Using the Health Belief Model and the Social-Ecological Model as Frameworks to Assess the Health Behavior of African-Born Immigrant Mothers in Washington State Toward the Utilization of Cervical Cancer Prevention Services (Cervical Cancer Screening and HPV Vaccination)

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Abstract

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Cervical cancer remains a significant public health concern in the United States, disproportionately affecting African immigrant women who experience higher risks and lower participation in prevention programs. Although cervical cancer is largely preventable through HPV vaccination and regular screening, many African-born immigrant mothers remain under-informed or face barriers that limit access and utilization. This study explored African immigrant mothers' knowledge, awareness, and utilization of HPV vaccination and cervical cancer screening. It examined cultural, social, and systemic factors, as well as broader social determinants and policy contexts, that shape access to and utilization of cervical cancer prevention services in Washington State. Guided by the Health Belief Model and the Social-Ecological Model, this qualitative study involved in-depth interviews with 56 African-born immigrant mothers and key informants. Thematic analysis identified five overarching domains with 25 interrelated themes that shape cervical cancer prevention behaviors. At the individual level, limited availability of health information, cultural beliefs, misinformation, and perceived risks influenced awareness and utilization. Family, peers, and faith leaders significantly shaped decision-making, while trust in healthcare providers and access to culturally and linguistically appropriate information emerged as critical factors. Structural barriers, such as economic hardship, limited healthcare access, and a lack of follow-up reminders, further limited

participation. Broader social determinants, including education, employment, and discrimination, also affected preventive behaviors. The findings emphasize the need for culturally grounded, community-driven interventions, including faith-based education, peer advocacy, mobile clinics, and HPV self-sampling, to improve awareness, access, and utilization.

Table of Contents

Contents

List of Tables v
List of Figures vi
Acknowledgements vii
Chapter 1: Introduction 1
Problem Statement 2
Significance of the Study 4
Healthy People 2030 Goals 4
Purpose of the Study 6
Study Rationale 6
The importance of current research 7
Rationale Theories 7
Health Belief Model 7
Socio-ecological Model 8
Specific Aims 10
Three Research Questions 11
Delimitations 12
Limitations of the Study 14
Researcher's Prior Experience and Relevance to the Study 15
Definitions of key terms 16
The structure of the dissertation 19
Chapter 2: Literature Review 20
Definitions: HPV, Cervical Cancer, and Vaccines 20
Human Papillomavirus (HPV) 20
Health Belief Model (HBM) 21
Social-Ecological Model (SEM) 22
Cervical Cancer Prevention Strategies 24
HPV Vaccination 24
Cervical Cancer Screening 25
Cervical Cancer Treatment 26

Knowledge of HPV Vaccination and Cervical Cancer Screening Among African Immigrants in the U.S. 27
Awareness of HPV Vaccination and Cervical Cancer Screening Among African Immigrants in the U.S. 30
Utilization of HPV Vaccination and Cervical Cancer Screening Services Among African Immigrants in the U.S. 32
Declining Screening Rates and Disparities 33
Barriers to HPV Vaccination and Cervical Cancer Screening Among African Immigrants in the U.S 34
Individual and Knowledge-Based Barriers 34
Cultural and Language Barriers 35
Systemic Barriers 36
Sociocultural and Economic Barriers 37
Addressing Barriers Through Interventions 38
Cervical Cancer Prevention Strategies 39
Medicaid Expansion and Coverage for Immigrants 40
Addressing Healthcare Affordability and Geographic Barriers 40
Community-Based and Culturally Tailored Approaches 40
Anti-Racism and Health Equity Efforts 41
Role of Federally Funded Programs 41
Other State-Level Cervical Cancer Prevention Programs 42
Rhode Island's Initiatives 43
Texas' Safety-Net System Improvements 43
Washington, D.C.'s Vaccine Exemption Policies 43
Los Angeles County, California 44
Hispanic Community-Focused Campaigns 44
Policy and Intervention Strategy Recommendations for Cervical Cancer Prevention in Washington State 44
Provider Education and Communication Strategies 44
Innovations in Screening Programs 45
Tailored Interventions for Migrant Populations 45
African Immigrant Population in Washington State and the U.S. 46

The Role of Community and Social Networks 48
Why Washington State Attracts African Immigrants 48
Chapter 3: Methodology 50
Description of Participants and Samples 53
Data Sources 56
Description of Research Instrumentation 59
Data Collection Procedure 61
Informed Consent 63
Participant Compensation 64
Institutional Review Board Approval 64
Data Management and Treatment 64
Study Design 70
Interpretative Phenomenological Research 70
Issues of Trustworthiness 72
Credibility 73
Transferability 73
Dependability 74
Confirmability 75
Predictors of Study-related Outcomes 76
Anticipated Limitations 77
Research Positionality 77
Summary 78
Chapter 4: Results 79
Demographics of Study Participants 80
Data Collection 81
Consent and Confidentiality Procedures 83
Data Analysis 84
Data Triangulation 86
Emerging Themes 86
Description of the results 96
Results for Research Question 1 96

Key Demographic Patterns 99
Length of Stay in the United States 99
Educational Level of Participants 100
Religious Affiliation of Participants 101
Country of Birth of Participants 101
Results for Research Question 2 119
Geographical Distribution of Focus Group Participants Across Washington State 119
Key Intervention Strategies 120
Results for Research Question 3 136
Social Determinants Influencing HPV Vaccination and Cervical Cancer Screening 136
Facilitators for Cervical Cancer Screening and HPV Vaccination 151
Chapter 5: Discussion, Conclusions, and Recommendations 155
Influence of Key Demographic Patterns in the U.S. on Healthcare Engagement 159
Demographic Interactions 171
Research Question 1 172
Research Question 2: 181
Research Question 3: 191
Synthesis of Key Informant Perspectives 195
Implications of the study 200
Limitations of the Study 207
Implications for Positive Social Change 210
Conclusion 212
Recommendations for Future Research 214
References 219
Appendix A: Interview Schedule for Main Study 312
Appendix B: Focus Group Discussion Schedule 316
Appendix C: Key Informant Interview Schedule 320
Appendix D: Recruitment Flyer 324
Appendix E: Key Informant Invitation Letter 325
Appendix F: Site Permission Letter 327
Appendix G: Informed Consent 329

List of Tables

Table 1: Sample Questions: Health Belief Model 60

Table 2: Sample Questions: Social Ecological Model 61

Table 3: The Research Questions and the themes identified 86

Table 4: Research Questions and Emergent Themes Organized by Conceptual Domains 90

Table 5: Themes, Categories, Initial Codes, Participants, and Illustrative Excerpts 93

Table 6: Study Participant Demographics (N = 31) 97

Table 7: Intervention Matrix 121

Table 8: Participant Perspectives on Economic Stability in Cervical Cancer Prevention 137

Table 9: Participant Perspectives on Employment and Income Levels 139

Table 10: Participant Perspectives on Health Literacy, Misinformation, and the Need for Culturally Relevant Education 141

Table 11: Systemic Barriers and Cultural Competence Gaps in Healthcare Access and Quality 143

Table 12: Structural and Environmental Barriers Limiting Health Service Access Among African Immigrant Mothers 145

Table 13: Participant Perspectives on Social Trust, Cultural Norms, and Community Engagement in Cervical Cancer Prevention 148

List of Figures

Figure 1: Health Belief Model 8

Figure 2: Diagram showing the pathways and factors contributing to hesitancy and misconceptions 10

Figure 3: Conceptual Framework Integrating the Health Belief Model (HBM) and Social-Ecological Model (SEM) 89

Figure 4: The geographic distribution of participants by ZIP code and county across Washington State 104

Figure 5: Geographical Distribution of Focus Group Participants 120

Figure 6: The bar chart below shows intervention strategies suggested by all study participants who took part in the study 122

Figure 7: The bar chart below shows intervention strategies suggested by all study participants who took part in only the focus group discussions 124

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Chapter 1: Introduction

Cervical cancer remains a major global health challenge (Buskwofie et al., 2020), ranking as the fourth (Brisson & Drolet, 2019), and the most common cancer among women, causing over 350,000 deaths annually (Arbyn et al., 2020; Cancer (IARC), n.d.; *Cancer Tomorrow*, n.d.). It is primarily caused by persistent infection with high-risk types of human papillomavirus (HPV), which is responsible for over 90% of cervical cancer cases (de Martel et al., 2020). Despite advances in prevention through HPV vaccination and cervical cancer screening, significant disparities persist, particularly among vulnerable populations such as African immigrant women in the United States (Ginsburg & Weiderpass, 2020). Human papillomavirus (HPV), the primary cause of cervical cancer, is preventable through vaccination, which has been proven highly effective since its introduction in 2006 (Adegboyega, n.d.). In addition, regular screening can detect cervical abnormalities early (CDC, 2024e), reducing the likelihood of progression to cancer (Fowler et al., 2024). However, gaps in awareness, access, and utilization of these preventive measures continue to place certain populations at higher risk (Sung et al., 2021).

Annually, over 13,000 cases of cervical cancer and 4,000 deaths occur in the United States. The majority of these diagnoses are made in individuals who have never taken the HPV vaccine, never been screened, or undergone inadequate screening (CDC, 2024e).

African immigrant mothers represent a growing demographic in the United States and face unique cultural, social, and systemic barriers to preventive care (R. A. Smith et al., 2019). While they are key decision-makers regarding their children's health, limited knowledge of HPV, cultural misconceptions, systemic barriers, and healthcare access challenges hinder their ability to utilize preventive services effectively (Gilkey et al., 2017). Studies indicate that African immigrant women have lower rates of HPV vaccination and cervical cancer screening compared

to U.S.-born women, which contributes to higher risks of late-stage diagnosis and poorer health outcomes (Amuta-Jimenez et al., 2020).

Problem Statement

Cervical cancer prevention has significantly improved in many high-income countries due to widespread screening programs, which have reduced incidence rates by up to 80% over recent decades (Giuliano & Niccolai, 2021). In the United States, approximately 80.5% of women are up to date with cervical cancer screening, nearing the Healthy People 2030 target of 84.3% (*Healthy People 2030 | Health.Gov*, n.d.). Additionally, HPV vaccination has become a highly effective primary prevention tool (Adegboyega, n.d.). Despite these public health advancements, HPV vaccination and cervical cancer screening uptake remain suboptimal among marginalized populations, including African immigrants (Reagan-Steiner et al., 2016; Spencer et al., 2023).

African immigrant women face disproportionate cervical cancer risks compared to African American women and the general U.S. population (Amuta-Jimenez et al., 2020). Many come from countries or regions with the highest global cervical cancer burden, particularly sub-Saharan African countries, where incidence can reach 40 cases per 100,000 women (Bray et al., 2018). In Africa, more than 119,000 new cervical cancer cases and over 81,000 deaths occur annually, and over 53% of cases are diagnosed at advanced stages due to inadequate screening programs (HPV Information Center, n.d.; Mantula et al., 2024). Cervical cancer screening coverage across the African continent remains low, on average 13% compared to 63% in high-income countries (Petersen et al., 2022; Yimer et al., 2021). These global inequities follow African immigrant women to the United States, where socioeconomic barriers, lack of insurance,

limited access to culturally competent care, language differences, and unfamiliarity with screening norms further increase vulnerability (de Martel et al., 2020; Morrison et al., 2013).

Studies in Washington State mirror these national disparities. For example, a King County study found that none of the 55 Somali mothers surveyed had vaccinated their children against HPV, and only 16% of Ethiopian/Eritrean mothers had done so (Greenfield et al., 2015). Cervical cancer screening rates among African immigrants also remain below national averages, influenced by limited knowledge of HPV, cultural beliefs, and structural barriers such as transportation, cost, and adverse clinical experiences (Markowitz et al., 2018).

Despite these concerns, African immigrants remain one of the most understudied immigrant groups in the United States (Omenka et al., 2020). Many public health datasets categorize African immigrants within broad racial groups, masking the unique experiences of African-born populations (Dailey & Krieger, 2017). This lack of disaggregated data limits the development of culturally appropriate interventions tailored to their specific needs (Salad et al., 2015). As the African immigrant population in Washington State continues to grow, with over 78,000 African-born residents representing more than 35 countries (SB 5641 Washington State Legislature, n.d.; Tamir, 2022), the absence of targeted research becomes increasingly concerning.

Given the high global burden of cervical cancer and the persistent disparities affecting African immigrant women in the U.S., there is an urgent need to better understand the factors influencing HPV vaccination and cervical cancer screening behaviors within this population. This study seeks to examine African immigrant mothers' knowledge, awareness, and utilization of cervical cancer prevention services for themselves and their children aged 9 to 17. It also aims to identify barriers and facilitators shaping their decisions and explore key informants'

perspectives on the social determinants that affect access to preventive care. By addressing these gaps, the research will provide evidence to guide culturally informed interventions and improve health equity within this underserved population.

Significance of the Study

This work aligns with national health priorities, including the Healthy People 2030 goals and the World Health Organization (WHO) 's global cervical cancer elimination targets. Understanding and addressing the unique challenges faced by African immigrant mothers is essential for reducing disparities, improving health equity, and ultimately preventing cervical cancer in this vulnerable population.

Healthy People 2030 Goals

The World Health Organization (WHO) has set a global target to vaccinate 90% of girls against HPV by 2030 as part of the cervical cancer elimination goal 2030 (R. A. Smith et al., 2019). Similarly, the United States, through the Healthy People 2030 initiative, aims to achieve 80% HPV vaccination coverage for both boys and girls (HPV Vaccine Administration | CDC, 2023). This study aligns with and contributes to three key objectives of the Healthy People 2030 framework:

1. **Increase cervical cancer screening rates (C-09):** The goal is to raise the proportion of females aged 21 to 65 years who get screened for cervical cancer from 75.0% (baseline in 2019) to 79.2% (Healthy People 2030 | Health.Gov, n.d.). (*Increase the Proportion of Females Who Get Screened for Cervical Cancer — C-09 - Healthy People 2030 | Health.Gov*, n.d.).

2. **Increase HPV vaccination coverage among adolescents (IID-08):** The target is to increase the proportion of adolescents aged 13 to 15 years receiving the recommended HPV vaccine doses from 58.5% in 2021 (baseline of 48.0% in 2018) to 80.0%.
3. **Reduce HPV infections among young adults (IID-07):** The aim is to decrease the proportion of young adults aged 20 to 34 years infected with at least one HPV type preventable by the 9-valent vaccine from 15.1% (2013–16 data) to 8.7% (2024 Phase 1 HP2030 Microsite Survey, n.d.).

Cervical cancer remains a significant public health concern in the United States, with over 13,000 cases and 4,000 deaths annually. Most diagnoses occur in individuals who have not received the HPV vaccine, were never screened, or received inadequate screening (CDC, 2024e). In Washington State, the Cancer Action Plan, developed by the Washington Coalition and aligned with CDC guidelines, targets four priority areas: Primary Prevention, Early Detection and Screening, Cancer Survivor Wellbeing, and addressing Social Determinants of Health. These objectives support the Healthy People 2030 goals and the priorities of the Washington State Department of Health Cancer Programs and their coalition partners. This plan emphasizes selecting strategies that enhance cancer prevention and early detection, ultimately contributing to the national and state-level goals for HPV vaccination and cervical cancer screening (General 4, n.d.).

By addressing these objectives, this study aims to support national and state efforts to reduce cervical cancer incidence and mortality, advance HPV vaccination coverage, and improve overall public health outcomes.

Purpose of the Study

The study is to establish the level of knowledge and awareness of HPV vaccination and cervical cancer screening among African immigrant mothers in Washington State. It will also articulate cultural, social, and systemic drivers of health-seeking behavior and decision-making around prevention care for these mothers and children. In addition, it will solicit opinions from key informants on the broader social drivers and policy issues affecting this population.

Study Rationale

This research is to assess the uptake of cervical cancer prevention measures, specifically HPV vaccination and cervical cancer screening, among African immigrant families with children between 9 and 17 years old residing in Washington State. This study will help generate data about African-born immigrants in the United States. Data currently generated combines all black people, and it will be proper to disaggregate data for better interpretation and design of interventions (Chikanda & Morris, 2021). Furthermore, few studies have evaluated cervical cancer-related prevention efforts specifically addressing African-born immigrant mothers (Abdi et al., 2020; Benard et al., 2017), and these women have been underrepresented in most studies and national surveys (Abdi et al., 2020).

Additionally, most of the research focused on either HPV vaccination or cervical cancer screening uptake among East African immigrants. However, this research will concentrate on both HPV vaccination and cervical cancer screening among African-born immigrant mothers who have children aged between 9 and 17 years (Chikanda & Morris, 2021). This research will utilize a bottom-up approach, allowing African immigrants to identify and suggest strategies and interventions to eliminate or minimize barriers to cervical cancer screening and HPV vaccination. The approach will consider the unique social, economic, cultural, and systemic

factors that influence their decisions regarding preventive healthcare, particularly routine cervical cancer screening and HPV vaccination.

The importance of current research

This research will identify barriers that prevent African immigrants from accessing these preventive healthcare services and highlight challenges that hinder African-born immigrant mothers from receiving recommended screenings and vaccinations. The findings will inform the development of culturally relevant information campaigns, language-accessible screening reminders, and community-based vaccination programs to improve immunization rates among this population.

If the study reveals lower screening and vaccination rates compared to other populations, it may underscore the need to allocate more resources and focus public health efforts on addressing cervical cancer disparities in immigrant communities. The research could also prompt revisions to screening and vaccination standards to meet the needs of diverse immigrant groups better, potentially sparking further investigation into the social, economic, and healthcare factors influencing cancer prevention practices among immigrants.

Ultimately, this research has the potential to enhance cervical cancer outcomes and reduce health disparities for African-born immigrant women in the U.S. Improving HPV vaccination will contribute to herd immunity, which will protect vulnerable people in society.

Rationale Theories

Health Belief Model

The research topic for this study will be framed using two conceptual frameworks: the Health Belief Model (HBM) and the Social Ecological Model (SEM).

The HBM pertains to an individual's ideas and conceptions toward illness prevention, health maintenance, and the pursuit of optimum well-being. Individuals with ideas about illnesses and health are more inclined to engage in healthy activities and modify harmful behaviors (Buller et al., 2024). The perception of danger mainly stems from people's sense of insecurity. The concept comprises the perceived likelihood and seriousness of the issue (Medics, 2020; Wang et al., 2024).

Glanz and Bishop (2010) said that the Health Belief Model (HBM) was relevant to research because it provides a framework for understanding and predicting how people adopt or modify health behaviors based on their perceptions of personal risk, the severity of potential health consequences, the benefits of taking action, and the barriers to taking action, along with their self-efficacy beliefs and the presence of cues to action (Glanz & Bishop, 2010).

Figure 1: Health Belief Model

Adopted from Medics, T. A. (2020, October 2). *Health Promotion*. The Aspiring Medics.

Socio-ecological Model

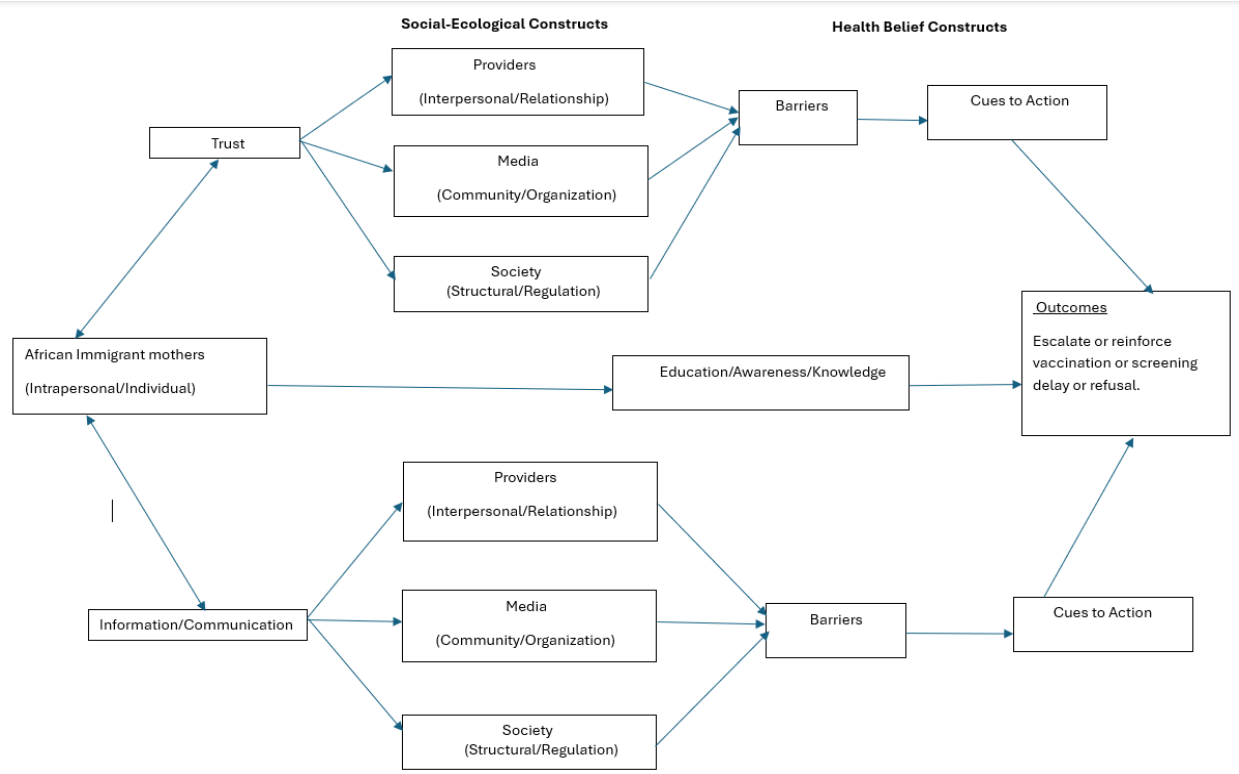
According to Sallis et al., (2008), the SEM posits that individuals' health is impacted by the interactions between themselves, their communities, and their physical, social, and political

environments. The first level of the model considers an individual's biology and personal characteristics, while the second, the relationship level, encompasses a person's social circle. The third level of the model examines the environments (media and community) in which people interact and form social bonds, including residential areas, workplaces, and educational institutions. The objective of this level is to identify environmental characteristics that impact well-being. The fourth level of study focuses on sociocultural (societal, Structural) factors that contribute to or detract from health. Examples include cultural and societal norms that perpetuate or reduce socioeconomic inequalities among different groups (CDC, 2024d; Krug et al., 2002).

According to K. K. Walker et al., (2020), trust and information are the main perceived determinants of mothers' initial vaccination and screening acceptance, and they looked to physicians, the media (social networks and organizations), and society for these attributes (Walker et al., 2020). The diagram below integrates components from the Social Ecological Model and Health Belief Constructs to explain pathways that influence vaccination behavior and cervical cancer screening behavior.

Figure 2: Diagram showing the pathways and factors contributing to hesitancy and misconceptions

(Multilevel Framework for HPV Vaccination and Screening Decision-Making)



This is a revised version of K. K. Walker et al. (2020), highlighting the pathways and factors contributing to hesitancy and misconceptions about HPV vaccination and cervical cancer screening.

Specific Aims

The study aimed to:

1. Assess African-immigrant mothers' knowledge, awareness, and utilization of HPV vaccination and cervical cancer screening.

Lim & Ojo (2017) state that many African countries have limited access to and understanding of cervical cancer prevention, resulting in a stronger emphasis on treatment. This contributes to higher mortality rates and more advanced cervical cancer cases among African

immigrant women. Additionally, African immigrants' health-seeking behaviors are affected by their experiences with the U.S. health system and challenges such as low awareness, language barriers, and provider gender (Lee et al., 2019a; Omenka et al., 2020).

2. Identify culturally specific intervention strategies to improve the rates of cervical cancer screening by African-immigrant mothers and HPV vaccination of their children.

These will help policy-makers design strategies that will motivate the African immigrant community to utilize cervical cancer prevention services.

3. Explore the perspectives of key informants regarding the social determinants affecting cervical cancer screening and HPV vaccination.

These experts and professionals are involved in implementing programs and policy strategies to improve cervical cancer screening and HPV vaccination and therefore have firsthand experience on the topic. They will share their experiences and knowledge to help the study identify the policy gaps.

Three Research Questions

The study will answer three research questions, and these include:

1. What are the levels of knowledge, awareness, and utilization among African immigrant mothers regarding HPV vaccination and cervical cancer screening?

The dissertation aims to identify knowledge gaps regarding cervical cancer screening and HPV vaccination. Most African immigrant mothers have limited knowledge about cervical cancer screening and HPV vaccination because of inadequate sensitization about cervical cancer in African countries (Chikanda & Morris, 2021). It will identify factors influencing their decisions regarding HPV vaccination and cervical cancer screening. African-immigrant women represent the largest subgroup of Black women in the U.S., with unique historical and

sociocultural experiences distinct from U.S.-born Black women. Their health-seeking behaviors are affected by racism, socioeconomic status, culture, etc (Amuta-Jimenez et al., 2020).

2. What intervention strategies can effectively improve cervical cancer screening rates among African immigrant mothers and increase HPV vaccination uptake among their children?

This research question aims to identify intervention strategies to address the unique needs of African immigrants. This research will yield responses that will improve participation in cervical cancer screening and increase HPV vaccine acceptance among African immigrant mothers and their children.

