall instrument for this sample was 0.93. Summary scores were calculated such that higher scores indicated greater satisfaction with follow-up care.

Statistical analysis

Descriptive statistics were reported concerning participants' baseline socio-demographic and clinical variables. Pearson's correlations and analyses of variance (ANOVAs) were conducted to identify potential covariates. Next, we conducted a linear regression model to examine the relative effects of general medical mistrust and general healthcare self-efficacy on patient satisfaction with mammography services. Finally, we conducted mediation analyses, using the bootstrapping Preachers and Hayes method(36). This method is a nonparametric resampling procedure that involves data sampling multiple times (5,000 for this study) and generating a sampling distribution. We calculated 95% confidence intervals of the effect of significant predictors of satisfaction through general healthcare self-efficacy (*A*B* or *Mediated Effect*). We also conducted the conventional Sobel's test to test the mediation model(37).

Results

Table 1 summarizes socio-demographic, clinical, and main study variables for our sample (n = 671). As there were very few missing cases (<1%), we used case deletions to accommodate them. This is considered a simplistic and adequate method for datasets with a limited amount of missing data(38). Bivariate analyses showed that age was negatively correlated with patient satisfaction with mammography services, Pearson's $r = -0.13$, $p = .001$ and general medical mistrust, Pearson's $r = 0.09$, $p = .02$. Other associations were not statistically significant. Given this, age was included as a covariate in all subsequent analyses.

A multivariable linear regression model was conducted to examine associations of general medical mistrust and healthcare self-efficacy on patient satisfaction with mammography services, controlling for age. General medical mistrust was negatively related to patient satisfaction with mammography services, $B = -0.52$, 95% CI [-0.69, -0.34], $p < .0001$. Women with high levels of general perceived self-efficacy, $B = 0.46$, 95% CI [0.29, 0.64], $p < .0001$.

Mediation models

We conducted a mediation analysis to assess the indirect effect of general medical mistrust on patient satisfaction with mammography services through general healthcare self-efficacy, after adjusting for age. We found evidence of significant partial mediation, *Adjusted R*² = 0.11, *Mediated Effect* = -0.07, 95%CI [-0.13, -0.02] (Figure 2). Results were similar when a Sobel test was conducted, $Z = 3.07$, $p = .002$. Altogether, one factor contributing to the lower levels of patient satisfaction with mammography services among navigated women who had higher levels of general medical mistrust was lower general healthcare self-efficacy.

Discussion

Patient navigation is a strategy that was developed to aid medically underserved women, including low-income racial/ethnic minorities(1). To date, much research has explored the effectiveness of navigation on timeliness in receipt of recommended procedures; less work has examined patient satisfaction and contributing factors(4, 5). Existing work has suggested variation across race/ethnicity and the need to explore determinants of satisfaction within racial/ethnic groups. The current study provides important contributions to existing literature with regard to patient satisfaction with mammography services among African American women receiving navigation services. One implication from our work is the potential for navigation services to improve satisfaction with mammography services and other breast healthcare for this traditionally marginalized population, by continuing to provide support to facilitate healthcare self-efficacy among women with high levels of mistrust, which seems to mitigate the effect of mistrust.

Our work contributes to a substantial body of literature that has indicated the importance of addressing medical mistrust among African Americans to improve patient satisfaction and adherence(3, 17, 19, 20, 23, 24). The current study suggests that the impact of mistrust is relevant for interventions aiming to mitigate healthcare and health disparities. African American women with high levels of medical mistrust reported less satisfaction with navigation care with mammography services. Such findings suggests a need to continue to strengthen ties between medically underserved communities and healthcare institutions. Importantly, we used lay navigators who were affiliated with hospitals. Women with elevated levels of medical mistrust may respond differently to navigators, based on their status as a community member as opposed to healthcare professional (e.g., nurse navigator) and their affiliation with hospitals. Future work concerning the influence of medical mistrust on the impact of navigation should examine these potential differences and explore how different navigator models may be more effective in building self-efficacy among different populations varying in medical mistrust. Nevertheless, patient navigation is an excellent potential tool with which partnerships may be fostered and trust may be built. Future qualitative research on patient and healthcare provider perspectives is warranted to determine *how and why* navigators may best facilitate relationships.

