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Psychosocial Factors Associated With Routine Health Examination Scheduling and Receipt Among African American Men

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Abstract

Introduction—African American men often fail to obtain routine health examinations, which increases the probability of disease detection, yet little is known about psychosocial factors that motivate scheduling and receipt among this group.

Methods—We used the Andersen model and theory of reasoned action as frameworks to evaluate the relative contribution of psychosocial factors to self-reported routine health examination scheduling and receipt in a cross-sectional sample of African American men (N = 386) recruited from barbershops (65.3%) and academic institutions/events (34.7%) in Michigan, Georgia, and North Carolina between 2003-2004 and 2007-2009. Participants completed measures assessing demographic factors, physical/mental health status, traditional male role norms, health-promoting male subjective norms, health value, and medical mistrust. Pearson's χ^2 , analysis of variance, and multivariate logistic regression analyses were used to investigate associations between these study factors and routine health examination scheduling and receipt in the past year.

Results—After final adjustment, the odds of scheduling a routine health examination were increased for men with a usual source of care (OR, 5.48; 95% CI, 3.06-9.78) and more health-promoting male subjective norms exposure (OR, 1.46; 95% CI, 1.02-2.04). Higher medical mistrust (OR, 0.26; 95% CI, 0.09-0.76) and traditional male role norms (OR, 0.71; 95% CI, 0.52-0.98) reduced the odds of routine health examination receipt. The odds of routine health examination receipt were increased among men who were older (OR=1.05; 95% CI, 1.01-1.10), had a usual source of care (OR, 2.91; 95% CI, 1.54-5.51) and reported more male subjective norms exposure (OR, 1.51; 95% CI, 1.02-2.22).

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Conclusions—Improving African American men's uptake of routine health examinations will require addressing medical mistrust, mitigating traditional masculine concerns about disclosing vulnerability, and leveraging male social networks.

Keywords

African Americans; men's health; health behavior; race/ethnicity

Introduction

Despite recent lack of consensus about their value,^{1,2} routine health examinations have historically served as the primary venue for promoting health care system engagement, early disease detection and management, and preventive screening among asymptomatic adults.³ Fueling lack of consensus and debates are tensions between public expectations,⁴ physician support,⁵ and US Preventive Services Task Force Guidelines (USPSTF),⁶ which are less definitive about the general necessity of routine health examinations than they are about the key role these periodic visits play in the timely receipt of clinically recommended screenings. While these debates go unresolved, men remain out of touch with the health care system and overrepresented among adults who fail to use preventive health services.^{7,8} Longitudinal and cross-sectional investigations demonstrate that men tend to wait longer after symptoms appear before seeking care⁷ and underutilize health services, even when clinically appropriate.^{7,9,10} Although the health implications of men's underutilization of health services are not fully understood, they coincide with men living shorter lives and perishing from preventable conditions at higher rates than women. Thus, even as the value of routine health examinations is being debated, it may be important to unearth factors motivating men to schedule and obtain them.

African American men, who are less likely than African American women to seek help from physicians irrespective of problem severity,¹⁰ schedule fewer routine annual health examinations than non-Hispanic white men.¹¹ Also, even as recent data suggest a narrowing of the African American–white life expectancy gap,¹² African American men's life expectancy still lags 11.3 years behind non-Hispanic white women, 6.8 years behind African-American women, and 6.2 years behind non-Hispanic white men.¹³ More routine health surveillance might counterbalance the markedly earlier onset of and greater morbidity and premature mortality from preventable conditions (eg, cardiovascular disease, stroke, hypertension, and heart failure) experienced by African American men¹⁴⁻¹⁶ and that contribute to their more diminished life expectancy.¹⁷

The identification of psychosocial factors influencing African American men's decisions to schedule and obtain routine health examinations addresses a critical gap in the public health knowledge base. Of the existing research addressing African American men's health, many focus almost exclusively on prostate cancer, human immunodeficiency virus/AIDS, violence, or injury prevention. Such a focus arbitrarily reduces the discourse around African American men's health to those conditions affecting their reproductive organs or associated with pathological health and social behavior. Although this literature has contributed a great deal to our understanding of African American men's risk taking, it has done little to elucidate factors associated with normative health practices in this group. Health services research studies as well seem to focus on documenting race *or* gender differences. Rarely do such studies account for the potential additive contributions of psychosocial aspects of race *and* gender that may underpin importunate disparities in African American men's preventive and other health care utilization. Moving beyond studies emphasizing differences towards those that evaluate intragroup variability in African American men's health care-seeking motivations will highlight culturally relevant processes that can be targeted in interventions with this group.

This shift might also lead to further clarification about whether male role norms and values primarily shown to play a role in non-Hispanic white men's health care avoidance,¹⁸ similarly influence routine health examination receipt processes among African American men who have distinct definitions and meanings of masculinity.¹⁹

Lastly, a need also exists for the inclusion of younger African American men in studies assessing motivations for routine health examination scheduling and receipt. While many investigators are duly motivated by USPSTF guidelines to restrict their focus to routine health examination obtainment among middle-aged and older populations, doing so neglects emergent life course disease prevention perspectives,^{20,21} African American men's disproportionate risk for the early onset of several chronic conditions,^{22,23} and the growing emphasis in pediatric medicine on increasing male uptake of preventive services during adolescence and young adulthood.²⁴⁻²⁶ USPSTF guidelines are considered to be fairly conservative when compared to those offered by the American Academy of Family Physicians.²⁷ However, both set of guidelines imply that routine health examination among younger men should be used to administer blood pressure screenings, counseling for sexually transmitted infections, alcohol misuse assessments, and depression screening, all of which are clinically recommended for adults aged 18 and older.⁶ We sought to address the empiric gaps outlined above by examining the contributions made by male role norms, medical mistrust, and more general psychosocial factors shown to impact routine health examination procurement among a sample comprised primarily of younger African American men.