3. What are the perspectives of key informants regarding the social determinants affecting HPV vaccination and cervical cancer screening?

To answer this research question, experts and professionals will be identified and interviewed to understand their perspectives on the topic in Washington State. Their contributions will enrich the research and reveal gaps in policy strategies and other implementation challenges.

Delimitations

Delimitations are researcher-defined boundaries that affect a study's external validity. They include choices regarding scope, population, methodology, and data collection, which may limit the generalizability of findings beyond the study's parameters (Rouleau-Carroll, n.d.). For instance, the researcher may focus on a specific age group, sex, ethnicity, or region, limiting generalizability. These delimitations involve intentional inclusionary and exclusionary choices in study design, potentially introducing systematic bias but ensuring a targeted and feasible research scope (Connelly, 2013; James H. Price Editor PhD & Assistant, 2004).

The study suffered from the following delimitations:

1. **Underrepresentation of the Target Population:** The use of snowball and purposive sampling limited the representativeness of the sample, particularly concerning African-born immigrant women living in Seattle, Washington. While the African-born immigrant population in Seattle is growing, it remains smaller compared to other major U.S. cities, such as New York, California, and Washington, D.C. This sampling approach did not fully capture the unique perceptions and challenges faced by this population. To mitigate the risk of homogeneity, the study implemented targeted recruitment strategies to include women from diverse environments and backgrounds.
2. **Reluctance to Participate:** Cultural and religious beliefs around vaccinations, cancer screenings, and sexual health influenced some mothers' willingness to participate in research. Additionally, discussions surrounding sexual activity, particularly among minor children, were considered taboo in certain cultural and religious contexts, further contributing to potential hesitancy in participation.
3. **Potential Biases:** There was a risk of biases affecting the data collection process, particularly with the use of semi-structured interviews. Social desirability bias could have skewed responses, as participants may be inclined to provide answers that they believe are more socially acceptable rather than their true thoughts and experiences. This could lead to over- or under-reporting of issues such as health service access, literacy, and concerns about immigration status. To reduce social desirability bias, the study ensured that interviews were anonymous, with all information de-identified and securely recorded. Additionally, the study clearly explained its objectives, emphasizing the voluntary and confidential nature of participation to encourage honest and open responses.

Limitations of the Study

Study limitations are weaknesses within the study that may influence its outcomes and conclusions. No research design is perfect and free from explicit and implicit biases; however, various methods can be employed to minimize the impact of study limitations (Ross & Bibler Zaidi, 2019). Despite the contributions of this study to understanding the health behaviors of African-born immigrant mothers regarding cervical cancer prevention, this qualitative research has several limitations that should be acknowledged.

Firstly, marginalized immigrant communities may hesitate to share health information due to discrimination, immigration concerns, or stigma. To build trust, this study partnered with community organizations and emphasized confidentiality and voluntary participation, creating a safe space for open dialogue (Denzin & Lincoln, 2017).

Secondly, conducting in-depth qualitative research requires time and resources; however, this unfunded study must overcome these constraints. To mitigate challenges, cost-effective methods such as virtual interviews via Zoom were adopted to reduce travel and logistical expenses. Additionally, efficient time management strategies, such as batching interviews and utilizing qualitative analysis software (e.g., NVivo), streamlined data collection and analysis. These approaches helped maintain research quality while optimizing available resources.

Thirdly, qualitative research typically focuses on depth rather than breadth, and findings from this study may not be generalizable to all African-born immigrant mothers in Washington State or beyond (Creswell & Poth, 2016). The small, purposive sample does not represent the full diversity of this population in terms of socioeconomic status, educational background, and cultural experiences. While qualitative research prioritizes depth over breadth, the study's findings still offer valuable, transferable insights applicable to similar immigrant communities

with shared cultural and socioeconomic contexts (S. Campbell et al., 2020; Palinkas et al., 2015). Again, a non-random snowball and purposive sampling method were used for this qualitative data collection, which might limit the generalizability of the study's findings, as there could be differences between African immigrant mothers who chose to participate and those who did not (Andrade, 2021). Given the specific demographics of the sample and the focus on the recent immigration status of the study population, the results may not apply to other immigrant groups. However, while the findings may not be broadly generalizable, the sample does represent the fastest-growing group of African immigrant women in the U.S. today.

Fourthly, this study relied on self-reported data, which may be influenced by recall and social desirability bias. Participants might provide socially acceptable responses rather than their actual experiences, especially on sensitive topics like vaccination and healthcare access. To address this, triangulation methods such as cross-referencing data using multiple data collection techniques like observations, focus groups, and key informant interviews were used to enhance validity. These strategies helped minimize bias and provided a more comprehensive understanding of participants' experiences (Patton, 2014; Tisdell et al., 2025).

Finally, as with any qualitative study, the researcher's background, experiences, and biases might influence data collection, interpretation, and analysis (Tisdell et al., 2025). To address this, the researcher maintained a reflexive journal, documenting personal assumptions and reflections throughout the study. Peer debriefing and member checking were also used to enhance credibility and ensure that the findings accurately reflected participants' perspectives.

Researcher's Prior Experience and Relevance to the Study

The researcher has over ten years of work experience in healthcare administration, community health projects, and research, which uniquely positions him to conduct this study. He

has worked with underserved communities and understands their situation. His background provides a deep understanding of public health challenges faced by underserved populations, particularly African-born immigrants. The researcher has proficiency in qualitative research, including data collection, analysis, and interpretation. His ability to navigate ethical considerations and engage participants sensitively, particularly when discussing personal and potentially stigmatized health topics. Overall, the researcher's multidisciplinary experience in research, public health, and healthcare administration provided a solid foundation for the successful conduct and analysis of this qualitative study.

Definitions of key terms

The following are definitions of key terms for the dissertation:

Health Belief Model (HBM): A psychological model that seeks to explain and predict health-related behaviors by focusing on the attitudes and beliefs of individuals. The model suggests that people's health behaviors are influenced by their perceptions of the severity of a health threat, the benefits of taking preventive action, and the barriers to engaging in that action (Etheridge et al., 2023a; Rosenstock et al., 1988).

Social-Ecological Model (SEM): A framework that considers the multiple levels of influence on an individual's health behaviors, including individual, interpersonal, organizational, community, and societal factors. The model emphasizes the interaction between these levels and the importance of addressing all levels to promote health behavior change effectively (Bronfenbrenner, 1979; Caperon et al., 2022).

Cervical Cancer Screening: A medical test, such as a Pap smear or HPV test, used to detect abnormal cells in the cervix that may lead to cervical cancer. Regular screening can help

identify precancerous changes early, improving the chances of successful treatment and prevention (Cervical Cancer Screening - NCI, 2022; The Pap (Papanicolaou) Test | Cervical Cancer Screening Test, n.d.).

HPV (Human Papillomavirus) Vaccination: A vaccine designed to prevent infection with the human papillomavirus, which can lead to cervical cancer and other cancers. The vaccine is most effective when administered to children and young adults before they are exposed to the virus through sexual contact (Bruni et al., 2021; CDC, 2024h).

Utilization: The extent to which individuals use health services, in this case, cervical cancer screening and HPV vaccination. It involves examining patterns of use and identifying factors that influence these patterns (Goel & Vasudevan, n.d.; Pojani et al., 2025).

Immigrant Mothers: Women who have migrated from their home country to another country (in this case, the United States) and have children. In this study, it refers specifically to African-born mothers living in Washington State (DeWaard et al., 2018).

African-Born Immigrants: Individuals who were born in an African country and later migrated to the United States. This group may have diverse cultural, linguistic, and healthcare access experiences that influence their health behaviors (Batalova, 2022).

Knowledge and Awareness: The understanding and familiarity individuals have about health-related issues, including the risks of cervical cancer and the benefits of HPV vaccination and screening. This also encompasses the awareness of available services and resources related to cervical cancer prevention (Al-leimon et al., 2024; Ozturk et al., 2024a).

Intervention Strategies: Approaches or programs designed to improve the uptake of cervical cancer prevention services, such as HPV vaccination and screening, among African-born

immigrant mothers. These strategies may include educational campaigns, community outreach, or policy changes (Lott et al., 2020; Ozturk et al., 2024a).

Key Informants: Individuals with knowledge, expertise, or experience relevant to the study topic were selected to provide insights and perspectives on the factors influencing HPV vaccination and cervical cancer screening. These may include healthcare providers, community leaders, or public health officials (Adegboyega et al., 2023)

Social Determinants of Health: Conditions in the social, economic, and physical environments in which people are born, live, work, and age. These factors influence a wide range of health outcomes, including access to healthcare and health behaviors, and may include income, education, housing, and cultural norms (CDC, 2024i).

Abbreviations

Here are abbreviations for key terms in the dissertation:

HBM: Health Belief Model

ABIMs: African-Born Immigrant Mothers

SEM: Social-Ecological Model

HPV: Human Papillomavirus

CPS: Cervical Cancer Screening

HCV: HPV Vaccination

IK: Immigrant Knowledge

SSB: Social and Structural Barriers

ID: Identity

IU: Intervention Uptake

KI: Key Informants

The structure of the dissertation

The dissertation was organized into five chapters. Chapter One, which serves as the introduction, presents the background and context of the study, the problem statement, the purpose of the study, the research questions, the significance, and the scope and delimitations. Chapter Two, which is the literature review, provides an overview of HPV and cervical cancer, discusses HPV vaccination and screening, examines relevant social determinants of health, outlines the theoretical framework guiding the study, and highlights the key knowledge gaps identified in existing research. Chapter Three outlines the methodology, including the research design, study setting, and population, sampling strategy, data collection methods, data analysis, ethical considerations, and trustworthiness. Chapter Four presents the findings, featuring data presentation, participant quotes, and emerging themes. Finally, Chapter Five presents a discussion of the study, interprets the findings, and explores their implications for public health. It also addresses the study's limitations and provides recommendations for both practice and policy. Additionally, this chapter summarizes key findings, offers concluding reflections, and suggests directions for future research.

Chapter 2: Literature Review

Definitions: HPV, Cervical Cancer, and Vaccines

Human Papillomavirus (HPV)

Human Papillomavirus (HPV) is a virus that is transmitted through skin-to-skin and sexual contact and causes cancer of the oropharynx, cervix, vulva, vagina, anus, and penis. About 36,500 new cases of cancer are attributable to HPV in the United States each year, approximately 90% of which could be prevented by the 9-valent HPV vaccine (CDC, 2024c). While most HPV infections are transient, persistent infections with high-risk types, particularly HPV 16 and 18, account for 70% of cervical cancer cases globally (Olusola et al., 2019). HPV-related cancers can be prevented through vaccination and regular screening (NCI, 2022).

Cervical Cancer

Cervical cancer originates in the cervix, the lower part of the uterus, and develops through abnormal cellular changes caused by persistent HPV infection. Most cases arise at the squamocolumnar junction, where squamous and glandular cells meet. HPV vaccination and screening can prevent approximately 93% of cases (NCI, 2022).

Despite advancements, cervical cancer remains a leading cause of cancer deaths among U.S. women aged 20–39, with nine deaths weekly (Siegel et al., 2019). Globally, it ranks as the fourth most common cancer in women, with 570,000 cases and 311,000 deaths in 2018, disproportionately affecting women in low- and middle-income countries due to limited screening and prevention efforts (Arbyn et al., 2020).

Cervical cancer is classified into several types based on its cellular origin. Firstly, Squamous Cell Carcinoma: this accounts for 90% of cases and originates in the ectocervix's

squamous cells. Secondly, adenocarcinoma accounts for 10–15% of cases and arises from glandular cells in the endocervix. Thirdly, mixed Carcinoma (Adenosquamous): A less common but more aggressive form combining features of squamous and glandular carcinomas (NCI, 2022; Serrano et al., 2018). Persistent infection with high-risk HPV types, particularly 16 and 18, causes most cervical cancer cases globally. However, HPV16 is the most frequent oncogenic type globally (Bruni et al., 2010). Risk factors include a weakened immune system (e.g., HIV), smoking, long-term oral contraceptive use, high parity, and obesity. These factors increase HPV persistence, cellular damage, and delay in detecting precancerous lesions, raising the risk of cervical cancer (NCI, 2022).

Theoretical Frameworks: Health Belief Model and Social-Ecological Model

Health Belief Model (HBM)

The Health Belief Model (HBM) posits that an individual's likelihood of engaging in a preventive behavior depends on perceived susceptibility, perceived severity, perceived benefits, and perceived barriers, influenced by cues to action and self-efficacy (Glanz et al., 2015; Rosenstock, 1974). Among African immigrant mothers, these perceptions are filtered through culture, religion, and social experience. Studies indicate that many individuals underestimate their susceptibility to HPV, believing that vaccination is unnecessary before sexual debut or fearing the moral stigma associated with reproductive-health services (Adegboyega et al., 2025; Kingori et al., 2018a). Perceived barriers such as mistrust, fear of side effects, and logistical difficulties often outweigh perceived benefits, particularly when cultural norms discourage open discussion of sexual health (Netfa et al., 2020).

Social-Ecological Model (SEM)

The Social-Ecological Model (SEM) expands the behavioral lens to multiple levels of influence: individual, interpersonal, community, institutional, and policy (McLeroy et al., 1988). It recognizes that preventive behavior is not solely a matter of personal choice but is shaped by broader environment, social networks, community norms, and systemic inequities (Amuta-Jimenez et al., 2022). At the community level, faith institutions and cultural associations often serve as trusted health channels; at the institutional level, limited access to culturally competent care, insurance barriers, and racism constrain equitable outcomes (Marmot & Allen, 2014; Omenka et al., 2020). Together, HBM and SEM provide an integrated framework for understanding both individual motivation and the contextual constraints on cervical cancer prevention (Yirsaw et al., 2024).

Cultural and Religious Influences

Culture and religion strongly influence perceptions of health and illness among African immigrants. Faith leaders and religious communities often act as primary sources of health information and moral guidance (Abu-Ras et al., 2024; Koenig et al., 2023). Endorsement from trusted leaders increases acceptance of vaccination and screening (Habila et al., 2021). Conversely, modesty norms and beliefs linking illness to divine will can hinder preventive behaviors (Best et al., 2019; Tiwana & Smith, 2024).

Culturally grounded approaches that integrate religious values, such as framing vaccination as stewardship of one's body or family responsibility, are associated with higher participation (Petagna et al., 2024). These findings reinforce the need for preventive-health messages to align with community worldviews rather than challenge them.

Misinformation and Stigma

Misinformation and stigma persist as significant barriers to HPV vaccination and cervical cancer screening. False claims that vaccines cause infertility, contain harmful ingredients, or encourage promiscuity circulate widely through diaspora social networks and social-media platforms (Ekezie et al., 2022; Etowa et al., 2024). Emotional misinformation often spread by trusted peers lowers perceived benefits and amplifies perceived barriers (Sylvia Chou et al., 2020). Counteracting these myths requires multi-channel communication that combines community outreach, ethnic media engagement, and faith-based messaging (McFadden et al., 2021; Rodrigues et al., 2023). Educational materials should be linguistically accessible and visually transparent, using storytelling and participatory discussion to foster understanding (Vlasak et al., 2023).

Trust in Healthcare Systems

Trust in healthcare systems is a crucial determinant of preventive-service utilization. Many African immigrants report experiences of racial discrimination, inadequate interpreter services, and culturally insensitive interactions (Coombs et al., 2022; Omenka et al., 2020). Such experiences erode confidence and discourage engagement with preventive care.

Conversely, consistent and respectful communication builds trust. Culturally competent providers who listen empathetically and acknowledge patient values foster higher vaccination and screening adherence (Gilkey et al., 2016; Malika et al., 2023). Trust is, therefore, relational and developed over time through equitable treatment rather than a single clinical encounter (Ghio et al., 2021; Holford et al., 2024).

Social Determinants of Health (SDOH)

Broader social determinants such as education, income, housing stability, and geography strongly shape healthcare access (Marmot & Allen, 2014; Truman et al., 2025). African immigrants disproportionately experience economic instability, lack of health insurance, and limited English proficiency, which together reduce preventive-care utilization (Reyes-Ortiz & Markides, 2010; Roberts et al., 2021).

Geographic inequities are also significant. While urban areas like King County offer community health centers, rural residents often face transportation barriers and service shortages (Etemadi et al., 2025a; Zeng et al., 2025a). Structural-competency training for healthcare professionals, recognizing how policy and place shape health outcomes, has been recommended to address such inequities (Bazargan et al., 2021; Metzl et al., 2018).

Cervical Cancer Prevention Strategies

Since the introduction of the HPV vaccine, significant declines in cervical cancer rates among younger populations have been observed. However, disparities in vaccine uptake, particularly among socioeconomically disadvantaged and minority groups, remain a challenge (Ginsburg & Weiderpass, 2020). The integration of vaccination with routine screening, such as Pap smears and HPV DNA testing, offers a comprehensive approach to reducing the global burden of cervical cancer (Cervical Cancer Screening - NCI, 2022).

HPV Vaccination

Vaccination is the most effective method to prevent HPV-related cervical cancer. FDA-approved vaccines, including Gardasil®, Gardasil 9®, and Cervarix®, protect against high-risk HPV types 16 and 18, with Gardasil 9® also covering additional strains, including types 6, 11, 31,

33, 45, 52, and 58 (Petrosky et al., 2015). These HPV genotypes (6, 11, 16, 18, 31, 33, 45, 52, and 58) are responsible for most genital warts (S.-T. Chen et al., 2020). The World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) recommend HPV vaccination as a primary preventive measure for girls and women aged 9 to 26. Both organizations also advise women aged 21 to 65 to undergo regular Pap smears and HPV testing every three to five years (CDC, 2024a; Gultekin et al., 2020).

These vaccines are highly effective, with over 98% of recipients developing an antibody response (HPV Vaccine | CDC, 2023). The Advisory Committee on Immunization Practices (ACIP) recommends starting HPV vaccination at ages 11–12, though it can begin as early as age 9. Catch-up vaccination is recommended up to age 26, with shared decision-making advised for individuals aged 27–45 (Sean T. O'Leary & Ann-Christine Nyquist, 2019). Adults aged 27–45 may have to consult with their healthcare providers (CDC, 2024g; Chido-Amajuoyi et al., 2021). HPV vaccination before sexual debut reduces vaccine-type oncogenic HPV infections by more than 90% in vaccinated individuals; unvaccinated individuals begin to benefit from herd immunity when vaccination rates exceed 50% (Drolet et al., 2019) The vaccines are administered in three doses over six months and are recommended for adolescents aged 11–12, alongside other immunizations like Tdap and meningococcal vaccines (CDC, 2024g; Robinson, 2016).

Cervical Cancer Screening

Regular screening for cervical cancer remains critical even for vaccinated individuals. HPV and Pap tests can detect precancerous changes, allowing timely intervention (NCI, 2022; Serrano et al., 2018). Cervical cancer screening identifies precancerous changes that can be treated before progressing to invasive cancer. The primary screening methods include Pap Smear, which detects abnormal cells on the cervix. HPV DNA Testing identifies high-risk HPV

infections, while HPV/Pap Co-Testing combines cytology and molecular testing for enhanced accuracy (Eun & Perkins, 2020). Cervical cancer screening guidelines include Screening for Ages 21–29 and Pap testing every 3 years. For ages 30–65, HPV testing every 5 years, Pap testing every 3 years, or co-testing every 5 years. Above 65 screening may be discontinued if prior results were normal (Cervical Cancer Screening - NCI, 2022; Eun & Perkins, 2020).

However, cervical cancer screening coverage is inconsistent across subpopulations, with ethnic minorities and immigrants experiencing lower healthcare utilization and the highest disease burden (CDC, 2024f; Murray et al., 2013). Reducing disparities in cervical cancer screening in these populations will be essential to eliminating the burden of cervical cancer. (Silver & Kobrin, 2020).

Cervical Cancer Treatment

Cervical cancer treatment options are determined by the stage and severity of the disease, with the overarching goal of ensuring effective management and optimizing patient well-being (Burmeister et al., 2022). These treatments range from early interventions to advanced procedures, addressing various stages of the disease. For early precancerous lesions, ablative methods are commonly employed. Techniques such as cryotherapy and thermocoagulation are used to destroy abnormal tissue, effectively halting disease progression at an early stage (Randall et al., 2019). For moderate-to-severe lesions, excisional methods are typically used. These include the loop electrosurgical excision procedure (LEEP) and cold knife conization, which involve the removal of abnormal cervical tissue. These procedures offer precision in targeting affected areas while preserving healthy tissue, making them highly effective for managing more advanced precancerous conditions (Cooper et al., 2025). For advanced cervical cancer, more comprehensive treatment options are required. These include laser therapy, which allows for the

precise removal of affected areas, and total hysterectomy, which involves the surgical removal of the uterus. A hysterectomy is often reserved for invasive or recurrent cervical cancer cases, providing a definitive solution for severe conditions (Fowler et al., 2024).

For high-grade cervical lesions, specific treatment approaches include conization, where abnormal tissue is surgically removed using a scalpel or LEEP. Laser therapy and cryotherapy are also utilized to destroy abnormal cells, while total hysterectomy is considered for the most severe cases or when other treatments have failed (NCI, 2022; Fowler et al., 2024). In resource-limited settings, innovative strategies such as "screen-and-treat" approaches have been instrumental in improving outcomes. For example, visual inspection with acetic acid (VIA), combined with immediate treatment, reduces delays and minimizes the risk of patient loss to follow-up. This approach is particularly beneficial in areas with limited access to advanced diagnostic and treatment facilities (Cherniak et al., 2019).

Knowledge of HPV Vaccination and Cervical Cancer Screening Among African Immigrants in the U.S.

African immigrants in the U.S. face significant gaps in knowledge about HPV vaccination and cervical cancer screening, which contribute to low uptake rates of preventive measures (Ojeaga et al., 2019). Studies show that immigrant populations, including African immigrants, have limited awareness of HPV, its role in cervical cancer, and the availability of vaccines and screening programs (Netfa et al., 2020). For example, research has found that most immigrant parents lack accurate knowledge about HPV vaccines, with some studies reporting that up to one-third of participants had never received any information about the vaccine (Forster et al., 2017; Salad et al., 2015). These knowledge deficits are compounded by cultural and religious factors that influence attitudes toward vaccination and cervical cancer prevention. For

instance, Somali immigrants in the U.S. often hold misconceptions about HPV and its vaccine, influenced by cultural beliefs about sexual health and vaccine safety (Pratt et al., 2019). Similar findings have been reported among Mexican immigrant women, who demonstrate low levels of cervical cancer screening due to a lack of HPV knowledge and cultural stigma (Luque et al., 2015; Sewali et al., 2015).

Globally, studies indicate that cultural and educational factors strongly influence HPV vaccine uptake. For example, a Swedish study found that girls from non-European backgrounds with less-educated mothers were less likely to be vaccinated, highlighting the role of maternal education in vaccine acceptability (Grandahl et al., 2015). Additionally, misconceptions about the vaccine's content, such as concerns about pork gelatin among Muslim communities, further reduce uptake (McFadden et al., 2021). Healthcare providers play a critical role in addressing these barriers. Studies show that a strong recommendation from a healthcare provider is one of the strongest predictors of vaccine uptake (Gilkey et al., 2016). However, providers often lack the cultural competence to address specific concerns among immigrant populations effectively. Tailored interventions, such as online continuing education (CE) courses, have shown promise in increasing providers' confidence and ability to recommend vaccines to East African immigrant families (McFadden et al., 2021).

Systematic reviews also highlight positive shifts in attitudes when immigrant parents receive targeted education about HPV and the vaccine. For instance, focus groups with parents from African and Hispanic backgrounds showed that misconceptions and negative attitudes often stemmed from poor knowledge and could be improved through culturally tailored educational efforts (Netfa et al., 2020; Taebi et al., 2019). Barriers to cervical cancer prevention extend beyond knowledge gaps (Gebre et al., 2021). Socioeconomic factors, such as lack of health

insurance, play a significant role in low screening rates among African immigrant women (Adegboyega et al., 2022). Research shows that African immigrants in the U.S. face higher cervical cancer incidence rates, partly due to limited access to regular screenings. For instance, the cervical cancer incidence rate for Eastern African women is 42.7 per 100,000, compared to the U.S. average of 6.6 per 100,000 (Pinder et al., 2016).

Efforts to address these disparities must focus on tailored community-based interventions, including partnerships with religious and community leaders to disseminate accurate information and reduce stigma (Ghebre et al., 2015a; Kingori et al., 2018a). Additionally, targeted screening campaigns emphasizing the role of HPV in cervical cancer can reduce anecdotal beliefs and improve the uptake of preventive measures among African immigrants (Adegboyega et al., 2017). Existing studies have assessed knowledge about HPV and cervical cancer in general populations, but often exclude African immigrant mothers, who may have unique perspectives and barriers (Chikanda & Morris, 2021).

In some regions of Africa and the Caribbean, the Pap smear, one of the primary cervical screening tests, is limited to wealthy women (J. N. W. Lim & Ojo, 2017). Consequently, due to the lack of access to and knowledge of preventive cervical cancer services in some of these countries, the focus is still on treatment, which may explain the higher rates of late-stage cervical cancer diagnosis and mortality among Black immigrant women (J. N. W. Lim & Ojo, 2017). Cervical cancer screening often occurs during a preventive care visit, a concept new to many Black immigrant women who may have only previously been to a doctor after presenting with disease symptoms (Anaman-Torgbor et al., 2017). Despite the limited availability of epidemiological data that disaggregates Black immigrant women and African American women, research evidence

suggests that both groups have different attitudes and perceptions toward health behavior and illness (Amuta-Jimenez et al., 2019, 2020).

