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ORIGINAL PAPER

Physical Health Screenings Among African-American Church and Community Members

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Abstract This study sought to identify characteristics, including religiosity, related to having received health screenings among persons who attend African-American churches or receive church-based community outreach services. A sample of 602 was recruited during two phases as part of a larger project. Blood pressure, cholesterol, and blood glucose screenings were the most frequently reported screenings ever and in the last 12 months. Although religiosity was significantly related to several of the health screenings in bivariate analysis, it is not a predictor of health screenings in multivariate analyses. Innovative strategies are needed to promote screenings such as church-based health fairs.

Keywords Health screenings · African-Americans · Church

Introduction

African-Americans are disproportionately impacted by chronic health conditions, including hypertension, heart disease, diabetes, and many types of cancer and tend to have more disease complications due to late diagnosis. For example, over 40 % of African-American men and women have high blood pressure, compared to about 33 % of White men and women (American Heart Association 2011; Roger et al. 2012), and are more likely to develop it sooner and experience more disease complications (Dodani et al. 2011; Ostchega et al. 2008). Also, nearly 20 % of adult African-Americans have been diagnosed with diabetes compared to 10 % of Whites (Centers for Disease Control and Prevention

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(CDC) 2011). Additionally, prostate and colon cancer rates are higher among African-Americans than Whites, and they tend to die sooner from these cancers (Jemal et al. 2007; U.S. Cancer Statistics Working Group 2012).

Receipt of routine health screenings is critically important to prevent disease and provide early diagnoses and treatment; yet, African-Americans are less likely to be screened for diabetes, colon cancer, and prostate cancer compared to Whites (Office of Minority Health 2012; U.S. Cancer Statistics Working Group 2012). Several noted personal factors are related to non-receipt of health screenings for these and other chronic diseases for African-Americans. Studies show that, in the general population, African-Americans are less likely to receive age-appropriate screening (e.g., Hyman and Pavlik 2001). Additionally, persons who are single (e.g., Tessaro et al. 1994) and those who have lower incomes and no health insurance (Bazargan et al. 2004; Datta et al. 2006; Husaini et al. 2005; Nelson et al. 2009) are less likely to be screened. Furthermore, those who lack knowledge about the need for preventive screening and the purpose of screening tests are less likely to get screened (e.g., Katz et al. 2004; Odedosu et al. 2012). Qualitative research with African-Americans noted numerous barriers to seeing their healthcare providers, including lack of money and insurance (Ford et al. 2009). As such, it is important to identify who has not been screened in order to develop strategies to promote routine health screenings across the lifespan of African-Americans.

Religiosity serves a key role in the African-American community; most African-Americans attend church on a regular basis and consider religion to be an important aspect in their lives (Pew Forum on Religion and Public Life 2009). African-Americans have been found to have high levels of religiosity and rely on faith to recover from illness and maintain health (Matthews et al. 2006). Several studies have explored the role of religiosity and women's experiences with mammography screening, resulting in contradictory findings with stronger religious beliefs being associated with greater likelihood of mammography screening (Bowie et al. 2008) or with not wanting a mammogram (Husaini et al. 2005). Other studies found no differences in religiosity between women who had or had not received a mammogram (Felix-Aaron et al. 2003; Katz et al. 2008). Regular church attendance has been linked to a greater likelihood of reporting blood pressure screenings and increasing the likelihood of having a Pap test for uninsured women (Felix-Aaron et al. 2003). More research is needed on the relationship between religiosity and receipt of health screenings. This study sought to identify characteristics, including religiosity, related to having received health screenings among persons who attend African-American churches or receive church-based community outreach services. We hypothesized that higher engagement in religious behaviors would be associated with receipt of health screenings—including blood pressure, colon cancer, cholesterol, blood glucose, prostate cancer, breast cancer screenings, and Pap tests—ever and in the last year. Additionally, this study examined the relationship between receipt of health screenings and other potential factors, such as protective health behaviors (e.g., not smoking, exercise) and previously studied factors (e.g., age, marital status, socioeconomic status) among African-American church populations.