Theoretical Frameworks and Conceptual Model

We rely on the Andersen Behavioral Model of Health Services Use²⁸ and theory of reasoned action²⁹ as frameworks in the current study (Figure 1). The Andersen behavioral model is the most frequently employed classification of individual health visit determinants. According to this model, health care utilization is determined by predisposing (eg, sociodemographic), enabling (eg, economic and social), and need (eg, health and functional status) factors. Based on recent suggestions to expand this model to incorporate factors more reflective of African Americans' psychosocial experiences,³⁰ we augment the Andersen model with the theory of reasoned action,²⁹ which describes health behavior as the outcome of a rational decision-making process guided by individual attitudes, behavioral intentions, and subjective norms.

Health value and medical mistrust are attitudes examined in our model. Health value functions as a set of core beliefs that shape behavioral choices, has been positively linked to preventive health behavior, and is posited to effect individual health care avoidance.^{29,31,32} Men score lower on measures assessing health value,³¹ which may partly explain their tendency to forgo routine health examinations. Medical mistrust is higher among African Americans,³³ associated with the underutilization of health services,³⁴⁻³⁷ and reported more often among African American men who endorse more traditional male norms.^{34,35,38} African Americans' higher medical mistrust has been primarily associated with perceived racism and race-based incidents of medical malice traced from southern slave plantations to more modern-day health care environments.³⁹ Of these incidents, the Tuskegee Study of Untreated Syphilis in the Negro Male (1932-1972) remains the most frequently attributed source of African American's medical mistrust.⁴⁰ Since African American men were the primary subjects of the Tuskegee study, it is plausible that they have an increased awareness of the potential for health care organizations to do harm.

In our model, African American men's routine health examination scheduling is conceptualized as a marker of their intentions to obtain this service and, as specified by the theory of reasoned action, is accepted as a reliable indicator of actual routine health examination receipt.²⁹ The theory of reasoned action also presumes that individuals must be exposed to subjective norms

in support of behavioral intentions, have a concern about the social consequences of not engaging in the targeted behavior, and value the perspectives held by those in the normative referent group.⁴¹ Research suggests that African American men rely on male reference groups when making health decisions.⁴² Most studies have focused exclusively on norms that work against health promotion and help seeking. Yet, it is equally likely that male social networks could help to promote health-enhancing norms. Thus, we consider whether African American men will be more likely to schedule and obtain a routine health examination when this decision is supported by men who are close to them. Our model also accounts for more general male role norms around disclosing vulnerability since they have been linked to men's health attitudes, help seeking, and health services use^{18,43} and may activate motivations to comply with subjective norms. Our primary aim was to examine the relative contribution of male role norms and the psychosocial factors outlined above to African American men's routine health examination scheduling and receipt.

Methods

Study Design and Participants

We analyzed data collected in a larger survey study of African American men's health and social lives conducted in 3 waves from 2003-2009. This investigation uses data from 386 African American men recruited between 2003-2004 (wave 1) and 2007-2009 (wave 3), when participants were administered the same survey instrument (Table 1). The majority of participants (65.3%) were recruited from 4 barbershops in Michigan, Georgia, and North Carolina, and a smaller percentage (34.7%) from 2 academic institutions and events. The academic institutions were a community college located in southeastern Michigan, which during the study period served a diverse population of 28 000 students and a historically black university (HBU) located in central North Carolina attended by 8035 students. Fifty percent of the community college population was male and 22% were members of ethnic minority groups. African Americans comprised 77% of the HBU population, where 33% of the student body was male. The academic event was a conference for African American male law enforcement professionals held in Miami, Florida, in 2003.

Procedure and Research Settings

Participants were recruited through flier advertisements, direct contact, and by word of mouth. Barbershops were chosen as primary recruitment sites because they are noted as key sites of interpersonal exchange for African American men from various socioeconomic backgrounds and have been successfully targeted in health-promotion interventions with this population.^{44,45} Five barbershops characterized by key African American male community informants as popular, high-volume (ie, having a wait time of 30-60 minutes and serving a minimum of 40 customers per day) businesses were approached about potential participation. High-volume shops were preferred because men could use their wait time to complete the surveys. Initial contact with barbershop owners was made in person or by telephone and followed up with a study brochure, copy of the survey, and consent forms. Of the 5 barbershop owners approached, only 1 declined to participate in the study because of past negative experiences with research investigators. Consistent with participatory research methods,⁴⁶ barbershop owners and barbers were invited to provide feedback about the survey content, length, and form, which were subsequently incorporated. Following this process, signed letters of support were obtained from barbershop owners. The receptionist or barber invited African American patrons aged 18 years or older to participate in a study about African American men's health. Ninety percent of the men approached in the barbershops verbally consented to participate. The most frequently cited reason for nonparticipation was time constraints. While men were given the option of dropping off the survey at a later date, most completed the survey on site and received a gift certificate for a free haircut valued at \$25 in exchange for their participation. Similar

procedures were used for participants recruited at academic institutions and events who were approached by African American research assistants during lunch hours or meal breaks in places of high congregation (student unions, cafeterias, conference exhibit halls, etc). At academic institutions and events, 86% of the men approached agreed to complete the survey and received a \$25 gift card in exchange for their participation. All study procedures were approved by the University of North Carolina at Chapel Hill and University of Michigan institutional review boards.

Measures

Outcome Variables

The assessment of routine health examination scheduling was based on a single-item question taken from the Medical Expenditure Panel Survey (MEPS):⁴⁷ “In the past year, did you make any appointments with a doctor or other health provider for routine or regular health care?” (yes = 1, no = 0). Participants were asked follow-up questions that helped to distinguish these visits from appointments scheduled for an illness or injury and were told elsewhere in the survey that “routine or regular care” generally included a general physical examination or nonurgent health care.

