

Examining the association between possessing a regular source of healthcare and adherence with cancer screenings among Haitian households in Little Haiti, Miami-Dade County, Florida

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Abstract

Immigrant minorities regularly experience higher incidence and mortality rates of cancer. Frequently, a variety of social determinants create obstacles for those individuals to get the screenings they need. This is especially true for Haitian immigrants, a particularly vulnerable immigrant population in South Florida, who have been identified as having low cancer screening rates. While Haitian immigrants have some of the lowest cancer screening rates in the country, there is little existing literature that addresses barriers to cancer screenings among the population of Little Haiti in Miami-Dade County, Florida. The objective of this study was to evaluate the association between having a regular source of healthcare and adherence to recommended cancer screenings in the Little Haiti population of Miami.

This secondary analysis utilized data collected from a random-sample, population-based household survey conducted from November 2011 to December 2012 among a geographic area approximating Little Haiti in Miami-Dade County, Florida. A total of 421 households identified as Haitian. The main exposure of interest was whether households possessed a regular source of care. Three separate outcomes were considered: adherence with colorectal cancer screening, mammogram adherence, and Pap smear adherence. Analysis was limited to households who met the age criteria for each outcome of interest. Bivariate associations were examined using the chi square test and Fisher exact test. Binary logistic regression was used to estimate unadjusted and adjusted odds ratios (ORs) with 95% confidence intervals (CIs).

After adjusting for the head of household's education and household insurance status, households without a regular source of care were significantly less likely to adhere with colorectal cancer screening (OR=0.33; 95% CI: 0.14–0.80) or mammograms (OR=0.28; 95% CI: 0.11–0.75). Households with insurance coverage gaps were significantly less likely to adhere with mammograms (OR=0.40; 95% CI: 0.17–0.97) or Pap smears (OR=0.28; 95% CI: 0.13–0.58).

Our study explored adherence with multiple cancer screenings. We found a strong association between possessing a regular source of care and adherence with colorectal cancer screening and mammogram adherence. Targeted approaches to improving access to regular care may improve adherence to cancer screening adherence among this unique immigrant population.

Abbreviations: CI = confidence interval, HPV = human papillomavirus, OR = odds ratio, USPSTF = United States Preventive Services Task Force.

Keywords: cancer screening, colonoscopy, Haitian, healthcare access, mammogram, Pap smear, underserved populations

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MC and EA contributed equally to this work.

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1. Introduction

Immigrant minorities regularly experience higher incidence and mortality rates of cancer.^[1] Frequently, a variety of social determinants create obstacles for those individuals to get the screenings they need. Barriers to screening for immigrants include cost, lack of health insurance, and fear, among others.^[2] Mishra et al^[3] have found that the major obstacles to obtaining a mammogram are also at the individual and structural level. Factors such as language, immigration policies, health beliefs, education, and social status are elements that have also been shown to limit access to preventive measures.^[4] This is especially true for Haitian immigrants, a particularly vulnerable immigrant population in South Florida, who have been identified as having low cancer screening rates.^[5] Haitian immigrant men reported the lowest rates of digital rectal examination and prostate-specific antigen tests when compared to US-born men and immigrants of other Caribbean countries.^[6] These low rates of cancer screening are not unique to Haitian men. In Miami's Little Haiti, women have been found to be at a higher risk of having and dying from

cervical cancer compared to other immigrant groups in the area, and one probable cause may be a lack of screening.^[7]

Because of such barriers, identifying catalysts for improving access to screening is crucial to providing better care to the Haitian community. While having a regular source of care and having health insurance are both positive predictors of screening test use, physician recommendation is the strongest predictor of utilization.^[8] Noncitizen, immigrant communities are less likely to have a regular source of care, and therefore less likely to benefit from physician recommendations.^[9] Similarly, research has found that Haitian women who receive routine mammograms are more likely to have a primary care physician and a regular place of care than those who do not receive routine mammograms.^[10]

While Haitian immigrants have some of the lowest cancer screening rates in the country, there is little existing literature that addresses barriers to cancer screenings among the population of Little Haiti in Miami-Dade County, Florida. Previous studies in Little Haiti were conducted with small sample sizes. Additionally, there is limited understanding of how possessing a regular source of care might be associated with preventive care, such as cancer screenings. The objective of this study was to evaluate the association between having a regular source of healthcare and adherence to recommended cancer screenings in the Little Haiti population of Miami.

