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Epidemiological Analysis Of Cervical Cancer Screening Utilization Among African Immigrant Women In The United States

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Abstract

Background:
Each year, about 12,000 women in the United States are diagnosed of cervical cancer and about 4,000 women die from it. Though the death rate has decreased by more than 50% over the past decade, black women are still more likely to die of cervical cancer than any other group in the U.S. African-born immigrants are one of the fastest growing U.S. populations. Recently, this population has nearly doubled in size, yet, they are one of the most underrepresented groups in healthcare research in the U.S. thereby obscuring the diversity in the U.S. black population. This leads to a deficiency in culturally appropriate and accurate information for screening programs. The objective of this study was to determine the rates of cervical cancer screening among the African immigrant population in Georgia and to determine the factors that affect screening uptake.

Methods
Cross-sectional data from African Immigrant women who reside in Georgia were collected using a brief survey. Frequencies and descriptive statistics were conducted to characterize the sample in general and by cervical cancer screening. Univariate and multivariate logistic regression were performed to estimate unadjusted odds ratios and adjusted odds ratio respectively and the 95% confidence intervals. Analyses were conducted using SPSS version 23.

Results
Results from this study showed that about 92% of the participants had at least some college education, were married, (57%) gainfully employed, (66%) insured, (48%) and had a household income of >$50,000 (46%). Yet only 43% of those who met the recommended age criteria had ever screened for cervical cancer. Educational level, health insurance and availability of health information were not associated with an increased likelihood of cervical cancer screening in this population.

Conclusion
Our results suggest that targeted and culturally appropriate interventions are needed for this growing population about cancer behaviors to improve cancer outcomes. The research must include larger samples with diverse African subgroups to inform future directions.

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I. Introduction

According to the World Health Organization, 570,000 new cases of Cervical Cancer were diagnosed worldwide in 2018, with about recorded 311,000 fatalities from the disease, marking it as the 4th most common cancer in women[1]. Human Papillomavirus (HPV) is associated with nearly all cervical cancer cases. [2]. Global mortality rates vary in the different parts of the world, with rates ranging from less than 2 per 100,000 in Western Asia, Western Europe and Australia/New Zealand to more than 20 per 100,000 in Melanesia, Middle and Eastern Africa [3]. Australia/New Zealand and Western Asia have the lowest cervical cancer rates. Compared with economically developed regions, such as North America, the prevalence of cancer in Africa significantly differs by type of cancer, stage at diagnosis, survival rate, and overall incidence and mortality rates [4]. Less developed countries hold about 84 percent of cervical cancer cases worldwide, with the highest incidence in Africa [1].

Cancer occurrence and mortality patterns contrast significantly across regions in Africa because of the considerable regional variances in economic development and social, cultural, and other environmental factors [4]. In Africa, high-risk regions include Eastern Africa, followed by Melanesia, Southern, and Middle Africa [3].

In 2020 Eswatini (formerly named Swaziland) had the highest rate, followed by Malawi, Mozambique and Comoros, respectively [2]. These differences are likely due to lower accessibility to screening services, knowledge of early symptoms, and availability of treatment [4].

In several Western countries, where screening programs have long been established, cervical cancer rates have decreased by as much as 65% over the past four decades [5]. The Global Initiative against HPV and Cervical Cancer (GIAHC) found that most women come in for treatment in very late stages of the disease[6]. Lack of knowledge, poor infrastructure, and limited finances make cervical cancer diagnosis very difficult. Therefore, there must new methods for communities to engage collectively to control this cancer [6].

According to the American Cancer Society's 2022 estimates for cervical cancer in the U.S., there will be about 14,100 new cases of invasive cervical cancer will be diagnosed and about 4,280 deaths will occur [7]. Cervical cancer was formerly one of the most common causes of cancer death for U.S. women, however, the death rate for cervical cancer has decreased by more than 50% [7]. The Pap test is the main cause this decrease because it helps to find cancer early [7]. Lifetime cervical cancer risk can be reduced by 25% to 35% if screening is done at least once between the ages of 35 and 40 [8]. This screening procedure can find changes in the cervix before cancer develops [7]. Most cases of cervical cancer are found in women younger than 50, however, many older women do not realize that the risk of developing cervical cancer is still present as they age [7]. 15% of cervical cancer cases are found in women over 65 [7].

National Cervical Cancer Trends for U.S. Black Population

In 2021, black women were more likely to die of cervical cancer than any other group in the U.S[9]. In terms of incidence trends, from 2015 to 2019 the incidence rate of cervical cancer shrunk significantly by 2.3% per year among black women[9]. In terms of mortality, the cervical cancer rate among black women decreased significantly by 2.2%[9].