More specifically, routine health examination scheduling and receipt were assessed with 2 single-item questions—“Did you make an appointment for routine health care in the past calendar year?” (scheduling) and “About how long has it been since you had a routine check-up by a doctor or a health professional?” (receipt). Response options to the first question were coded as follows: 1 = yes and 0 = no. Response options to the second question were coded as follows: 1, within the past year; 2, within the past 2 years; 3, within the past 3 years; 4, within the past 5 years; 5, more than 5 years; 6, never. Based on guidance from USPSTF guidelines⁶ and previous studies,^{8,37,48} responses to this question were then dichotomized into 2 groups: 0, no routine health examination (not received in the past year); and 1, had a routine health examination (received in the past year).

Independent and Control Variables

Predisposing factor measures assessed age (continuous and 18-29, 30-39, ≥ 40), level of education (less than or equal to high school, some college, and college/graduate or professional degree), and marital status (currently married and unmarried). Enabling factor measures assessed participant annual income ($< \$20\,000$, $\$20\,000$ – $\$39\,999$, $\geq \$40\,000$), employment status (employed full- or part-time and unemployed), health insurance status (has health insurance and no health insurance), and usual source of care (has a usual source of care vs no usual source of care). Need factor measures assessed physical and mental health status. Physical health status was assessed with a single-item question. Participants were asked to report whether or not they had ever been informed by a doctor or health professional that they had any of 9 conditions (eg, hypertension, coronary heart disease, heart attack, cancer, diabetes, stroke, emphysema, ulcer, or asthma). Dichotomous responses to these questions were coded as 1 = yes and 0 = no. A summed score of chronic conditions was subsequently calculated and regrouped into 2 categories (“0 chronic health conditions” and “ ≥ 1 chronic health condition”). Mental health status was assessed with a 12-item version of the Center for Epidemiologic Studies-Depression scale (CES-D).⁴⁹ The CES-D assesses the frequency of depressive symptomatology but is commonly used as an indicator of acute psychological distress. Responses ranging from 0 (“rarely or none of the time”) to 3 (“most or all of the time”) were summed to create an overall score (possible range from 0-36), with higher scores indicating more depressive symptomatology (Cronbach $\alpha = .79$).

Norms/attitudinal factor measures assessed male subjective norms around preventive health behavior, health value, and medical mistrust. An index was created to assess male subjective norms from 5 items that asked participants about the degree to which men who are important to them think that they should have routine or regular check-ups, their blood pressure and cholesterol checked, exercise to improve their health, and eat healthy foods. A mean score was computed from responses ranging from 1, strongly disagree, to 4, strongly agree. Scores obtained on this index were standardized with higher scores indicating more exposure to male subjective norms in support of preventive health behavior (Cronbach $\alpha = .90$).

Traditional male role norms were assessed with the 7-item Restrictive Emotionality subscale of the Male Role Norms Inventory,⁵⁰ which measures traditional masculinity ideology around disclosure. Participants responded to items such as “a man should never reveal worries to others,” and a mean score was computed from responses ranging from 1, strongly disagree, to 7, strongly agree, with higher scores indicating a greater endorsement of traditional male role norms around making disclosures (Cronbach $\alpha = .76$).

Health value was assessed with the 6-item Revised Health Hardiness Inventory Health Value subscale.³¹ This scale measures general concern with health issues (eg, “I handle myself well with respect to health”). A mean score was computed from responses ranging from 1, definitely false, to 5, definitely true, with higher scores on this scale indicating a greater value placed on individual health (Cronbach $\alpha = .72$).

Medical mistrust was evaluated with the 14-item Medical Mistrust Index,³⁶ which measures individual mistrust in health care organizations as a whole (eg, “Health care organizations have sometimes done harmful experiments on their patients without their knowledge”). After reverse coding 6 items, a mean score was computed from responses ranging from 1, strongly disagree, to 4, agree) with higher scores indicating greater levels of medical mistrust (Cronbach $\alpha = .78$).

Social desirability was assessed with a 10-item version of the Marlowe-Crowne Social Desirability scale,⁵¹ which measures an individual's tendency to respond in a socially desirable manner. A mean score was computed from responses ranging from 1, true, to 2, false, with higher scores on this scale indicating higher socially desirable responding (Cronbach $\alpha = .60$). A dummy variable was created to control for recruitment site. Participants recruited from barbershops were assigned a value of 1. Those participants recruited from academic institutions/events were assigned a value of 0.

Statistical Analysis

We conducted simple (unadjusted) univariate and bivariate analyses (χ^2 and ANOVA) to describe sample characteristics and assess their association with self-reported routine health examination scheduling. We also evaluated the relationships between continuous study variables with Pearson's r coefficients. Five multiple logistic regression models examined the association between routine health examination scheduling and each set of predisposing, enabling, need, and normative/attitudinal factors. Models 1 to 4 independently regressed the dependent variable on each set of factors. Predisposing demographic factors were retained in each of the subsequent models because of their potential to confound the relationships between the additional study variables and routine health examination scheduling. Then, routine health examination scheduling was regressed on the combined set of factors (model 5). We calculated adjusted odds ratios (ORs) and 95% confidence intervals (CIs).

Data were missing for less than 5% of the variables except for income (missing for 8.3%), health insurance (missing for 10.4%), and usual source of care (missing for 9.8%). Further analysis suggested that these values were missing at random. Hence, we used established multiple imputation procedures⁵² to generate 5 complete data sets. ORs and 95% CIs from

these 5 data sets were examined independently and in aggregate. Since we did not observe any notable differences between these values in our imputed and original data sets, we present results from the original data. Also, as the overall study was designed with several broad objectives and post hoc power analyses are inappropriate in most cases,⁵³ none were calculated for the current study. Multicollinearity was evaluated with variance inflation factors, and values of greater than 5 were considered as indicators of problems with multicollinearity.⁵⁴ We used the Hosmer-Lemeshow test and computed pseudo- R^2 's (Nagelkerke and Cox-Snell) to evaluate the quality of and variance explained by our models. When model quality is appropriate, the Hosmer-Lemeshow tests should be non-significant. Pseudo R^2 's indicate full model fit at 1 and no fit at 0. All statistical analyses were performed with SPSS for Windows, release 17 (SPSS Inc, Chicago, Illinois.),⁵⁵ and 2-tailed tests were considered significant at the α .05 level.