Methods

Participants

Participants in this study were recruited from churches that primarily serve the African-American community in the Kansas City metropolitan area. Data were used from two phases of data collection from the Taking It to the Pews (TIPS) Project: the first phase in 2008 (nine churches, $N = 345$) and second phase conducted in 2010–2011 (four churches, $N = 543$). TIPS is a religiously appropriate HIV education and testing intervention implemented by trained church leaders in their respective churches. Church members along with community members aged 18 and older who utilized church outreach services (e.g., drug rehabilitation, food pantry, children's daycare services) were eligible to complete the study. Church members completed surveys after their church services, and community members completed surveys during the participating church's community outreach services. Due to missing data on all health screenings or significant amounts of missing data on variables, 226 participants were removed prior to final data analyses, and so were 59 participants who did not identify as African-American. This resulted in a final sample of 602 (2008 phase: $n = 196$, 2010–2011 phase: $n = 406$).

Measures

Participants completed items regarding demographics, religious identification and behaviors, history of health screenings, and other health behaviors.

Demographics

Participants responded to items about their age, sex, race, marital status, and whether they had children.

Socioeconomic Status

Participants responded to four items to approximate their SES. They provided information about their highest level of completed education (less than high school = 0, high school degree/GED = 1, post-high school technical training/some college = 2, college degree = 3, graduate courses/graduate degree = 4). They also indicated their average monthly income in the last year for all the sources of income from their household ($0–1000 = 0, $1001–$2000 = 1, $2001–2500 = 2, $2501–3000 = 3, more than $3000 = 4) and whether they currently have health insurance (no = 0, yes = 1). Lastly, they provided information about their current housing situation (living in temporary or emergency housing/homeless = 0, staying with family or friends = 1, renting = 2, own a home = 3). The scores from these items were summed to indicate a level of SES, with possible scores between 0 and 12.

Religious Identification and Behaviors

Participants identified the denomination of their church, whether they were a member of the church at which they completed the survey, length of membership, and also completed items from the Religious Background and Behavior (RBB) questionnaire (Connors et al.

1996). As part of the RBB, participants selected the term that best describes them at the current time: atheist, agnostic, unsure, spiritual, or religious. These responses were coded from "0" (atheist) to "4" (religious). They also reported how often they have engaged in the following activities in the past 12 months: thought of God, prayed, meditated, attended worship service, read/studied scriptures or holy writings, and had direct experiences with God. Participants reported frequency of engagement in the activities from "never" (0) to more than once a day (7). The RBB items were analyzed as a sum score, with possible scores from 0 to 46. There were several participants with missing data on one or more religiosity items. Mean replacement was used for participants who were missing three or fewer responses on RBB items; those missing four or more items were not included in analyses.

Health Screenings

Participants indicated whether they had received any of the following health screenings (ever and last 12 months): blood pressure, colon cancer, cholesterol, blood glucose, prostate cancer, mammogram, and Pap test. Men were instructed to respond to the questions regarding prostate cancer, and women were instructed to respond regarding mammogram and Pap test. Additionally, second phase participants were asked about their endorsement of church-based health screenings responding to the item "My church should offer health screenings" using a 5-point Likert scale from 0 (*Strongly Disagree*) to 4 (*Strongly Agree*).

Other Health Behaviors

Participants also responded whether and how much they currently smoked cigarettes (not at all, some days, every day) and how often they engaged in vigorous activity for at least 30 min (once a day, once a week, once a month, unable to do). Given lack of variability in these items, they were coded dichotomously (smokers vs. non-smokers and those who engaged in vigorous activity daily and those who did not).

Data Analysis

Descriptive statistics were conducted to describe the sample (Table 1) and determine frequencies of health screenings (Table 2). To identify independent covariates related to each health screening ever and last 12 months, correlations and Chi-square analyses were conducted with continuous and dichotomous variables. The variables identified as significant were entered into logistic regression analyses.

Results

Participants ranged in age from 18 to 87 with a mean of 43.8 (SD = 13.5). Most participants were female (67.6 %, $n = 407$). The mean SES score was 7.8 (SD = 2.9), with only three participants scoring a 0 (meaning that they had less than high school education, earned $1000 or less a month, currently had no insurance, and living in temporary or emergency housing or homeless) and 11.5 % ($n = 69$) participants scoring a 12 (meaning

Table 1 Sample description ($N = 602$)

