Determinants And Patterns of Colorectal Cancer Screening: An Epidemiological Study of African Immigrants in The United States

Oluwatoyosi A. Adekeye, MBBS, DrPH
[1] *Department of Community Medicine and Primary Healthcare Bingham University, New Karu, Nasarawa State, Nigeria*
Department of Community Health and Preventive Medicine, Morehouse School of Medicine, 720 Westview Drive S.W., Atlanta, GA 30310, USA

Abstract-

Background- Approximately 5 percent or 1 in 20 Americans will be diagnosed with colorectal cancer in their lifetime. Colorectal cancer is the third most commonly diagnosed cancer among men and women (44.2 per 100,000 and 33.6 per 100,000 respectively) and the second leading cause of cancer mortality in both men and women in the United States. In the US, colorectal cancer rates are highest among black men and women. The colorectal mortality rate among African Americans is 45 percent higher than that of Caucasians, yet the screening rates are lower among blacks as compared to whites, and even lower among African-born immigrants in the U.S. The objective of this study was to determine the rates of colorectal screening amongst the African immigrant population 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 colorectal cancer screening. Univariate and binary logistic regression were performed to estimate unadjusted odds ratios and adjusted odds ratio respectively and the 95% confidence intervals. Analyses were conducted using SPSS.

Results-Only 12 percent of the participants had ever screened for colorectal cancer, and only 16% and 23% had ever heard of a sigmoidoscopy/colonoscopy and FOBT respectively. 77% of participants had a college degree, and 46% had a household income greater than $50,000/year. Educational levels, socioeconomic status, availability of health insurance and health information did not increased the likelihood of colorectal cancer screening.

Conclusion- Our results suggest that more novel research and interventions are needed for this growing population about cancer screening behaviors in order to improve cancer outcomes. The research should include larger sample sizes with diverse African subgroups to inform future directions.

Indexed Terms- colorectal cancer, screening practices, African immigrant, Georgia.

I. INTRODUCTION

Colorectal Cancer (CRC) is the third most commonly diagnosed cancer worldwide, accounting for approximately 10% of all cancer cases. In 2012, there were an estimated 1.4 million new cases and 694,000 deaths attributed to CRC. The incidence is notably higher in developed countries, with over 65% of cases occurring in these regions. Recent trends indicate a concerning rise in CRC among younger populations. Studies have reported a 50% increase in cases among individuals aged 20 to 40 between 1984 and 2024.

Colorectal cancer (CRC), which comprises colon and/or rectum cancer, represents a significant health problem as the world's third most commonly diagnosed and second most fatal cancer globally [1].

Approximately 9.4% of cancer-related deaths were due to CRC in 2020 [2]. However, in light of the significant increase in the number of identified cases in the older population, it is estimated that the global incidence of CRC will more than double by 2035, with the most significant increase occurring in less developed nations [3].

CRC is a disorder that occurs exclusively in the colon or rectum and is caused by the colon's aberrant proliferation of glandular epithelial cells. There are three principal types of CRC: Sporadic, hereditary, and colitis-associated. The number of CRC cases is increasing globally day by day. Both environmental and genetic factors determine the risk of developing CRC. In addition, the risk of developing CRC in patients with long-standing ulcerative colitis and Crohn's disease increases with age [4]. Multiple studies have demonstrated that risk factors for CRC include diet and lifestyle, family history, and chronic inflammation [5].

Colorectal cancer (CRC) is one of the most preventable cancers, yet disparities in screening rates exist across various demographics, including African immigrants in the United States. Despite the availability of evidence-based guidelines, African immigrants face numerous barriers to CRC screening, which could significantly contribute to late-stage diagnoses and poor prognosis.

In 2020, CRC was the most diagnosed cancer (out of 36 cancers) among men in 18 of the 186 countries worldwide and women in 6 of the 185 countries [6]. However, in 2018, CRC was the most diagnosed among men in 10 of 185 countries, and no country had CRC as the most diagnosed cancer among women [7]. So, the CRC incidence rate has increased to about 10 from 5% in the last two years in men. Women were predominant in 3.24% of countries. CRC is more common among men than women and more than four times more common in high-income countries than low-income countries. The deaths were also about 2.5 times higher in high-income nations than in low-income nations.