Results

Descriptive Characteristics

Characteristics of the study participants are presented in Table 1. Participant ages ranged from ages 18 to 78 ($M = 29.99$, $SD = 11.05$). Most men in the sample were between the ages of 18 to 29 (59.8%). A higher percentage of participants were unmarried (73.6%), employed at least part time (78.7%), reported incomes of less than \$20 000 (45.8%), completed some college (45.5%), and reported having health insurance (64.1%). A greater number of men (56.9%) in our sample reported having a usual source of care. The majority of participants (66.3%) reported having no diagnosed chronic health conditions. Men from academic institutions were younger ($M = 27.20$, $SD = 11.29$) than those from barbershops ($M = 31.47$, $SD = 10.66$). A higher percentage of men recruited from academic institutions were in the 18- to 29-year-old age category, married, employed, reported completing some college, and had incomes of less than \$20 000. More men recruited from academic institutions had poorer mental health status (ie, higher mean CES-D scores) and higher medical mistrust.

Bivariate Analyses

Fifty-eight percent of our sample reported scheduling and 73% reported receiving a routine health examination in the past year (Table 1). Seventy percent of those who scheduled a routine health examination went on to receive one (data not shown). We found no differences in the percentage of men recruited from barbershops and academic institutions/events who scheduled or received a routine health examination (Table 2). The mean age was higher among men who scheduled ($M = 31.65$, $SD = 12.39$) and received ($M = 31.45$, $SD = 11.74$) a routine health examination. More men who scheduled and received a routine health examination were concentrated in the 18- to 29-year-old category. A higher percentage of men who scheduled and obtained a routine health examination completed some college, were unmarried, reported incomes of less than \$20 000, were insured, and had a usual source of care. There were no differences in routine health examination scheduling or receipt by employment or physical health status. However, men who reported scheduling and receiving a routine health examination had lower mean CES-D scores, higher mean male subjective norms scores, and higher health value scores. Medical mistrust scores were lower among men who had received a routine health examination. Routine health examination scheduling and receipt did not differ by mean traditional male norms. In correlation analyses (Table 3) we found age was negatively related to CES-D scores and positively related to male subjective norms exposure. The patterns of correlations were similar across recruitment site. Therefore we only show results for the full sample. Higher CES-D scores were negatively related to health value and positively related to medical mistrust. Male subjective norms were positively related to traditional male role norms around disclosure and health value. Traditional male role norms were positively related to health value and medical mistrust.

Multivariate Logistic Regression Analyses

In logistic regression models (Tables 4 and 5), we examined factors associated with routine health examination scheduling and receipt. There were no problems with multicollinearity in our models (ie, variance inflation factors ranged from 1.04-1.58). However, we excluded income and employment status from our models because they were highly correlated with education and to keep our number of parameters within the recommended 10-events-per-variable guideline for reliable estimates in logistic regression.⁵⁶ Also, since we found recruitment site differences in many of our independent variables and because social desirability can influence self-reported data, we adjusted for these variables. In Model 1, which examined the association between predisposing factors and routine health examinations, men in the “less than or equal to high school” group had lower odds of scheduling a routine health examination in the past year than men with a college or graduate/professional degree (OR, 0.44; 95% CI, 0.24-0.81). Married men had a higher odds of scheduling a routine health examination than unmarried men (OR, 2.36; 95% CI, 1.29-4.34). Also, older men had higher odds of scheduling (OR, 1.03; 95% CI, 1.00-1.06) and receiving (OR, 1.06; 95% CI, 1.03-1.10) a routine health examination. In model 2, where the contribution of enabling factors was explored, men who reported having a usual source of care had a higher odds of scheduling (OR, 5.34; 95% CI, 3.06-9.30) and receiving (OR, 2.91; 95% CI, 1.59-5.32) a routine health examination. Need factors were examined in model 3, and we observed no significant effect for either physical or mental health status on routine health examination scheduling. However, men with poorer mental health status had lower odds of obtaining a routine health examination (OR, 0.95; 95% CI, 0.91-1.00). In model 4, which examined the contribution of norms and attitudes, men reporting more exposure to male subjective norms supporting engagement in preventive health behavior had higher odds of scheduling (OR, 1.38; 95% CI, 1.01-1.88) and obtaining (OR, 1.56; 95% CI, 1.10-2.20) a routine health examination. In contrast, men with higher medical mistrust (OR, 0.31; 95% CI, 0.13-0.75) and endorsement of traditional male role norms (OR, 0.74; 95% CI, 0.56-0.97) had a lower odds of obtaining a routine health examination. In the final model (model 5), which adjusted for all factors simultaneously, the odds of scheduling and receiving a routine health examination remained higher for men with a usual source of care, and higher mean male subjective norms scores, whereas men with higher medical mistrust and lower traditional male role norms had lower odds of obtaining a routine health examination.

Our Hosmer-Lemeshow tests were all nonsignificant, which indicates the appropriateness of all the models. The Nagelkerke and Cox-Snell pseudo- R^2 's indicate that our full models sufficiently explain a moderate percentage of the variance in our outcomes.