National Cervical Cancer Trends for African Immigrants

African-born immigrants are one of the fastest growing U.S. populations [10]. In the recent years, this population has nearly doubled in size [10]. Despite this population influx, African-born immigrants are one of the most underrepresented groups in the U.S. for health-care research [10, 11]. Typically, this population is lost in health research as they are classified under the general category of African American, which essentially ignores the diversity in the U.S. black population and inadequate information is then used to develop programs [11, 12]. When foreign-born black women and US-born black women are categorized together, various socio-cultural characteristics that may influence their perceptions towards cervical cancer and screening utilization are lost. Limitations of health literacy and lack of familiarity with U.S. health systems potentiate this rate of inequality even more [10]. Health issues and behaviors of African-born women must be identified to successfully tackle health disparities that exist [12].

In terms of screening, even though the cervical cancer incidence has been gradually declining from Pap testing in the U.S., there are still many African immigrants unaware or unacquainted with the screening benefits [13]. Forney-Gorman and Kozhimannil used data from the CDC’s National Health Interview Surveys to identify participants who were black women living in the U.S., differentiating U.S.-born and African-born. After distinguishing immigrant status in an analysis of cervical cancer screening rates for black women, rates of pap smear tests for women born in African were much lower compared with African-American women [13]. Program managers and physicians must understand the population’s “unique belief system in order to adapt interventions designed to approach risk factors such as basic knowledge, embarrassment, and improper hygiene beliefs” [14]. Hurtado-de-Mendoza et al conducted a systematic review that observes cancer-related studies that included African-born participants [15]. African participants were generally from Nigeria and Somalia [15]. It was found that African immigrants had lower screening rates as compared to the other US born subpopulations. The higher the acculturation level, the higher the screening rate. Insurance, transportation, and feeling shame were all barriers to screening [15].

To address these ecological gaps that impact screening and perceptions, Ghebre et al used the socio-ecological framework to group recognized screening barriers at numerous levels [16]. Somali immigrants are the leading proportion of African refugees entering the U.S. [16]. Ghebre et al wanted to understand the language, structure, and context of the Minnesota Somali community in this qualitative study. It was found that Somali women were not aware and accustomed with the tests and concepts used for cancer screening services, thus there was reluctance to get screening. Overall, Somali immigrants have lower cancer screening rates compared to other African immigrant groups [16]. To address these issues, the United States Department of Health and Human Services made an African Data Work Group to recognize and organize gaps in knowledge on African immigrants and refugees [10]. More interventions are needed for this growing population about cancer behaviors to improve cancer outcomes. The research must include larger samples with diverse African subgroups to inform future directions.

II. Methods

A Cross-sectional study that utilized semi structured questionnaires was conducted as a community-based collaborative project between an academic health center, Morehouse School of Medicine, a community-based organization Redeemer's Medical Center (RMC) and its parent church. This project was a part of a health educational campaign provided to a predominantly African immigrant population. This community-Based Participatory collaboration evolved as an outcome of the RMCs participation in the Satcher Health Leadership Institute's nationally recognized Community Health Leadership program (CHLP). This study was included in the RMC's health educational outreach program, which occurs quarterly, at the RMC site which is in proximity to public transportation.

Program Participants

RMC and its parent church were deemed excellent community partners on this project because its clientele consists predominantly of African immigrants, and the relationship between religiosity and health is well documented among African immigrants [17]. This study was reviewed and approved by the Morehouse School of Medicine's Institutional Review Board (IRB). The data were coded with anonymous identification numbers, and names and other personal identifiers were not collected in the questionnaire, nor were the data linked to any medical records. All information collected were kept and processed as confidential by the research team.

Data Collection

Self-administered semi-structured questionnaires were utilized to collect study data. The instrument was designed to provide insight on the cervical cancer screening practices within this population, and to prioritize possible health interventions to mitigate poor screening practices.

Measures

The questionnaires that took approximately 10 minutes to complete were available in English, and trained volunteers were available on request to assist participants who required help in completing the surveys. The survey included questions on demographics, healthcare access, diagnoses, practices and family history of breast cancer.

Data Analysis

Data were analyzed using IBM SPSS Statistical Package (version 25). Data analysis included descriptive statistics to examine participant demographics and other study variables of interest.

III. Results

During the health educational outreach, a total of 162 women who identified as African Immigrants completed the surveys. From the data analyzed, most of the respondents were 45 years and older (33%) with majority having completed college education (78%). Most respondents were married, (57%) employed, (43%) insured, (48%) and had a household income of >$50,000 (46%).