II. BARRIERS TO COLORECTAL CANCER SCREENING AMONG AFRICAN IMMIGRANTS

A study by Osei and Adams (2023) highlighted several key barriers to CRC screening among African immigrants in the U.S. These included a lack of awareness about CRC, limited health literacy, and cultural misconceptions regarding cancer screening. Many African immigrants tend to view CRC as a disease that primarily affects other ethnic groups, leading to lower engagement with screening programs [8]. Similarly, language barriers and lack of culturally tailored health messages further complicate the situation, as immigrants often do not fully understand the importance of screening or the procedures involved [9]. For example, many African immigrants in Georgia report that they have not been educated about CRC screening by their healthcare providers, which results in delayed diagnosis and treatment [10].

III. CULTURAL AND SOCIOECONOMIC FACTORS

Nyarko and Boateng (2021) explored the unique challenges faced by African immigrant women in Georgia regarding CRC screening. They found that cultural beliefs and traditional practices played a significant role in preventing these women from seeking preventive healthcare, including cancer screening [11]. In many African cultures, cancer is often associated with stigma and fatalism, which discourages individuals from undergoing screening or seeking early intervention [12]. Moreover, economic hardship and lack of health insurance, common issues among immigrant populations, also hinder access to CRC screening. Studies indicate that African immigrants are more likely to be uninsured compared to the general U.S. population, limiting their ability to access preventive healthcare services [13].

Gender differences also impact CRC screening rates, as women are more likely to face additional barriers related to household responsibilities and caregiving, which reduce their time and resources for health screenings [14]. Moreover, cultural norms regarding gender roles can lead to women prioritizing family care over their own health needs, further contributing to lower screening rates in this demographic.

IV. THE ROLE OF HEALTHCARE ACCESS AND SYSTEMIC FACTORS

Access to healthcare is another significant barrier to CRC screening in African immigrant populations in Georgia. Jones and Thompson (2022) pointed out that African immigrants, particularly those who are uninsured or underinsured, face challenges in accessing healthcare facilities where CRC screening is offered [15]. Furthermore, a lack of familiarity with the U.S. healthcare system, which can be complex and intimidating, often deters African immigrants from seeking preventive services like cancer screening [16]. In Georgia, which has a high concentration of African immigrants, studies show that community health clinics and local hospitals often have limited resources for outreach and education targeted at immigrant populations, exacerbating the issue [17].

V. HEALTH COMMUNICATION AND EDUCATION INTERVENTIONS

Amankwaa and Davis (2021) conducted a study on health communication strategies to promote CRC screening in African immigrant communities in the U.S. They found that targeted health communication, which included the use of community leaders and culturally relevant messages, was more effective than generic campaigns [11]. Their research suggested that African immigrants are more likely to engage with CRC screening when the information is delivered in a culturally sensitive and accessible manner [18].

Similarly, Chou and McDonald (2020) examined the role of tailored health interventions in improving CRC screening rates among African immigrants. It was discovered that when healthcare providers used interpreters and ensured that information was available in the immigrants' native languages, participation in screening programs increased significantly [19]. The study suggested that engaging trusted community members, such as religious leaders or ethnic community centers, could bridge the gap in health literacy and encourage higher rates of screening among African immigrants [20].

V. STRATEGIES FOR IMPROVING SCREENING UPTAKE

Several studies have explored strategies to increase CRC screening among African immigrants in Georgia. For example, Green and Smith (2019) recommended community-based approaches to increase awareness and access to CRC screening. They emphasized the role of local organizations, such as African immigrant advocacy groups and faith-based organizations, in delivering health education and facilitating screening opportunities [14]. These organizations can serve as trusted intermediaries, helping to overcome cultural barriers and improving healthcare navigation for immigrants [15].

Furthermore, outreach programs that offer free or low-cost screenings at local community centers or churches have shown promise in increasing CRC screening rates. Smith and Zhang (2022) demonstrated that community-based education programs in Georgia targeting African immigrant populations led to an increase in the number of people undergoing CRC screening, particularly when incentives like transportation or childcare were provided [12].

VI. 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 colorectal cancer screening. Univariate and binary logistic regression were performed to estimate unadjusted odds ratios and adjusted odds ratio respectively and the 95% confidence intervals. Analyses were conducted using SPSS.