Awareness of HPV Vaccination and Cervical Cancer Screening Among African Immigrants in the U.S.

Awareness of HPV vaccination and cervical cancer screening remains a critical barrier to reducing the cervical cancer burden among African immigrants in the U.S.(Adegboyega et al., 2023) Screening for HPV and its complications, such as cervical cancer, is a key preventive measure; however, inadequate knowledge and awareness about the risks, symptoms, and severity of the disease hinder participation in screening programs (Baandrup et al., 2024). Research shows that a lack of awareness and knowledge is one of the most significant barriers to improving screening rates and reducing cervical cancer-related deaths in African immigrant populations (Sewali et al., 2015).

Several studies highlight the correlation between awareness and screening uptake (Gebre et al., 2021). For instance, Marván et al., (2013) found that although 80% of 384 Mexican women in their study had undergone a Pap test in the past three years, their knowledge and awareness of cervical cancer risk factors were still inadequate. Similarly, Ghebre et al., (2015) reported widespread misconceptions among Somali immigrants in Minnesota, where cervical cancer screening was perceived as unnecessary for older, unmarried, or divorced women. These misconceptions significantly reduced screening uptake. This reinforces the idea that while awareness or knowledge alone may not directly alter behavior, it significantly influences attitudes and beliefs that facilitate or hinder preventive actions (Gebre et al., 2021).

HPV-related awareness also strongly predicts vaccination uptake. For instance, parental knowledge of HPV is the strongest predictor of adolescent HPV vaccination in the U.S., U.K., and Australia (Nickel et al., 2017). However, studies reveal that 60% of U.S. women remain unaware of the HPV vaccine's role in cancer prevention (Fokom Domgue et al., 2019). Among immigrants, this awareness and knowledge gap is even more pronounced, with many reporting little or no awareness or knowledge of HPV or its vaccine (Nonzee et al., 2018). For example, in one study, only 2% of immigrant parents had heard of the HPV vaccine (Guo et al., 2023). Persistent disparities in HPV awareness are evident across racial, ethnic, and socioeconomic groups. Women from racial minorities, rural areas, and lower-income households demonstrate the lowest awareness levels (Chido-Amajuoyi et al., 2021). Education and tailored outreach are crucial, as evidence suggests that interventions such as Spanish-language radionovelas and fotonovelas have successfully increased awareness among Hispanic populations (A. Chan et al., 2015; Kepka et al., 2011).

Gender-related differences in awareness further compound these disparities. Females are generally more aware of HPV and the vaccine than males, partly due to initial vaccine marketing targeting girls (Adjei Boakye et al., 2017). Nonetheless, significant efforts are needed to address gender-neutral vaccination awareness, particularly among men, who remain underrepresented in HPV-related public health campaigns (Chido-Amajuoyi et al., 2021).

Geographic and age-related disparities also influence awareness. Urban populations generally exhibit higher HPV awareness than rural residents, although rural awareness has improved over time (Zahnd et al., 2018). Younger individuals, especially those within the vaccine-eligible age group, tend to have the highest awareness levels due to targeted campaigns.

However, awareness among older adults, including grandparents who may influence vaccination decisions, remains notably low (Blake et al., 2015).

Low awareness among African immigrants contributes to disparities in HPV vaccination rates. For example, Somali and Ethiopian immigrants in King County, Washington, report vaccination rates far below the U.S. average (Greenfield et al., 2015). Cultural and religious beliefs, such as concerns about vaccine ingredients, exacerbate hesitancy (McFadden et al., 2021). Additionally, misinformation disseminated through social media, such as claims that vaccines are designed to harm Muslims, reinforces mistrust and hinders vaccination efforts (A. Ahmed et al., 2018).

Utilization of HPV Vaccination and Cervical Cancer Screening Services Among African Immigrants in the U.S.

The utilization of HPV vaccination and cervical cancer screening services remains disproportionately low among African immigrants in the U.S., mainly due to systemic and individual barriers. A statistically significant association exists between health insurance coverage and cervical cancer screening uptake. Studies consistently highlight that the lack of health insurance is a significant barrier for many immigrant women in accessing cervical cancer screening services (Adegboyega et al., 2017; Sewali et al., 2015). For instance, Sewali et al., (2015) found that Somali immigrants in Oslo, Minnesota, cited the absence of insurance as a primary reason for avoiding cervical cancer screening. Similarly, a qualitative study with Somali youth in Columbus, Ohio, revealed that primary healthcare providers were often their only source of sexual health information due to cultural taboos against discussing such topics openly (Kingori et al., 2018a).

Declining Screening Rates and Disparities

Although cervical cancer screening rates in the U.S. remain relatively high at 81%, they still could not meet the Healthy People 2020 goal of 93%. Alarmingly, screening rates have declined significantly, with a 5.8% reduction in Pap smear testing among women aged 21–65 years between 2000 and 2015 (Watson et al., 2017). Uninsured women, immigrants, who have low educational attainment or lack a regular healthcare provider, are most at risk for inadequate screening. Asian (75.8%) and Hispanic women (78.6%) report lower screening rates compared to non-Hispanic Whites (83.7%) and Blacks (85.3%). Among uninsured women, cervical cancer screening rates drop even further to 63.8% (White, 2017).

Geographic location significantly influences cervical cancer screening rates, with rural women less likely to undergo screening compared to their urban or suburban counterparts. Akinlotan et al. (2017) attribute this disparity to the limited number of healthcare providers and higher uninsured rates in rural areas (Akinlotan et al., 2017). Additionally, systemic barriers, such as fewer clinics and financial constraints, exacerbate these challenges, disproportionately affecting African immigrants and other marginalized groups (Buskwofie et al., 2020).

The literature has historically focused on the reduction of the Black-White cervical cancer disparity through the examination of differences between Black and White women (Silver & Kobrin, 2020). There is a need to disaggregate Black women based on ethnicity to gain better insight into the cultural factors that can be targeted to drive down disproportionately higher Cervical Cancer mortality and morbidity rates in Black women (Amuta-Jimenez et al., 2022). To reduce the Black-White racial gap in Cervical cancer mortality and morbidity, researchers and practitioners may need to shift from traditional approaches that examine Black women as a

homogenous group towards culturally appropriate approaches that appreciate the heterogeneity of Black women as a patient population (Amuta-Jimenez et al., 2022).

Barriers to HPV Vaccination and Cervical Cancer Screening Among African Immigrants in the U.S.

Numerous barriers hinder HPV vaccination and cervical cancer screening among African immigrants in the U.S. These obstacles include individual, cultural, and systemic factors, which together contribute to low uptake rates for preventive healthcare services.

Individual and Knowledge-Based Barriers

Lack of knowledge and awareness about HPV and its vaccine, coupled with misinformation, significantly impacts vaccination and screening rates (Beavis & Levinson, 2016). A lack of actionable healthcare information exacerbates disparities in cervical cancer prevention (C. C. Hughes et al., 2011; J. Hughes et al., 2009). For instance, many individuals remain unaware of the link between HPV and cervical cancer, with inadequate knowledge often preventing them from accessing screening services (Adunlin et al., 2019). Fear, embarrassment, and misconceptions, such as viewing cancer as incurable or screening as invasive, further deter participation (Adunlin et al., 2019).

Barriers mothers experience in their health-seeking could also negatively impact adolescent HPV vaccination and hinder cervical cancer prevention efforts (R. A. Smith et al., 2019). Prior studies reported that poor maternal health-seeking behavior is associated with a lower uptake of HPV vaccination (Markowitz et al., 2018). Recent research has revealed high prevalence but low awareness of cardiometabolic disease among African immigrants in the U.S. (Cole, 2018). Other studies of African immigrants living in high-income settings have found low levels of health

insurance (Adekeye et al., 2018) and linkage to primary care (Diaz et al., 2017) as well as low or delayed uptake of vaccination (Fabiani et al., 2016), cancer screening, antenatal care, and diabetes screening (Consedine et al., 2015).

Cultural and Language Barriers

Cultural norms play a critical role in influencing health behaviors. In many African immigrant communities, sexual health is rarely discussed openly, creating barriers to HPV awareness and cervical cancer screening (Kingori et al., 2018a). Cultural taboos often lead to stigma around preventive measures, with some individuals associating screening with illness (Dailey & Krieger, 2017). Language barriers compound these challenges, as limited English proficiency (LEP) restricts access to educational materials and healthcare services (Beltran et al., 2016). Moreover, the lack of translation or interpreter services for LEP immigrants exacerbates disparities (Adunlin et al., 2019). However, few studies explore the impact of traditional beliefs, cultural norms, and social stigma on African immigrant mothers' knowledge and attitudes towards HPV vaccination and cervical cancer screening (Amuta-Jimenez et al., 2019).

Prior qualitative research among African immigrants has primarily focused on barriers to accessing treatment services (Korn et al., 2023). Cultural attitudes and religious beliefs surrounding disease etiology and treatment efficacy may delay the presentation of care (Amuta-Jimenez et al., 2022; Healthy People 2030 | Health.Gov, n.d.). Stigma has been consistently identified as a barrier to screening, testing, treatment, and uptake of mental health services (Rayner et al., 2023; Updated Cervical Cancer Screening Guidelines, n.d.).

According to Omenka et al. (2020), these factors can result in reduced utilization of preventive healthcare, delayed diagnoses, and poorer health outcomes, especially in communities

where cultural and linguistic needs are not adequately addressed (Omenka et al., 2020). Gender norms also significantly influence cervical cancer screening behaviors. Many women prefer female healthcare providers for intimate procedures, driven by societal expectations, modesty, and discomfort with male providers. In settings where female providers are unavailable, this preference often impedes timely screening. Fear of stigma also reduces participation, as cervical cancer screening may be misinterpreted as promiscuity, leading to judgment from peers or communities. This stigma, exacerbated by limited awareness, deters women from seeking screenings, resulting in delayed diagnoses and poorer outcomes (Lee et al., 2019b).

Systemic Barriers

Systemic issues, such as lack of health insurance, inadequate provider recommendations, and geographic disparities, are significant barriers. Immigrant women often face challenges accessing health insurance due to low income or undocumented immigration status (Hacker et al., 2015). For example, Somali women in Minnesota identified a lack of insurance as a key reason for not undergoing screening (Sewali et al., 2015). Again, insufficient provider recommendations remain a critical factor, as healthcare providers play a pivotal role in increasing HPV vaccine uptake (Moss et al., 2016). Geographic disparities also hinder access, with rural residents facing fewer healthcare facilities and limited transportation options (Akinlotan et al., 2017).

However, Research rarely addresses systemic barriers such as immigration policies, racism, and institutional bias that impact access to preventive health services. Research on cervical cancer screening often focuses on recent immigrants, leaving a knowledge gap regarding African Immigrants who have settled in the U.S. and utilize the healthcare system. Many studies overlook immigration status when examining the relationship between race and screening participation. Additionally, those who do consider immigration status frequently group individuals together

without accounting for differences in their countries of origin (Abdi et al., 2020; Ndukwe et al., 2013). African immigrants represent a heterogeneous population with diverse experiences and beliefs, and barriers may differ depending on countries of origin, emigration destination, and local availability of services (Roberts et al., 2021).

Systemic barriers disproportionately impact vulnerable populations, contributing to health disparities and limiting equitable access to quality care (Venters & Gany, 2011). Additionally, provider biases and the lack of culturally competent care further exacerbate these disparities, as cultural insensitivity and mistrust in the healthcare system hinder effective patient-provider relationships (Omenka et al., 2020).

Sociocultural and Economic Barriers

Economic barriers, such as low income and unemployment, restrict access to preventive care (Reyes-Ortiz & Markides, 2010). Educational attainment is another determinant; individuals with lower education levels are less likely to understand the benefits of screening or vaccination (Zhang et al., 2022). Cultural beliefs, including fatalism and unfamiliarity with preventive healthcare, also influence health-seeking behaviors (Dunn et al., 2017). For instance, some immigrants believe that screening procedures themselves may increase cancer risk (C. E. Johnson et al., 2008; Rosowicz & Hewitt, 2025a). Limited research addresses how sociocultural beliefs, including stigma, gender norms, and religious influences, impact African immigrant mothers' decisions regarding screening and vaccination (Amuta-Jimenez et al., 2020). Language differences or barriers (CDC, 2024b; Rayner et al., 2023), legal status, high cost of healthcare, lack of health insurance (Kobetz et al., 2018), and provider discrimination (Amuta-Jimenez et al., 2022; Kobetz et al., 2018) may also impede effective care (Korn et al., 2023).

Again, the lack of doctors and family advice to get a cervical cancer screening has a larger influence on Black immigrant women (Barlow & Smith, 2019). Most Black immigrant women are likely to be married (Forsythe-Brown et al., 2017), which facilitates healthy outcomes and spousal involvement in their healthcare decisions (Modibbo et al., 2016).

Addressing Barriers Through Interventions

Interventions tailored to address these barriers can improve HPV vaccination and cervical cancer screening among African immigrants. Providing culturally sensitive education in multiple languages, involving community networks, and using gender-sensitive approaches are effective strategies (Simon et al., 2015). Community health centers and mobile clinics in underserved areas can help address geographic and financial disparities (Adunlin et al., 2019). Additionally, training healthcare providers to deliver culturally competent care and actively recommending HPV vaccination and screening is essential for improving uptake (Moss et al., 2016).

According to Gebre et al., (2021), future strategies should employ a multi-dimensional qualitative approach that examines the social, cultural, community and physical structures that account for the gaps in HPV and cervical cancer knowledge and screening among this population. The findings from this study can be used as a framework for future studies (Gebre et al., 2021). Furthermore, a collaborative effort across religious, cultural and educational settings is necessary to tailor approaches that meet the needs of the priority group (Kingori et al., 2018b).

The burden of non-communicable diseases (NCDs) among African immigrants is rising at an alarming rate, reflecting a growing public health concern. African-born individuals, particularly those living in high-income countries, face a unique set of challenges that hinder their access to preventive healthcare services. Multiple levels of barriers, including individual, social, and

systemic factors, shape these challenges (Roberts et al., 2021). Further research into new community-led service delivery approaches is warranted to improve access to care and health outcomes among African immigrant communities in the U.S (Roberts et al., 2021).

Cervical Cancer Prevention Strategies

According to the Washington State Department of Health Immunization Strategic Map of 2023, the goal is to increase vaccination coverage among children and adults across Washington State, which is in line with the Healthy People 2030 goals and the Department of Health Transformational Plan (Health & Wellness, Health Systems & Workforce Transformation, Environmental Emergency Response & Resilience, and Global & One Health) (General 4, n.d.). Washington State has implemented several innovative strategies to improve HPV vaccination and cervical cancer screening rates, addressing disparities among underserved populations, including immigrants and racial minorities. However, there is insufficient data on African Immigrants to help design appropriate interventions. Research often aggregates African immigrants into a broad category, failing to distinguish subgroups, leading to a lack of nuanced understanding of the diverse sociocultural and socioeconomic factors within this population (Amuta-Jimenez et al., 2020).

Despite these efforts, significant cultural and socioeconomic barriers persist, necessitating targeted interventions to ensure equitable healthcare access (Chido-Amajuoyi et al., 2021; Lindquist, 2021). Many of the existing intervention strategies fail to incorporate the culturally specific needs, values, and health beliefs of African immigrants. Research is lacking on the effectiveness of community-driven or peer-led interventions to address screening and vaccination in African immigrant communities (Amuta-Jimenez et al., 2020).

Medicaid Expansion and Coverage for Immigrants

In July 2024, Washington State expanded its Medicaid program, Apple Health, to cover adults regardless of immigration status. This initiative benefited approximately 8,000 residents and included HPV vaccination as part of routine preventive care, significantly improving access to healthcare for previously underserved populations (Deng, 2024). Such programs are vital in bridging gaps for immigrant communities, who face higher uninsured rates and limited access to preventive care (Yen, n.d.-b, n.d.-a).

Addressing Healthcare Affordability and Geographic Barriers

Washington has started public option health plans with higher reimbursement rates, aimed at improving access and affordability for low-income families. Programs like the Health Professional Loan Repayment Program and the establishment of new medical schools aim to reduce geographic disparities in healthcare access by incentivizing healthcare providers to work in rural and underserved areas (Lindquist, 2021). These measures ensure preventive services, including HPV vaccination and cervical cancer screening, are widely available.

Community-Based and Culturally Tailored Approaches

Community-based initiatives have been instrumental in targeting underserved populations, particularly African immigrant communities. These programs emphasize culturally sensitive health education and patient engagement to overcome barriers related to mistrust, language, and cultural stigma (Roberts et al., 2021). Leveraging community leaders and faith-based organizations has proven effective in increasing participation in HPV vaccination and cervical cancer screening (Ko et al., 2018).

African Immigrant groups, such as the uninsured, recently arrived, and non-English speakers, may be best reached through community-based participatory research with community-based organizations (Hurtado-de-Mendoza et al., 2014). Engagement with community-based organizations that serve these communities provides a platform for exploring meaningful health promotion interventions in this underrepresented population (Pinder et al., 2016).

Anti-Racism and Health Equity Efforts

The Governor's Interagency Council on Health Disparities and the Office of Equity have been pivotal in promoting anti-racism and health equity initiatives. These organizations focus on addressing systemic barriers, fostering cultural competency among healthcare providers, and ensuring equitable access to healthcare services (Lindquist, 2021). Efforts include engaging stakeholders from underserved communities to shape policies and programs that address disparities in healthcare outcomes.

Role of Federally Funded Programs

Washington State leverages federally funded programs, such as Federally Qualified Health Centers (FQHCs) and clinics supported by the National Breast and Cervical Cancer Early Detection Program (NBCCEDP) (CDC, 2025a). These programs provide free or low-cost cervical cancer screenings and HPV vaccinations to low-income and uninsured women, ensuring access to preventive care for vulnerable populations (CDC, 2025a; Nabi, 2025). Since its inception, the NBCCEDP has served over 6.3 to 6.5 million women nationwide, highlighting its critical role in reducing healthcare disparities (CDC, 2025b; Zope et al., 2025).

Vaccines for Children (VFC) Program

The HPV vaccine is covered by insurance plans under federal Advisory Committee on Immunization Practices (ACIP) guidelines and is included in the Vaccines for Children (VFC) program, which supports underinsured or uninsured children (CDC, 2022). Despite this, financial barriers remain significant for some populations, contributing to disparities in HPV vaccination and cervical cancer screening (Biddell et al., 2021). Despite these advances, disparities in HPV vaccination and cervical cancer screening persist, particularly among immigrant and minority populations. Targeted interventions, such as increasing the recruitment of diverse healthcare providers, expanding interpreter services, and addressing socioeconomic determinants of health, are essential for reducing disparities. Additionally, sustained efforts in public awareness campaigns and in digital health interventions tailored to culturally diverse communities can further enhance engagement in preventive care (Kingori et al., 2018; Deng, 2024).

Washington State's comprehensive approach to promoting HPV vaccination and cervical cancer screening demonstrates its commitment to health equity and preventive care. By combining Medicaid expansion, public health programs, community engagement, and anti-racism initiatives, the state serves as a model for addressing healthcare disparities. However, continued investment in culturally tailored strategies and evidence-based interventions is necessary to achieve equitable access to healthcare for all.

Other State-Level Cervical Cancer Prevention Programs

Several U.S. states have adopted innovative strategies to improve HPV vaccination rates and cervical cancer screening, addressing barriers such as cost, misinformation, knowledge, and awareness gaps. Notably, only 50% of 13-year-olds in the U.S. were up-to-date on the HPV vaccine series by 2022 (Pingali et al., 2023). Five jurisdictions—Hawaii, Puerto Rico, Rhode

Island, Virginia, and Washington, D.C. have implemented school-entry requirements mandating HPV vaccination or an exemption before starting school (Colón-López, 2021; McKeithen et al., 2024).

Rhode Island's Initiatives

Rhode Island has emerged as a leader in HPV vaccination through comprehensive public health policies. Its "Vaccinate Before You Graduate" program offers school-based immunizations, ensuring widespread access to HPV vaccines for adolescents (Thompson et al., 2020, 2021). The state's universal vaccine purchase policy eliminates cost-related barriers by covering vaccine procurement for all eligible individuals (J. J. Kim et al., 2018). Furthermore, the CDC-funded Assessment, Feedback, Incentive, Exchange (AFIX) program has enhanced vaccination uptake through tailored provider recommendations and on-site assessments of clinical practices (J. J. Kim et al., 2018). These combined efforts have resulted in HPV vaccination rates significantly above the national average.

Texas' Safety-Net System Improvements

In Texas, continuous quality improvement initiatives in safety-net health systems have enhanced adherence to cervical cancer screening and follow-up care. These programs target uninsured and underinsured women, ensuring access to screening and timely treatment. Key interventions include patient navigation services, outreach to underserved populations, and culturally sensitive health education (Pruitt et al., 2018).

Washington, D.C.'s Vaccine Exemption Policies

Washington, D.C., has implemented a policy requiring annual renewal of vaccine exemptions, which has positively impacted HPV vaccination rates. This approach ensures that

families reconsider exemption decisions each year, reducing the ease of opting out and fostering increased compliance with school vaccination requirements (Churchill, 2021). The policy's success highlights the importance of strict exemption regulations in improving vaccination coverage.

Los Angeles County, California

Between 2007 and 2011, public awareness efforts in Los Angeles County significantly increased knowledge of HPV. However, national trends reveal mixed results, indicating the need for sustained and tailored messaging (Chido-Amajuoyi et al., 2021).

Hispanic Community-Focused Campaigns

Culturally tailored initiatives, such as Spanish-language radionovelas and educational fotonovelas, have successfully improved vaccine awareness and uptake in Hispanic communities (A. Chan et al., 2015; Kepka et al., 2011). These campaigns use storytelling and visual aids to address cultural and linguistic barriers. Similar approaches could be adapted for African immigrant populations to enhance HPV vaccination and cervical cancer prevention efforts.

Policy and Intervention Strategy Recommendations for Cervical Cancer Prevention in Washington State

Provider Education and Communication Strategies

Continuing Education (CE) courses for healthcare providers are among the most effective interventions to improve HPV vaccine uptake. These courses provide essential knowledge about HPV vaccination and boost provider confidence in making strong, high-quality recommendations (Gilkey et al., 2016; Leung et al., 2019). However, gaps remain in tailoring

provider education to specific populations, such as immigrant communities, where cultural and language barriers may influence communication and vaccination decisions (Leung et al., 2019).

Innovations in Screening Programs

Adopting HPV DNA testing as the primary screening tool has shown promise in increasing compliance among hard-to-reach populations. This method allows for self-sampling, reducing the invasiveness of traditional screening procedures and potentially increasing participation among underserved groups (Battagello et al., 2022; Naikoo et al., 2025). Although this approach's impact on health disparities remains unclear, it offers an opportunity to expand coverage, especially for immigrants and minorities (Etemadi et al., 2025b; Zeng et al., 2025b).

Tailored Interventions for Migrant Populations

Studies indicate that migrants from Sub-Saharan Africa and North Africa face the most significant barriers to cervical cancer screening due to cultural stigma, language barriers, and limited healthcare access (Rosato et al., 2023). Recruiting culturally and linguistically diverse healthcare providers, implementing interpreter services, and providing culturally sensitive education have proven effective in increasing screening rates among immigrants (Vahabi & Lofters, 2016).

Ensuring that immigrant populations, including undocumented individuals, have access to affordable healthcare services through Medicaid expansion and similar programs (Hacker et al., 2015). Training healthcare providers to deliver culturally sensitive care and address the unique needs of diverse populations (Leinonen et al., 2017). Scaling up school-based vaccination initiatives across states to replicate Rhode Island's success (J. J. Kim et al., 2018). Regularly monitoring vaccination and screening rates to identify gaps and refine public health

interventions (Chido-Amajuoyi et al., 2021). Partnering with religious and community leaders to promote vaccination and screening in culturally appropriate ways (Kingori et al., 2018).

A study conducted by Adegboyega et al., (2017), highlights the gaps in research among the African Immigrant population related to cervical cancer screening. The need for more research to test interventions among this growing population cannot be overemphasized. Such research studies should target African immigrants within their socioeconomic and cultural context to identify effective interventions to improve cervical cancer screening participation in this group. Such an investigation should also evaluate the cost-effectiveness and feasibility of such interventions for dissemination to a larger African Immigrant audience (Adegboyega et al., 2017). Future African Immigrant research should consider the heterogeneity of the African Immigrant population and identify and study population subgroups and subcultures to determine the similarities and differences in cervical cancer screening influences and practices (Adegboyega et al., 2017).

According to Pinder et al., (2016), achieving inclusive, meaningful research in this population may best be accomplished through multi-institutional collaborations to ensure diversity among African-born populations, while further stratification may delineate risks, behaviors, and associations unique to specific subgroups within these populations (Pinder et al., 2016).

African Immigrant Population in Washington State and the U.S.

