Managing Factors that predict Breast Cancer Knowledge and Health Information Sources in African-born women

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[**Abstract]** Breast cancer is the leading cause of cancer death in African-born black women living in the United States. Racial disparities in breast cancer diagnosis exist. Little is known about breast cancer knowledge, and sources of health information in African-born black women. This study investigated factors that predict Breast Cancer Knowledge and Sources of Health Information among African-born women in the Washington DC metro area. Data were collected from 203 African-born immigrant females, ages 20-65. Results showed that breast cancer knowledge, and increase in health information sources are dependent on having access to health insurance, a primary care provider, increase in community-based outreach efforts, and family social support.

[Keywords] African-born women, breast cancer, disparities, knowledge, health information sources.

Background

Breast cancer is the leading cause of cancer death in African-born black women living in America (Nwabuku & etc., 2013). According to the National Cancer Institute [NCI] (2017), in the United States, new cases of invasive female breast cancer were 231,840, breast cancer deaths among women were 40,290, and breast cancer treatment cost $16.5 billion in 2015 (Sheppard, 2010). Some of the breast cancer risk factors include older age, race, obesity, excessive alcohol consumption, inadequate dietary intake high in saturated fat, genetic, lifestyle, and environmental factors. Early detection with screening mammography can reduce the number of breast cancer deaths (American Cancer Society, 2015).

Racial disparities in breast cancer diagnosis exist. Little is known about breast cancer knowledge, and sources of health information in African-born black women (National center for Health Statistics, 2005). According to the Migration Policy Institute (2018), approximately 167,000 sub-Saharan African immigrants live in the Washington DC metropolitan area in 2015 (Migration Policy Institute, 2018). The current study was prompted by disparities in breast cancer diagnosis with advanced-stage breast cancer, and higher mortality rates in African-born black women compared to other racial groups because of later stages at diagnosis (SEER, 2017). Black women have the highest mortality rate from breast cancer (31) compared to Non-Hispanic white (22), Asian American (15), Hispanic (14), and American-Indian/ Pacific Islander women (11) (SEER, 2017).

Mortality rates describe how many women out of 100,000 that died from breast cancer each year. Late stage diagnosis has been primarily attributed to lack of breast cancer knowledge and awareness, and reliable sources of health information, which in turn led to a lower frequency of mammograms, lack of breast-self-examination, and timely follow-up of suspicious results (Hurtado-de-Mendoza & etc., 2014). Very often, African-born women are grouped together or categorized as identical or similar with African American-born women, ignoring the cultural and social heterogeneity or differences that exist between the populations, which may not always be considered when implementing health promotion and healthcare services targeting African women populations (Ku & Matani, 2001).

Black women in the United States continue to have the highest rates of breast cancer deaths. The scarce research with African-born immigrant women has shown continued cancer-related disparities among this group (Morrison & etc., 2012). For example, African immigrant women have lower screening rates compared to White American women due to lack knowledge of breast cancer (Migration Policy Institute, 2018).

Immigrants may also rely on a few sources of information about breast cancer than native populations because of lack of knowledge about various reliable sources of breast cancer information. Tortolero-Luna et al., (2010) in an article that described cancer information seeking behaviors, sources of information, and experiences seeking information among Puerto Ricans found that the Internet was the most frequently reported source of information about health (32.9%) or about cancer (28.1%) (Tortolero-Luna &etc., 2010). There is a significant gap in the published literature regarding knowledge and awareness, sources of information, and experiences of African-born women residing in the United States (Hurtado-de-Mendoza & etc., 2014). More information is needed to adequately develop health education interventions that focus on breast cancer knowledge, awareness, and reliable sources of health information for this at the at-risk population.