Our work further aligns with extant literature concerning self-efficacy and patient satisfaction. Women who indicated greater healthcare self-efficacy also reported more satisfaction with mammography services. Our work suggests that general medical mistrust

may directly influence satisfaction with specialty care and mammography services in particular, but also may also influence satisfaction through impacting patient perceptions of their own abilities and roles within care (healthcare self-efficacy). Our work provides evidence toward the theory of Pascoe and Richman(28) as well as contributes to a growing body of literature concerned with the role of psychological factors and perceptions in patient-provider interactions and receipt of care.

Notably, we did not test all of the associations posited in our conceptual model. Future work is necessary to explore how patient perceptions and trust in the healthcare industry impact their perspectives on patient and provider roles and subsequent satisfaction and utilization patterns. For example, future research may benefit from using validated instruments of shared decision-making preferences or the preference to have providers and patients collaborate together in decisions concerning care. African Americans have been suggested to be less likely to prefer shared decisions in general(39). Qualitative work by Peek and colleagues have highlighted that preference for doctors to decide care may be a consequence of medical mistrust and internalized racism among African Americans(30). Simultaneously, shared decision making preferences has been associated with greater information exchange among patients-providers, adherence, and satisfaction in breast healthcare and other medical settings(30, 31). Altogether, future research is needed to test if shared decision-making preferences serves as another mediator in the relationship between medical mistrust and patient satisfaction. Studies are also necessary in order to incorporate patient actions with regard to decisions about and comprehension of care and test multiple components of our model. This research would help to develop targeted interventions to mitigate mistrust and promote satisfaction and adherence to recommended care, depending on patients' needs.

Limitations

The current study has several limitations. First, while the larger intervention study is a randomized controlled trial, the current study draws from a subsample of women who received the intervention, which may impact generalizability. Second, the mediator and outcomes variables were measured during the same time-point, which influences our ability to make causal inferences. Third, the current study focused on the experiences of African American women, given the well-documented and extensive disparities in receipt of breast cancer-related care (mammography, diagnostic procedures, treatment) and subsequent cancer outcomes. Other work is however necessary to explore if relationships between medical mistrust, self-efficacy, and satisfaction are paralleled in other medically underserved populations. Finally, research is warranted to examine the role of navigation in these relationships; future studies should examine associations of medical mistrust, healthcare self-efficacy, and satisfaction with care across women who have and have not received navigation services.

Conclusions

The current study found several important factors pertaining to patient satisfaction among a group of African American women who were received navigation services to obtain mammograms. African American women with greater levels of general medical mistrust reported lower satisfaction with mammography services. Simultaneously, women with

greater general healthcare self-efficacy reported greater satisfaction with mammography services. In line with existing theory by Pascoe and Richman(28) and our conceptual model (Figure 1), findings suggested that one contributing factor to the association between medical mistrust and patient satisfaction was healthcare self-efficacy, wherein women with higher levels of general medical mistrust experience lower general perceived healthcare self-efficacy and subsequent lower satisfaction with mammography services. Our work coincides with existing literature and furthermore adds much needed information concerning potential mechanisms to target to improve existing programs dedicated to the reduction and elimination of health disparities and to increase quality of care for traditionally underserved populations with high levels of medical mistrust.

Research and practice implications to improve patients' perceived self-efficacy and action in care

Instilling trust and promoting self-efficacy are major roles of many navigator programs. Our data suggest that these programs may consider measuring levels of medical trust in order to determine the level of emphasis that should be placed on promoting self-efficacy to improve African American women's satisfaction with mammography and other breast healthcare. Healthcare providers may also address these needs, either as navigators or in their primary roles during administration of care. Building trust with African American patients may result in greater satisfaction with cancer-related care, including mammography. Also, targeted patient advocacy and empowerment strategies for African American women with high levels of medical trust may help to improve satisfaction. Such efforts to increase patients' perceived confidence and self-efficacy in obtaining, understanding, and acting on health information may help to reduce the influence of trust on satisfaction.