African immigration to the United States has experienced remarkable growth over the last four decades. The African-born population increased from 129,900 in 1980 to nearly 2.3 million in 2017, doubling every ten years between 1980 and 201(Bureau, n.d., p. 20; Chikanda & Morris, 2021). African immigrants now comprise 42% of the foreign-born Black population in the U.S., with Nigeria (14%), Ethiopia (10%), and Somalia among the leading countries of origin (Tamir,

2022). In Washington State, 78,669 African-born immigrants were reported in 2019, representing over 35 countries of birth. The largest communities originate from Ethiopia, Kenya, Somalia, Eritrea, Gambia, South Africa, Egypt, Nigeria, and Ghana (Bill Tracking in Washington - SB 5641 (2023-2024 Legislative Session) - FastDemocracy, n.d.).

African immigrants are a youthful and diverse population. Approximately 81.3% are aged 18–64, compared to 61.8% of the U.S. population, indicating a population primarily in the working-age group. However, they face higher poverty rates (17.1%) compared to the national average (9.5%), and 25.7% lack health insurance, highlighting significant socioeconomic disparities (Chikanda & Morris, 2021). Despite these challenges, African immigrants contribute substantially to the U.S. workforce and are less reliant on the country's social security systems due to their younger age profile (Bureau, n.d.).

African immigrants face significant disparities in cervical cancer prevention and screening. Routine cervical cancer screening is less common in sub-Saharan Africa, a region with some of the highest cervical cancer incidence rates globally (40 per 100,000 women annually), and these trends carry over to immigrant populations in the U.S. (Bray et al., 2018). For example, cervical cancer screening adherence among East African immigrants (EAIs) with primary healthcare access in Washington is 63%, significantly lower than the national average of over 80% (Sabatino, 2021; Tsegaye et al., 2024). The rate is expected to be even lower among African immigrants without regular healthcare access (Harcourt et al., 2014).

HPV vaccination, which has been available since 2006, remains underutilized among African immigrant populations. Among Black adolescents and young adults in the U.S., 44.7% of Black females aged 18–26 have initiated the vaccine series compared to 57.9% of White females (Boersma & Black, 2020). Barriers include limited knowledge about HPV, mistrust of

vaccines, and cultural misconceptions (Galbraith-Gyan et al., 2019; Ko et al., 2018). Despite their growing numbers, African immigrant women are underrepresented in research and national health surveys (Abdi et al., 2020). Few studies have specifically evaluated cervical cancer prevention efforts among Black African women, limiting the development of effective, evidence-based interventions (Benard et al., 2017).

The Role of Community and Social Networks

Decisions around HPV vaccination in East African communities in Washington State are often influenced by social networks, including friends and community leaders, rather than solely by healthcare providers. This interconnected decision-making process highlights the importance of involving trusted community members in health promotion efforts (Ko et al., 2018). Faith-based and community organizations have been identified as effective platforms for disseminating accurate health information and addressing cultural misconceptions (Chu et al., 2021).

Why Washington State Attracts African Immigrants

Washington State has become an appealing destination for African immigrants, contributing significantly to the state's diversity and to the broader U.S. population. Factors such as economic opportunities, access to education, and progressive policies make Washington State particularly attractive. African immigrants represent one of the fastest-growing immigrant groups in the U.S. Between 2000 and 2019, the Black African immigrant population grew by 246%, with substantial numbers settling in states like Washington State (Tamir, 2022). The state’s welcoming environment, combined with economic opportunities, draws immigrants seeking better living conditions and upward mobility.

Immigrants contribute disproportionately to Washington's economy, making up 19% of the labor force and generating 21% of the state's GDP, which amounts to roughly $145 billion annually (Dong, 2023). Many African immigrants take on essential roles in the workforce, from healthcare to agricultural jobs, despite challenges such as low wages and unsafe working conditions. Washington state has introduced policies to support immigrants, including Medicaid expansion under Apple Health, which now covers eligible adults regardless of immigration status. This program, implemented in July 2024, aims to serve 8,000 people initially and is expected to grow. Additionally, advocacy efforts are pushing for expanded unemployment insurance for undocumented workers (Deng, 2024). These policies provide a safety net for immigrants and reflect the state's commitment to inclusivity.

African immigrants in the U.S., including those in Washington state, increasingly hold college degrees. As of 2019, 31% of Black immigrants aged 25 and older had at least a bachelor's degree, a rate comparable to other immigrant groups (Tamir, 2022). This educational attainment facilitates their integration into professional sectors, enhancing their contribution to the state's economic and social fabric. Washington State hosts vibrant African immigrant communities, particularly in urban areas like Seattle and King County. These communities provide cultural, social, and religious networks that ease the transition for newcomers (Ko et al., 2018).

Chapter 3: Methodology

This chapter presents the methods and procedures used in this dissertation, which involve qualitative data collection through interviews and focus group discussions. The study utilized the Health Belief Model (HBM) and the Social Ecological Model (SEM) to gain a thorough understanding of the unique experiences and health behaviors of this population, which influence their decisions regarding HPV vaccination and cervical cancer screening. A detailed description of the participants, data collection methods, study settings, research instruments, and procedures for data management and analysis was provided.

Research Design and Rationale

This study adopted a qualitative research design using Interpretive Phenomenological Analysis (IPA) to explore how African-born immigrant mothers in Washington State make sense of their health behaviors related to cervical cancer prevention. IPA is especially suited to research questions that seek to understand how individuals interpret and find meaning in significant health-related experiences (Darley et al., 2025; J. A. Smith & Osborn, 2015a).

IPA is rooted in three key theoretical underpinnings: Phenomenology, which focuses on lived experience; Hermeneutics, the theory of interpretation; and Ideography, which emphasizes the particular rather than the general (J. A. Smith & Osborn, 2015b). These components align with the study's goals to uncover how sociocultural and personal contexts shape the ways in which African-born immigrant mothers perceive, interpret, and act upon information related to HPV vaccination and cervical cancer screening.

The rationale for using IPA stems from the need to understand the *subjective lived experiences* of African-born immigrant mothers navigating a new healthcare system. IPA allows

for an in-depth examination of individual meaning-making, especially within marginalized or understudied groups (Alase, 2017; J. A. Smith & Osborn, 2015b).

The topic involves deep personal and culturally sensitive issues such as reproductive health, trust in healthcare systems, and preventive behavior, which are best explored through a method that foregrounds participants' voices. IPA enables the researcher to examine how participants draw on beliefs, social norms, and personal histories to make decisions, in line with the constructs of the Health Belief Model (HBM) and the Social-Ecological Model (SEM) (Hartman & Squires, 2024a).

IPA also complements the interpretivist paradigm that guides this research, where knowledge is seen as co-constructed through interaction and context (Creswell & Poth, 2018).

Integration with Theoretical Frameworks:

- The Health Belief Model informs the exploration of individual-level cognitive factors such as perceived susceptibility, severity, and barriers to action. IPA is well-suited for examining how these perceptions are formed and understood in the participant's own words (Etheridge et al., 2023b; Haller et al., 2008).
- The Social-Ecological Model emphasizes multilevel influences, including cultural, familial, and institutional contexts (Olaniyan et al., 2021). IPA allows for these layers to emerge organically from participants' narratives, making it possible to map how contextual factors influence personal decisions (Hartman & Squires, 2024b).

IPA studies typically use small, homogenous samples to allow for deep, idiographic analysis (Love et al., 2020). Therefore, a purposive sample of 49 African-born immigrant mothers were

selected to share their experiences as immigrants, as mothers of children aged 9–17, and as residents of Washington State.

IPA offers a rigorous and sensitive method for exploring how African-born immigrant mothers interpret their experiences with HPV vaccination and cervical cancer screening. This approach not only respects the complexity of their narratives but also allows for theoretical integration with established health behavior models. The findings provide nuanced, culturally grounded insights to inform future interventions and policies (Hartman & Squires, 2024c; J. A. Smith & Osborn, 2015b).

Setting

Data collection for this study occurred exclusively through Zoom, a virtual video conferencing platform. This approach was selected to enhance accessibility, flexibility, and convenience for participants, many of whom may have varying schedules, transportation barriers, or comfort levels with in-person interactions. Conducting interviews via Zoom also enabled a broader reach across Washington State, allowing participation from a diverse group of African immigrant mothers. The virtual setting helped ensure participant safety and confidentiality, especially given the sensitive nature of discussing personal health behaviors and beliefs. Participants were able to join the interviews from environments where they felt most comfortable, which encouraged more open and honest dialogue. Using Zoom also enabled culturally respectful engagement by allowing participants to choose the time and setting that worked best for them, thereby further promoting trust and participation in the study.

Description of Participants and Samples

This study targeted African-born immigrant mothers aged 21 to 65 residing in Washington State with children aged 9 to 17. This demographic faces significant barriers to healthcare, particularly cervical cancer screening and HPV vaccination, due to limited access to services, language, and cultural obstacles (Cohen et al., 2023; Spencer et al., 2023). As of 2019, approximately 78,669 African-born immigrants lived in Washington State (Bill Tracking in Washington - SB 5641 (2023-2024 Legislative Session) - FastDemocracy, n.d.).

The research employed a qualitative design to explore and understand the unique experiences and health behaviors of this population. It gathered detailed insights into the challenges surrounding HPV vaccination and cervical cancer screening among African immigrant mothers and their children. Qualitative interviews and focus group discussions have the advantage of being interactive and allowing for unexpected topics to emerge and to be taken up by the researcher (Russell & Gregory, 2003).

Using purposive and snowball sampling techniques, the study recruited thirty-one (31) African-born immigrant mothers for semi-structured interviews. Additionally, two groups comprising nine (9) members each were formed for focus group discussions. Participants were selected based on the following criteria:

- Aged 21–65 years.
- Have children aged 9–17.
- Reside in Washington State.
- Speaks and understands basic English.

Additionally, the study recruited seven (7) key informants based on their influence, expertise, and understanding of the topic and study participants. These key informants were selected

because they offer high-level perspectives and comparative insights into the issues under investigation (Pahwa et al., 2023). Qualitative research often uses 5–10 key informants to achieve data saturation, the point at which additional interviews yield no new information (Hennink & Kaiser, 2022). They were selected for their ability to help the researcher comprehend cultural patterns, often providing background information that may be inaccessible, implicit, or difficult to obtain through document reviews or other partial accounts (Marshall, 1996).

For this research, key informants included individuals with in-depth knowledge of African immigrants' economic and social needs and how these factors influence their health-seeking behaviors. These informants hold organizational roles and possess a strong understanding of both the local context and the target population (Pahwa et al., 2023). Additionally, professionals with expertise in HPV vaccination and cervical cancer screening initiatives in Washington State were included. Potential participants were identified through a combination of recommendations and snowball sampling. In snowball sampling, individuals with specialized expertise or insights were asked to recommend others with relevant skills or knowledge (Pahwa et al., 2023; Patton, 2002).

The key informants were representatives from African community-based non-profits and institutions in Washington State that provide cervical cancer prevention services and help implement related policies and strategies.

These organizations were selected because they provided a comprehensive mix of policy-level insights, funding mechanisms, immunization program implementation, and community-based perspectives. Their expertise helped identify systemic and cultural factors that impact HPV vaccination and cervical cancer screening among African immigrant mothers in Washington State, contributing to targeted interventions and policy recommendations.

In recruiting participants, the study partnered with community organizations in Washington State. Recruitment efforts included:

- The distribution of digital flyers containing study details and inclusion criteria on African immigrant WhatsApp platforms. The researcher engaged the leaders of these groups and encouraged them to share the flyers on their platforms. Many African immigrants in the United States, particularly in Washington State, are actively involved in country-based associations that serve as crucial social networks. These associations facilitate information sharing, provide mutual support, and help members maintain connections to their cultural heritage. Since WhatsApp is widely used for communication within these communities, leveraging these platforms presented an effective strategy for disseminating study information. By sharing flyers and messages in these trusted digital spaces, the study efficiently reached and engaged potential participants.
- Site permission letters were sent to the supervisors of community-based organizations and groups to obtain approval before recruitment flyers were posted on their premises and within their WhatsApp groups. These organizations included African Muslim Associations, churches, community-based non-profit organizations, and African-owned restaurants. The approved permission letters were submitted to the Institutional Review Board (IRB) for review and approval before they were sent out.
- The study established strong relationships with community leaders to foster trust, which enhanced participant recruitment. By building this rapport, the study reached a larger number of potential participants. Additionally, using the snowball sampling method, enrolled participants were motivated to distribute flyers to other eligible individuals, further expanding recruitment efforts.

These strategies ensured a diverse and representative sample, facilitating a comprehensive understanding of barriers and opportunities for improving HPV vaccination and cervical cancer screening among African immigrant communities in Washington State.

Data Sources

This study was qualitative, aimed at providing an in-depth understanding of the research questions. It gathered primary data through interviews and focus group discussions. The study employed interviews and focus group discussions (FGDs), to generate comprehensive and multi-faceted data. Utilizing these multiple sources enabled a deeper understanding of the individual and societal challenges and barriers faced by African immigrant mothers in accessing preventive healthcare services, such as HPV vaccination and cervical cancer screening (Creswell & Creswell, 2017). Triangulation occurred to ensure more robust findings by identifying recurring themes across different data types and study populations (e.g., African mothers, key informants), enhancing the reliability and validity of the research findings (Mack et al., n.d.).

Research Question 1:

What are the levels of knowledge, awareness, and utilization among African immigrant mothers regarding HPV vaccination and cervical cancer screening?

This research question seeks to identify knowledge gaps related to HPV vaccination and cervical cancer screening, as well as the factors influencing African immigrant mothers' decisions about these disease preventive measures.

Data Source 1:

Semi-structured interviews were conducted with 31 African-born immigrant mothers. Based on a review of the literature, it is expected that data saturation will be reached after analyzing 12 interviews. As suggested by Guest et al., (2006), qualitative studies should include

at least 12 in-depth interviews to achieve saturation across the potential range of responses. Their research demonstrated that 97% of the themes were identified after the first 12 interviews, with the full range of thematic findings emerging almost entirely within this initial group (Guest et al., 2006). At 31 participants, saturation had set in, with no additional issues or insights identified, and data began to repeat, rendering further data collection redundant, indicating that an adequate sample size was reached (Hennink & Kaiser, 2022). Semi-structured, in-depth interviews are widely used as an interviewing format, sometimes with an individual and sometimes with a group (Corbin & Strauss, 2014). It ensures data are captured in major areas while allowing participants flexibility to bring their personalities and perspectives to the discussion (Barrett & Twycross, 2018). These interviews allowed for flexibility while maintaining consistency in addressing key topics. They provided detailed insights into personal experiences, cultural influences, and structural barriers affecting healthcare access (Mack et al., n.d.). Semi-structured interviews were particularly effective for exploring sensitive topics, as they encouraged participants to share their perspectives and experiences in a comfortable and guided manner (Creswell & Creswell, 2017).

Research Question 2:

What intervention strategies can effectively improve cervical cancer screening rates among African immigrant mothers and increase HPV vaccination uptake among their children?

This research question seeks to identify gaps in current intervention strategies to develop and implement approaches that address the unique needs of African immigrant mothers.

Data Source 2:

Focus group discussions (FGDs) were conducted using a semi-structured interview guide with two groups of nine (9) each of African-born immigrant women who met the inclusion

criteria. Using a semi-structured focus group discussion guide allowed for flexibility in exploring various topics while maintaining a clear focus, further enhancing the likelihood of uncovering the full spectrum of important themes (Guest et al., 2017). Focus groups usually consist of 6–8 people and are led by an experienced moderator who follows a topic guide or "script" (Van Royen & Peremans, 2007). Research suggests that, in most cases, conducting two to three focus groups is sufficient to capture approximately 80% of the key themes relevant to a study. This number of groups allows for a broad range of perspectives while still ensuring that the most critical themes are represented (Guest et al., 2017). FGDs provided an opportunity to explore collective perspectives and generated insights through group dynamics and shared experiences. This approach helped uncover strategies to increase HPV vaccine acceptance and improve participation in cervical cancer screening (Pahwa et al., 2023). Discussions focused on identifying effective intervention strategies and understanding the barriers to their implementation.

Focus group discussions can be less appropriate for discussing sensitive topics that participants might be reluctant to disclose in a group setting (Hak, 2007). However, focus group discussions are helpful in bringing together homogeneous (to a lesser extent, heterogeneous) groups of participants with relevant expertise and experience on a given topic, on which they can share detailed information (Van Royen & Peremans, 2007). Focus groups are a relatively easy, fast, and inexpensive method to gain access to information on interactions in a given group, i.e., "the sharing and comparing" among participants (Van Royen & Peremans, 2007).

Research Question 3:

What are the perspectives of key informants regarding the social determinants affecting HPV vaccination and cervical cancer screening?

This question sought to explore the broader systemic and social factors that influence healthcare access and decision-making among African immigrant mothers.

Data Source 3:

Key informant interviews were conducted with seven (7) experts and professionals familiar with the socioeconomic and health needs of African immigrants in Washington State. Engaging with key informants was essential for gaining insider knowledge, especially on sensitive topics. These informants, including public health professionals, policymakers, scientists, community leaders, and educators, offered valuable insights based on their roles in clinical practice, government, academia, or community organizations (Jimenez et al., 2019; Marshall, 1996; Pahwa et al., 2023).

By integrating interviews, focus group discussions, and key informant insights, the study provided a comprehensive understanding of the factors influencing cervical cancer screening and HPV vaccination among African immigrant mothers. This mixed-methods approach ensured that the research captured individual, collective, and systemic perspectives, offering a holistic view of the challenges and opportunities for intervention (Geampana & Perrotta, 2024).

Description of Research Instrumentation

The protocol for this qualitative study is described below.

Interview Guides

The semi-structured and key informant interview guides followed a protocol comprising more than five open-ended questions. The Health Belief Model (Table 1) and the Social Ecological Model (Table 2) informed and guided the semi-structured interview questions and key informant interview questions. The interview questions, along with their corresponding probes,

identified individual, cultural, and societal determinants that influenced HPV vaccination and cervical cancer screening among African immigrant women and their children.

Table 1: Sample Questions: Health Belief Model

HBM constructs	Questions: Cervical Cancer	Questions: HPV vaccination
Perceived risk/susceptibility	What do you think the chances are of you developing cervical cancer?	What do you think the chances are of contracting HPV?
Perceived seriousness/severity	How serious do you think cervical cancer would be if you developed it?	How serious do you think the HPV infection would be if you contracted it?
Perceived benefits	What do you believe are the benefits of having regular cervical cancer screenings?	What do you believe are the benefits of receiving the HPV vaccine?
Barriers to taking action/perceived barriers	What factors might keep you from getting regular cervical cancer screenings?	What factors might prevent you from getting the HPV vaccine?
Cues to action	What motivated you to undergo cervical cancer screening, or what are your reasons for intending to get screened? (This can vary based on their current screening status or willingness.)	What encouraged you to receive the HPV vaccine, or what are your reasons for planning to get vaccinated? (This depends on their current vaccination status or willingness to get vaccinated.)
Self-efficacy	Can you provide more details about your capacity to receive cervical cancer screening?	Can you provide more information about your ability to receive the HPV vaccine?

Focus Group Guide

The Focus Group Guide followed a structured protocol with open-ended questions, guided by the Health Belief Model (HBM) and Social Ecological Model (SEM) (Tables 1 and 2). The focus group questions were designed to elicit the perspectives of African immigrant women with children. Along with their corresponding probes, the questions explored individual, interpersonal, and societal factors that influence HPV vaccination and cervical cancer screening.

Table 2: Sample Questions: Social Ecological Model

SEM Levels	Question: HPV Vaccination
Community Level:	How do parents, adolescents, and providers communicate about the HPV vaccine? What are the neighborhood characteristics of adolescents? What is the role of family and peers in decision-making about the HPV vaccine?
Organizational Level:	What are the delivery aspects of HPV vaccination services?
System Level:	What are your ideas for additional strategies to increase HPV vaccine uptake?
SEM Levels	**Question: Cervical Cancer**
Community Level:	What are the common beliefs and attitudes about cervical cancer in your community? How accessible are cervical cancer screening services in your area? Are there any cultural practices or beliefs that may influence women's decision to get cervical cancer screening?
Healthcare System Level:	How clear is the communication from healthcare providers regarding the importance of cervical cancer screening?
	What could be done to improve the reminder systems for cervical cancer screening appointments?
Policy Level:	What are your thoughts on the current policies related to cervical cancer screening coverage by insurance companies?
	Do you believe there should be more public awareness campaigns about cervical cancer prevention?

Data Collection Procedure

The data collection procedure for interviews and focus group discussions was as follows:

Research question one: Purposive and snowball sampling methods were used to recruit 31 African-born immigrant mothers aged 21- 65 who have children aged 9-17, live in Washington State, and can speak and write basic English. Snowball sampling helps researchers identify potential study participants and also helps educators identify individuals who might benefit from a health intervention. The technique carries the inherent risk of disclosing personal information to others (Sadler et al., 2010). Purposive sampling is used to select respondents who are most

likely to yield appropriate (S. Campbell et al., 2004) and useful information' (Bourgeault et al., 2010) and is a way of identifying and selecting cases that will use limited research resources effectively (Palinkas et al., 2015). All persons contacted agreed to and participated in the study.

The participants were interviewed using a semi-structured interview guide. In the semi-structured interview, the interviewee was explicitly asked about the essential aspects of the topics investigated. It ensured data were captured in major areas while allowing participants flexibility to bring their personalities and perspectives to the discussion (Barrett & Twycross, 2018). Interviews were Zoom-recorded (Mack et al., n.d.). Enough data were collected to sufficiently capture the themes and patterns relevant to the research questions (Hennink & Kaiser, 2022). Each participant's interview lasted 45 to 60 minutes on Zoom. Participants were asked to select a quiet, convenient place for the interview. Interviews were conducted in a private location with no outsiders present, and where people felt that their confidentiality was protected entirely (Mack et al., n.d.).

Research question two: Snowball and purposive sampling methods were used to recruit 20 potential participants. Two individuals declined, leaving 18 women who ultimately took part in the study. Based on their availability, the 18 participants were divided into two focus groups, each consisting of 9 women. A focus group consisting of two to three groups is sufficient to capture 80% of the most prevalent themes (Kevin McKenna, 2017, n.d.). A semi-structured discussion guide was used to moderate the discussion. Each focus group discussion lasted between 45 and 60 minutes. It was done and recorded on Zoom. These included African-born immigrant mothers aged 21 to 65 with children aged 9 to 17 who live in Washington State and can speak and write basic English.

Research question three: Seven key informants were identified and recruited through purposive sampling. All seven agreed to participate and did so successfully. They were interviewed using a semi-structured interview guide for the study. Each key informant was interviewed via Zoom and recorded, with interviews lasting 45-60 minutes.

The key informants were representatives from African community-based non-profits and institutions in Washington State that provide cervical cancer prevention services and help implement related policies and strategies.

Informed Consent

Eligible participants received an informed consent form via email. They were informed that data collection requires audio recording, with video recording optional. Before the interview began, participants provided written or verbal consent for audio recording. To ensure precise documentation of consent, the researcher reconfirmed this agreement at the start of the recording. Before the interview, the researcher reviewed the informed consent details with each participant. Participants were reminded that their involvement was entirely voluntary and that they may decline to answer any question if they feel uncomfortable. This right was explicitly stated in the informed consent form and verbally reiterated by the researcher before the interview began. For participants who were unable to sign the consent form, the researcher read the content aloud. Either verbal or signed consent was obtained, recorded, and securely documented in accordance with ethical research guidelines.

This study was classified as minimal risk. However, discussing personal health decisions may cause discomfort for some participants. To address this, the following measures were taken:

- Participants could skip any question they did not wish to answer.
- Participation was voluntary, and individuals could withdraw at any time without penalty.

- Participants who withdrew before completing the study were not going to receive any compensation.

Participant Compensation

Participants in this study received a $25 gift as a token of appreciation for their time and effort. Compensation was provided after their participation in the study was completed. Participants could choose to receive a gift card via email or money via Zelle. However, they all asked for gift cards, and they were given. Eighteen participants received electronic gift cards, and the rest received scanned gift cards sent to their emails.

Institutional Review Board Approval

Ethical approval was sought from the Institutional Review Board (IRB) of Columbia University's Teachers College before conducting the study. All research materials, including the study participation consent forms, research questions, flyers, focus group and semi-structured interview questions, and the data management and treatment plans, were submitted to the IRB for approval to ensure that they were culturally and ethically appropriate, and the information gathered in the study from all human subjects was protected (Mack et al., n.d.).

Data Management and Treatment

Research ethics deals primarily with the interaction between researchers and the people they study (Mack et al., n.d.). Thus, the protection of human subjects or participants in any research study is imperative (Orb et al., n.d.). Qualitative studies are frequently conducted in settings that involve people in their everyday environments. Therefore, any research that includes people requires an awareness of the ethical issues that may be derived from such interactions (Orb et al., n.d.).

Participants in this study were selected using specific inclusion criteria to ensure their contributions were relevant to the research objectives. Before participating, a detailed consent document approved by the college was prepared for the population, thoroughly explained to each potential participant, and signed to indicate informed agreement. Participants had the opportunity to ask any questions they may have about the study to ensure they fully understood its purpose, procedures, and their role in the research before the interview began.

The researcher had also completed the CITI Program courses: IRB Social and Behavioral Researchers (Curriculum Group) and IRB Social and Behavioral Researchers (Course Learner Group) 1—Basic Course (Stage), which were requirements of Teachers College, Columbia University.