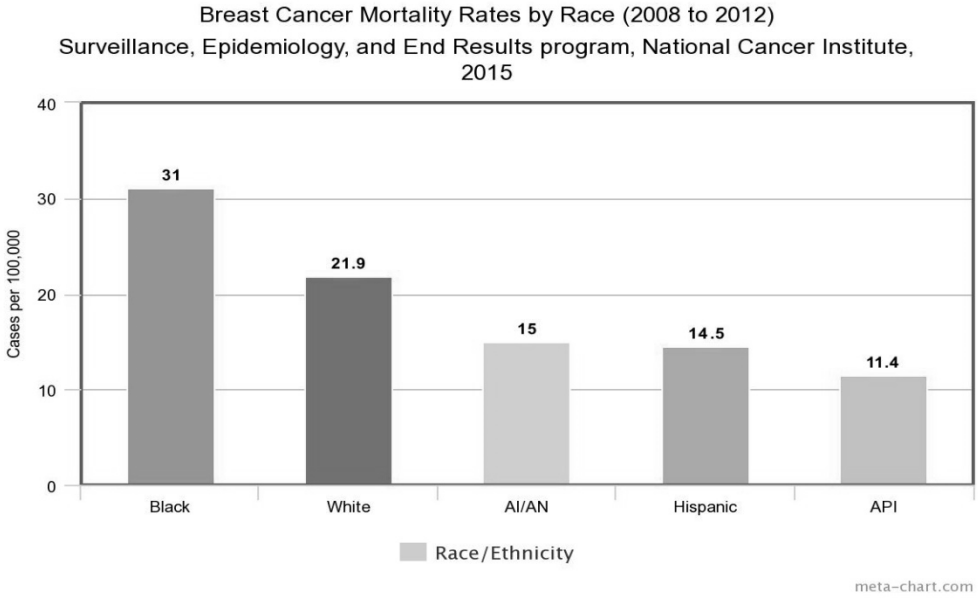

Figure1. Breast Cancer Mortality Rates by Race / Ethnicity
Breast cancer mortality rates describe how many women out of 100,000 that died from breast cancer each year.

Problem Statement

What are the factors that predict Breast Cancer Knowledge and Sources of Health Information among African-born women in the Washington DC metro area?

- 1a. what predicts breast cancer knowledge among African immigrant women?
- 1b. Is age, marital status, acculturation, language proficiency, insurance coverage, and primary care provider status independent predictors of breast cancer knowledge?
- 2a. what predicts sources of health information among African immigrant women?
- 2b. Is age, marital status, acculturation, language proficiency, insurance coverage, and primary care provider status independent predictors of sources of breast cancer information?

Objective

The purpose of the study is to develop patient education programs to reduce disparities in breast cancer diagnosis, and breast cancer–related morbidity and mortality experienced among this population. In addition, to improve, build, and expand the field of health education, and public health profession.

Theoretical Framework

The Social Ecological Model, [SEM] which was developed by the Centers for Disease Control [CDC] 2015, is a multi-level behavior change model with influence at intrapersonal or individual, interpersonal, organizational, community, and policy levels served as the theoretical framework for the study (CDC, 2015). At the intrapersonal or individual level, the SEM focuses on individual awareness, attitudes and beliefs. At the Interpersonal level, the focus is on social support, which includes family, and friends. At the Organizational level, the focus is on social institution policies. The Community level focus is on community-based organizations, coalitions and advocacy groups, while at the Policy level the SEM focuses on federal, state, and local policies and regulations. The key words used were African-born women, American-born black women, breast cancer, cancer fears, knowledge, attitudes, barriers, cultural diversity, cultural beliefs and religion, immigrants, mammogram, screening, minority women, health motivation, disparities, health information, and sources.

Methodology

This was a non-experimental, cross-sectional quantitative research design.

Sample

Participants were 200 women who self-identified as African-born, or the offspring of an African-born parent, aged 20-65 years. Participants were mostly from West Africa (74%), had lived in the United States for greater than 10 years, 50% were married and 14% were divorced, 74% had health insurance.

Table 1

Sample
Participant Demographics N= 200

Characteristic	N	Percentage
Country of origin		
West Africa	144	74
Central Africa	15	7
East Africa	9	4
Other	15	7
Missing	20	8
Age		
20 - 30	35	18
30 - 35	18	8
35 - 40	25	12
40 - 50	59	30
50 -60	41	20
60 +	16	8
Missing	9	4
Marital Status		
Married	101	50
Single	59	29
Divorced/Separated/Widowed	28	14
Missing	15	7

Characteristic	N	Percentage
Acculturation		
Less than 1 yr.	8	4
1 - 5 yrs.	30	15
5 - 1 yrs.	37	18
More than 10 yrs.	112	55
Missing	16	8
Health Insurance		
Yes	151	74
No	45	23
Missing	7	3
Primary Care provider		
Yes	40	20
No	44	22
Missing	119	58

Delimitations

African-born immigrant females, ages 20- 65, living in the Washington DC metro area (Northern VA, MD, and Washington DC), speak, read, write, and understand English or Amharic as their primary language. Survey items were taken from existing validated national surveys.