Discussion

The primary goal of this cross-sectional community study was to examine the relative contribution of predisposing, enabling, need, and normative/attitudinal factors to routine health examination scheduling and receipt among African American men. Using the Andersen model²⁸ and theory of reasoned action²⁹ as frameworks for our investigation, we found that African American men in our sample were more likely to schedule and obtain a routine health examination when they had a usual source of care and were exposed to health-promoting male subjective norms. Routine health examination receipt was lower when African American men reported less trust in medical organizations and believed that “real men” should keep their concerns private and emotions out of view. Prior studies have reached similar conclusions when investigating such factors in isolation.^{34,48} However, none have simultaneously considered the role played by health care access, male norms, and attitudes linked to race-based incidents of medical maltreatment in quantitative investigations of African American men's preventive health services use. Our study addressed this important gap in men's health research

and underscores the importance of augmenting general health care utilization models with health behavioral theories to improve our ability to detect the full range of psychosocial factors impacting African American men's decisions to use preventive services.

None of the predisposing factors produced a consistent impact on routine health examination scheduling. However, older men were more likely than younger men to obtain routine health examinations even after accounting for enabling, need, and attitudinal factors. This finding may be attributable to a greater investment in health monitoring among older men produced by normative aging. Initially, older African American men were also more likely to schedule routine health examinations, but this association was attenuated in the face of other study factors. We believe that this attenuation suggests that factors impacting intentions to obtain routine health examinations may be more similar among younger and older African American men. Admittedly, younger men are generally in better health and therefore may require less frequent routine health surveillance, yet when African American men's delayed presentation,⁵⁷ premature mortality,¹⁴⁻¹⁶ and more abridged lifespan due to preventable conditions⁵⁸ are considered, our finding that younger men had a reduced likelihood of scheduling and obtaining routine health examinations may appear less inconsequential. Hence, we join others mounting the growing adolescent and young, adult, male preventive health care agenda^{25,26,59} by suggesting the need to develop interventions designed to improve routine health examination uptake early in the African American male life course.

Consistent with prior evidence,⁶⁰ African American men in the lowest education group had the lowest odds of scheduling a routine health examination, but only when enabling and need factors were excluded. Prior evidence indicates that lower education is associated with poorer health status and limited health care access.⁶¹ Thus, it is likely that the effect of education was absorbed by these factors. Education was not significantly associated with routine health examination receipt, and most of the ORs in our multivariate models were in an unexpected direction, indicating a higher likelihood of receipt among less-educated men. Although we are not certain and lack sufficient power to adequately test our hypothesis, we speculate that other factors (eg, mental health status) may be moderating the effects of education on routine health examination receipt. Future studies with larger sample sizes should explore this possibility. Even so, our findings imply that the positive influence of education on African American men's receipt of routine health examinations may be primarily felt through its tendency to increase intentions to obtain these services. Hence, less-educated African American men may need more buttressing of their behavioral intentions by policies that reduce structural barriers to health care and socioeconomic status attainment. Such a focus has been suggested by others⁶² and may be especially warranted since less-educated men formulate health care utilization intentions amidst a variety of competing downstream psychosocial priorities.

In line with existing studies documenting the positive impacts of marital status on men's health,^{63,64} we found that married African American men were more likely to report scheduling a routine health examination. However, this association did not hold up in models adjusting for the influence of our enabling or combined factors. Marriage has been shown to positively impact men's health insurance and usual source-of-care access.⁶⁵ Although our attenuated finding may be attributable to suppression effects, it is equally plausible to presume that spousal encouragement to schedule routine health examinations may be of limited effectiveness when it is unmatched by health care access. This hypothesized limitation of spousal encouragement is further illustrated by the nonsignificant association between marital status and routine health examination receipt. Nonetheless, we encourage health care providers to direct some of their efforts to improve preventive services use among African American men towards engaging spouses or partners, who can offer supportive reminders to obtain periodic examinations and recommended screenings. Public health researchers might also undertake qualitative investigations, which might provide additional information about spousal or partner

relationship dynamics around health care use that can inform future community-level interventions with African American men.

Usual source of care constitutes a significant facilitator of routine health examination scheduling and receipt among our sample, a well-documented finding in other populations.⁴⁸ The strength of this association is even more notable since the number of men in our sample reporting a usual source of care is lower than the percentages (80%-82%) reported in data summaries from the US National Health Interview Survey.⁶⁶ While our sample is relatively anomalous in terms of the roughly 70% to 80% of African American men estimated as having either private or public health care insurance during our study period,⁶⁷ that alone was not a significant predictor of having scheduled a routine health examination in our study. This finding implies that although health insurance is an important determinant of routine health examination scheduling, its effect is likely mediated through having a usual source of care. Since our results imply that health insurance may not ensure access, policy makers will want to focus not only on improving coverage among African American men but should also work to bridge gaps in health services continuity. In the end, need factors did not play a role in routine health examination scheduling or receipt among our sample. Admittedly, this finding likely reflects the relatively healthy status of our younger sample. Future investigations among younger men should employ other indicators of health need that are less sensitive to the confounding effects of age.

We join other studies citing the significance of male role norms in men's health behavior^{18, 43} and extend those examining the contribution of medical mistrust to health services use^{35, 36} to a community-based sample of African American men. Corroborating previous findings,^{43,68} we found that traditional male role norms around disclosure negatively impacted African American men's routine health examination receipt. African American men's decisions to obtain routine health examinations may be negatively influenced by concerns over disclosing vulnerability because of distal (eg, the Tuskegee study) and proximal (eg, racial discrimination) experiences that heighten anticipation of medical maltreatment and threaten sense of masculine control.

However, our findings also offer important preliminary insights about how subjective male norms might work to *positively* inspire African American men to take preventive health action even, while they express a strong endorsement of traditional masculine role norms. We did not observe a significant bivariate or multivariate relationship between traditional male norms around disclosure and routine health examination scheduling. It could be that the inclusion of other aspects of masculinity that were not measured in the current study (eg, conformity to masculine role norms and male role-specific barriers to health help seeking) might help to clarify the relationships between this factor and African American men's preventive health care intentions. Health value also did not emerge as a significant correlate of African American men's routine health examination scheduling. For African American men, health value beliefs may be more important correlates of health behaviors with a higher degree of autonomy and that depend less on health care system engagement (eg, dietary behavior or physical activity).