2. Methods

2.1. Study design

This secondary analysis utilized data collected through the Little Haiti benchmark survey; its methodology is described elsewhere.^[11] Briefly, the random-sample, population-based household survey was conducted from November 2011 to December 2012 among a geographic area approximating Little Haiti in Miami-Dade County, Florida. A consenting adult 18 years or older completed the survey on behalf of all household members. A total of 1798 households were sampled, with 951 (52.9%) completing the survey.^[11]

Our analysis was limited to a total of 421 households who identified as Haitian. The main exposure of interest was whether households possessed a regular source of care, defined as utilization of a doctor's office, private clinic, community health center, other public health center, or hospital outpatient department when individuals in the household became ill. Households were categorized as not having a regular source of care if individuals utilized a hospital emergency department when ill or indicated they had no regular source of care. Three separate outcomes were considered: adherence with colorectal cancer screening, mammogram adherence, and Pap smear adherence. For the analysis related to each outcome, separate inclusion criteria was applied based on the relevant U.S. Preventive Services Task Force (USPSTF) guidelines.^[12-14] The sample used to examine adherence with colorectal cancer screening was limited to households that included at least 1 person 50 to 75 years old. Household adherence with colorectal cancer screening was defined as any individual in the eligible household ever having a sigmoidoscopy or colonoscopy, ever completing colorectal cancer screening, or having a blood stool test within the last year. The sample used to examine mammogram adherence was limited to households that included at least one woman between 50 and 74 years old. Household mammogram adherence was defined as any woman in the eligible household completing a

mammogram within the past 2 years. The sample used to examine Pap smear screening was limited to households that included at least 1 woman 21 to 65 years old. Pap smear adherence was defined as any woman in the eligible household completing a Pap smear within the past 2 years.

Patient characteristics considered to be potential confounders included marital status of the head of household (single/unmarried or married/in a partnership); education level of head of household (high school or below, or more than high school); whether or not the head of household was employed in healthcare; whether the household experienced a gap in insurance coverage in the past year; whether the household was satisfied with their quality of health care over the previous 2 years; and whether or not anyone in the household had postponed care for any reason in the previous year. Current household income was also included and categorized as less than \$20,000 or greater than/equal to \$20,000; this cutoff was used as the closest approximation to a low-income household, since other data related to poverty level were not available.

2.2. Statistical analysis

Analysis was limited to households who met the age criteria for each outcome of interest and had data available for both the exposure and outcome. Exploratory analysis consisted of examining frequency distributions. Bivariate associations were examined using the Chi-square test and Fisher exact test. Binary logistic regression was used to estimate unadjusted and adjusted odds ratios with 95% confidence intervals (CIs). Patient characteristics associated with both the exposure and the outcome of interest and those of clinical importance were selected for inclusion in the adjusted models a priori. Multicollinearity in the adjusted models was evaluated using variance inflation factors. A *P*-value less than .05 was considered statistically significant. Data analysis was completed using Stata 14 (College Station, TX).

2.3. Ethical review

Ethical approval was waived since the analysis was considered nonhuman subjects research by the Florida International University Health Sciences Institutional Review Board.

3. Results

3.1. Colorectal cancer screening adherence

For the analysis of colorectal cancer screening, there were 246 households that identified as Haitian and had at least 1 person 50 to 75 years old or older. Sample characteristics are shown in Table 1. Households who experienced an insurance gap and households who were not satisfied with the quality of care they received were more likely to have no regular source of care (*P* < .001 and *P* = .035, respectively). Other characteristics were similar between households with regular care and those without (Table 1).

Unadjusted and adjusted associations between adherence with colorectal cancer screening, having a regular source of care, and other household characteristics are shown in Table 2. No multicollinearity was observed in the adjusted model. After adjusting for the head of household's education and any household insurance gap, households without a regular source of care were approximately 70% less likely to adhere with colorectal cancer screening (95% CI: 0.14–0.80).

Table 1**Characteristics of Haitian households in North Miami Dade, November 2011 to December 2012.**