Instrumentation

Survey items were taken from existing validated national surveys (Ku & Matani, 2001). National Health Interview Survey (NHIS) was used to assess knowledge of potential causes of breast cancer in women. One item from the NHIS was used to assess knowledge of potential causes of breast cancer, e.g., older age, cigarette smoking, diet, or hereditary. Health Information National Trends Survey (HINTS) were used to assess Health Information sources, and healthcare provider status. Three survey items from the HINTS 2005 were used to assess sources of information about health, healthcare access, and healthcare provider status (Ku & Matani, 2001). Participants were asked to check all the sources they often use to obtain health information from a list of eight sources (e.g., radio, TV, Internet, etc.). Short Acculturation Scale for Hispanics (SASH) was used to assess the level of English proficiency among the foreign-born immigrants. The SASH item on the study survey was adapted to include the Amharic language (Ethiopian dialect) because of the large concentration of Ethiopians in the Washington DC metro area, and has good reliability (Cronbach's alpha reliabilities 0.92–0.89) (Ku & Matani, 2001).

Data Collection

The study was advertised through social media, flyers at local community places, and by word of mouth. Participants were recruitment by Trained Community Health Workers (CHW) at targeted events. CHW obtained informed consent, and collected data at targeted events. Targeted events include health fairs, meetings, and cultural activities. The questionnaire, which contained information such as breast cancer causes, (older age, diet), and preferred health information sources, (radio, TV) were completed in approximately 20 minutes (Ku & Matani, 2001).

Data Analysis

Data were analyzed using SPSS 24.0 software. Categorical variables were dummy coded. A scoring algorithm for Breast Cancer Knowledge ranged from 2 to 11. Reponses for Health Information Sources were coded as (Yes, or No). Research questions were addressed using Linear and logistic regressions (Laerd Statistics, 2015). The significance level was .05. Assumptions testing for linear and logistics regressions were performed. Assumptions of Independence of observation, no significant outliers, and linearity of the continuous variable were met. However, categorical independent variables are not subject to assumptions testing.

Linear Regression Analysis

Linear Regression was used for Prediction of Breast Cancer Knowledge.
Research Questions. (1a) what predicts Breast Cancer Knowledge among African immigrant women living in the Washington DC metro area? (1b) Are age, marital status, acculturation, English proficiency, insurance coverage, and primary care provider (PCP) status independent predictors of breast cancer knowledge? Dependent variable: Breast Cancer Knowledge. Independent Variables: age, marital status, acculturation, English proficiency, health insurance status, and PCP status.

Findings

Table 2

Linear Regression Analysis for Breast Cancer Knowledge

Variable	*b*	SE-*b*	*β*	95% CI
		Marital Status Model		
Intercept	8.539	.163		
Divorce	-1.150	.420	-.204*	-1.978-.322
		Health Insurance Model		
Intercept	8.320	.135		
Health insurance	.702	.281	.177*	.148- 1.256
		PCP Model		
Intercept	8.137	.246		
PCP	.802	.393	.220*	.020- 1.584

Note: b= unstandardized regression coefficient, SE-b= standard error of the coefficient; β= standardized coefficient
** $p < .05$.*

According to the linear regression result, significant predictors of breast cancer knowledge are marital status, health insurance status, and PCP Status. Divorced women have less breast cancer knowledge than married women. Women with health insurance have more breast cancer knowledge than those without health insurance. Women who have PCP have more breast cancer knowledge than women without PCP.

Binomial Logistic Regression Analysis

Binomial Logistic Regression Analysis was used for Prediction of Preferred Health Information Source

Research Questions. 2a: what predicts sources of health information among African immigrant women? 2b: Are age, marital status, acculturation, English proficiency, health insurance status, and primary care provider status independent predictors of various sources of breast cancer information? Dependent variable: Health Information Sources :(Radio, TV, Internet, Magazine, Health Fair, and Clinic or Doctor). Independent Variables: age, marital status, acculturation, English proficiency, health insurance status, and PCP status.

Findings

Table 3
Logistic Regression Predicting Likelihood of Health Information Source based on Age and Health Insurance Status.