To our knowledge, this investigation is one of few empirical studies linking medical mistrust to African American men's routine health examination obtainment. Since we included 2 indicators of routine health examination obtainment, we also add to this knowledge base a better understanding of when medical mistrust might enter the preventive health care decision-making process for African American men. Specifically, our findings imply that African American men's intentions to seek routine health examinations may be less altered by medical mistrust than lack of health care access. On the other hand, whether African American men show up for routine health examinations may be more contingent on how much trust they have in medical organizations. The more pronounced association between medical mistrust and

routine health examination receipt may also be a consequence of problems in the processes of obtaining care after appointments have been scheduled, which was unaccounted for in our models. Cultural competence training in medical education may want to emphasize patient-centered care delivery with African American men as a strategy to increase their preventive health services use since this interactional style has been associated with lower levels of mistrust among this population³⁸ and may mitigate male role-related concerns about disclosing vulnerability.

Our study has some notable limitations. Given the descriptive and cross-sectional nature of this study, we cannot clearly establish causal relationships with our data. Future studies should employ longitudinal methods and more complex sampling designs. We also used recruitment methods that did not allow us to draw a nationally representative sample of African American men, which limits our ability to make generalizable inferences. However, during the data collection period, between 34% to 40% of African American men in the United States were married,⁶⁹ the unemployment rate among this group was between 8.4% and 13.4%,⁷⁰ and 20% to 21% reported completing some college.⁶⁹ These data suggest that our sample is demographically similar to the US population of African American men. We assessed routine health examination scheduling with a single-item question and used the CES-D as a sole indicator of mental health status. Future studies will want to use additional data sources (eg, appointment records) to assess routine health examination scheduling and evaluate other dimensions of mental health status. Our data were also obtained by self-report, a manner which increases the possibility for bias responding. However, since we present estimates adjusted for social desirability using a well-established measure⁵¹ in our multivariate logistic regression models, reporting bias effects are less probable. Our relatively small sample size may have also limited our ability to detect effects in some of our models.

Despite these limitations, our study moves the literature beyond simple documentation of gender and race differences in health services use towards a more comprehensive understanding of specific psychosocial aspects of race and gender influencing preventive health care utilization among a population of men at greatest risk for disparities. To our knowledge, our study is one of few existing investigations that address a broad range of psychosocial factors associated with African American men's routine health examination receipt and scheduling. Our use of barbershops as a primary recruitment site increased the probability of reaching a cross-section of African American men who may have not been reached by traditional sampling approaches. This study also provides information that can be used in interventions designed to reduce disparities in African-American men's health care utilization. Situated within current debates about the value of routine health examinations¹⁻³⁷¹ and documented patterns of men's preventive health care avoidance,^{7,8,72} our findings suggest that improving preventive health care engagement among African American men will require a simultaneous focus on increasing health care access, mitigating concerns about racially biased medical treatment, assuaging concerns about disclosing vulnerability, and leveraging health promoting male social networks.

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Figure 1.
Conceptual Model Illustrating Psychosocial Factors Associated With Routine Health Examination Scheduling and Receipt Among African American Men

Table 1 Characteristics of Study Sample by Recruitment Site^a

Characteristic	Total (N = 386) ^b % (n) or Mean (±SD)	Barbershops (n = 252) % or Mean (±SD)	Academic Institutions/ Events (n = 134) % or Mean (±SD)	P Value
Predisposing Factors				
Age continuous, y	29.99 (±11.05)	31.47 (±10.66)	27.20 (±11.29)	<.001
Age categories				
18-29	(228) 59.8	52.8	72.9	<.001
30-39	(70) 18.4	23.8	8.3	
≥40	(83) 21.8	23.4	18.8	
Education				
≤ High school	(99) 26.2	31.6	16.8	<.001
Some college	(170) 45.5	37.7	59.5	
College graduate/professional degree	(106) 28.3	30.7	23.7	
Marital status				
Married	(95) 26.4	32.9	11.4	<.001
Unmarried	(280) 73.6	67.1	88.6	
Enabling Factors				
Income				
<\$20 000	(164) 45.8	38.5	61.0	<.001
\$20 000-\$39 999	(95) 27.0	32.9	15.4	
≥\$40 000	(95) 27.0	28.6	23.6	
Employment status				
Employed full or part time	(295) 78.7	83.1	70.7	.005
Unemployed	(80) 21.3	16.9	29.3	
Health Insurance status				
Has health insurance	(222) 64.1	61.1	70.0	.117
No health insurance	(124) 35.9	38.9	30.0	
Usual source of care				
Has a usual source of care	(198) 56.9	58.6	54.0	.329
No usual source of care	(150) 43.1	41.4	46.0	
Need Factors				
Chronic health conditions				
0 Chronic conditions	(254) 66.3	68.0	63.2	.340
≥1 Chronic conditions	(129) 33.7	32.0	36.8	
Mental health status (CES-D score) ^c	11.32 (±6.04)	10.67 (±5.71)	12.56 (±6.48)	.004
Norms and Attitudes				
Male subjective norms (PHB) ^c	2.84 (±.78)	2.86 (±.83)	2.79 (±.69)	.399
Traditional male role norms ^c	4.08 (±1.08)	4.12 (±1.07)	4.00 (±1.10)	.298
Health value ^c	3.69 (±.80)	3.73 (±.82)	3.63 (±.76)	.277

Characteristic	Total (N = 386) ^b % (n) or Mean (±SD)	Barbershops (n = 252) % or Mean (±SD)	Academic Institutions/Events (n = 134) % or Mean (±SD)	P Value
Medical mistrust ^c	2.53 (±.33)	2.49 (±.34)	2.61 (±.32)	.001
Outcome Variables				
Scheduled a routine health examination				
Yes	(219) 58.4	56.6	61.8	.323
No	(156) 41.6	43.4	38.2	
Received a routine health examination				
Yes	(272) 73.3	74.2	71.8	.616
No	(99) 26.7	25.8	28.2	

Abbreviations: CES-D, Center for Epidemiological Studies Depression Scale; PHB, Preventive Health Behavior.