Upon confirming their eligibility, a Zoom link was sent to each participant for their scheduled interview or focus group participation. During these sessions, participants were advised to turn off their cameras and choose a pseudonym to maintain anonymity. Real names, dates of birth, or any personal identifiable information were not required at any stage of the study.

For Zoom sessions, participants were encouraged to choose settings that were private, quiet, and free from disturbances, ensuring a comfortable and secure environment for open communication. They were also informed that the interviews and focus groups were recorded and transcribed solely for research purposes. To protect their data, all recordings and transcripts were stored securely, with password protection, in the cloud and on an external drive. These measures complied with university policies, and the data will be retained for five years before being permanently erased. By implementing these protocols, the study ensured participants'

confidentiality, comfort, and understanding while maintaining data integrity and compliance with ethical research standards.

Data Analysis Plan

This study employed a qualitative data analysis approach grounded in Interpretive Phenomenological Analysis (IPA), facilitated by NVivo software (Version 14) to systematically manage, organize, and code textual data. The goal of the analysis was to explore and interpret how African-born immigrant mothers in Washington State understand and make decisions regarding HPV vaccination and cervical cancer screening for themselves and their children, using the Health Belief Model (HBM) and the Social-Ecological Model (SEM) as guiding frameworks.

All interviews were either video- or audio-recorded with participants' consent, transcribed via the Zoom app, and manually corrected. Transcripts were checked for accuracy and anonymized to protect participants' identities. Field notes and memos taken during or immediately after interviews were also imported into NVivo to enhance contextual understanding and contributed to reflexivity during analysis (Mattimoe et al., 2021).

The analysis followed a step-by-step guide for Interpretive Phenomenological Analysis as outlined by J. A. Smith et al., (2009), adapted for NVivo's digital environment:

- Each transcript was read multiple times to ensure immersion in the data and allowed for initial impressions to emerge.
- Using NVivo's annotation tools, exploratory comments were made to capture descriptive (content-focused), linguistic (language use), and conceptual (interpretative) notes.

- Patterns and significant insights were coded as nodes in NVivo. Each emergent theme was grounded in participants' words and interpreted in light of the researcher's understanding.
- NVivo's node matrix and query tools were used to examine relationships between themes within individual cases and across participants. This stage involves clustering related themes and developing superordinate themes that reflect shared meanings.
- Each case was analyzed independently to preserve idiographic detail before identifying patterns across the sample.
- Once all cases were analyzed, a cross-case analysis was conducted to explore convergence and divergence in participants' experiences, particularly in relation to constructs from the HBM (e.g., perceived barriers, susceptibility) and SEM (e.g., family influence, healthcare access). An open coding method was employed, allowing flexibility and adjustments as the analysis progresses (Busetto et al., 2020a). The data were thematically coded using pre-existing themes based on the Health Belief Model and the Social Ecological Model constructs that informed the research questions, as well as themes that emerged inductively during the coding process.

Emerging themes were interpreted through the lenses of the Health Belief Model and the Social-Ecological Model:

- **HBM Constructs**: Codes captured participants' 1) Perceived risk/susceptibility, 2) Perceived seriousness/severity, 3) Perceived benefits, 4) Barriers to taking action/perceived barriers, 5) Cues to action, and 6) Self-efficacy
- **SEM Layers**: Themes were categorized into individual, interpersonal, community, and institutional levels to reveal multilevel influences on behavior. These were in relation to HPV vaccination and cervical cancer screening within this immigrant population.

Qualitative data were also synthesized across the different HBM constructs to enhance understanding for the development, utilization, and implementation of effective intervention strategies (Vincenzo et al., 2022). NVivo's classification and case structure features helped link demographic data (e.g., age, length of stay in the U.S., country of origin) to coded content, allowing for nuanced analysis of how background factors shape health beliefs and behaviors (Busetto et al., 2020a; Jowsey et al., 2021).

Geographical Map Analysis Using Zip Codes

Individual Interview Participants

Tableau software was utilized to generate a detailed map illustrating the geographic distribution of study participants across Washington State, categorized by ZIP code and county. Thirty-one (31) zip codes were collected during the individual interviews, one per participant. This geographic data was critical in assessing how participants' locations may influence their health behaviors, regarding access to and utilization of preventive healthcare services such as HPV vaccination and cervical cancer screening.

By mapping participants' residential areas, the study identified patterns in urban, suburban, and semi-rural areas. This spatial analysis also highlighted potential disparities in healthcare access between counties and understanding how geography might influence health behaviors or access to services.

The zip codes were put into an Excel sheet in a standard five-digit format. The process starts by launching Tableau and connecting it to the dataset. Upload the dataset from the Excel file into Tableau. Locate the ZIP code field in the data pane, click on the icon next to it (which may appear as a globe or the letters "Abc"), and set it to "Geographic Role" → "Zip Code /

Postal Code." Drag the ZIP code field onto the Rows shelf, and Tableau will automatically generate a map. Go to the "Marks" card, select "Map" as the visualization type, and manually drag the ZIP code field into the "Detail" section. Drag additional metrics such as participant counts or other variables onto the "Color" shelf. Labels such as city names or population figures can be added by dragging them to the "Label" shelf, while marker sizes can be adjusted through the "Size" shelf for visual emphasis. Add filters such as counties or tooltips that display detailed information when a user hovers over a ZIP code. Ensure that ZIP codes are stored as text, not numerical values, to preserve any leading zeroes (e.g., 02139). Finally, export or download as a Microsoft PowerPoint slide or Tableau workbook (Get Started Mapping with Tableau, n.d.).

Tableau enables researchers and analysts to visually explore the geographic context of their data, providing powerful insights into spatial patterns and their potential impact on outcomes such as healthcare access and utilization (26 Tableau Features to Know from A to Z, n.d.).

Focus Group Participants

Tableau software was utilized to generate a detailed map illustrating the geographic distribution of study participants for the focus group discussion across Washington State, categorized by ZIP code and county. Eighteen (18) zip codes, one from each participant, were collected during the focus group discussions. This geographic data was critical for assessing each participant's location within Washington State.

The zip codes were entered into an Excel sheet in a standard five-digit format. The process starts by launching Tableau and connecting it to the dataset. Upload the dataset from the Excel file into Tableau. Locate the ZIP code field in the data pane, click on the icon next to it

(which may appear as a globe or the letters “Abc”), and set it to “Geographic Role” → “Zip Code / Postal Code.” Drag the ZIP code field onto the Rows shelf, and Tableau will automatically generate a map. Go to the “Marks” card, select “Map” as the visualization type, and manually drag the ZIP code field into the “Detail” section. Drag additional metrics such as participant counts or other variables onto the “Color” shelf. Labels such as city names or population figures can be added by dragging them to the “Label” shelf, while marker sizes can be adjusted through the “Size” shelf for visual emphasis. Add filters such as counties or tooltips that display detailed information when a user hovers over a ZIP code. Ensure that ZIP codes are stored as text, not numerical values, to preserve any leading zeroes (e.g., 02139). Finally, export or download as a Microsoft PowerPoint slide or Tableau workbook (Get Started Mapping with Tableau, n.d.).

Study Design

This research adopted a qualitative descriptive cross-sectional design to provide an in-depth understanding of the research questions. Unlike quantitative approaches, qualitative research uses open-ended questions in interviews and focus group discussions and employs probing to elicit responses in individuals' own words. It seeks to understand a given research problem or topic from the perspectives of the local population. Qualitative research is especially effective in obtaining culturally specific information about particular populations' values, opinions, behaviors, and social contexts (Creswell & Creswell, n.d.).

Interpretative Phenomenological Research

This study used the Interpretative Phenomenological approach. Interpretative Phenomenological Analysis (IPA) is a qualitative approach that explores how individuals make sense of their lived experiences of a particular phenomenon. It focuses on the meanings people

attach to their experiences and seeks to understand these from their own perspectives rather than through predefined theories (Pringle et al., 2011; Rodger & Smith, 2025; Tindall, 2009). Ultimately, the purpose of IPA is to provide rich, in-depth insights into how people perceive and understand their world, offering a window into the complexity of human experience that can inform theory, practice, and policy (Manen, 1990; Pringle et al., 2011).

The study was qualitative because it captured detailed explanations of issues concerning HPV vaccination and cervical cancer screening among African immigrant women. This study adopted a constructivist/interpretivist format, a traditional approach to planning qualitative research. It included the standard introduction and description of the procedures, including a passage in the procedures about the role of the researcher (Creswell, 2007).

An interpretative phenomenological approach to data collection allows study participants to describe their lived experiences in depth. Descriptions of their experiences will include emotions, feelings, memories, thoughts, and reactions (J. A. Smith, 2007; J. A. Smith & Osborn, 2015c). For in-depth interviews, data collection included a set of open-ended questions. The interview was semi-structured to cover key topics, allowing flexibility to explore new ideas, ask follow-up questions, and adapt to each interviewee's responses (Creswell & Creswell, 2017; Kang & Lee, 2016). Interviews were conducted remotely via Zoom.

The interviews were conducted one-on-one due to the sensitivity of the topic. Participants were allowed to select any venue of their choice for the interview, provided it was convenient and ensured privacy. The estimated time for each interview was approximately 45 to 60 minutes. The open-ended questions allowed the participants to share their lived experiences and perceptions of HPV vaccination and cervical cancer screening without implied answers

(Creswell & Creswell, 2017). Participant responses were recorded for transcription and analysis purposes.

Focus group discussions and interview audio recordings were transcribed through Zoom, and manual corrections were made later. The data were assessed and analyzed using NVivo to identify key and recurring themes. NVivo is a relational database that facilitates the analysis of qualitative data (Dhakal, n.d.). An open coding method was employed, allowing flexibility and adjustments as the analysis progresses (Busetto et al., 2020b). The data were thematically coded using pre-existing themes based on the Health Belief Model and the Social Ecological Model constructs that informed the research questions, as outlined in Table 1 and Table 2, as well as themes that emerged inductively during the coding process. An expert in the field reviewed the coding schemes. Data analysis reflected the participants' beliefs about (HBM) 1) Perceived risk/susceptibility, 2) Perceived seriousness/severity, 3) Perceived benefits, 4) Barriers to taking action/perceived barriers, 5) Cues to action, and 6) Self-efficacy. Data analysis also reflected participants' societal beliefs and experiences (SEM) about 1) Community, 2) Organizational, 3) Healthcare System, and 4) Policy levels in relation to HPV vaccination and cervical cancer screening within this immigrant population. Qualitative data were also synthesized across the different HBM constructs to enhance understanding of the development, utilization, and implementation of effective interventions.

Issues of Trustworthiness

To ensure the rigor and quality of this qualitative study, multiple strategies were employed to establish and maintain trustworthiness, as outlined by Lincoln and Guba (1985). These strategies addressed the four key criteria: *credibility, dependability, confirmability,* and

transferability. Each criterion was intentionally applied throughout the research process to enhance the authenticity and reliability of the study's findings.

Credibility

Credibility refers to confidence in the truth of the findings. In this study, credibility was strengthened through several strategies. First, prolonged engagement with the data, repeated reading of transcripts, and careful note-taking helped the researcher deeply understand participants' perspectives (Korstjens & Moser, n.d.; Stanley & Robertson, 2024). Clarifying questions were also asked during interviews to ensure accurate interpretation.

Triangulation of interviews, observations, and field notes provided multiple viewpoints on African-born immigrant mothers' experiences, creating more robust findings (Carter et al., 2014; Patnaik & Pandey, 2019). Member checking was conducted by sharing transcripts or summaries with selected participants so they could confirm that their statements were represented correctly, consistent with recommendations from S. K. Ahmed, (2024) and McKim, (n.d.).

Peer debriefing with academic colleagues, including the dissertation chair, helped validate coding and theme development while reducing bias (Nyirenda et al., 2020). Finally, reflexivity was maintained throughout the study. The researcher kept a reflexive journal documenting personal assumptions, decisions, and potential biases, as recommended by Creswell, (2013).

Transferability

Transferability concerns the extent to which a study's findings may be helpful or applicable in other settings or with similar groups. Although qualitative research does not aim for statistical generalization, this study promoted transferability by offering rich, thick descriptions

of participants' backgrounds, lived experiences, and the cultural and structural factors that shaped their health behaviors (S. K. Ahmed, 2024; Korstjens & Moser, n.d.). Detailed information about the research setting, recruitment approach, participant characteristics, and data collection procedures was provided so that readers can judge whether the findings may apply to other African immigrant communities or comparable immigrant populations (S. K. Ahmed, 2024; Korstjens & Moser, n.d.).

Direct participant quotations were also included to illustrate the context in which decisions about cervical cancer screening and HPV vaccination were made. These contextual details strengthen the study's transferability by allowing readers to understand not only what participants reported but also the cultural and social environments that influenced their decisions. By presenting these thick descriptions, the study supports thoughtful comparison with other settings while still respecting the unique experiences of the population studied (Korstjens & Moser, n.d.; Stanley & Robertson, 2024).

Dependability

Dependability refers to the stability and consistency of the research process over time (Elo et al., 2014; Korstjens & Moser, n.d.). In this study, dependability was supported by keeping a detailed audit trail that documented decisions made throughout data collection and analysis, including coding steps, methodological choices, and procedural changes (Dado et al., 2023; Korstjens & Moser, n.d.). A daily reflective journal was maintained to record emerging insights, challenges, and adjustments, ensuring that the reasoning behind each decision was transparent and traceable. Explicit descriptions of participant recruitment, interview procedures, and analytic methods were also provided to allow future researchers to understand and, if needed, replicate the process used in this study (Nyirenda et al., 2020b; Chesnay, 2015).

Confirmability

Confirmability refers to ensuring that the study's findings reflect participants' voices (S. K. Ahmed, 2024) rather than the researcher's biases (Korstjens & Moser, n.d.; Stanley & Robertson, 2024). In this study, confirmability was supported through several strategies. A complete audit trail was maintained (W. M. Lim, 2025), documenting coding decisions, analytic steps, and the progression of interpretations, making the research process transparent and traceable (Nyirenda et al., 2020). Ongoing reflexivity also played a central role. The researcher kept a reflexive journal to acknowledge personal assumptions, reflect on potential influences on the analysis, and remain aware of how values might shape interpretation (Dodgson, 2019; Peddle, 2021). Open-ended questioning and careful listening during interviews helped ensure participants' perspectives guided the findings rather than the researcher's expectations. These combined strategies strengthened the objectivity and trustworthiness of the final interpretations (Jamieson et al., 2023).

Ensuring Qualitative Rigor

Overall, qualitative rigor was established through a systematic and reflexive research process. Triangulation across data sources, transparent coding procedures, and continuous peer consultation ensured interpretive consistency. The combination of member validation, detailed documentation, and reflexivity enhanced the credibility and confirmability of findings. By aligning methodological rigor with ethical sensitivity, this study upholds the principles of trustworthiness central to high-quality qualitative research (Lincoln & Guba, 1985; Nowell et al., 2017).

Predictors of Study-related Outcomes

The research revealed significant gaps in knowledge, awareness, and utilization of cervical cancer screening and HPV vaccination among African immigrant families. This aligns with findings by Lim & Ojo (2017), who noted that cervical cancer screening in many African countries is often limited to women who can afford it, and national HPV vaccination programs are generally absent. Consequently, access, awareness, utilization, and knowledge about these health services among African immigrants are low.

Additionally, the rising poverty rates among African-born immigrants, from 13.1% in 2000 to 17.1% in 2017, along with the fact that 25.7% of African-born immigrants in the U.S. lack health insurance, likely affect their ability to access cervical cancer screening and HPV vaccination. The research was anticipated to show that poverty and lack of health insurance were significant factors influencing health-seeking behaviors among this population (Bureau, n.d., p. 20; Chikanda & Morris, 2021).

While adolescent children of African-born immigrants may have received HPV vaccinations due to provider recommendations, as they were born in the U.S., the overall findings differed from expectations. The researcher needed to approach the research with an open mind, ready to uncover unexpected insights (Amboree & Darkoh, 2021; Cofie et al., 2022, pp. 2013–2017).

This research was expected to produce evidence-based recommendations for effective intervention strategies that align with the objectives of Healthy People 2030 for cervical cancer screening and HPV vaccination. This was particularly important as the Black immigrant population was projected to contribute significantly to the growth of the U.S. Black population, with Africans currently making up about 42% of the foreign-born Black population (Tamir, 2022).

Anticipated Limitations

Recruiting African immigrant mothers living in Washington State was challenging due to their demanding work schedules, with many holding multiple jobs or working long hours. Financial pressures prioritized work over research. To address this, the researcher collaborated with African community organizations and religious groups, used snowball sampling, and offered flexible Zoom interviews, ensuring outreach was culturally appropriate and accommodated busy schedules (Nwoke et al., 2021).

Furthermore, some study participants anticipated huge monetary compensation for their time and effort. This challenge was commonly encountered, particularly among participants who had previously received payment for other research interviews. These individuals assumed that all research interviews were compensated. Complete transparency with participants regarding monetary compensation was ensured. It was clearly stated in all recruitment materials, informing potential participants that each participant was going to receive 25 dollars (Barrett & Twycross, 2018).

Lastly, with limited time to conduct the research, efforts were challenged. Qualitative research methods and tools required significant time for both data collection and analysis. A work plan was created to complete the research within the agreed-upon timeframe with the sponsor. This plan served as a guide for the research and helped ensure timely completion (Ellard-Gray et al., 2015).

Research Positionality

The principal investigator acknowledged that his background and professional experiences shaped every stage of the research process. His long-standing commitment to understanding the healthcare experiences of African-born immigrant mothers, particularly in

relation to HPV vaccination and cervical cancer screening, served as the foundation of the study. With more than a decade of experience in healthcare administration, community health initiatives, and research involving underserved populations, the researcher possessed a deep understanding of the social determinants influencing healthcare access and utilization.

His academic preparation in Health Promotion and Education, supported by training in research ethics and health behavior theories, guided a rigorous and ethically grounded approach. As an African-born public health professional, the researcher shared cultural and linguistic connections with many participants, which facilitated trust and open dialogue. At the same time, he remained aware of potential biases and deliberately ensured objectivity through practices such as reflexivity, member checking, and peer debriefing.

To address inherent power dynamics, the researcher cultivated a respectful and collaborative research environment, encouraging participants to share their experiences freely and authentically. By centering participants' voices throughout the process, the study generated findings that were both credible and deeply reflective of the lived realities of African-born immigrant mothers.

Summary

This chapter summarizes the methodology, including participant recruitment, data collection procedures, and instrumentation. It also outlined the data management and analysis procedures. The results of the data analyses discussed in this chapter are presented in Chapter IV.

Chapter 4: Results

The purpose of this qualitative study is to explore the level of knowledge and awareness of HPV vaccination and cervical cancer screening among African immigrant mothers residing in Washington State. In addition, the study aimed to identify and articulate the cultural, social, and systemic factors that influence health-seeking behavior and decision-making regarding preventive care, particularly HPV vaccination and cervical cancer screening, for both mothers and their children. A further objective was to solicit perspectives from key informants regarding broader social determinants and policy-related issues that impact access to and utilization of these preventive health services within this population.

To achieve these goals, a total of fifty-six (56) participants were recruited and interviewed. The first phase of the study focused on answering research question one, which involved thirty-one (31) African-born immigrant mothers aged between 21 and 65, all of whom had children aged 9 to 17. These participants were identified, recruited, and interviewed using a semi-structured interview guide designed to elicit in-depth responses about their knowledge, awareness, and utilization of HPV vaccination and cervical cancer screening services.

To address research question two, two focus group discussions were conducted, each comprising nine (9) women. These focus groups were moderated using a semi-structured discussion guide to explore shared experiences, cultural perceptions, and community-level influences on preventive health behaviors.

Finally, to answer research question three, seven (7) key informants were identified and interviewed. These individuals, selected for their expertise and involvement in health policy, community engagement, or immigrant health services, provided insights into broader structural

and policy-level factors shaping access to and use of HPV vaccination and cervical cancer screening among African immigrant communities.

Demographics of Study Participants

This study involved a total of fifty-six (56) participants, comprising African immigrant mothers and key informants residing in Washington State. Participants were selected through purposeful and snowballing sampling methods to provide insights into three research questions: (1) the levels of knowledge, awareness, and utilization of HPV vaccination and cervical cancer screening, (2) effective intervention strategies to improve service uptake, and (3) the perspectives of key informants on social determinants influencing these outcomes.

Individual Interviews with Mothers (Research Question 1)

A total of thirty-one (31) African-born immigrant mothers aged between 21 and 65 participated in individual semi-structured interviews. All participants had at least one child aged 9-17. These mothers live in Washington State and were recruited via flyers distributed on WhatsApp. The demographic information collected included participants' country of birth, age, years lived in the U.S., highest educational level, religion, and relationship status. Although no specific questions were asked about employment status, informal conversations revealed that most participants were employed either part-time or full-time.

Focus Group Discussions (Research Question 2)

To further explore community-level perspectives and possible intervention strategies, two focus group discussions were conducted with a total of eighteen (18) women, nine (9) participants in each group. These women were also African immigrant mothers living in Washington State, meeting similar inclusion criteria as the individual interview participants. Focus group participants shared similar demographic characteristics and were selected to ensure

a diversity of experiences and backgrounds, including varied educational levels and lengths of stay in the United States.

This demographic data provided context for interpreting the findings and identifying patterns in health behaviors, knowledge levels, awareness, and access barriers among participants.

Key Informant Interviews (Research Question 3)

Seven (7) key informants were interviewed to gather expert perspectives on systemic and policy-level factors affecting African immigrant mothers' access to HPV vaccination and cervical cancer screening services. These key informants included public health professionals, healthcare professionals, religious leaders, and advocates working directly with African immigrant populations. They were selected based on their professional roles and experience with this population in Washington State.

Data Collection

Data for this study were collected between March 1st, 2025, and June 30th, 2025, through a combination of semi-structured individual interviews and Zoom focus group discussions. The study explored three primary research questions concerning the knowledge, awareness, utilization, and influencing factors surrounding HPV vaccination and cervical cancer screening among African immigrant mothers, as well as the perspectives of key informants on broader social determinants.

Before data collection, ethical approval was obtained from the Institutional Review Board (IRB) of Teachers College, Columbia University. All study materials, including consent forms, recruitment flyers, and data collection instruments, were submitted to the IRB to ensure cultural and ethical appropriateness. The researcher also completed the Collaborative Institutional

Training Initiative (CITI) course on IRB Social and Behavioral Research, fulfilling institutional requirements for working with human subjects.

Individual Interviews (Research Question 1)

What are the levels of knowledge, awareness, and utilization among African immigrant mothers regarding HPV vaccination and cervical cancer screening?

To explore African immigrant mothers' levels of knowledge, awareness, and utilization of HPV vaccination and cervical cancer screening, as well as the factors influencing their decision-making, semi-structured interviews were conducted with thirty-one (31) African-born immigrant mothers. These participants were purposively and snowball sampled based on the following eligibility criteria: aged 21–65 years, residing in Washington State, having at least one child aged 9-17, and able to read and speak basic English. Each participant was interviewed individually using a semi-structured interview guide designed to elicit in-depth responses about personal experiences and beliefs. Interviews lasted approximately 45 to 60 minutes and were conducted via Zoom. Participants selected a quiet, private location for their sessions and could turn off their cameras and use pseudonyms to maintain anonymity. All interviews were audio-recorded with participant consent and transcribed through Zoom for analysis.

Focus Group Discussions (Research Question 2)

What intervention strategies can effectively improve cervical cancer screening rates among African immigrant mothers and increase HPV vaccination uptake among their children?

To identify effective intervention strategies for improving cervical cancer screening and HPV vaccination uptake, two focus group discussions were conducted with African-born immigrant mothers meeting the same eligibility criteria as the individual interview participants. Each group consisted of 9 participants, and sessions lasted 45-60 minutes.

The discussions were moderated using a semi-structured guide and conducted via Zoom. Participants were advised to use pseudonyms, and cameras could be turned off for privacy. The sessions were audio-recorded with permission and subsequently transcribed. These group discussions facilitated a collective exploration of shared barriers, motivations, and culturally appropriate intervention strategies.

Key Informant Interviews (Research Question 3)

What are the perspectives of key informants regarding the social determinants affecting HPV vaccination and cervical cancer screening?

To gain insight into the broader social determinants and policy issues influencing HPV vaccination and cervical cancer screening among African immigrant populations, seven (7) key informants were purposively selected and interviewed. Key informants included representatives from African community-based non-profits and institutions in Washington State that provide cervical cancer prevention services and help formulate and implement related policies and strategies. Each key informant participated in a one-on-one Zoom interview lasting 45 to 60 minutes. A semi-structured interview guide was used to ensure consistency across interviews while allowing flexibility to probe into specific areas of expertise. All interviews were audio-recorded with informed consent and transcribed for analysis.

Consent and Confidentiality Procedures

All participants received informed consent forms via email or text. The researcher reviewed consent information verbally before each session and confirmed consent again at the beginning of each recording. Verbal or written consent was obtained and securely documented. Participation was entirely voluntary, and participants were free to decline or skip any question or withdraw from the study at any time without penalty.