Bivariate analyses (Table 2) revealed that only 43% of women 25 years and older have ever screened for cervical cancer, with most (44%) of those who have screening doing so as a part of routine general screening, while 13% had screened on a doctor's request. Eleven percent of the respondents reported not screening due to lack of information about cervical cancer and its recommended screening practices. Conversely, 31% of the respondents had the required information yet did not screen. For cervical cancer.

About 32% of respondents who had completed college reported that they had not screened for cervical cancer. 23% of participants who were employed but not self-employed had ever screened for cervical cancer. With regards to household income, participants with a household income of >$50,000 consisted of the majority of those who had ever screened for cervical cancer. 16% of the participants who identified as single had never screened for cervical cancer while majority of those who had screened were married (33%).

Fifty-three percent (53%) of the respondents believed that early detection of cancer of the cervix leads to better prognosis. Respondents indicated that a woman did not need to get a pap smear after attaining menopause, (49%) or after having children (51%). Half (50%) of the respondents believed that only sexually active women needed to be screened for cervical cancer.

Table 1: Showing the sociodemographic characteristics of the population

Characteristics	**Total (n)**
Age	
18-25	30

25-33	25
33-45	43
>45 years	47
Total	**145**
Educational Status	
No formal education	3
High School Diploma	9
Some College Education	22
Completed College	119
Employment Status	
Unemployed	41
Self-Employed	35
Employed but not self-employed	64
Retired	10
Household Income	
Less than $25,000	30
$25,000-$49,000	37
>$50,000	56
Marital Status	
Single	48
Married	87
Living Together	3
Divorced, separated, widowed	15

Table 2: Bivariate analysis showing the relationship between independent variables – Age, Education, Employment status, Household income, Marital Status. Dependent variable- Breast examination practices.

Characteristics	**Ever Screened for Cervical Cancer**			
Age	Yes	No	I Don't Know	Total (n)
18-25	12	14	2	28(19.5%)
25-33	10	13	2	25(17.5%)
33-45	25	16	2	43(30%)
>45 years	27	17	3	47(33%)
TOTAL	74(52%)	60(42%)	9(6%)	143 (100%)
If yes to question, why did you screen				
Doctors request	13	1	1	15
Free/subsidized	4	0	1	5
Self-conviction	6	0	0	6
Part of general screening	44 (44%)	4	0	48
No response	3	20	3	26
TOTAL	70	25	5	100
If you have not had cervical screening, what stopped you				
Afraid to get the test	0	2	3	5
Too expensive	0	8	0	8
No Transportation	1	1	0	2

No symptoms	5	14	0	19
It seems painful	2	1	0	3
Lack of Information	7(11%)	20	0	27
TOTAL	15	46	3	64
Education				
No formal education	1	1	1	3(2%)
High School Diploma	2	4	3	9(6%)
Some College Education	8(11%)	11	1	20(14%)
Completed College	64(44%)	46(32%)	4(3%)	114(78%)
TOTAL	75(52%)	62(42%)	9(6%)	146(100%)
Occupation				
Unemployed	14	24	2	40
Self-Employed	21	11	2	34
Employed but not self-employed	34(23%)	21(14%)	5	60
Retired	6	3	0	9
TOTAL	75	59	9	143
Level of Household Income				
Less than $25,000	10	17	1	28
$25,000-$49,000	14	20	3	37
>$50,000	39(33%)	12	3	54
TOTAL	63	49	7	119
Marital Status				
Single	16	23(16%)	7	46
Married	48(33%)	31	3	82
Living Together	3	0	0	3
Divorced, separated, widowed	7	8	0	15
TOTAL	74	62	10	146
	Yes	No	I Don’t Know	Total
If cancer of the cervix is found early, it can be cured	74(53%)	63	10	141
A woman does not need to get Pap smears after she reaches menopause.	70(49%)	62	10	142
A woman does not need to get a Pap smear if she is done having children	75(51%)	61	10	146
Only women who are sexually active should get Pap smears	75(50%)	64	10	149

IV. Discussion

Like several studies conducted on African Immigrants in the US. [11, 18], this study highlights some of the disproportionate disparities in health that are faced by African immigrants. This research further attempts to disaggregate these pertinent health issues with the purpose of recommending tailored services for this population on cervical cancer screening. In many studies utilized to determine certain national health recommendations, African immigrants are grouped as Black/African American which may inadvertently overlook peculiarities in healthcare recommendations that may be necessary to address the disparities faced by this population[19-21].

Awareness on cervical cancer and cancer screening recommendations should be provided in a timely and culturally appropriate manner to ensure compliance. This is necessary as evidenced by the majority of the respondents in this study who had at least some college education, which is comparable to the general educational status of African immigrants in America [22]. Yet, screening rates for cervical cancer among the respondents of this study were low. Other studies have shown that despite the considerably higher educational attainment in comparison to the general Black US. population, African immigrants still suffer considerable disparities in health [23]. The high educational levels attained by most respondents did not directly translate into better cervical cancer screening practices. This is comparable to results obtained from similar studies focused on African immigrant health screening practices [24]. On the other hand, some studies have contradicted this finding and shown associations between educational levels attained and a higher knowledge of risk factors and health screening practices [25].