Variable	% (n)
In committed relationship/married	
Yes	43.7 % ($n = 263$)
No	56.3 % ($n = 339$)
Education	
Less than high school degree	5.8 % ($n = 35$)
High school degree/GED	22.3 % ($n = 134$)
Post-high school technical training/some college	32.7 % ($n = 197$)
College degree	14.8 % ($n = 89$)
Some graduate school/graduate degree	24.4 % ($n = 147$)
Have health insurance	
Yes	80.6 % ($n = 485$)
No	19.4 % ($n = 117$)
Average monthly income	
$0–$1000	16.4 % ($n = 99$)
$1001–$2000	16.8 % ($n = 101$)
$2001–$2500	12.6 % ($n = 76$)
$2501–$3000	15.4 % ($n = 93$)
More than $3000	38.7 % ($n = 233$)
Current housing situation	
Living in temporary or emergency housing/homeless	4.0 % ($n = 24$)
Staying with friends or family	12.8 % ($n = 77$)
Renting	38.0 % ($n = 229$)
Own a home	45.2 % ($n = 272$)
Church denomination	
Baptist	50.7 % ($n = 305$)
Church of God in Christ	25.9 % ($n = 156$)
Catholic	12.3 % ($n = 74$)
Non-denominational	5.0 % ($n = 30$)
Other denomination (e.g., pentecostal, methodist, muslim)	5.6 % ($n = 34$)
Smokes cigarettes	
Yes	20.4 % ($n = 123$)
No	77.6 % ($n = 467$)
Engages in vigorous activity on a daily basis	
Yes	38.4 % ($n = 231$)
No	44.0 % ($n = 265$)

that they had completed graduate courses or had a graduate degree, earned more than $3000 a month, currently had health insurance, and owned a home).

Most identified as church members (84.6 %, $n = 509$), with Baptist (50.7 %, $n = 305$) as the most frequently reported denomination and an average length of membership of 14.6 years (SD = 13.6). Overall, participants were highly religious with a mean score of

36.1 (SD = 7.1; range = 8–46). Most (86 %, $n = 518$) attended worship services, and 82.3 % ($n = 495$) studied scripture or read their Bible at least once a week. Regarding endorsement of church-based health screenings, 70.7 % ($n = 287$) of second phase participants strongly agreed that churches should offer health screenings and 21.7 % ($n = 88$) agreed somewhat.

The most frequently reported health screenings received were blood pressure (ever: 93.7 %, $n = 564$; last 12 months: 81.4 %, $n = 490$), cholesterol (ever: 77.6 %, $n = 467$; last 12 months: 61.5 %, $n = 370$), and blood glucose screenings (ever: 77.2 %, $n = 465$; last 12 months: 60.8 %, $n = 366$). Less than 1 % (.7 %, $n = 3$) of women reported never having had any screenings, and 26.3 % ($n = 107$) reported having had all six screenings ever. Regarding the last 12 months, 10.1 % ($n = 41$) of female participants reported not having any screenings, while 9.3 % ($n = 38$) reported having had all six in the last 12 months. For male participants, 3.6 % ($n = 7$) reported not having had any screenings ever and 29.7 % ($n = 58$) reported having all five screenings ever. Furthermore, 15.9 % ($n = 31$) of male participants reported not having any screenings in the last 12 months, and 17.9 % ($n = 35$) reported having all five screenings in the last 12 months.

Bivariate Analyses

Analyses were performed to identify which variables had significant bivariate relationships with individual health screenings. Chi-square analyses identified categorical variables (sex, church membership, relationship status, vigorous activity, smoking behavior) significantly related to each health screening. Men were more likely to have received colon cancer screening in the last 12 months ($p = .01$), and women were more likely to have been screened ever for blood glucose ever ($p < .05$), as shown in Table 2. No significant differences were found between church members and community members receiving any of the health screenings ever; however, church members were more likely to have received cholesterol ($p < .05$) and blood glucose ($p = .01$) in the last 12 months. Participants who were in a committed relationship/married were more likely to report having cholesterol and blood glucose ever screenings. Non-smokers were more likely to report having blood pressure (last 12 months), cholesterol (ever and last 12 months), and blood glucose (ever and last 12 months) screenings. Participants who reported engaging in vigorous activity daily were less likely to report blood pressure (ever and last 12 months) screenings.