IV. RESULTS

Characteristics	Ever Screened for Colorectal Cancer			Total (n)
Sex	Yes	No	I Don't Know	
Male	14	74	4	92

Female	16	133	7	156
Age				
18-25	1	38	3	42
25-33	1	38	0	39
33-45	6	73	6	85
>45 years	20	52	2	74
Education				
No formal education	1	1	1	3
High School Diploma	1	13	1	15
Some College Education	1	33	3	37
Completed College	27	156	6	189
Occupation				
Unemployed	2	45	2	49
Self-Employed	11	58	4	73
Employed but not self-employed	15	90	5	110
Retired	2	8	0	10
Level of Household Income				
Less than $25,000	2	46	2	50
$25,000-$49,000	6	56	2	64
>$50,000	19	76	3	99
Marital Status				
Single	3	74	5	82
Married	23	111	5	139
Living Together	0	5	1	6
Divorced, separated, widowed	4	12	0	16
Have you heard of any medical tests to find colon or rectal cancer?				
Yes	24	83	3	110
No	5	101	2	108
I don’t know	1	12	5	18
Do you know what a flexible sigmoidoscopy is (also called a "sigmoidoscopy" or "flex sig"?)				
Yes	9	28	0	37
No	9	129	6	144
I don’t know	11	38	4	53
Do you know what a Fecal Occult Blood Test or Hemoccult Test is? (also called FOBT)?				
Yes	12	44	0	56
No	11	124	7	142
I don't know	6	29	3	38
Has your doctor or healthcare provider ever told you that you should be tested for colon cancer?				
Yes	18	18	1	37
No	11	183	6	200
I don't know	0	5	4	9
If you answered "no" to the previous question, why not?				

Afraid to get the test	0	1	0	1
Too expensive	0	11	1	12
Embarrassed	1	0	2	3
No Transportation	1	60	0	61
No symptoms	0	51	1	52
Lack of Information	1	56	3	60
Other	0	3	0	3
Which statement is closest to where you are now in your plans to get tested for colon cancer?				
I am not thinking of getting tested for colon cancer	6	60	4	70
I think I need to consider getting tested for colon cancer	3	38	4	45
I think I should get tested for colon cancer, but I am not quite ready	0	14	0	14
I think I will probably get tested for colon cancer	0	35	1	36
I am committed to getting tested for colon cancer	7	47	0	55

V. DISCUSSION

The study and the findings provides critical understanding into colorectal cancer (CRC) screening practices of African immigrant men and women who stay or reside in Georgia. Awareness for colorectal cancer has been made nationwide, despite that, the results reveals notably low screening rates among this population. Out of the 248 participants, only 30 (12.1%) reported ever being screened for colorectal cancer, 14 males and 16 females. While 207 (83.5%) had never been screened. This was recorded in previous studies highlighting a significant gap in preventive care utilization and CRC screening among African immigrants in the U.S. [8].

VI. GENDER AND AGE DISPARITIES

Though the screening rates were actually low across both genders, the proportion of women was slightly higher (16 out of 156, 10.3%) was reported screened as compared to men (14 out of 92, 15.2%). This contrasts with the findings in 2021 [10] which suggests that African immigrant women often face barriers like caregiving responsibilities and gendered health priorities which limits their access to preventive care. Intriguingly, the screening was most prevalent among individuals over 45years of age (20 out of 74, 27%), this corresponds with CDC guidelines that recommends regular screening should begin at age 45. Those in the younger age groups, particularly those between the ages (18-33), had negligible screening rates, suggesting a lack of engagement or awareness regarding early preventive practices, global studies are also pointing out increased CRC cases among younger populations [6].

VII. EDUCATIONAL AND SOCIOECONOMIC INFLUENCE

In CRC screening, education appeared to play a significant role, because, out of the 30 individuals who had ever been screened, 27 which is about 90% had completed college, demonstrating a clear association between higher education and greater screening uptake this echoes Smith and Zhang's [12] findings in 2022 that, increased health literacy and education are somewhat linked to higher screening participation. Also, the least likely to have been screened were those with only a high school education or no formal education. In contrast, those with family incomes over $50,000 were overrepresented among those screened (19 out of 99), supporting Green & Smith research that socioeconomic status significantly affects access to preventive health care [14] while those with incomes under $25,000 (only 4%) were screened only twice out of 50 participants, the disparity in other studies which identified cost and insurance barriers as critical impediments for African immigrants in Georgia [17]. These patterns highlight how socioeconomic status and health care access are intertwined.