To protect participant privacy, no personally identifiable information, such as names or dates of birth, was collected. Interview and focus group data were stored securely on password-protected cloud storage and encrypted external drives. In accordance with institutional guidelines, all data will be retained for five years before permanent deletion. Although the study posed minimal risk, participants were informed that discussing personal health decisions might cause discomfort. To mitigate this, they were assured of their right to skip any questions or discontinue participation at any point.

By following these procedures, the study upheld ethical standards, ensured participant comfort and confidentiality, and gathered rich qualitative data aligned with its objectives.

Data Analysis

The qualitative data collected from individual interviews, focus group discussions, and key informant interviews were analyzed using a thematic analysis approach, which is well-suited for identifying, analyzing, and reporting patterns (themes) within qualitative data. This method enabled the researcher to interpret the meanings, experiences, and perspectives of African immigrant mothers and key informants in the context of HPV vaccination and cervical cancer screening.

Transcription and Data Organization

The Zoom app transcribed all Zoom-recorded interviews and focus group sessions, and the researcher made corrections to ensure accuracy and familiarity with the data. Transcripts were reviewed and cross-checked against audio recordings to ensure completeness and accuracy. Each participant was assigned a unique pseudonym to maintain confidentiality. Transcripts were then imported into a qualitative data analysis software program (NVivo) for systematic coding and organization.

Coding Process

Thematic analysis followed the six phases outlined by Braun and Clarke (2006):

Familiarization with the Data: The researcher read and re-read the transcripts to gain a deep understanding of the content and context of participants' responses.

Generating Initial Codes: Initial coding was conducted line-by-line, identifying meaningful phrases, sentences, or expressions that are related to the research questions. Codes were applied inductively from the data, guided by the conceptual frameworks of the Health Belief Model and the Social-Ecological Model.

Searching for Themes: Coded data segments were grouped into categories and examined for recurring patterns. Emerging themes were developed from code clusters that reflected commonalities in participants' experiences and perceptions.

Reviewing Themes: Themes were refined through comparison across transcripts and research questions. The researcher ensured that each theme accurately captured the data and contributed to answering the research questions.

Defining and Naming Themes: Final themes were clearly defined and named to represent the underlying ideas expressed by the participants. Each theme included supporting quotes that illustrated the key findings and nuances within the data.

Producing the Report: A comprehensive narrative was developed for each research question, integrating thematic findings with direct participant quotes. Themes were interpreted in light of existing literature and public health frameworks to enhance their relevance and applicability.

Data Triangulation

Triangulation was achieved by analyzing data from three distinct sources: (1) semi-structured interviews with African immigrant mothers, (2) focus group discussions, and (3) key informant interviews. This multi-source approach enhanced the credibility and depth of the findings, allowing for cross-validation of themes and a more holistic understanding of the factors influencing HPV vaccination and cervical cancer screening among African immigrant communities in Washington State.

Emerging Themes

A total of twenty-five (25) key themes emerged from the analysis of participants' responses across individual interviews, focus group discussions, and key informant interviews. Table 3 below presents the research questions that guided the study, along with the major themes that emerged from the qualitative analysis. The themes were identified through a systematic coding process and reflect participants' experiences, beliefs, and perceptions related to HPV vaccination and cervical cancer screening. Each set of themes corresponds to one of the three research questions, illustrating how individual, cultural, and structural factors collectively shape knowledge, awareness, utilization, and potential interventions within the African immigrant community.

Table 3: The Research Questions and the themes identified

Research Questions	**Themes**
What are the levels of knowledge, awareness, and utilization among African immigrant mothers regarding HPV vaccination and cervical cancer screening?	• Limited Knowledge and Misconceptions about HPV and Cervical Cancer • Cultural and Religious Beliefs • Misinformation and Stigma • Trust in Healthcare Providers and Systems • Perceived Risk and Benefits • Family and Community Influence

	• Health Literacy, Education, and Acculturation • Access to Accurate Health Information • Self-Efficacy and Confidence
What intervention strategies can effectively improve cervical cancer screening rates among African immigrant mothers and increase HPV vaccination uptake among their children?	• Community-Based and Faith-Led Health Education • Faith- and Culture-Informed Messaging • Peer Advocacy and Storytelling • Collaboration with Community Leaders • Mobile Clinics and Female-Led Outreach Services • Culturally and Linguistically Appropriate Materials • HPV Self-Sampling and Home-Based Screening • Trusted Healthcare Providers as Catalysts for Action
What are the perspectives of key informants regarding the social determinants affecting HPV vaccination and cervical cancer screening?	• Economic Stability • Education Access and Quality • Health Care Access and Quality • Neighborhood and Built Environment • Social and Community Context • Cultural Taboos and Gender Norms • Community Partnerships and Multi-Sectoral Collaboration • Policy Barriers and Recommendations

These themes reflect the complex and multi-layered factors that shape African immigrant mothers' knowledge, awareness, and decision-making regarding HPV vaccination and cervical cancer screening, as well as broader systemic and structural influences on health service access and utilization.

Figure 3 below presents the conceptual framework guiding this study, illustrating the multi-level factors that influence HPV vaccination and cervical cancer screening behaviors among African immigrant mothers. The framework integrates constructs from the Health Belief

Model (HBM) and the Social-Ecological Model (SEM) to capture the dynamic interplay between individual cognition, interpersonal influences, and broader structural conditions.

At the base of the framework are individual cognitive factors derived from the HBM—perceived susceptibility, perceived severity, and perceived benefits/barriers, which directly shape women's motivation to engage in preventive health behaviors. These perceptions, however, are mediated by interpersonal and cultural factors, such as family decision-making, religious beliefs, community norms, acculturation, and trust in healthcare providers. These interpersonal dynamics serve as both facilitators and barriers, shaping women's interpretations of risk and their willingness to act.

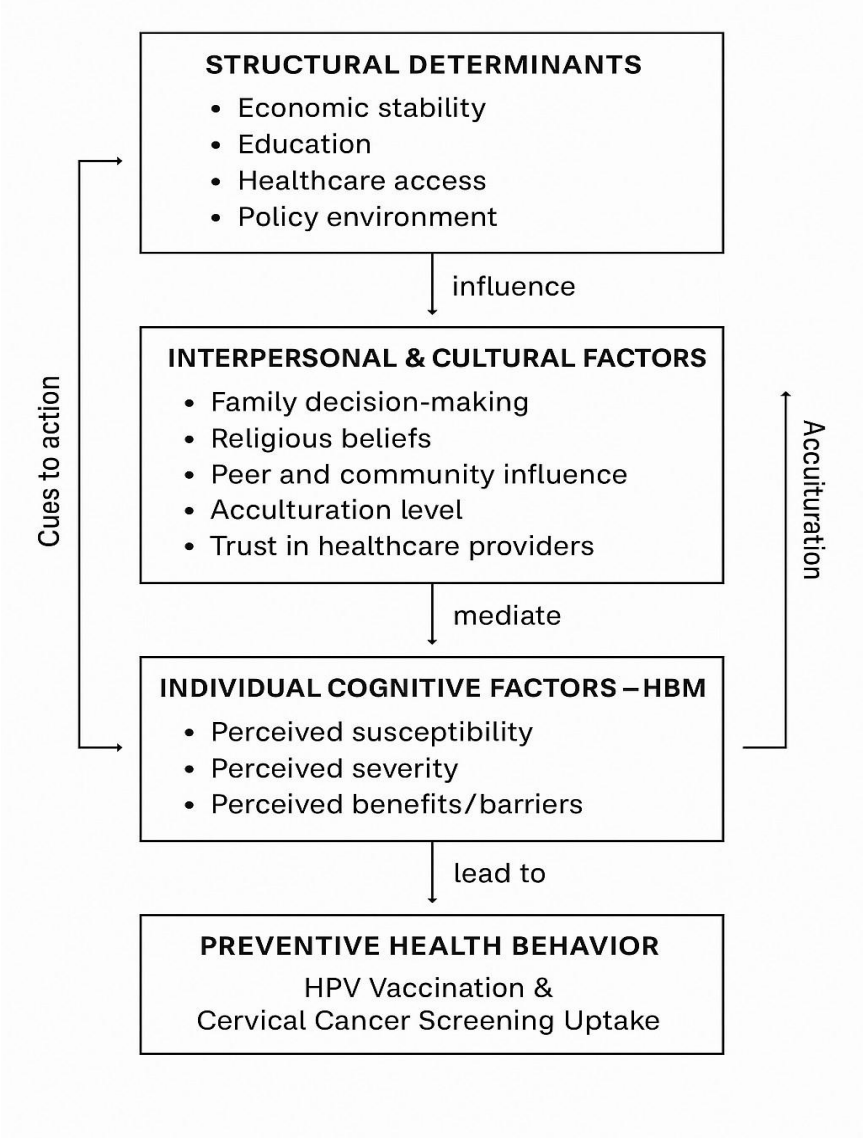
Above these layers, structural determinants, including economic stability, education, healthcare access, and policy environment, exert a powerful influence on both individual and interpersonal factors. These determinants define the social and institutional context in which health decisions are made, often shaping the availability of information, services, and supportive environments for prevention.

The framework also recognizes acculturation and cues to action as cross-cutting influences. Acculturation affects how immigrant mothers navigate healthcare systems and interpret preventive messages, while cues to action, such as provider recommendations or community outreach, activate decision-making processes that can lead to behavior change.

Ultimately, the interaction of these factors leads to preventive health behaviors, specifically HPV vaccination and increased uptake of cervical cancer screening. The model emphasizes that improving these outcomes requires multi-level interventions that address cognitive, cultural, and systemic barriers simultaneously.

This conceptual framework reflects the 25 emergent themes identified in the qualitative analysis, illustrating how individual beliefs, community contexts, and structural inequities converge to shape African immigrant mothers' engagement with cervical cancer prevention in Washington State.

Figure 3: Conceptual Framework Integrating the Health Belief Model (HBM) and Social-Ecological Model (SEM)



Source: Adapted from The Health Belief Model and Preventive Health Behavior (Rosenstock, 1974) and An Ecological Perspective on Health Promotion Programs (McLeroy et al., 1988).

The themes were further organized into five overarching domains that align with the study's conceptual frameworks, that is, the Health Belief Model (HBM) and the Social-Ecological Model (SEM). Table 4 below presents the research questions and emergent themes organized within these conceptual domains, illustrating how the HBM and SEM collectively illuminate the complex, multi-level nature of participants' experiences and perspectives.

Table 4: Research Questions and Emergent Themes Organized by Conceptual Domains

Conceptual Domains (Aligned with HBM & SEM)	Integrated and Refined Themes
I. Individual-Level Knowledge and Beliefs (HBM Constructs: Perceived Susceptibility, Severity, Benefits, Barriers)	• Knowledge and Awareness of HPV and Cervical Cancer: Participants' understanding of HPV transmission, risk factors, and the role of vaccination and screening. • Perceived Risk and Benefits: Mothers' perceptions of personal or child susceptibility to HPV and cervical cancer, and the perceived benefits or limitations of preventive care. • Misinformation and Stigma: Prevalence of myths, fears, and cultural taboos surrounding sexual health, vaccination, and cancer screening. • Cultural and Religious Beliefs: Influence of faith traditions and cultural values on health-seeking behavior, modesty norms, and perceptions of illness.

II. Interpersonal and Community Influences (SEM Levels: Interpersonal & Community)	• Family and Community Influence: The impact of spouses, peers, and community elders in shaping vaccination and screening decisions. • Trust in Healthcare Providers and Systems: Levels of trust or mistrust in healthcare professionals and institutions are shaped by past experiences, discrimination, or perceived insensitivity. • Social and Community Context: Influence of community norms, collective experiences, and social support networks in encouraging or discouraging preventive health behaviors.
III. Health Communication and Education (HBM Cue to Action; SEM: Community & Organizational Levels)	• Access to Accurate Health Information: Barriers to reliable, understandable, and culturally appropriate health education materials. • Community-Based Health Education: Grassroots, neighborhood-level education initiatives are viewed as most effective for African immigrant audiences. • Faith- and Culture-Informed Messaging: Tailoring messages to align with religious and cultural values increased trust and relevance. • Peer Advocacy and Storytelling: Learning from trusted community members who share personal experiences motivated others to act.

	• Collaboration with Community Leaders: Involving pastors, imams, elders, and ethnic association leaders increased credibility and participation in outreach efforts.
IV. Structural and Systemic Factors (SEM: Institutional Level)	• Culturally and Linguistically Appropriate Materials: The need for translated, relatable, and culturally sensitive materials that address language and literacy gaps. • HPV Self-Sampling as a Strategy: A privacy-enhancing option that increased women's sense of control and willingness to screen. • Mobile Clinics and Outreach Services: Bringing health services to communities improved convenience, trust, and participation, especially among uninsured or newly arrived immigrants.
V. Social Determinants of Health (SEM: Policy and Societal Levels)	• Economic Stability: Employment insecurity, low income, and housing instability limited preventive care priorities. • Education Access and Quality: Low literacy and limited access to health education restricted understanding of prevention services. • Health Care Access and Quality: Challenges with insurance, provider availability, and lack of

	culturally competent care reduced engagement. • Neighborhood and Built Environment: Transportation barriers, unsafe neighborhoods, and distant clinics influenced access and utilization.

Together, these 25 themes illustrate the intersecting individual, social, and structural factors shaping African immigrant mothers' engagement with HPV vaccination and cervical cancer screening in Washington State. They highlight actionable opportunities for interventions, from personal knowledge-building to systemic policy reform. Table 5 provides a more detailed mapping of the themes, including their corresponding categories, initial codes, participant identifiers, and illustrative excerpts. This table demonstrates how themes were derived through systematic coding and highlights the lived experiences and narratives that give depth and authenticity to the findings. Together, these tables show the dynamic interplay between knowledge, culture, community context, and systemic factors in shaping preventive health behaviors within the African immigrant population in Washington State.

Table 5: Themes, Categories, Initial Codes, Participants, and Illustrative Excerpts

Themes	Categories	Initial Codes	Participants	Illustrative Excerpts
Limited Knowledge and Misconceptions about HPV and Cervical Cancer	Awareness and understanding	Confusion between HPV and HIV; Limited knowledge of screening; Lack of awareness about HPV linking to cancer	P01, P03, P07, P12	"I only heard about HPV from a flyer at my child's school." (P01); "Back home, we do not screen unless we are sick." (P12)
Cultural and Religious Beliefs	Role of culture and religion	Religious opposition; Sexual health taboo;	P02, P06, P10, P15	"In our culture, you only discuss such things when someone is ill."

		Modesty and morality concerns		(P06); "My church doesn't encourage this vaccine." (P15)
Misinformation and Stigma	Myths and fears	HPV causes infertility; Screening is painful; Vaccine promotes promiscuity	P03, P09, P14	"They say if you take the vaccine, you become barren." (P09)
Trust in Healthcare Providers and Systems	Experience with medical professionals	Disrespectful treatment; Lack of cultural sensitivity; Gender preference for providers	P04, P08, P13	"They didn't explain anything, just said to do it." (P04); "I'm not comfortable with male doctors." (P13)
Perceived Risk and Benefits	Beliefs about vulnerability and benefits	Children not at risk; Early vaccination unnecessary; Fear of side effects	P01, P07, P11	"Why vaccinate now when she's not even sexually active?" (P07)
Family and Community Influence	Social influence on health decisions	Spousal decision-making; Advice from friends; Community norms	P02, P05, P14	"My husband said no because we don't know enough." (P05); "Everyone around me hasn't done it." (P14)
Health Literacy, Education, and Acculturation	Language and understanding	Limited reading ability; Difficulty understanding medical information; Adjustment to U.S. healthcare	P05, P06, P10	"I don't understand medical words." (P10)
Access to Accurate Health Information	Information availability	Lack of translated materials; No local outreach; Reliance on social media	P06, P10, P15	"I want something in my language, not just English." (P06)
Self-Efficacy and Confidence	Ability to navigate healthcare systems	Fear of clinics; Difficulty scheduling appointments; Gaining confidence after support	P03, P09, P15	"It was hard at first, but I'm glad I did it." (P15)

Community-Based and Faith-Led Health Education	Local and faith-driven outreach	Church/mosque sessions; Community workshops; Group learning	P04, P09, P12	"If someone came to our mosque or church, we'd attend." (P12)
Faith- and Culture-Informed Messaging	Contextualized communication	Religious framing; Leader involvement; Health messages grounded in faith	P03, P07, P14	"When the pastor talks about health, people listen." (P14)
Peer Advocacy and Storytelling	Learning from others' experiences	Testimonies; Mother-to-mother sharing; Peer trust	P05, P10, P17	"I followed her example because she's like me." (P10)
Collaboration with Community Leaders	Partnerships and influence	Engagement with elders, pastors, and local associations	P06, P11, P18	"When the elder says it's safe, we believe it." (P11)
Mobile Clinics and Female-Led Outreach Services	Accessible care models	Distance barriers; Female providers preferred; Local service delivery	P01, P08, P14	"A van coming to the community would help a lot." (P08)
Culturally and Linguistically Appropriate Materials	Tailored health education	Multilingual and visual content; Clear explanations	P02, P06, P15	"If you show it in pictures and speak our language, we will get it." (P02)
HPV Self-Sampling and Home-Based Screening	Alternative screening strategies	Privacy; Reduced embarrassment; Empowerment	P03, P07, P13	"If I can do it at home, I would feel safer." (P07)
Trusted Healthcare Providers as Catalysts for Action	Provider influence on participation	Doctor recommendation; Trust-based decision-making	P08, P10, KI01	"I agreed to do it because my doctor explained everything clearly." (P08)
Economic Stability	Financial limitations	Low income; No insurance; Prioritizing other needs	P01, P04, P09	"We have to pay rent first, not for vaccines." (P01)
Education Access and Quality	Barriers to learning	Limited education; Low literacy; Poor comprehension	P05, P06, P10	"I didn't go to school much, so I depend on others to explain." (P06)
Health Care Access and Quality	System-level constraints	Long wait times; No interpreters; Unavailable female providers	P02, P08, P12	"No one was there to translate. I waited for hours." (P02)

Neighborhood and Built Environment	Local infrastructure and safety	Unsafe areas; Lack of transportation; Distant clinics	P06, P09, P13	"It takes two buses to reach the clinic." (P09)
Social and Community Context	Community norms and social capital	Fear of judgment; Collective values; Discrimination experiences	P08, P11, P14	"People talk, so I keep it private." (P11)
Cultural Taboos and Gender Norms	Sensitive topics and power dynamics	Discomfort discussing sexual health; Male authority in decisions	P06, P12, P14	"Women don't bring up these things in front of men." (P12)
Community Partnerships and Multi-Sectoral Collaboration	Interorganizational cooperation	Faith institutions; NGOs; Public health agencies	KI02, KI05, KI06	"We need government and community to work together." (KI02)
Policy Barriers and Recommendations	Systemic and institutional inequities	Immigration challenges; Lack of affordable insurance; Policy advocacy	KI01, KI03, KI04	"Some women can't access care because of their papers." (KI03)

Description of the results

All qualitative interview questions in this study were developed based on the constructs of the Health Belief Model (HBM) and the Social Ecological Model (SEM)—two conceptual frameworks that guided the exploration of health behaviors related to HPV vaccination and cervical cancer screening among African immigrant mothers. The use of these frameworks provided a structured approach to understanding the multilevel influences shaping participants' knowledge, attitudes, and decisions regarding preventive care. These frameworks are also reflected in the organization and presentation of the final study results.

Results for Research Question 1

What are the levels of knowledge, awareness, and utilization among African immigrant mothers regarding HPV vaccination and cervical cancer screening?

Study Participant Description

The demographic data for the 31 African immigrant mothers in the study offer valuable insights into how various personal, educational, and cultural factors may influence knowledge, awareness, and utilization of HPV vaccination and cervical cancer screening**.** The table below displays the demographic characteristics of the study participants. Table 6 below presents the demographic characteristics of the 31 African immigrant mothers who participated in the study. These data provide important contextual information for understanding the social and cultural diversity within the sample and how individual backgrounds may shape health behaviors and decision-making. The variables include participants' length of stay in the United States, highest level of education, religion, country of birth, age, and relationship status. Examining these demographic factors helps illuminate how migration experiences, educational attainment, cultural identity, and family dynamics intersect to influence mothers' knowledge, awareness, and utilization of HPV vaccination and cervical cancer screening services.

Table 6: Study Participant Demographics (N = 31)

S/N	Length of stay in the US (yrs)	Highest level of education	Religion	Country of Birth	Age	Relationship status
P01	15	Bachelor's degree	Christian	Kenya	30–39	Married
P02	12	Bachelor's degree	Christian	Kenya	30–39	Married
P03	10	Bachelor's degree	Christian	Kenya	21–29	Married
P04	6	Associate degree	Christian	Uganda	30–39	Married
P05	3	PhD	Christian	Cameroon	40–49	Married
P06	11	Bachelor's degree	Christian	Uganda	30–39	Married

P07	14	Bachelor's degree	Christian	Rwanda	30–39	Married
P08	9	Bachelor's degree	Christian	Cameroon	30–39	Married
P09	12	Bachelor's degree	Christian	Kenya	21–29	Single
P10	20	Bachelor's degree	Christian	Tanzania	30–39	Separated
P11	5	Bachelor's degree	Christian	Kenya	21–29	Single
P12	5	High school	Christian	Kenya	40–49	Married
P13	10	Diploma	Christian	Ethiopia	30–39	Married
P14	5	Master’s degree	Christian	Kenya	30–39	Married
P15	6	High school	Muslim	Tanzania	30–39	Single
P16	10	Bachelor's degree	Christian	Kenya	30–39	Married
P17	15	Bachelor's degree	Christian	Kenya	30–39	Single
P18	19	Bachelor's degree	Christian	Kenya	30–39	Divorced
P19	6	Diploma	Christian	Kenya	30–39	Married
P20	15	Bachelor's degree	Christian	Kenya	21–29	Married
P21	11	High school	Christian	Zambia	30–39	Married
P22	10	Diploma	Christian	South Sudan	30–39	Married
P23	9	Bachelor's degree	Christian	Rwanda	30–39	Married
P24	20	Bachelor's degree	Christian	Uganda	40–49	Married
P25	3	Bachelor's degree	Christian	Kenya	30–39	Married
P26	5	Diploma	Muslim	Tanzania	30–39	Married
P27	5	Bachelor's degree	Christian	Kenya	30–39	Married
P28	9	High school	Muslim	Zambia	40–49	Married
P29	10	Bachelor's degree	Christian	Kenya	30–39	Married
P30	18	Bachelor's degree	Christian	Ethiopia	40–49	Married

P31	8	Bachelor's degree	Christian	Sudan	30–39	Married

Key Demographic Patterns

Length of Stay in the United States

Participants' length of stay in the U.S. ranged from 3 to 20 years, with most residing for 5 to 15 years. A longer stay generally corresponds to greater acculturation, improved language skills, and greater familiarity with the healthcare system. Those in the U.S. who have been here for 5 to 15 years have typically gained some access to healthcare, including health insurance and regular providers, and have developed either trust or skepticism based on their personal experiences. They also showed mixed attitudes toward Western preventive care. In the words of one participant:

> Even permanent residents feel threatened right now. So, imagine how someone who is not a citizen might feel. Acculturation, or how much you've integrated into the culture, also plays a role. If you've been here a long time and are more familiar with the healthcare system, you're more likely to accept practices like HPV vaccination. But if you're new and have lived through difficult circumstances back home, it's harder to trust a system you don't fully understand.

In contrast, participants who had been in the U.S. for less than five years stated that they often struggled to navigate the healthcare system, faced language barriers, and lacked awareness or understanding of services such as HPV vaccination and cervical cancer screening. These mothers reported relying more on community networks for support. As highlighted by a participant:

> Well, for those of us who are just arriving or have recently settled here, the idea of things like cervical cancer screening seems foreign. I have never been exposed to it before, so I might have some reservations or resistance. I think there's a generational aspect to it, too. …… As a new immigrant, there is so much information for me to consume, and sometimes I am misinformed about how to navigate the healthcare system. I hear all sorts of things, and it's hard to get clear information.

Participants who had lived in the U.S. for more than 10 years were generally more familiar with American culture and the healthcare system. They said it was easier for them to find healthcare services and make their own health decisions. Over time, they learned to blend U.S. health practices with their own cultural values, creating a comfortable balance between the two worlds. They also adopted new healthcare habits they had not followed before and became more aware of their rights as patients. As described by a participant:

> Here in the U.S., things are slowly changing, especially for those of us who have lived here longer and have become more empowered through exposure to government policies and gender equality norms. However, for newer immigrants, it takes time to understand and practice gender equality in all aspects of life. The shift does not happen overnight.

Educational Level of Participants

Of the 31 participants, 20 (approximately 64.5%) reported having a bachelor's degree, while 1 held a master's degree (3.2%) and one a doctoral degree (3.2%). Four participants had completed a diploma (13%), one had an associate degree (3.2%), and four had finished high school (about 13%). While most mothers had higher education, which may suggest a general capacity to comprehend health information when it is culturally appropriate and accessible, this does not necessarily translate into strong health literacy, particularly in the context of U.S. preventive care practices like HPV vaccination. Some participants were skeptical about the healthcare system. The interview revealed that their higher level of education translated into greater initiative in seeking out screening or preventive health services. However, it also led to increased skepticism and a stronger desire for comprehensive information before making health-related decisions. From one participant's perspective:

> Our level of education most often determines some of our actions….. Grandmothers in particular are often a key source of information, and many of them rely on word of mouth. For example, I know of two grandmothers I talk to regularly who ask me a lot of questions. They'll hear something from a friend or family member who went to the doctor, and then they'll show me the photos or documents they received, but they don't

> always understand what they mean. Sometimes, the information is written in a language they can read, but without someone explaining it to them, it doesn't really make sense. Even though many speak English, there's a significant communication barrier, especially for the older generation.