Independent t tests were performed to determine whether there were significant differences in continuous variables (age, SES, religiosity) based on health screening history. There were significant differences for age related to blood pressure (ever and last 12 months), colon cancer (ever and last 12 months), cholesterol (ever and last 12 months), blood glucose (ever and last 12 months), prostate (ever and last 12 months), mammogram (ever and last 12 months), and Pap test (last 12 months) screenings. For all screenings but Pap tests, older participants were more likely to have been screened; those who reported having Pap tests in the last 12 months were younger than those who had not. There were significant differences for religiosity related to colon cancer (ever), cholesterol (ever and last 12 months), blood glucose (ever and last 12 months), prostate (ever), and mammogram (ever and last 12 months) screenings, with more religious participants having been screened. There were significant differences for SES related to blood pressure (last 12 months), colon cancer (ever and last 12 months), cholesterol (ever and last 12 months), and blood glucose (ever and last 12 months) screenings, with higher SES participants reporting being screened.

Table 2 Reported health screenings and behaviors by sex and group

	Men ($N = 195$)	Women ($N = 407$)	p	Church ($N = 509$)	Community ($N = 93$)	p
Screening (Ever)						
Blood pressure			.710			.792
Yes	94.9 % ($n = 185$)	93.1 % ($n = 379$)		94.5 % ($n = 481$)	89.2 % ($n = 83$)	
No	3.6 % ($n = 7$)	4.2 % ($n = 17$)		3.9 % ($n = 20$)	4.3 % ($n = 4$)	
Colon cancer			.052			.551
Yes	44.1 % ($n = 86$)	35.4 % ($n = 144$)		39.1 % ($n = 199$)	33.3 % ($n = 31$)	
No	34.4 % ($n = 67$)	40.5 % ($n = 165$)		40.3 % ($n = 205$)	29.0 % ($n = 27$)	
Cholesterol			.655			.052
Yes	74.9 % ($n = 146$)	78.9 % ($n = 321$)		80.7 % ($n = 411$)	60.2 % ($n = 56$)	
No	14.4 % ($n = 28$)	13.5 % ($n = 55$)		13.0 % ($n = 66$)	18.3 % ($n = 17$)	
Blood glucose			.036			.242
Yes	71.8 % ($n = 140$)	79.9 % ($n = 325$)		80.4 % ($n = 409$)	60.2 % ($n = 56$)	
No	17.9 % ($n = 35$)	12.0 % ($n = 49$)		13.8 % ($n = 70$)	15.1 % ($n = 14$)	
Prostate cancer		n/a	–			.936
Yes	45.6 % ($n = 89$)			48.3 % ($n = 72$)	37.0 % ($n = 17$)	
No	28.7 % ($n = 56$)			30.2 % ($n = 45$)	23.9 % ($n = 11$)	
Mammogram	n/a		–			.280
Yes		66.6 % ($n = 271$)		68.9 % ($n = 248$)	48.9 % ($n = 23$)	
No		19.7 % ($n = 80$)		19.4 % ($n = 70$)	21.3 % ($n = 10$)	
Pap test	n/a		–			.777
Yes		85.5 % ($n = 348$)		86.1 % ($n = 310$)	80.9 % ($n = 38$)	
No		2.9 % ($n = 12$)		3.1 % ($n = 11$)	2.2 % ($n = 1$)	
Screenings (last 12 months)						
Blood pressure			.609			.344
Yes	81.5 % ($n = 159$)	81.3 % ($n = 331$)		81.5 % ($n = 415$)	80.6 % ($n = 75$)	
No	15.9 % ($n = 31$)	14.0 % ($n = 57$)		13.9 % ($n = 71$)	18.3 % ($n = 17$)	
Colon cancer			.010			.426
Yes	26.7 % ($n = 52$)	17.2 % ($n = 70$)		19.6 % ($n = 100$)	23.7 % ($n = 22$)	