^aSome cells may not add up to total N due to missing data.

^bVariables with missing data and percentage of missing values age (1.3), education (2.8), marital status (2.8), income (8.3), employment status (2.8), health insurance status (10.4), usual source of care (9.8), number of chronic health conditions (0.8), CES-D scores (1.3), male subjective norms (2.3), health value (4.1), medical mistrust (1.3), scheduled a routine health examination (2.8), and received a routine health examination (3.9). Comparisons for between-group differences, based on χ^2 tests for categorical variables and *F* tests for continuous variables.

^cHigher scores indicate more depressive symptoms, exposure to male subjective norms, traditional male role norms around disclosure, value placed on health or being healthy, and medical mistrust.

Table 2
Characteristics of Study Sample by Routine Health Examination Scheduling and Receipt Status^a

Characteristic	Total (N = 368) ^b % (n) or Mean (±SD)	Scheduled a Routine Health Examination (n = 219) % or Mean (±SD)	Received a Routine Health Examination (n = 272) % or Mean (±SD)	P Value	P Value
Predisposing Factors					
Age continuous, y	29.99 (±11.05)	31.65 (±12.39)	31.45 (±11.74)	.001	<.001
Age categories					
18-29	(228) 59.8	54.2	53.9		
30-39	(70) 18.4	16.7	19.7	<.001	<.001
≥40	(83) 21.8	29.2	26.4		
Education					
≤ High school	(99) 26.2	21.4	24.9		
Some college	(170) 45.5	45.6	46.0	.014	.629
College graduate or professional degree	106) 28.3	33.0	29.1		
Marital status					
Married	(95) 26.4	32.9	29.7	<.001	.002
Unmarried	(280) 73.6	67.1	70.3		
Enabling Factors					
Income					
<\$20 000	(164) 45.8	39.7	42.0		
\$20 000-\$39 999	(95) 27.0	27.0	27.1	.001	.005
≥\$40 000	(95) 27.0	33.0	31.0		
Employment status					
Employed full or part time	(295) 78.7	79.9	81.8	.576	.065
Unemployed	(80) 21.3	20.1	18.2		
Health insurance status					
Has health insurance	(222) 64.1	74.3	71.4	<.001	<.001
No health insurance	(124) 35.9	25.7	28.6		
Usual source of care					
Has a usual source of care	(198) 56.9	75.9	66.1	<.001	<.001
No usual source of care	(150) 43.1	24.1	33.9		

Characteristic	Total (N = 368) ^b % (n) or Mean (±SD)	Scheduled a Routine Health Examination (n = 219) % or Mean (±SD)	Received a Routine Health Examination (n = 272) % or Mean (±SD)	P Value
Chronic health conditions				
0 Chronic conditions	(254) 66.3	62.8	64.2	.176
≥1 Chronic conditions	(129) 33.7	37.2	35.8	
Mental health status (CES-D score) ^c	11.32 (±6.04)	10.60 (±6.25)	10.49 (±5.96)	<.001
Norms and Attitudes				
Male subjective norms (PHB) ^c	2.84 (±.78)	.91 (±.79)	2.92 (±.75)	<.001
Traditional male role norms ^c	4.08 (±1.08)	4.03 (±1.08)	4.03 (±1.08)	.213
Health value ^c	3.69 (±.80)	3.76 (±.80)	3.81 (±.77)	<.001
Medical mistrust ^c	2.53 (±.33)	2.51 (±.37)	2.50 (±.34)	.030

Abbreviations: CES-D, Center for Epidemiological Studies Depression Scale; PHB, Preventive Health Behavior.

^aSome cells may not add up to total N due to missing data.

^bVariables with missing data and percentage of missing values age (1.3), education (2.8), marital status (2.8), income (8.3), employment status (2.8), health insurance status (10.4), usual source of care (9.8), number of chronic health conditions (0.8), CES-D scores (1.3), male subjective norms (2.3), health value (4.1), medical mistrust (1.3), scheduled a routine health examination (2.8), received a routine health examination (3.9). Comparisons for between-group differences, based on χ^2 tests for categorical variables and *F* tests for continuous variables.

^cHigher scores indicate more depressive symptoms, exposure to male subjective norms, traditional male role norms around disclosure, value placed on health or being healthy, and medical mistrust.

Table 3
Bivariate Correlations Between Continuous Study Variables: Pearson's Correlation Coefficients (N = 386)^a

Variable Name	Cronbach α	Range	1	2	3	4	5	6
Age	–	18–78	1.0					
Mental health status (CES-D score) ^e	.78	0–36	–.37 ^d	1.0				
Male subjective norms (PHB) ^e	.90	1–4	.20 ^d	–.09	1.0			
Traditional male role norms ^e	.81	1–7	–.01	.09	.14 ^b	1.0		
Health value ^e	.89	1–5	.31 ^c	–.45 ^d	.21 ^d	.21 ^d	1.0	
Medical mistrust ^e	.71	1–4	.08	.17 ^c	–.05	.12 ^c	–.01	1.0

Abbreviations: CES-D, Center for Epidemiological Studies Depression Scale; PHB, Preventive Health Behavior.

^aValues shown are Pearson's *r* coefficients.
^b*p* < .05.
^c*p* < .01.
^d*p* < .001.
^eHigher scores indicate more depressive symptoms, exposure to male subjective norms, traditional male role norms around disclosure, value placed on health or being healthy, and medical mistrust.