Characteristics	Eligible for colorectal cancer screening (N = 246)			Eligible for mammogram screening (N = 188)			Eligible for Pap smear screening (N = 275)		
	Regular source of care, N (%)	No regular source of care, N (%)	P	Regular source of care, N (%)	No regular source of care, N (%)	P	Regular source of care, N (%)	No regular source of care, N (%)	P
Marital status [†]			.682			.316			.574
Single/not married	116 (53.46)	15 (57.69)		83 (51.55)	15 (62.50)		148 (61.41)	18 (56.25)	
Partner/married	101 (46.54)	11 (42.31)		78 (48.45)	9 (37.50)		93 (38.59)	14 (43.75)	
Household income			.264			.196			.132
Less than \$20,000	76 (48.72)	9 (64.29)		51 (45.95)	9 (64.29)		68 (42.50)	11 (61.11)	
Greater than \$20,000	80 (51.28)	5 (35.71)		60 (54.05)	5 (35.71)		92 (57.50)	7 (38.89)	
Education [†]			.613			.892			.795
High school and below	127 (61.65)	18 (66.67)		89 (58.55)	15 (60.00)		128 (55.17)	19 (57.58)	
More than high school	79 (38.35)	9 (33.33)		63 (41.45)	10 (40.00)		104 (44.83)	14 (42.42)	
Employed in healthcare [†]			.262*			.238			.304
Yes	27 (12.33)	5 (18.52)		24 (14.72)	6 (24.00)		41 (16.94)	8 (24.24)	
No	192 (87.67)	22 (81.48)		139 (85.28)	19 (76.00)		201 (83.06)	25 (75.76)	
Insurance gap [‡]			<.001			<.001			.002
Did not experience gap	103 (49.76)	3 (11.54)		75 (49.02)	2 (8.70)		97 (42.36)	4 (12.90)	
Experienced gap	104 (50.24)	23 (88.46)		78 (50.98)	21 (91.30)		132 (57.64)	27 (87.10)	
satisfaction [§]			.035*			.415*			.043*
Satisfied	197 (92.49)	2 (50.00)		147 (91.88)	5 (83.33)		219 (92.41)	7 (70.00)	
Not satisfied	16 (7.51)	2 (50.00)		13 (8.13)	1 (16.67)		18 (7.59)	3 (30.00)	
Postponed care			.079*			.575*			.062*
Yes	26 (11.93)	2 (50.00)		21 (12.96)	1 (16.67)		37 (15.35)	4 (40.00)	
No	192 (88.07)	2 (50.00)		141 (87.04)	5 (83.33)		204 (84.65)	6 (60.00)	

* Fisher exact test used due to small expected cell counts.

[†] Reported for the head of the household.[‡] Whether the household experienced a gap in insurance coverage in the past year.[§] Whether the household was satisfied with their quality of health care over the previous 2 years.^{||} Whether or not anyone in the household had postponed care for any reason in the previous year.

3.2. Mammogram adherence

The study involved 188 households that identified as Haitian and included at least 1 woman 50 to 74 years old. Overall, demographics were similar between those with regular care and those without regular care among these households (Table 1). However, households who experienced an insurance gap were more likely to have no regular source of care ($P < .001$).

Unadjusted and adjusted associations between mammogram adherence, having a regular source of care, and other household characteristics are shown in Table 2. No multicollinearity was observed in the adjusted model. After adjusting for the head of household's education and any household insurance gap, households without a regular source of care were approximately 70% less likely to adhere with mammogram screening (95% CI: 0.11–0.75). Any household insurance gap was also independently associated with adherence; households who experienced a coverage gap were 60% less likely to adhere (95% CI: 0.17–0.97).

3.3. Pap smear adherence

There were 275 households that identified as Haitian and included at least 1 woman 21 to 65 years old. Households who experienced an insurance gap, who were not satisfied with the quality of their health care, and who had postponed care in the past year were more likely to have no regular source of care (Table 1).

Unadjusted and adjusted associations between mammogram adherence, having a regular source of care, and other household characteristics are shown in Table 2. No multicollinearity was observed in the adjusted model. After adjusting for the head of

household's education and any household insurance gap, having a regular source of care was not significantly associated with Pap smear adherence. However, any household insurance gap was associated with adherence; households who experienced a gap in coverage were approximately 70% less likely to adhere (95% CI: 0.13–0.58).

4. Discussion

The Haitian immigrant population suffers from many health disparities that have created barriers to obtaining appropriate preventive screenings. The literature has shown that there are many factors that contribute to these disparities. Since possessing a regular source of care has been highlighted as an important factor in health services research related to immigrant populations,^[9] we were particularly interested in exploring a possible association between possessing a regular source of care and receiving age-appropriate cancer screenings.

We focused on 3 preventive screenings: colorectal cancer screening, mammograms, and Pap smears. After adjustment, regular care was found to be significantly associated with colorectal cancer screening and mammogram adherence. The discrepancy between mammogram and Pap smear adherence may be explained by the fact that routine mammograms are required on a more frequent basis, while Pap smears have a greater length of time between occurrences. For instance, after the age of 30 USPSTF guidelines recommend that a Pap smear can be performed every 5 years (if human papillomavirus testing is performed as well).^[14] In contrast, USPSTF guidelines recommend that mammograms be performed every 2 years for eligible patients.^[13] The guidelines for frequency of screening

Table 2**Association between adherence with cancer screenings, having a regular source of care, and other characteristics of Haitian households in North Miami Dade, November 2011 to December 2012.**