Table 2 continued

	Men ($N = 195$)	Women ($N = 407$)	p	Church ($N = 509$)	Community ($N = 93$)	p
No	65.6 % ($n = 128$)	73.0 % ($n = 297$)		70.9 % ($n = 361$)	68.8 % ($n = 64$)	
Cholesterol			.418			.019
Yes	61.0 % ($n = 119$)	61.7 % ($n = 251$)		63.1 % ($n = 321$)	52.7 % ($n = 49$)	
No	35.9 % ($n = 70$)	31.2 % ($n = 127$)		30.6 % ($n = 156$)	44.1 % ($n = 41$)	
Blood glucose			.176			.010
Yes	57.4 % ($n = 112$)	62.4 % ($n = 254$)		62.7 % ($n = 319$)	50.5 % ($n = 47$)	
No	36.9 % ($n = 72$)	31.2 % ($n = 127$)		30.8 % ($n = 157$)	45.2 % ($n = 42$)	
Prostate cancer		n/a	–			.145
Yes	32.8 % ($n = 64$)			34.9 % ($n = 52$)	26.1 % ($n = 12$)	
No	55.4 % ($n = 108$)			51.7 % ($n = 77$)	67.4 % ($n = 31$)	
Mammogram	n/a		–			.548
Yes		45.9 % ($n = 187$)		46.4 % ($n = 167$)	42.6 % ($n = 20$)	
No		44.5 % ($n = 181$)		43.4 % ($n = 158$)	48.9 % ($n = 23$)	
Pap test	n/a		–			.401
Yes		60.2 % ($n = 245$)		58.9 % ($n = 212$)	70.2 % ($n = 33$)	
No		28.5 % ($n = 116$)		28.9 % ($n = 104$)	25.5 % ($n = 12$)	

Logistic Regression Analyses

All significant variables ($p \leq .05$) were entered into logistic regressions for each health screening (Pap test ever had no significant bivariate relationships). All of the models were significant, as shown in Tables 3 and 4. Age was a significant predictor for all models; for all screenings except Pap test, being older is associated with greater likelihood of being screened. Being younger was linked to greater likelihood of reporting having had a Pap test in the last 12 months. Sex was a significant predictor of colon cancer last 12 months, with being male associated with greater likelihood of screening. SES was a significant predictor for colon cancer ever, cholesterol ever and last 12 months, and blood glucose last 12 months, with greater SES being linked to higher likelihood of screening. Smoking behavior was also a significant predictor for four models (blood pressure last 12 months, cholesterol last 12 months, blood glucose ever and last 12 months); not smoking is linked to great likelihood of screening.

Table 3 Logistic regression: health screenings ever

Outcome	Predictors	*B* (SE)	Wald	Exp (*B*)	95 % CI Exp (*B*)
Blood pressure[a]	Age	.11 (.03)	14.55	1.11***	1.05–1.18
	Active daily	−1.06 (.61)	3.10	.35	.11–1.13
	Constant	.24 (.98)	.06	1.27	
Colon cancer[b]	Age	.09 (.01)	82.26	1.09***	1.07–1.12
	SES	.06 (.04)	2.75	1.06	.99–1.15
	Religiosity	.01 (.02)	.10	1.01	.97–1.04
	Constant	−4.65 (.72)	42.18	.01***	
Cholesterol[c]	Age	.08 (.01)	48.46	1.09***	1.06–1.11
	SES	.14 (.05)	7.92	1.15**	1.04–1.27
	Religiosity	−.01 (.02)	.13	.99	.96–1.03
	Married	.25 (.30)	.69	1.28	.72–2.29
	Constant	−2.49 (.68)	13.41	.08***	
Blood glucose[d]	Age	.06 (.01)	28.46	1.06***	1.04–1.09
	Male	−.28 (.27)	1.09	.75	.44–1.28
	SES	.10 (.05)	3.62	1.10	1.00–1.22
	Religiosity	−.02 (.02)	1.36	.98	.94–1.02
	Married	.03 (.29)	.01	1.03	.58–1.82
	Non-smoker	.84 (.33)	6.68	2.32**	1.23–4.39
	Constant	−1.23 (.68)	3.25	.29	
Prostate cancer[e]	Age	.12 (.02)	33.84	1.13***	1.08–1.18
	Religiosity	.04 (.03)	1.75	1.04	.98–1.10
	Constant	−6.13 (1.40)	19.15	.002***	
Mammogram[f]	Age	.10 (.01)	54.42	1.11***	1.08–1.14
	Religiosity	.01 (.02)	.07	1.01	.96–1.05
	Constant	−3.05 (.80)	14.58	.05***	

* $p < .05$; ** $p < .01$; *** $p < .001$

[a] $\chi^2(2, N = 484) = 25.23$, $p < .001$; Cox and Snell = .05, Nagelkerke = .21

[b] $\chi^2(3, N = 462) = 127.15$, $p < .001$; Cox and Snell = .24; Nagelkerke = .32