Variable	*b*	SE-*b*	Wald	*df*	Exp(*β*)	95% CI Exp(*β*)
Radio						
Age4	1.248	.592	4.441	1	3.484	1.09-11.122
Constant	-2.380	.467	25.912	1	.093	
Health Fair - Age Model						
Age2	2.316	.765	9.173	1	10.133	2.264- 45.352
Age3	1.595	.747	4.556	1	4.962	1.139-21.299
Constant	-2.539	.600	17.924	1	.079	
Health Fair - Health Insurance Status Model						
Healthinsurance	-.967	.379	6.522	1	.380	.181-.799
Constant	-.595	.311	3.647	1	.552	

Note: The dependent variables were Radio and Health Fair with age 4, and health insurance as the reference categories; Age2 and Age3, (Nagelkerke R^2 = 10.0%, and 10.5%), health insurance, (Nagelkerke R^2 = 4.9%).

The logistic regression analysis showed that Preferred Health Information Sources were Radio and Health Fair. Older women, age 50-60 are three and half times more likely to use Radio for health information compared to younger women age 20-40. Middle-aged women, age 30-50 are ten times more likely to use a Health Fair for health information compared to older women age 50-60. Women who have health insurance are 62% less likely to use a health Fair for health information compared to women who do not have health insurance.

Conclusion

Breast cancer knowledge was low in this sample. Breast cancer knowledge score was slightly below the fiftieth percentile. Breast cancer knowledge is dependent on having access to health insurance, and having a primary care provider. Participants had few health information sources. Having access to health insurance and a PCP is associated with an increase in health information sources. Increase in community-based outreach efforts such as health fairs is associated with an increase in health information sources.

Recommendations

Increase awareness of breast cancer knowledge, and various reliable health information sources in African-born immigrant women in the United States. The best methods for disseminating breast cancer information will depend on age and marital status. Target health and screening information through Radio broadcasts for older, divorced women, and Health Fair for middle-aged women. Radio broadcasts can be used to capture older African women audience because of their traditional role as grandmothers and care givers who tend to stay home to care for the grandchildren, or other family needs (African Culture and Women, 2011). Increase in community-based outreach programs such as health fairs would reach a broader audience specifically, middle-aged women to increase screenings. Increased awareness is an essential factor to motivate screening practices, and promote early detection to reduce breast cancer-related mortality among this population.

Policy Recommendations

Social and family support for divorced women, promoting gender equality, and women's

empowerment is beneficial. Having social support from family members, and significant others are necessary to promote awareness, and empowering women, explicitly motivating divorced women to take control of their health regardless of their marital status. Working with an organization that promotes women's empowerment, and gender equality such as African Women Cancer Awareness Association will promote breast cancer awareness and screening practices especially for the divorced women in African-born immigrant women in the Washington DC area (Nwabuku & etc., 2013).

Increase access to primary care providers through increased health insurance coverage. Having a health care provider is essential to facilitating the use of cancer preventive services. Providers can make screening recommendations, and send reminders about the need for screening. Therefore, increasing access to primary care providers, and other health care providers through increased health insurance would be helpful. Without access to healthcare providers afforded them by health insurance, these women do not have access to a significant source of health information in general and health information about breast cancer in particular. Use bilingual navigators in cases where English is not the primary language. Using bilingual navigators may improve provider-patient communication, and encourage timely screening.

Extend Medicaid and public health plans to new legal immigrants. It may be beneficial to extend Medicaid and public health plans to new legal immigrants since research shows that women who have health insurance, and a primary care provider are more likely to have more breast cancer knowledge, and health information sources. Currently, legal immigrants are not eligible for Medicaid until after five years as legal residents (Ku & Matani, 2001). These limits both the access to an actual healthcare provider for breast cancer prevention and treatment as well as sources for increased knowledge about breast cancer.

Strengths and limitations of the Study

The strengths of this study include the recruitment of an underrepresented sample of African women from diverse nationalities, assessment of psychosocial factors such as breast cancer knowledge and health information sources, the inclusion of items from validated studies, and assessment of English proficiency and acculturation.

Study limitations include the use of Secondary data, and small effect sizes of the models. Therefore, study results may be interpreted with caution due to the small effect sizes of the models. Since Africa is a culturally and linguistically diverse continent, results may not be generalized to all African-born immigrant women in the United States.

Future Study

Future studies with larger and more diverse samples are needed to confirm the findings from this study. Overall, successful strategies for addressing the growing breast cancer burden in immigrants and low-income communities in the United States will require combined and coordinated efforts of public and medical community awareness groups, community advocates, governmental and non-governmental organizations, media, and mandated policies.

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