Religious Affiliation of Participants

A significant majority of the study participants (87%) identified as Christians, while the remaining 13% identified as Muslims. This distribution highlights the prominent role religion plays in the lives of many African immigrants. It suggests that faith-based structures could serve as powerful platforms for health education and outreach. Most participants emphasized that their religious leaders are often deeply respected and trusted, serving not only as spiritual guides but also as influential voices in community matters, including health and family well-being.

Given this context, delivering health messages through religious leaders and faith-based institutions could significantly enhance the effectiveness of public health initiatives. Religious leaders can shape attitudes and behaviors by framing health information in ways that align with moral and cultural values. Collaborating with faith communities offers a pathway to reach a broader audience, build trust, and encourage informed health decision-making rooted in both faith and evidence-based practice. From one participant's perspective:

> Religion plays a significant role in our lives as Africans, especially with older generations. But, unfortunately, our religious leaders often shy away from topics like this. In African communities, religious leaders, especially male ones, tend to stay away from discussing women's health. They might see it as something that's "not their business," and they often avoid tackling topics that are perceived as embarrassing or awkward.

Country of Birth of Participants

Almost half of the study participants (approximately 48.4%, or 15 individuals) identified as Kenyans, making them the predominant group within the sample. This demographic concentration may shape the findings in ways that reflect Kenyan-specific cultural norms, health

behaviors, and community dynamics. As a result, the overall insights may be more representative of Kenyan immigrant experiences than those from other African nationalities.

Moreover, the interviews revealed that cultural beliefs related to cervical cancer and HPV were common among participants, even among those from different African countries. These beliefs may continue to influence attitudes and behaviors even after extended periods of residence in the United States. Such beliefs often stem from deeply rooted cultural stigmas and norms that persist across borders and over time, shaping how individuals engage with preventive health services despite increased exposure to Western healthcare systems.

Age of Participants

The majority of participants (22 individuals, approximately 71%) were between the ages of 30 and 39. Four participants were aged 21 to 29, while five were aged 40 to 49. The predominance of mothers in the 30–39 age group suggests that many are in the midst of active parenting, with children likely falling within the study's focus age range of 9 to 17 years. As primary caregivers, these mothers play a critical role in shaping health-related decisions for their children, including those concerning HPV vaccination. Their own awareness, experiences with cervical cancer screening, and comfort discussing topics related to sexual and reproductive health may significantly influence whether and how they engage their children in preventive care and health education. A participant recounted that:

> Younger people who were brought here as children might be more open to the idea because they've grown up in a culture where preventive care is normalized. But for us older generations, it's not as ingrained, and we're less likely to understand the importance of cervical cancer screenings like that.

Most participants are young, which could influence their sources of health information. Many of them relied on social media for their health information. One participant reflected that:

> For the younger generation, I think we're turning to social media and Google for our

> health information. But even then, it's often when we're in distress that we start searching for answers or asking questions. If there's no immediate health scare, we might not bother looking for health information…..The culture of preventive care just isn't common in this community—we tend to wait until we're really sick before seeking care.

Relationship Status of Participants

A substantial proportion of participants (25 individuals, or 81%) reported being married, suggesting that spousal input and family dynamics may significantly influence health-related decision-making, including choices about HPV vaccination and cervical cancer screening. As reported by one respondent:

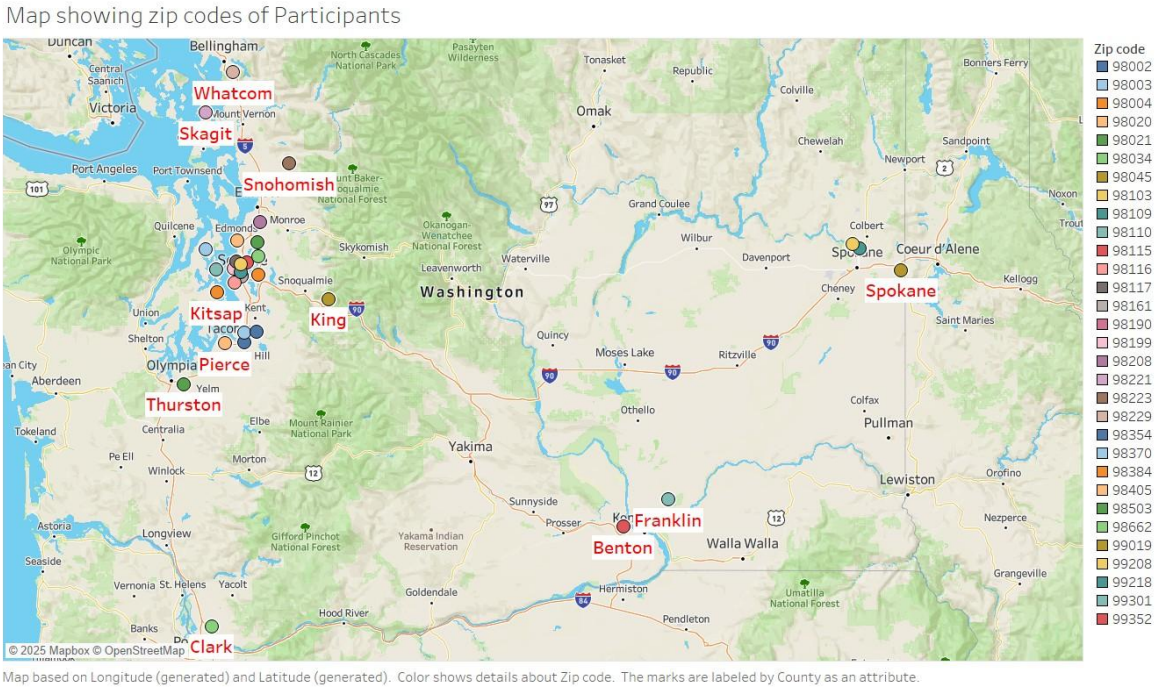
> Among our community, especially new immigrants, traditional gender roles still dominate. Back home, men are often given priority in decision-making, and their opinions are more accepted and respected, even when the health issue primarily affects women. Many women cannot make decisions alone, even for something as simple as an annual check-up; they often need to consult their husbands first.

In contrast, the small number of participants who identified as single (4), separated (1), or divorced (1) may experience either increased autonomy in making health decisions or, alternatively, face additional challenges. These challenges could include financial constraints, limited access to childcare, or transportation difficulties, all of which may hinder their ability to engage with preventive health services. As highlighted by a participant:

> When it comes to decisions about vaccination, we (mothers) usually hold the decision-making power. We're the ones who manage the children's health, we're the ones who take them to appointments, and we're the ones who remind everyone when it's time for vaccinations. But when it comes to cervical cancer screening, it's a bit different. We get a lot of pushback, especially from our male partners. If a woman suggests going for screening and the man doesn't see any reason for it, they might discourage it, asking, "Why go? You're not sick." Gender dynamics play a huge role here. In most households, it's the woman who has control over healthcare decisions for her children, but in relationships where the man has more control, it's harder to get approval for services that he doesn't understand the importance of.

Figure 4 below presents the geographic distribution of study participants across Washington State, organized by ZIP code and county. The map shows a clear concentration of participants within the Seattle metropolitan area, particularly in King County, followed by neighboring counties such as Snohomish, Pierce, and Kitsap.

Figure 4: The geographic distribution of participants by ZIP code and county across Washington State



Geographic Distribution of Study Participants within Washington State

The geographic distribution of participants in this study shows a notable concentration in the Seattle metropolitan area, particularly in King County, which had the highest participant density. Neighboring counties, including Snohomish, Pierce, and Kitsap, also contributed a substantial number of participants. These urban and suburban counties in Western Washington are characterized by greater access to healthcare infrastructure, more frequent public health outreach, and culturally tailored services that may support African immigrant communities.

The predominance of participants from King County and other urban centers suggests that this study's findings may primarily reflect the experiences of African immigrant mothers living in urbanized settings. This urban-centric sample may underrepresent the lived experiences and healthcare access challenges faced by African immigrant mothers in more rural or underserved areas of Washington State, such as those in Central and Eastern counties like Spokane, Benton, and Franklin. These regions often face resource limitations, including fewer healthcare facilities, limited transportation options, and a lack of culturally appropriate health communication, all of which may hinder awareness and uptake of preventive services.

Counties such as Whatcom, Skagit, Thurston, and Clark had fewer participants, but are still part of the more accessible areas of Washington State.

Knowledge about HPV and Cervical Cancer

A total of 26 participants, representing 83.9 percent, reported having heard about Human Papillomavirus (HPV). This indicates that most of the participants have at least some level of awareness about HPV as a health concern, although a small portion remain unfamiliar with the term. Most participants have heard of HPV, which provides a good starting point for education and outreach. However, hearing about HPV does not necessarily translate to understanding its health risks, prevention, or transmission. Stakeholders have to build on this existing awareness with culturally appropriate education sessions that explain what HPV is, how it is transmitted, and why prevention matters.

Twenty-three (23) participants, representing 74.2 percent, were aware that HPV is linked to cervical cancer. This suggests that while general awareness of HPV is relatively high, there is a slight gap in understanding the connection between HPV and its role in causing cervical

cancer. This knowledge gap may have implications for decision-making regarding preventive measures like HPV vaccination and cervical cancer screening. A participant stated that:

> When it comes to cervical cancer screening, I have some knowledge, but it's mostly related to pregnancy. When I was pregnant here in the U.S., I was offered cervical cancer screening at some point, so other women might be familiar with it from those experiences. However, as we get older and aren't pregnant anymore, we don't get any information about it again. There's a real lack of awareness. In fact, that's what happened with the story I mentioned earlier—the old woman who eventually died from cervical cancer. There's just not enough information or dialogue about screening, especially as we get older.

Additionally, 25 (80.6%) participants mentioned they had heard about cervical cancer screening, specifically referring to either the Pap smear or the HPV test. This high level of awareness reflects a promising foundation for health promotion efforts. However, actual utilization and comprehension of screening guidelines were not detailed in this summary and may warrant further exploration. A participant stated that:

> I first heard about cervical cancer from friends and online platforms. Before I experienced it myself, I used to hear people say that women should get a Pap smear starting in their twenties……. Most African women in Washington State are at risk of getting cervical cancer because many don't take it seriously. They tend to avoid the screenings and procedures. A lot of people don't realize they have HPV because it doesn't show symptoms. So, they ignore it until it causes bigger issues, like cervical cancer. By then, it's harder to manage, and complications start to arise.

Sources of Information about HPV and Cervical Cancer

Participants in this study reported acquiring information about HPV and cervical cancer through a diverse range of formal and informal sources, reflecting the multifaceted nature of health communication within immigrant communities. These sources not only shaped their awareness but also influenced their perceptions, attitudes, and decisions regarding preventive health behaviors.

Personal Networks

Informal conversations with family members, friends, and colleagues emerged as a significant source of information. Several participants (90%) emphasized that peer-to-peer communication was particularly influential, especially when navigating sensitive topics such as sexual health, cervical cancer, and HPV vaccination. For many women, discussions within trusted social circles felt safer and more relatable than formal health consultations. A participant stated that:

> Most often, I discuss and seek my health advice from my husband or friends. I have heard several issues about cervical cancer from friends, especially when we meet as 'girls' 'girls'. We talk a lot about these issues. They have said so many things about it.

Online Sources, Books, and Flyers

Digital media platforms, particularly social media applications like Instagram, Facebook, X, TikTok, and WhatsApp, were mainly cited as initial sources of exposure to HPV-related content. Participants also described using search engines such as Google to validate or further explore information they had heard elsewhere. One participant shared that:

> For me, I am always on social media. I hear so many stories about cervical cancer. Some are very interesting, and others are confusing. People say so many negative things about the HPV vaccine.

Additionally, printed materials such as books, brochures, flyers, and posters, often found in clinics or community health centers, were acknowledged as useful tools for increasing awareness. While these sources helped some participants understand the basics of HPV and cervical cancer, others expressed difficulty interpreting the information due to language or health literacy barriers, reinforcing the need for simplified, culturally and linguistically accessible materials. According to a participant:

> As I mentioned, I'm an educator and a university graduate. You know, you come across a lot of articles and educated people. I would say I learned about HPV and cervical

> cancer online through an article I read. Also, my fellow women and I talk about these things when we meet, things that are trending or related to our health.

Healthcare System and Educational Settings

Formal healthcare encounters played an important role in disseminating health information. Some participants mentioned learning about HPV and cervical cancer from gynecologists, nurses, and other healthcare providers during clinic visits. Community health clinics and hospitals were also identified as sources, although not all participants reported receiving relevant information during their appointments. One participant shared that despite regular visits to the clinic, the topic of cervical cancer screening had never been discussed, highlighting missed opportunities for preventive education. Additionally, school-based health education and public health seminars were mentioned as valuable learning settings, especially for mothers who received information indirectly through their children's school programs.

Experiential and Intergenerational Learning

First-hand experiences and shared stories within the community contributed significantly to awareness and knowledge-building. Personal testimonies from other women, particularly those who had undergone cervical cancer screening or dealt with cervical health issues, were cited as powerful motivators to seek further information. A participant stated that:

> I think people who have experienced HPV and its effects should use their experiences to educate others. Those who have gone through it and are knowledgeable about the topic could have platforms to share information with the community. It would make a huge difference if survivors and experts could provide accessible resources about the importance of screening, testing, and the Pap smear.

Some participants also described learning about HPV when their daughters asked questions about the HPV vaccine, demonstrating the role of intergenerational dialogue in shaping awareness and initiating preventive conversations. These experiences reveal the importance of

narrative-based approaches and family-centered education in health promotion efforts. A mother stated that:

> Actually, my teenage daughter came back from school and shared some cervical cancer information she heard from school with me. It made me search for more information about it. I went online and asked some other people about it.

The findings show that African immigrant mothers rely on a combination of interpersonal relationships, media, healthcare interactions, and lived experiences to form their understanding of HPV and cervical cancer.

Trusted Sources of Information

Participants highlighted several trusted sources that influence their health beliefs and behaviors:

Healthcare Providers

Study participants mostly viewed doctors, nurses, gynecologists, and other health professionals as credible and trustworthy. Their knowledge is seen as grounded in science, research, and policy. Some stated that their trust in their providers often increased over time with repeated positive interactions. A participant stated that:

> I trust my current doctor because we've built a relationship over time. It's a journey. Trust builds itself, just like when a baby gets used to their nanny over time, I learned to feel safe, knowing they'll care for me. So, before trusting a provider, make sure to do your research. Learn more about how they treat others, especially people of color, Africans like us. That matters a lot.

Family Members with Medical Backgrounds

Study participants mainly described family members or close friends who are health professionals as highly dependable and knowledgeable sources of health information. Participants emphasized that these individuals play a crucial role in guiding health decisions, especially when navigating complex or unfamiliar systems. Because of the existing trust within

familial or social relationships, advice from these individuals is often seen as more credible and easier to understand than that from unfamiliar health professionals. Family-based expertise is not only more accessible but also more persuasive, making it a vital resource in influencing attitudes toward preventive care such as HPV vaccination and cervical cancer screening.

Community and Religious Spaces

Some participants stated that health information shared in community associations, churches, or mosques was widely perceived as credible, especially when delivered by religious leaders. These leaders hold significant moral, spiritual, and social authority, which lends legitimacy to the health information they share. Their involvement makes health messages more culturally acceptable, relatable, and trustworthy, thereby encouraging greater engagement with services such as HPV vaccination and cervical cancer screening.

Community-Based Word-of-Mouth and Peer Testimonials

Participants highlighted the influence of community-based word of mouth and peer-shared experiences on their decisions about HPV vaccination and cervical cancer screening. Personal stories from trusted friends, neighbors, or family members helped reduce fear, build confidence, and make preventive care feel more approachable.

In immigrant and collectivist cultures, such informal communication serves as powerful social proof, often carrying more weight than formal health messages. These firsthand accounts normalize preventive behaviors and help counter stigma, misinformation, and distrust in the healthcare system.

Utilization of HPV Vaccination and Cervical Cancer Services

Only 10 participants (32%) reported ever receiving a Pap smear or HPV test, indicating a gap between awareness and actual health behavior. Only 4 participants (13%) reported that their

children had received at least one dose of the HPV vaccine. This indicates that, although awareness is relatively high, the uptake of preventive measures, particularly among children, remains very low. This may reflect barriers such as misinformation, cultural beliefs, fear, limited provider recommendations, or access challenges. One mother stated that:

> Yeah, so when you're trying to introduce preventative screening, it's like a foreign concept to many of us in this community. The culture of prevention just isn't part of our history. People from our background don't go to the hospital unless something's wrong with us. It's a different mindset. So, when a doctor says, "Hey, we need to do a screening on this part of your body," it feels invasive. It's like, "Why do you need to check me here? I just came in for my physical, and everything else is fine." The idea of preventative care just doesn't sit well with some of us, especially when we've never been asked to do it before, especially as we've gotten older and are no longer having children. There's this cultural disconnect. In our culture, you go to the hospital because you're sick, or maybe to visit someone else, but there isn't a culture of going to the doctor just for the sake of prevention.

Factors that influenced participants to give the HPV vaccine to their children

Influence from Trusted Social Networks

Several participants reported being motivated to consider HPV vaccination by the experiences and advice from individuals they trusted and respected. One participant shared that a colleague's decision to vaccinate her daughter played a pivotal role in influencing her own choice, making the action feel more acceptable and trustworthy. Another participant noted that her sister, a medical doctor, actively encouraged family members to vaccinate their children against the HPV. Her professional background lent credibility to her advice, and the trust built through familial bonds made her guidance especially persuasive and impactful in the decision-making process. According to a participant:

> I got the information about the HPV vaccination from a friend who had already been vaccinated. She explained to me the advantages of being vaccinated, so I decided to go for it as well. She really encouraged me and helped me understand the benefits, so I'd say she influenced my decision.

Recommendation from Healthcare Providers

The role of medical professionals was central in the decision-making process. Some participants consulted their regular healthcare providers, who strongly recommended the HPV vaccine for their children. One participant recalled her doctor explaining that the HPV vaccine would be particularly beneficial for young girls. These recommendations were seen as informed by professional expertise and science and thus were highly persuasive. A participant stated that:

> I was sexually active at the time, and I wasn't sure about my partner's sexual health. Also, I had recurring urinary tract infections (UTIs), which were concerning, so with advice from my provider, I decided to get a general check-up. That's when I decided to get the Pap smear and HPV test and later got vaccinated with the HPV vaccine.

Awareness of Cervical Cancer Risk and Prevention

Understanding the purpose and benefits of the HPV vaccine strongly influenced participants' decisions. Several mothers noted that realizing HPV is the leading cause of cervical cancer made them want to take preventive action for their children. There was a strong belief that the HPV vaccine would help protect their children's health in the future, particularly daughters, by reducing the risk of developing cervical cancer. Some participants were aware that the HPV vaccine is highly recommended for children at an early age, and this awareness reinforced the urgency and importance of the HPV vaccination. According to a participant:

> I thought it was better to be safe than sorry. Since I don't always know what my children are doing when I'm not around, I don't want to take any chances. I didn't want my child to face complications later in life because I ignored something important. So, I decided to get her vaccinated with the HPV vaccine to reduce the risk.

Challenges in Accessing HPV Vaccination and Cervical Cancer Screening Services

Participants shared a wide range of emotional, logistical, cultural, and systemic barriers that affect their ability to access cervical cancer preventive services. These challenges are organized into thematic categories:

Emotional and Psychological Barriers

Fear emerged as a significant theme; fear of the procedure, pain, results, or a potential diagnosis can be paralyzing. Some participants shared that stigma surrounding reproductive health, especially within tight-knit communities, discourages women from seeking services due to fear of gossip or judgment. Others noted that skepticism or mistrust about introducing unfamiliar substances into their bodies also contributed to their hesitation, particularly among those unfamiliar with the HPV vaccine. A participant stated that:

> If someone finds out you have HPV, they might assume you're promiscuous or that your partner is unfaithful. I don't want to live in fear when I cannot be sure of my health through cervical cancer screening, even after being vaccinated.

Knowledge and Information Gaps

The Lack of accurate information or limited awareness about HPV infection, the HPV vaccine, and cervical cancer screening was common. Participants reported not knowing how to initiate conversations with providers or being unclear about what the tests involve. Misconceptions and myths, especially about side effects or fertility issues, added to confusion and hesitation. Parents especially felt unprepared to explain the HPV vaccine to their children or make informed decisions on their behalf. According to a participant:

> My biggest concern is the potential for long-term side effects. I'm just hoping there won't be any negative consequences in the future……. When we went to get the HPV vaccine, I had the chance to ask the doctor a few questions. They reassured me that it's safe and that there's nothing to worry about. Even though I trust what the doctor said, there's always that small percentage of doubt. I never got the HPV vaccine myself before I was diagnosed with HPV, so I'm not really sure what the experience is like. Plus, I don't personally know anyone who has had the vaccine and shared their experience with me. This is the first time I've done it for my kids, so I still have some lingering questions.

Healthcare System Barriers

A lack of encouragement from healthcare providers often led to reduced motivation to seek cervical cancer screening or HPV vaccination. Participants expressed frustration with

complex health insurance procedures, including extensive paperwork, long waiting times, and delays in public medical centers or clinics. One participant shared that the process felt so overwhelming that she considered giving up entirely. According to her:

> Not everyone is tech-savvy. Some people, those who've had the chance to be exposed to technology, can navigate systems and communicate their needs. But the majority of African women, especially Ethiopian mothers and girls, are far removed from technology.

Additionally, the lack of follow-up communication or appointment reminders from hospitals and healthcare facilities significantly contributed to missed opportunities for cervical cancer screening and HPV vaccination. This was particularly challenging for those juggling work, childcare responsibilities, or language barriers, which made it difficult to track or reschedule appointments independently. A participant stated that:

> Health insurance is a big challenge. Many people can't even fill out the insurance documents because they're in English. It's time-consuming and hard to understand, even for us educated mothers……..Sometimes you don't even get calls or reminders when you miss an appointment, so it's easy to forget or give up. So, it's not just about having health insurance, it's about understanding it, filling it out correctly, and getting timely responses. That's very difficult.

Socioeconomic and Immigration-Related Barriers

Cost concerns were widespread. Even when unsure of the actual cost, the assumption that it would be unaffordable, especially without health insurance, led to inaction. Immigration status was cited as a barrier to accessing healthcare, including preventive services. Time constraints due to balancing work, school, and family responsibilities made scheduling appointments difficult. Adjusting to a new healthcare system in a new country was overwhelming; many did not know which hospitals were best or how to navigate them. A participant stated that:

> As an immigrant, I've seen firsthand how many of us wait years before we can regularize our status and qualify for health insurance. During that time, we're completely uninsured. If we don't have a job that offers insurance, we're out of options. I personally know many cases just last weekend, in fact, a community member was seriously ill but

> refused to go to the hospital out of fear of the medical bills. People are so afraid of debt that even when they're very sick, they avoid seeking care. And even when they do go, they often decline tests or procedures just to avoid a hefty bill. The cost of healthcare is so high that it forces people to sacrifice their health to avoid financial ruin.

Cultural and Religious Barriers

According to some participants, in some cultures in Africa, open discussions about reproductive health are strongly discouraged, creating a sense of taboo around topics such as cervical cancer screening and HPV vaccination. This silence contributes to misinformation, fear, and reluctance to seek preventive care. Additionally, certain religious denominations, according to some participants, discourage the use of hospital services altogether, which may include opposition to HPV vaccines and cervical cancer screening. According to a participant:

> Some may not go to the hospital until their condition is critical. Others rely on spiritual or religious solutions instead of medical treatment. For example, many Ethiopian women, especially those of the Orthodox faith, prefer to pray in church rather than go to the doctor……. Culturally, many people believe that since their mothers or grandmothers never had cervical cancer, it's not a real or relevant threat. They question why they should vaccinate their daughters for something they've never seen or experienced.

According to one participant, some women believe that cancer is more spiritual than medical. Because of this belief, many cancer patients are taken to religious houses instead of hospitals, as families seek healing through prayer rather than medical treatment, which can delay early detection and proper care. According to a participant:

> Some believe that illnesses like cancer are punishments from God, so they rely on prayer instead of preventive care. Others don't go for annual screenings or checkups. So, overall, awareness and timely action, especially for cancers like cervical and breast cancer, are very low among African immigrant women, particularly among Ethiopians and Eritreans.

Another challenge identified by participants was the lack of access to female healthcare providers or the inability to choose the provider's gender, an especially important factor for

many women when addressing sensitive reproductive health issues. These cultural and religious influences significantly affect healthcare decisions. According to a participant:

> One important challenge I've encountered is the need for cultural sensitivity in healthcare settings. I remember a vaccine clinic where a Muslim woman declined the vaccine because it was being administered by a male nurse. Her response made it clear to me how religious and cultural practices, like modesty and gender preferences, can strongly influence access to care.