Table 4
The Association Between Study Characteristics and Routine Health Examination Scheduling: Multiple

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
	AOR (95% CI) ^a	AOR (95% CI) ^a	AOR (95% CI) ^a	AOR (95% CI) ^a	AOR (95% CI) ^a
Predisposing Factors					
Age, y	1.03 (1.00-1.06) ^b	1.03 (1.00-1.06)	1.02 (1.00-1.05)	1.02 (1.00-1.05)	1.02 (0.99-1.05)
Education (ref., college/grad/professional degree)					
≤ High school	0.44 (0.24-0.81) ^c	0.43 (0.21-0.98)	0.48 (0.25-0.91)	0.42 (0.22-0.81) ^b	0.40 (0.18-0.89)
Some college	0.73 (0.41-1.27)	0.59 (0.31-1.17)	0.76 (0.43-1.34)	0.77 (0.43-1.38)	0.67 (0.33-1.34)
Marital Status (referent, unmarried)	2.36 (1.29-4.34) ^c	1.74 (0.85-3.55)	2.33 (1.26-4.31) ^c	2.30 (1.22-4.36) ^b	1.93 (0.91-4.12)
Enabling Factors					
Health insurance status (ref., no insurance)		1.21 (0.67-2.19)			1.15 (0.62-2.14)
Usual source of care (ref., no usual source)		5.34 (3.06-9.30) ^d			5.48 (3.06-9.78) ^d
Need Factors					
Chronic health conditions (ref., 0 chronic conditions)					
≥1 conditions			1.13 (0.69-1.86)		1.24 (0.66-2.35)
Mental health status (CES-D score) ^e			0.98 (0.94-1.03)		1.01 (0.95-1.07)
Norms and Attitudes					
Male subjective norms (PHB) ^e				1.38 (1.01-1.88) ^b	1.46 (1.02-2.04) ^b
Traditional male role norms ^e				1.01 (0.80-1.26)	1.02 (0.77-1.35)
Health value ^e				1.07 (0.78-1.46)	
Medical mistrust ^e				0.56 (0.27-1.14)	
Hosmer-Lemeshow <i>p</i> value	0.71	0.08	0.98	0.21	
Pseudo Nagelkerke <i>R</i> ²	0.12	0.30	0.12	0.15	
Pseudo Cox-Snell <i>R</i> ²	0.09	0.23	0.09	0.11	

Abbreviations: CES-D, Center for Epidemiological Studies Depression Scale. PHB, Preventive Health Behavior.

^aRepresents odds ratios after adjusting for recruitment site and social desirability (all models) and predisposing factors (models 2-5).

^b $p < .05$.
^c $p < .01$.
^d $p < .001$.

^e Higher scores indicate more depressive symptoms, exposure to male subjective norms, traditional male role norms around disclosure, value placed on health or being healthy, and medical mistrust.

Table 5
The Association Between Study Characteristics and Routine Health Examination Receipt: Multiple

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
	AOR (95% CI) ^a	AOR (95% CI) ^a	AOR (95% CI) ^a	AOR (95% CI) ^a	AOR (95% CI) ^a
Predisposing Factors					
Age, y	1.06 (1.03-1.10) ^b	1.05 (1.01-1.09) ^c	1.05 (1.02-1.09)	1.07 (1.03-1.11) ^d	1.05 (1.01-1.10) ^c
Education (ref., college/grad/professional degree)					
≤ High school	0.93 (0.47-1.86)	1.09 (0.49-2.39)	1.17 (0.57-2.41)	1.11 (0.53-2.34)	1.36 (0.56-3.29)
Some college	1.24 (0.66-2.34)	1.36 (0.66-2.80)	1.36 (0.65-2.87)	1.55 (0.78-3.08)	1.98 (0.89-4.42)
Marital Status (referent, unmarried)	1.44 (0.69-3.02)	1.19 (0.51-2.75)	1.36 (0.65-2.87)	1.08 (0.49-2.36)	1.02 (0.42-2.48)
Enabling Factors					
Health insurance status (ref., no insurance)		1.67 (0.89-3.14)			1.64 (0.83-3.24)
Usual source of care (ref., no usual source)		2.91 (1.59-5.32) ^b			2.91 (1.54-5.51) ^d
Need Factors					
Chronic health conditions (ref., 0 chronic conditions)			1.31 (0.73-2.34)		1.68 (0.83-3.42)
≥ 1 conditions					1.01 (0.94-1.08)
Mental health status (CES-D score) ^a			0.95 (0.91-1.00) ^c		
Norms and Attitudes					
Male subjective norms (PHB) ^e				1.56 (1.10-2.20) ^c	1.51 (1.02-2.22) ^c
Traditional male role norms ^e				0.74 (0.56-0.97) ^c	1.57 (0.98-2.50)
Health value ^e				1.40 (0.98-2.20)	1.57 (0.98-2.50)
Medical mistrust ^e				0.31 (0.13-0.75) ^d	0.26 (0.09-0.76) ^c
Hosmer-Lemeshow <i>p</i> value	0.62	0.47	0.67	0.95	0.54
Pseudo Nagelkerke R ²	0.12	0.21	0.13	0.20	0.29
Pseudo Cox-Snell R ²	0.08	0.14	0.09	0.14	0.20

Abbreviations: CES-D, Center for Epidemiological Studies Depression Scale; PHB, Preventive Health Behavior.

^aRepresents odds ratios after adjusting for recruitment site and social desirability (all models) and predisposing factors (models 2-5).

^b $p < .001$.
^c $p < .05$.
^d $p < .01$.

^e Higher scores indicate more depressive symptoms, exposure to male subjective norms, traditional male role norms around disclosure, value placed on health or being healthy, and medical mistrust.