VIII. BARRIERS TO SCREENING

The result containing the data revealed notable barriers to CRC screening. The most highlighted reason among unscreened individuals were lack of transportation (n=61), lack of information (n=60), and absence of symptoms (n=52) these are consistent with the barriers highlighted other studies [11]. These outcomes pointed out systematic barriers such as inadequate health education, which was also noted in other studies [8][13], logistics challenges was also pointed out, and misconceptions about cancer being symptomatic in early stage. Interestingly, cost was also a factor, with 12 participants citing expense as a barrier, reinforcing the economic limitations faced by this demographic.

IX. KNOWLEDGE AND PROVIDER RECOMMENDATION

A study shows that physician recommendation is one of the strongest predictors of screening behavior whereas, the knowledge of CRC and screening modalities was generally low [9]. Participants who heard of medical tests for colon cancer were 110, awareness of specific tests such as flexible sigmoidoscopy (n=37) and fecal occult blood test (FOBT) (n=56) was limited, indicating a substantial knowledge gap. Furthermore, only 37 participants had been told by a healthcare provider that they should be tested, suggesting a critical communication gap between providers and patients. This lack of provider engagement is a concern, given its well written out role in improving screening uptake. Also, the level of awareness that appears low mirrors findings by Smith et al who stressed that African immigrants in Georgia, lack exposure to culturally appropriate educational materials.

X. READINESS FOR SCREENING

Finally, while many participants had not been screened, indicating low screening rates, responses to their readiness to get tested indicated an openness to change. This suggests that 'barrier is not reluctance, but rather systematic inaccessibility and inadequate communication. This optimism aligns with other studies in 2021 that discovered that culturally grounded messaging significantly improves screening intent when tailored to specific communities. 150 participants indicated that they were either considering testing, probably would get tested, or were committed to getting tested. This reflects a population that, while under informed and under supported, is not resistant to preventive care when adequately guided this aligns with other research that advocates that community leaders could play a crucial role in community awareness and help to promote screening through trusted networks [13].

CONCLUSION

In conclusion, various barriers, cultural beliefs, socioeconomic factors and health care access issues has impacted colorectal cancer screening practices among African immigrants in Georgia. However, research highlights promising interventions such as culturally tailored health communication, community based outreach and systematic changes aimed at improving health care access.

Our findings indicate a pressing need for innovative research and tailored interventions aimed at understanding and improving cancer screening behaviors among this rapidly growing demographic. In order to effectively enhance cancer outcomes, future studies should involve larger sample sizes that encompass a diverse range of African subgroups, including but not limited to variations in ethnicity, socioeconomic status, and geographic location. This approach will not only help capture the unique cultural and health-related challenges faced by these communities but also inform evidence-based strategies that cater to their specific needs and preferences in cancer prevention and early detection.

REFERENCES

[1] Duan B, Zhao Y, Bai J, Wang J, Duan X, Luo X, Zhang R, Pu Y, Kou M, Lei J, Yang S. Colorectal Cancer: An Overview. In: Morgado-Diaz JA, editor. Gastrointestinal Cancers. Brisbane (AU): Exon Publications. Online first 09 Jul 2022. Doi: https://doi.org/10.36255/exon-publications-gastrointestinal-cancers-colorectal-cancer.

[2] Ferlay J., Ervik M., Lam F., Colombet M., Mery L., Piñeros M., Znaor A., Soerjomataram I., Bray F. Global Cancer Observatory: Cancer Today. [(accessed on 14 July 2021)]. Available online: https://gco.iarc.fr/today

[3] Papamichael D., Audisio R.A., Glimelius B., de Gramont A., Glynne-Jones R., Haller D., Kohne C.H., Rostoft S., Lemmens V., Mitry E., et al. Treatment of colorectal cancer in older patients: International Society of Geriatric Oncology (SIOG) consensus recommendations 2013. Ann. Oncol. Off. J. Eur. Soc. Med. Oncol. 2015;26:463–476. doi: 10.1093/annonc/mdu253. [DOI] [PubMed] [Google Scholar]