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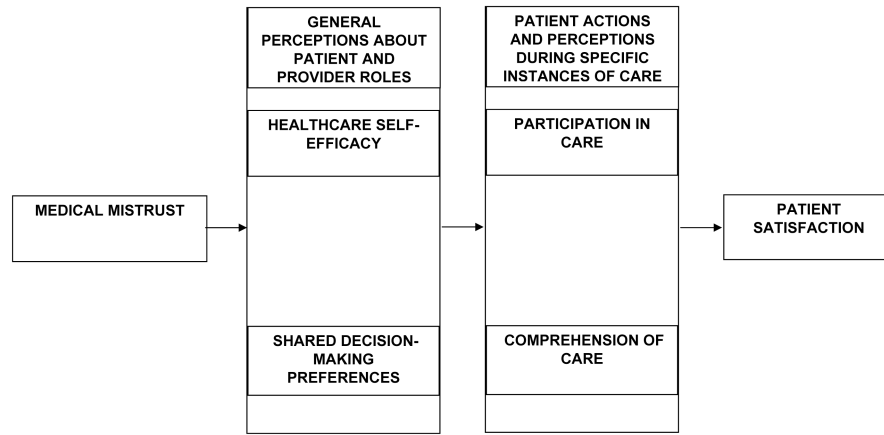


Figure 1.
Conceptual model.

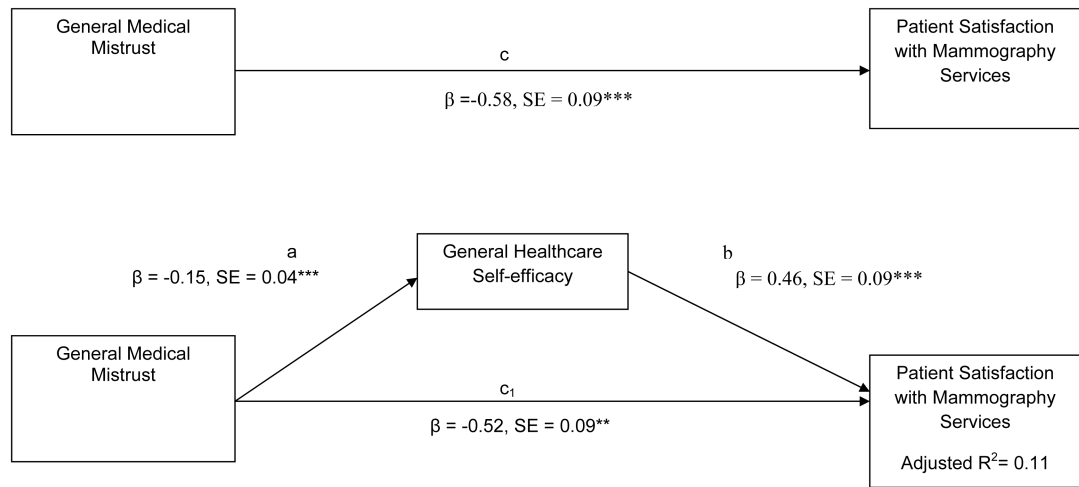


Figure 2. Mediation model of the relationship of general medical mistrust and patient satisfaction with mammography services ($n = 665$), after adjusting for age. All coefficients represent unstandardized regression coefficients. $**p < .01$. $***p < .001$.

Table 1
Characteristics of study sample (n= 671)

Variable	Range	M (SE)
Age		58.77 (0.47)
Education ¹	1-7	4.35 (0.06)
Income ²	1-6	4.17 (0.07)
General medical mistrust ³	14-44	25.84 (0.21)
General healthcare self-efficacy ⁴	11-46	31.60 (0.16)
Patient satisfaction ³	34-140	111.11(0.52)
		n (%)
% Private insurance		540 (78)
% Regular source of care		677 (97)
% Lifetime history of mammography		670 (97)

Note.

¹ 1 = 8th grade or less, 2 = Some high school, 3 = High school diploma/GED, 4 = Some college/vocational training, 5 = Associate's degree, 6 = College degree, and 7 = Graduate/professional degree.

² 1 = <\$10,000, 2 = \$10-19,999, 3 = \$20-29,999, 4 = \$30-39,999, 5 = \$40-49,999, 6 = \$50,000<.

³ 1 = Strongly disagree to 5 = Strongly agree.

⁴ 1 = Strongly disagree to 4 = Strongly agree.

⁵ Proportion of women who strongly agreed/agreed to the statement "I prefer to leave the decision about my treatment to my doctor."