[c] $\chi^2(4, N = 550) = 94.08$, $p < .001$; Cox and Snell = .16; Nagelkerke = .28

[d] $\chi^2(6, N = 539) = 57.28$, $p < .001$; Cox and Snell = .10; Nagelkerke = .18

[e] $\chi^2(2, N = 145) = 57.80$, $p < .001$; Cox and Snell = .33; Nagelkerke = .45

[f] $\chi^2(2, N = 351) = 85.01$, $p < .001$; Cox and Snell = .22; Nagelkerke = .33

Discussion

This study is the first to assess the history of multiple types of health screenings received by African-American church members and church-affiliated community members. Among all participants, blood pressure, cholesterol, and blood glucose screenings were the most frequently reported screenings ever and in the last 12 months. Furthermore, most women reported having received a Pap test, which is consistent with other research with a large White sample (Nelson et al. 2009). Reported mammogram rates were lower in this sample compared to those of another African-American church-based sample (Bowie et al. 2008).

Table 4 Logistic regression: health screenings last 12 months

Outcome	Predictors	*B* (SE)	Wald	Exp (*B*)	95 % CI Exp (*B*)
Blood pressure[a]	Age	.05 (.01)	21.63	1.06***	1.03–1.08
	SES	−.03 (.05)	.21	.98	.88–1.084
	Active daily	−.46 (.28)	2.65	.63	.37–1.10
	Non-smoker	.79 (.35)	5.15	2.20*	1.11–4.36
	Constant	−.59 (.58)	1.01	.56	
Colon cancer[b]	Age	.09 (.01)	86.32	1.10***	1.07–1.12
	Male	.53 (.23)	5.08	1.69*	1.07–2.67
	SES	.08 (.04)	4.27	1.08*	1.00–1.16
	Constant	−4.80 (.56)	74.53	.01***	
Cholesterol[c]	Age	.06 (.01)	53.00	1.06***	1.05–1.08
	SES	.10 (.04)	7.12	1.11**	1.03–1.20
	Religiosity	.004 (.02)	.07	1.00	.98–1.03
	Church member	−.32 (.30)	1.16	.73	.41–1.30
	Non-smoker	.85 (.27)	9.93	2.34**	1.38–3.96
	Constant	−3.31 (.57)	33.76	.04***	
Blood glucose[d]	Age	.05 (.01)	33.07	1.05***	1.03–1.06
	SES	.08 (.04)	4.48	1.08*	1.01–1.17
	Religiosity	–.01 (.01)	.77	.99	.96–1.02
	Church member	−.12 (.29)	.18	.89	.51–1.55
	Non-smoker	1.04 (.26)	15.99	2.83***	1.70–4.72
	Constant	−2.21 (.54)	16.82	.11***	
Prostate cancer[e]	Age	.11 (.02)	34.87	1.11***	1.07–1.15
	Constant	−5.33 (.87)	37.89	.01***	
Mammogram[f]	Age	.06 (.01)	36.46	1.06***	1.04–1.08
	Religiosity	.03 (.02)	2.55	1.03	.99–1.07
	Constant	−3.45 (.71)	23.74	.03***	
Pap test[g]	Age	−.02 (.01)	5.30	.98*	.97–1.00
	Constant	1.60 (.39)	16.57	4.97***	

* $p < .05$; ** $p < .01$; $p < .001$

[a] $\chi^2(4, N = 468) = 33.86$, $p < .001$; Cox and Snell = .07, Nagelkerke = .13

[b] $\chi^2(3, N = 462) = 132.21$, $p < .001$; Cox and Snell = .25; Nagelkerke = .33

[c] $\chi^2(5, N = 555) = 103.84$, $p < .001$; Cox and Snell = .17; Nagelkerke = .24

[d] $\chi^2(5, N = 554) = 72.52$, $p < .001$; Cox and Snell = .12; Nagelkerke = .17

[e] $\chi^2(1, N = 172) = 52.05$, $p < .001$; Cox and Snell = .26; Nagelkerke = .36

[f] $\chi^2(2, N = 368) = 54.36$, $p < .001$; Cox & Snell = .14; Nagelkerke = .18

[g] $\chi^2(1, N = 361) = 5.40$, $p < .05$; Cox & Snell = .02; Nagelkerke = .02

The rates of colon cancer screening were similar to those found in other research with church members; one study of 397 African-American church members ages 50 or older found that 31 % had been screened for colorectal cancer (Katz et al. 2004). In considering the relatively lower rates of cancer screenings (colon, prostate, mammogram) and lower rates of screenings for blood glucose and cholesterol in the last 12 months among

community members specifically, innovative strategies are needed to increase the reach of these and other health screenings with African-American populations. Strategies should involve healthcare providers; previous research has found that physicians are less likely to recommend screenings for vulnerable populations like low-income African-American women (O'Malley et al. 2001).