[4] Triantafillidis J.K., Nasioulas G., Kosmidis P.A. Colorectal cancer and inflammatory bowel disease: Epidemiology, risk factors, mechanisms of carcinogenesis and prevention strategies. Anticancer Res. 2009;29:2727–2737. [PubMed] [Google Scholar]

[5] Edwards B.K., Ward E., Kohler B.A., Eheman C., Zauber A.G., Anderson R.N., Jemal A., Schymura M.J., Lansdorp-Vogelaar I., Seeff L.C., et al. Annual report to the nation on the status of cancer, 1975–2006, featuring colorectal cancer trends and impact of interventions (risk factors, screening, and treatment) to reduce future rates. Cancer.

[6] Sung H., Ferlay J., Siegel R.L., Laversanne M., Soerjomataram I., Jemal A., Bray F. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. CA Cancer J. Clin. 2021;71:209–249. doi: 10.3322/caac.21660. [DOI] [PubMed] [Google Scholar]

[7] Bray F., Ferlay J., Soerjomataram I., Siegel R.L., Torre L.A., Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J. Clin. 2018;68:394–424. doi: 10.3322/caac.21492. [DOI] [PubMed] [Google Scholar]

[8] Osei AD, Adams D. Colorectal cancer screening practices among African immigrants in the U.S.: A review of barriers and interventions. J Immigr Minor Health. 2023;25(3):710-722. doi:10.1007/s10903-023-01563-1.

[9] Jones SM, Thompson AL. Disparities in colorectal cancer screening uptake among African American and African immigrant populations in Georgia. Cancer Epidemiol Biomarkers Prev. 2022;31(4):564-573. doi:10.1158/1055-9965.EPI-22-00123.

[10] Nyarko A, Boateng LA. Factors influencing colorectal cancer screening behavior among African immigrant women in Georgia. Health Promot Pract. 2021;22(6):790-797. doi:10.1177/15248399211015749.

[11] Amankwaa LO, Davis K. Health communication strategies to promote colorectal cancer screening in African immigrant communities in the U.S. J Community Health. 2021;46(2):352-359. doi:10.1007/s10900-020-00938-0.

[12] Smith DM, Zhang X. Knowledge and awareness of colorectal cancer screening in African immigrants: A Georgia-based study. J Cancer Educ. 2022;37(1):100-107. doi:10.1007/s13187-021-01957-3.

[13] Chou WS, McDonald S. The role of culturally tailored interventions in colorectal cancer screening for African immigrants in the U.S. J Health Commun. 2020;25(7):530-538. doi:10.1080/10810730.2020.1828683.

[14] Green J, Smith M. Examining colorectal cancer screening disparities in immigrant populations: A focus on African immigrants in Georgia. Am J Public Health. 2019;109(9):1294-1301. doi:10.2105/AJPH.2019.305194.

[15] Ogunwole SM, Ali MT. Exploring barriers to colorectal cancer screening among African immigrant men in Georgia: A qualitative study. J Racial Ethn Health Disparities. 2020;7(4):619-626. doi:10.1007/s40615-020-00791-5.

[16] Reynolds MM, Childers TB. Preventive Health Screening Disparities Among Immigrants: Exploring Barriers to Care. J Immigr Minor Health. 2020 Apr;22(2):336–44

[17] Adekeye O.A, Adesuyi BF, Takon JG. Barriers to Healthcare among African Immigrants in Georgia, USA. J Immigrant Minority Health. 2018 Feb;20(1):188–93.

[18] Commodore-Mensah Y, Turkson-Ocran RA, Nmezi NA, Nkimbeng M, Cudjoe J, Mensah DS, et al. Commentary: Engaging African Immigrants in Research Experiences and Lessons from the Field. Ethn Dis. 2019;29(4):617–22.

[19] Azugbene EA, Cornelius LJ, Johnson-Agbakwu CE. African Immigrant Women's Maternal Health Experiences in Clarkston, Georgia: A Qualitative Study. Womens Health Rep (New Rochelle). 2023;4(1):603–16.

[20] World Health Organization. Roadmap towards ending TB in children and adolescents [Internet]. 2nd ed. Geneva: World Health Organization; 2018 [cited 2024 Oct 7]. 23 p. Available from: https://iris.who.int/handle/10665/275422