Like educational status, employment often allows citizens to enroll in group health insurance and to afford healthcare insurance. In this study, 66% of the respondents were employed, with 23% of them self-employed, unfortunately, the majority had never screened for cervical cancer. This finding compares with studies conducted by Kuroki, L. M., Morris, D. H., Greenwade, M. et al. (2021) [26], and Berkowitz, S. A., Gold, R., Domino, M. E., & Basu, S. (2021) [27] where employment status did not increase the screening rates of immigrant populations studied.

Researchers explored marital status and its influence on the health screening practices of African immigrants and determined that marital status did not play a significant role in the knowledge of cervical cancer and the recommended screening practices. This finding is corroborated by research conducted by Akinlotan M, Bolin JN, Helduser J, Ojinnaka C, Lichorad A, and McClellan D. (2017) [25], which showed that married couples were not more likely to screen for cervical cancer in comparison to unmarried persons. Marital status is important in the African cultural context where the men often play the role of the decision maker even when it concerns the health seeking behaviors of the woman[25]. Ensuring that these cultural values are considered when enlightenment and awareness efforts are designed is imperative to the success of such programs.

Having health insurance played a significant role in the decision to screen for cervical cancer in this study. 74% of respondents in this study were enrolled in health insurance, and this seemed to significantly inform the decision of the participants to screen for cervical cancer. Comparable studies have shown that persons with private insurance or Medicare were the most likely to screen for cervical cancer, followed closely by persons with employer-sponsored private insurance, before persons with Medicare, persons with no supplemental insurance, Medicaid, or uninsured persons [28]. These findings were replicated in persons with a household income of >$50,000, who were also more likely to screen for cervical cancer. This underscores the findings from other studies that showcase the association between socioeconomic status and health-seeking behaviors particularly screenings[29].

The results of this research, reflect a need to critically evaluate the factors that may play a role in African Immigrant health-seeking behaviors particularly, cancer screening. It is imperative to seek out other factors such as cultural and religious factors that may influence the screening practices of this population. Some studies have postulated that health-seeking behaviors in the countries of birth of the first-generation immigrants may still influence their screening practices here in the US [25]. These salient issues, when adequately considered, play a significant role in the successes of programs aimed at improving screening practices of African immigrants in America.

The findings in this study are similar to findings in other immigrant groups[30] where differences in screening practices exists based on level of education, marital status, enrollment in health insurance, and ability to speak English, remain significant predictors to cervical cancer screening [30].

V. Conclusion

The results of this study, suggests that targeted and culturally appropriate interventions are needed for this growing population concerning cancers. This will significantly improve cancer outcomes. Further research must include larger samples with diverse African subgroups to inform future directions. Researchers could also learn more about salient issues that predispose this population to disproportionate health disparities by conducting qualitative studies.

Variables	**Table Column Head**		
	Response	*Frequency*	*Percent (%)*
If cancer of the cervix is found early, it can be cured (CC)	Yes	122	80.8
	No	9	6.0
	I don't know	20	13.2
	Total	**151**	**100.0**
A woman does not need to get Pap smears after she reaches menopause (PM)	Yes	23	15.2
	No	88	58.3
	I don't know	40	26.5
	Total	**151**	**100.0**
A woman does not need to get a Pap smear is she is done having children (PC)	Yes	6	4.0
	No	117	77.5
	I don't know	28	18.5
	Total	**151**	**100.0**
Only women who are sexually active should get Pap smears (PS) Have you ever been screened for cervical cancer (SCC)	Yes	23	15.2
	No	107	70.9
	I don't know	21	13.9
	Total	151	100.0
	Yes	72	47.7
	No	79	52.3
	Total	**151**	**100.0**
If yes to the above question, why did you uptake screening? (SCC1)	Doctors request	15	9.9
	Free/subsidized	5	3.3
	Self-convicted	7	4.6
	Part of general screening	47	31.1
	No response	25	16.6
	Total	**99**	**65.6**
	Afraid to get test	6	4.0

Variables	**Table Column Head**		
	Response	*Frequency*	*Percent (%)*
If you have not had a cervical screening, what stopped you? (SCC2)	Too expensive	8	5.3
	No transportation	3	2.0
	No symptoms	19	12.6
	it seems painful	3	2.0
	Lack of information	26	17.2
	Total	**65**	**43.0**

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