For nearly every health screening, age was a significant predictor. This is not surprising as risk for disease-related morbidities (e.g., hypertension) and mortalities (e.g., heart disease) increases with age, and several routine health screenings are based on age-dependent guidelines (e.g., colon cancer, prostate screening, mammogram; Centers for Disease Control and Prevention (CDC) 2011). It is essential to ensure that aging African-Americans are getting screened for critical health conditions. Community settings, such as faith-based organizations, that regularly engage older African-Americans may serve as readily accessible and trusted settings to provide routine health screening for these older adults. A main purpose of this study was to further explore the relationship between religiosity and health screenings. Although religiosity was significantly related to several of the health screenings in bivariate analysis, it is not a predictor of health screenings in multivariate analyses. Our study's participants were highly religious with many being long-term (>10 years) members of their respective church. Also, most attended church and read scripture at least weekly. Although religiosity was not a significant predictor of receipt of health screenings, these findings suggest that the participants have regular and ongoing contact with the church.

The African-American church has been recognized as a potential forum for promoting health behaviors. Several studies have examined intervention strategies to increase health screening in African-American churches for: diabetes (Boltri et al. 2008; Davis-Smith et al. 2007; Frank and Grubbs 2008), prostate cancer (Holt et al. 2009; Husaini et al. 2008), colorectal cancer (Campbell et al. 2004; Holt et al. 2011, 2012), blood pressure (Frank and Grubbs 2008), and HIV testing (Berkley-Patton et al. 2010). Furthermore, many churches provide blood pressure (Aycock et al. 2013) and cholesterol screenings and education at health fairs (Ford et al. 2009). Almost all participants recruited in the second phase of this study were highly supportive of church-based health screenings, which is consistent with other research (Frank and Grubbs 2008). Previous research has found that church pastors serve an important role in raising awareness about health screenings (Matthews et al. 2006), and pastors report viewing themselves as health promoters (Lumpkins et al. 2013) and provide health education and access to health screenings in their church (Rowland and Isaac-Savage 2014). More research is needed to understand how African-American churches can assist in promoting and offering routine seeking health screenings, especially in considering churches' reach and influence with these populations.

Previous research has found that different indicators of SES (e.g., education, income, insurance, employment) are related to whether routine health exams, including health screenings, are received (Bowie et al. 2008; Ford et al. 2009; Hyman and Pavlik 2001). For women in particular, the cost of mammogram screening is a significant barrier (Tessaro et al. 1994). Yet, our findings suggest that higher levels of education, income, and insurance are not necessarily related to receipt of most health screenings; SES was significantly related to cholesterol screenings ever and in the last 12 months and colon cancer and blood glucose in the last 12 months. Socioeconomic factors like income and employment can change, which could explain why screenings in the last 12 months were more likely to be associated with SES. Further quantitative and qualitative research is needed to further understand barriers to care and routine health screenings for African-Americans, particularly with the implementation of the Affordable Care Act and insurance

expansions. Research suggests that insurance mandates could reduce screening disparities that are linked to income (Hamman and Kapinos 2015).

Limitations

As with many retrospective self-report surveys, a limitation is that this study relied on participants' recall abilities. As such, there may be some inaccuracies in reported receipt of health screening. A number of participants only responded to some health screening items, resulting in missing data. Furthermore, this study did not collect data on the results of these screenings or overall frequency of health visits and corresponding health screenings. Collecting this information would provide greater understanding of health utilization services and the overall physical health of the African-American church and community population.

Conclusions

This study suggests there is a need to increase rates of routine health screenings among African-American church-affiliated populations. Innovative community strategies are needed to address receipt of health screenings for African-Americans, especially considering their increased risk of developing chronic health conditions and complications compared to other races. Church-based health screening interventions have the potential to increase the reach on receipt of health screenings among the African-American community members they serve.

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