Characteristics	Adherence with colorectal cancer screening (N = 246)		Mammogram adherence (N = 188)		Pap smear adherence (N = 275)	
	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Regular source of care						
Yes	REF	REF	REF	REF	REF	REF
No	0.24 (0.11–0.55)	0.33 (0.14–0.80)	0.18 (0.07–0.43)	0.28 (0.11–0.75)	0.32 (0.15–0.68)	0.48 (0.21–1.08)
Marital status*						
Married or partner	REF	—	REF	—	REF	—
Not married	0.60 (0.34–1.06)	—	0.53 (0.27–1.05)	—	1.17 (0.66–2.08)	—
Household income						
Less than \$20,000	1.21 (0.60–2.41)	—	0.66 (0.26–1.64)	—	0.90 (0.45–1.82)	—
Greater than \$20,000	REF	—	REF	—	REF	—
Education*						
High school or less	0.63 (0.34–1.17)	0.66 (0.34–1.25)	0.51 (0.24–1.08)	0.56 (0.25–1.25)	0.78 (0.44–1.38)	0.77 (0.41–1.45)
More than high school	REF	REF	REF	REF	REF	REF
Employed in healthcare*						
Yes	1.78 (0.82–3.88)	—	0.79 (0.30–2.07)	—	0.90 (0.43–1.88)	—
No	REF	—	REF	—	REF	—
Insurance gap†						
Did not experience gap	REF	REF	REF	REF	REF	REF
Experienced gap	0.44 (0.24–0.81)	0.58 (0.30–1.10)	0.26 (0.12–0.60)	0.40 (0.17–0.97)	0.25 (0.12–0.51)	0.28 (0.13–0.58)
Satisfaction‡						
Not satisfied	0.54 (0.19–1.51)	—	0.41 (0.13–1.31)	—	0.67 (0.25–1.83)	—
Satisfied	REF	—	REF	—	REF	—
Postponed care§						
Yes	1.17 (0.45–3.06)	—	0.63 (0.23–1.76)	—	0.64 (0.30–1.36)	—
No	REF	—	REF	—	REF	—

CI = confidence interval, OR = odds ratio.

* Reported for the head of the household.

† Whether the household experienced a gap in insurance coverage in the past year.

‡ Whether the household was satisfied with their quality of health care over the previous 2 years.

§ Whether or not anyone in the household had postponed care for any reason in the previous year.

regarding mammograms may indirectly influence how frequently patients perform follow-up visits and thus how regular their care is.

Household experience with a gap in insurance coverage was also associated with screening adherence. Our adjusted models demonstrated a significant association between any gap in insurance coverage and adherence with mammograms and Pap smears, and a borderline significant association with adherence to colorectal cancer screenings. Previous research has noted that while uninsured immigrants reported poorer health than insured immigrants, insured immigrants were correspondingly twice as likely to receive preventive services such as Pap smears.^[15] Insurance plays an important role in patients obtaining the appropriate care they need. With most preventive screenings being covered by insurance, consistently insured patients may be more likely to adhere to recommended screenings due to a decrease in out of pocket costs.

The findings in this study are subject to several limitations. First, this was a secondary analysis using data obtained from a household survey that required participants to recall their health history during an interview. Many patients may be unaware of the terminology surrounding these types of screening measures, and we do not know how much clarification interviewers may have provided. Moreover, questions were answered by one member of the household who may not have been aware of the screening status of other household members. Colonoscopies in particular can occur 10 years apart, and it is possible that

participants may not have recalled their last screening or that of other household members.

We decided to use USPSTF guidelines to guide our analysis; however, we were limited to processing results from questions that adhered less exactly to these guidelines. Thus, we corrected for the survey's divergence from USPSTF guidelines through our inclusion criteria. This may have impacted the analysis related to colorectal cancer screening adherence, which was assessed through compiling answers to questions about several different types of screening methods (sigmoidoscopy, colonoscopy, and fecal occult blood tests) into one variable. Additionally, while USPSTF guidelines state that Pap smears should be performed every 3 years, the related survey question did not specify this as an option; thus, we defined Pap smear adherence as occurring within the previous 2 years.^[14] Therefore, for analysis of Pap smear adherence, we followed guidelines based on age, but were unable to adhere to the USPSTF screening interval due to the language of the survey question. Divergence from USPSTF guidelines was present for mammograms as well. While the original survey asks if any females in the household 40 years or older have ever received a mammogram, USPSTF guidelines state that screenings should only be done for women 50 to 74 years old.^[13] While limiting our analysis to this sample size helped to ensure we followed the USPSTF guidelines, it may have affected power as well. Another issue we encountered is that the original survey does not clarify if participants adhered with screenings multiple times within the specified time frame, or if more than one eligible

household member adhered. For example, while a household member may have had at least one mammogram in the past 2 years, we do not know if they had them every 2 years before or following survey implementation.

Previous studies on screening adherence in the Little Haiti population and Haitian immigrants in general are limited. We sought to explore possible factors that influence the utilization of cancer screening in order to spur further research and the design of targeted interventions for this particular population. Our study explored adherence with multiple cancer screenings. With the opportunity to analyze survey data from this unique group, we found a strong association between possessing a regular source of care and colorectal cancer screening and mammogram adherence. Targeted approaches to improving access to regular care may improve adherence to cancer screening adherence among this unique immigrant population.

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