Comfort and Discomfort with Cervical Cancer Screening Procedures

Some participants stated experiencing significant discomfort with cervical cancer screening procedures, which can serve as a significant barrier to participation. Feelings of vulnerability, fear, or embarrassment often prevented some participants from expressing their concerns to healthcare providers. For African immigrant women, cultural norms surrounding privacy, especially with married women, can further intensify this discomfort. As a result, some stated that they avoided cervical cancer screening altogether. This means that if a supportive and nonjudgmental environment is created, it will encourage women to share their feelings and consider screening. According to a participant:

> The cervical cancer screening is uncomfortable. It's not a great experience, honestly. In my case, I had some light bleeding afterward. But I believe it's a good precaution. It helps detect HPV and prevent cervical cancer. So, despite the discomfort, I would do it again. I feel very fulfilled when I know I'm healthy and don't have the virus. It gives me peace of mind, which helps my mental health.

Concerns About Giving Children the HPV Vaccine

Participants shared nuanced, thoughtful concerns about HPV vaccination for their children. These concerns reflected a blend of careful deliberation, protective instincts, and uncertainty.

Health and Safety Concerns

The most frequently raised concern was about potential side effects, both short-term (discomfort, hormonal changes) and long-term (fertility issues, unknown health impacts). Some feared the HPV vaccine might weaken the immune system or introduce cancer-causing agents. A few participants referenced hearing about severe side effects, fueling anxiety. Uncertainty about what is being introduced into the body causes skepticism among those without sufficient medical understanding. Several participants mentioned side effects as a primary concern. According to a participant:

> Well, some people have mentioned discomfort and bleeding. I've also read about possible hormonal changes, but I don't have specific examples—just general concerns. I guess... from my experience, it was okay. But there was some pain after the HPV vaccination……Yeah. And to add on to that, I also noticed some irregularities in my menstrual periods after taking the HPV vaccine.

Knowledge Gaps and Doubts

Several mothers admitted they did not feel informed enough to make a confident decision. Others wanted to better understand the HPV vaccine themselves before administering it to their children, particularly if they had not received it personally. Even after a doctor's recommendation, some still experienced a lingering sense of doubt or had unanswered questions. A few were uncertain about how to explain the HPV vaccine to their children, particularly regarding its link to sexual activity or reproductive health. Lack of information made participants hesitant. One participant stated that:

> One of the biggest misconceptions is that if you're not sexually active, you shouldn't be concerned about cervical cancer. That's a big one. Another misconception I've heard is that boys don't need to get the HPV vaccine because they can't get cervical cancer. There's a real lack of understanding that HPV can cause other types of cancer in both men and women, not just cervical cancer.

A lack of personal connections to individuals who have received the HPV vaccine and shared their positive experiences also contributes to hesitation and concern. One participant wondered why she did not know anyone who had received it, and if that meant something was stopping people from getting it. Hearing testimonials from others who had taken the HPV vaccine would create a sense of relief. According to a participant:

> People who have experienced the HPV vaccine and its effects should use their experiences to educate others... It would make a huge difference if people and experts could share their experiences. We need to be more open about discussing these topics, so others can learn from our experiences.

Beliefs About Timing and Readiness

Many participants expressed the belief that their children were too young to receive the HPV vaccine and wanted to wait until they were older and more capable of understanding the decision. This was tied to a desire for the child to participate in the decision-making process actively.

While not strictly about side effects, concerns about a child's age and whether the HPV vaccine is necessary if they are not yet sexually active also influence decisions. Some participants felt their children were too young or needed to be older with a stronger immune system to handle potential issues. This concerns the timing of the HPV vaccination, rather than the HPV vaccine itself. In the words of one participant:

> They’re still young and haven’t been sexually active. I think maybe when they’re a bit older, I would encourage them to get vaccinated. My concerns are mainly about possible side effects, especially for my daughters. There's also the discomfort after vaccination, and I worry about potential hormonal changes caused by the HPV vaccine.

Cultural and Community Influences

According to some participants, cultural myths or rumors about infertility caused worry. The lack of community role models or testimonies from other parents left study participants

feeling alone in their decision-making. One participant mentioned that not knowing anyone who had vaccinated their child made it harder to feel reassured. According to this participant:

> Some people believe that vaccines, especially the HPV vaccine, are part of a plan by Western countries to make Africans infertile. They see it as a tool of control, not protection. For example, in my community, many say, "Africans are naturally fertile, our mothers gave birth to 10 or 12 children. Why do we need a vaccine that might affect that?

Results for Research Question 2

What intervention strategies can effectively improve cervical cancer screening rates among African immigrant mothers and increase HPV vaccination uptake among their children?

Geographical Distribution of Focus Group Participants Across Washington State

The map below displays the ZIP code locations of focus group participants from across Washington State, showcasing a diverse range of geographic and demographic representation. The largest concentration of participants is in King and Snohomish Counties, indicating high participation from urban and suburban communities such as Seattle, Kent, and Everett.

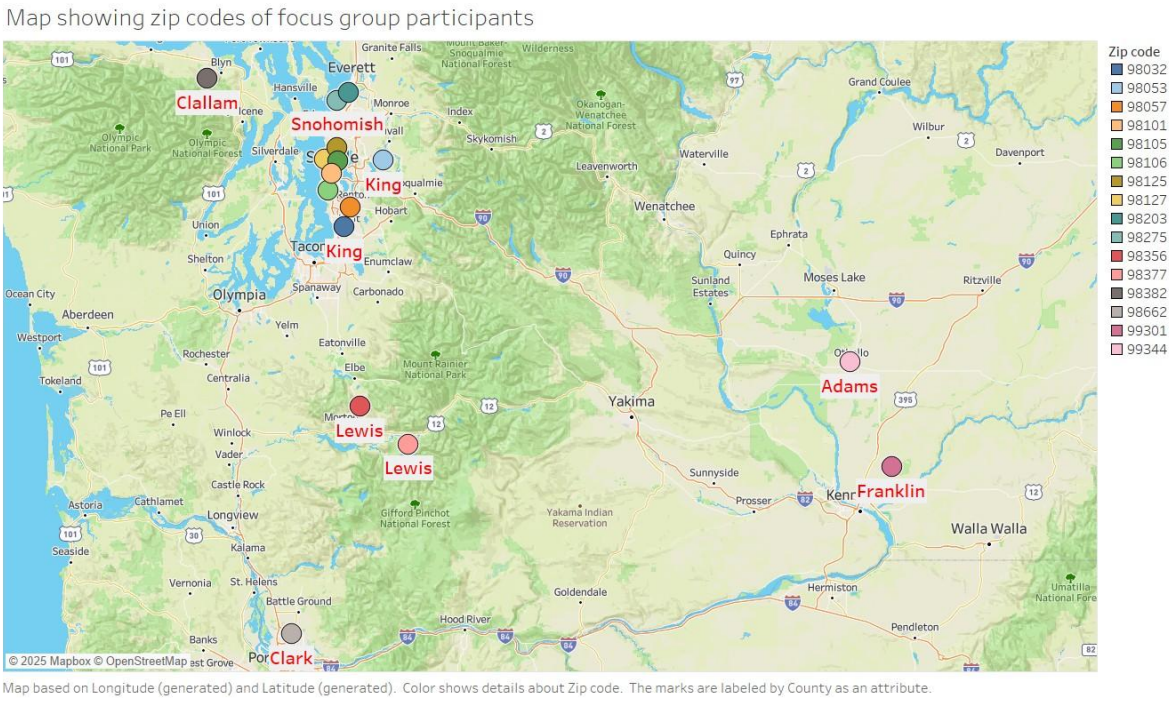
In contrast, individuals from Clallam, Lewis, Adams, and Franklin Counties reflect rural populations with historically limited healthcare access. These areas include significant numbers of immigrant and agricultural workers, highlighting the study's effort to include perspectives from communities often underrepresented in health research.

Additionally, the participation of residents from Southwest Washington (Clark County) and Central/Eastern regions (including Adams and Franklin Counties) reflects an equitable outreach strategy aimed at reaching diverse populations across the state.

Overall, the distribution of participants across urban and rural settings underscores the study's deliberate sampling approach. This inclusive strategy ensures a broad spectrum of experiences is captured, providing valuable insights into how geographic and cultural factors

influence health behaviors related to cervical cancer screening and HPV vaccination. Figure 5 illustrates the geographical distribution of focus group participants across Washington State. The figure highlights both urban and rural representation, reflecting the study's intentional effort to include diverse geographic and cultural contexts. This balanced distribution underscores the deliberate sampling approach used to capture a wide range of perspectives and experiences. By including participants from diverse regions, the study provides richer insights into how place-based factors, such as access to healthcare, community resources, and cultural networks, shape health behaviors related to cervical cancer screening and HPV vaccination.

Figure 5: Geographical Distribution of Focus Group Participants



Key Intervention Strategies

Several intervention strategies were proposed by the study participants to effectively improve cervical cancer screening rates among African immigrant mothers and increase HPV vaccination uptake among their children. These strategies span various domains, including

education, community engagement, healthcare system improvements, and policy reforms. Table 7 below outlines the intervention strategies proposed by study participants to enhance cervical cancer screening rates among African immigrant mothers and increase HPV vaccination uptake among their children. These strategies address barriers at multiple levels: individual, community, healthcare system, and policy, and reflect culturally grounded approaches to promoting preventive health behaviors. The matrix highlights how each strategy targets specific challenges such as stigma, misinformation, cost, and accessibility, while identifying key tools and actors essential for implementation. Collectively, these interventions emphasize the importance of culturally sensitive communication, trusted community engagement, and equitable healthcare delivery in improving participation in cervical cancer prevention services.

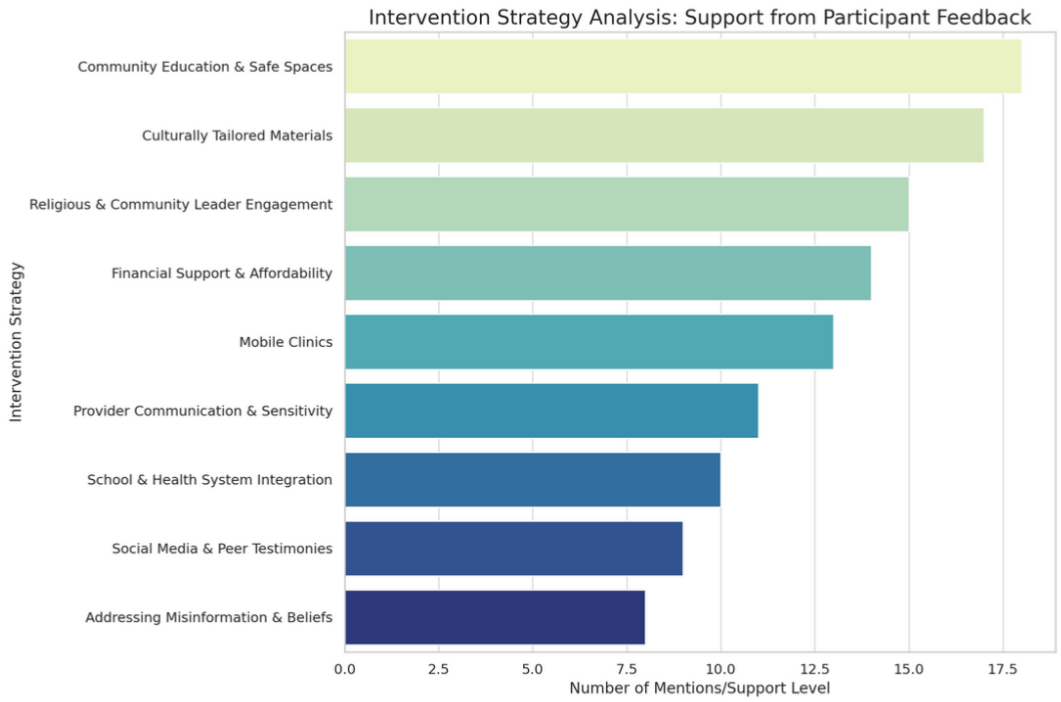
Table 7: Intervention Matrix

Strategy	Barriers Addressed	Tools/Actors
Mobile Clinics	Distance, time, transportation	Health departments, NGOs
School-Based Programs	Convenience, trust, and early education	Teachers, nurses, peer educators
Religious & Community Leader Engagement	Stigma, trust, and cultural resistance	Pastors, Imams, community elders
Culturally Tailored Media	Language, misinformation	Video, brochures, translated content
SMS & Tech-Enabled Reminders	Forgetfulness, appointment access	Clinics, public health orgs
Free/Subsidized Services	Cost, insurance gaps	Government, foundations
Respectful Provider Interactions	Discrimination, consent, and communication gaps	Culturally competent training
Promoting the use of self-testing for HPV	Privacy concerns, fear of pelvic exams, limited clinical access	Self-sampling kits, community health workers, trusted messengers

Figure 5 below presents a summary of the intervention strategies suggested by all study participants to improve cervical cancer screening and HPV vaccination uptake among African immigrant mothers and their children. The bar chart illustrates the frequency with which each

strategy was mentioned, highlighting participants' collective priorities and perceptions of what would be most effective in their communities. These strategies combine culturally tailored education, community engagement, healthcare accessibility, and system-level improvements to address the multifaceted barriers to preventive care.

Figure 6: The bar chart below shows intervention strategies suggested by all study participants who took part in the study



Increase Awareness and Education

A major challenge identified in the study was limited awareness of when affordable cervical cancer screening services or HPV vaccines are available and where they can be accessed. Many participants were unfamiliar with the healthcare system and did not know where to go or what services existed. According to the study participants, interventions should include

widespread awareness campaigns and, where affordable cervical cancer screening and HPV vaccines can be accessed. A participant recounted that:

> I think there needs to be more education about HPV and the risks associated with it. People need to understand how serious it can be, especially since it's hard to detect in the early stages. The earlier it's caught, the better the outcome, but a lot of people don't know that. So there needs to be more focus on education and outreach in the community.

According to participants, education is key to encouraging mothers to vaccinate their children with the HPV vaccine. Being well-informed about the consequences of HPV and the risks of cervical cancer can be motivating. From one participant's perspective:

> I believe education is key. When I understand the dangers of HPV infection and the risk of developing cervical cancer, I feel more motivated to choose vaccination for my child. I've seen how access to clear, accurate information can empower mothers like me to make informed decisions. Our communities need greater access to this kind of messaging to raise awareness and help make preventive actions like vaccination more accepted and widespread.

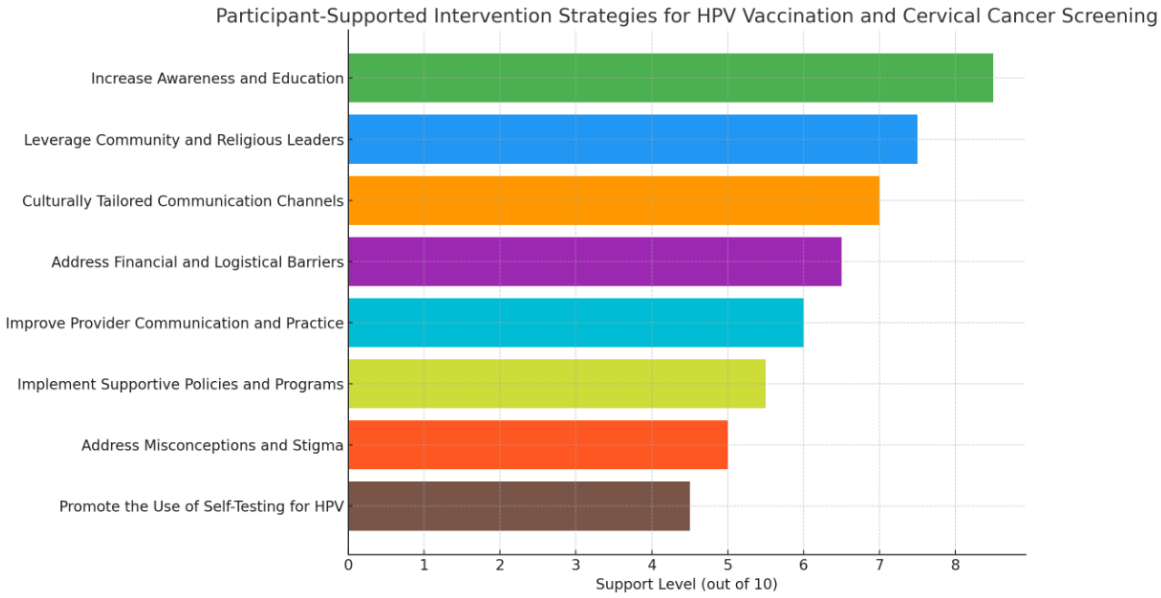
Furthermore, understanding the importance of early detection and how the HPV vaccine helps prevent cervical cancer is essential. Educational efforts should inform mothers about the long-term health risks their children may face without HPV vaccination and promote the benefits of cervical cancer screening. As described by a participant,

> I feel like health education should be given priority. Public health campaigns should be more consistent, especially because many African immigrants tend to live in more rural areas. These places often don't have established or well-equipped hospitals. They may just have small dispensaries or clinics that handle minor issues, but not things like cervical cancer screening or HPV vaccination. Also, many people in our community lack health literacy. They don't know what HPV is, or what cervical cancer is, or how it spreads. So public health outreach is very important. They should organize awareness meetings, maybe in open spaces, where everyone can come and learn about these things. Use posters and any tools that can reach people.

Figure 7 displays the intervention strategies proposed by participants who took part exclusively in the focus group discussions. The bar chart highlights the frequency of each

strategy, providing insight into the collective perspectives and priorities that emerged from the group dialogue. These focus group–specific findings emphasize community-driven solutions such as faith-based outreach, culturally tailored education, and improved healthcare accessibility, reflecting the shared experiences and contextual understanding of African immigrant mothers in addressing barriers to cervical cancer screening and HPV vaccination.

Figure 7: The bar chart below shows intervention strategies suggested by all study participants who took part in only the focus group discussions



Leverage Community and Religious Leaders

The findings reveal that community and religious leaders play an integral role in promoting cervical cancer screening and HPV vaccination within African immigrant communities. Many participants emphasized that these leaders have the cultural credibility and social reach necessary to engage women directly, especially within local neighborhoods. Several participants identified religious networks as particularly influential platforms for health communication. As reported by one respondent:

> Leveraging partnerships with African community leaders and religious institutions is key. In many African cultures, religious leaders are highly respected and have significant influence over their communities. By working with them, we can increase trust and ensure that health messages are not only heard but accepted.

These venues are considered trusted, familiar, and highly frequented by women, making them strategic locations for hosting health education sessions. In addition to spreading awareness, religious and community leaders were seen as crucial actors in mobilizing resources to overcome financial barriers to cervical cancer screening and HPV vaccination. This model of collective support could significantly improve access to services for low-income or uninsured individuals. Faith-based messaging was also identified as a powerful tool to reinforce preventive health behaviors. Trusted community and faith leaders are pivotal agents of change. Their ability to integrate health messaging into familiar cultural and religious practices significantly enhances the relevance and impact of public health interventions targeting African immigrant mothers.

This approach was seen as a culturally resonant way to frame preventive care as a moral and spiritual responsibility. As expressed by one interviewee:

> For me, effective communication means speaking the language people understand and meeting them where they are. The strategies we use in some African nonprofits I've worked with have been very effective. We create health education materials in our community languages and distribute them in places where people naturally gather. We visit churches, mosques, and even people's homes when needed. We also show up at major community events, naming ceremonies, funerals, and baby showers because that's where we can really connect……During COVID-19, we worked closely with pastors, imams, and mosque board leaders to record videos encouraging vaccination. In our communities, elderly and religious leaders are highly respected. They resolve conflicts and guide families, so when they speak, people listen…...I've learned that audio-visual materials are extremely important. Many institutions rely on flyers or lengthy reports, but our communities don't always connect with those formats. After your research, you might produce a detailed report, but most people just want a clear, visual summary of the key messages they can easily understand and trust.

Participants further emphasized the importance of engaging male partners in community health efforts. Given the influence men hold in many African households, their inclusion in

health education was seen as critical to increasing uptake among women. As highlighted by a participant:

> When it comes to decisions about vaccination, mothers usually hold the decision-making power. They're the ones who manage their children's health, they're the ones who take them to appointments, and they're the ones who remind everyone when it's time for vaccinations. But when it comes to cervical cancer screening, it's a bit different. You get a lot of pushbacks, especially from male partners. If a woman suggests going for screening and the man doesn't see any reason for it, they might discourage it, asking, "Why go? You're not sick." Gender dynamics play a huge role here. In most households, it's the woman who has control over healthcare decisions for her children, but in relationships where the man has more control, it's harder to get approval for services that he doesn't understand the importance of.

To enhance healthcare accessibility, many participants proposed that community and religious leaders collaborate with healthcare professionals to establish referral systems and logistical support services. These could include facilitating transportation, providing financial aid, or helping women navigate complex healthcare systems.

This highlights the potential role of leaders in reducing stigma and correcting misinformation about procedures like the Pap smear or HPV testing. In the words of one participant:

> In California, the state has partnered with community-based organizations to provide culturally relevant outreach and education about preventive health services, including cervical cancer screening and HPV vaccination. These organizations often use peer educators who speak the same language and share similar cultural backgrounds, which helps to break down fears and misconceptions about the healthcare system……I think something like that could work for African immigrant communities here in Washington. By adapting those models and focusing on community-led outreach, we can create more effective programs. We need to ensure that African immigrant women are aware of the health benefits and that they feel safe and supported in accessing those services.

Several respondents also advocated for the creation of community-based screening and vaccination clinics housed within religious institutions. These settings were seen as safe, non-

intimidating environments where women could more easily access services. One participant reflected that:

> So, I think using a multi-faceted approach that combines community outreach, education, peer support, and strong partnerships with community leaders would be the most effective way to increase cervical cancer screening and HPV vaccination rates among African immigrant mothers. It's about meeting people where they are and building relationships with the community, so they feel comfortable seeking help when needed……Utilizing established community groups or associations to incorporate health education into their regular activities and share information among members is a powerful strategy. It's especially impactful when individuals from similar backgrounds, fellow immigrants who reflect the community, are the ones leading these conversations and speaking openly about these important health topics.

Utilize Diverse and Culturally Tailored Communication Channels

Some participants emphasized the importance of employing diverse, culturally relevant communication strategies to effectively disseminate health information about cervical cancer screening and HPV vaccination in African immigrant communities. A central theme was the need for communication approaches that are linguistically inclusive, visually representative, and sensitive to cultural norms.

Social media emerged as one of the most effective platforms for outreach. Several participants noted that African immigrant women frequently use platforms such as Facebook, Instagram, WhatsApp, and TikTok, which offer practical and cost-effective avenues for health messaging. A participant recounted that:

> I think hospitals should take advantage of social media and online platforms. They can post videos or articles explaining things like what a Pap smear is. You'd be surprised how many people don't know. They should keep updating the public as new research and findings come up. And the language they use should be simple and easy to understand, especially for African immigrants. Health information should be broken down in a way that doesn't confuse people. That would really help more people understand and access these services.

Participants also highlighted the importance of multilingual communication, stressing that health messages, if possible, should be available in commonly spoken African languages

such as Swahili, Amharic, French, and Somali. In addition to translation services, health centers should distribute printed materials, such as brochures and posters, that are easy to understand and culturally appropriate. One mother explained that:

> I've realized that websites don't work well for our community. Websites are mostly used by highly educated people. So, I think we should focus on meeting people where they are, whether at a naming ceremony, funeral, or local gathering…..We should create materials that are visually and culturally relevant flyers with images of people who look like us, and videos in our local languages. Share these through WhatsApp group chats, TikTok, and at community events. I've learned that messaging must be specific and relatable. Telling someone to 'reduce starchy food' may not make an impact, but when I say, 'cut down on gari or fufu,' they understand exactly what I mean.

The use of mobile phones for text messages or email reminders was also widely supported. Many women reportedly rely on their phones as a primary source of communication and information.

In-person and community-based outreach was another strongly endorsed strategy. Participants described informal women's gatherings, neighborhood meetings, and peer-to-peer conversations as highly effective ways to deliver health information in a safe and supportive environment. These interpersonal channels promote open discussion of sensitive health topics and help to dispel fear or misinformation.

Schools were also seen as essential partners in raising awareness and promoting HPV vaccination. Several mothers discussed how their children had brought home health-related materials or participated in reproductive health education programs. Participants advocated for collaboration between schools, healthcare providers, and public health organizations to ensure that education is consistent, accessible, and reinforced across multiple touchpoints. From one participant's perspective:

> Healthcare providers should use that opportunity to educate them [patients], depending on the reason they've come in. Mentioning cervical cancer prevention services during other visits, such as antenatal or post-natal clinics, is a good opportunity. These

hospitals and clinics can also help by distributing educational handouts and brochures in waiting areas.

Address Financial and Logistical Barriers

Most participants stated that cost was a significant barrier. Others revealed that Cervical cancer screening services are often not free, and the HPV vaccine can be expensive. They want the Government to subsidize or make these services free, thereby increasing access and uptake.

One participant acknowledged that financial assistance programs sometimes exist, but awareness is low. This person further stated that healthcare providers and community leaders should inform patients about this available support. Supporting this view, a participant stated that:

> I've seen how, when funding gets cut, programs like mobile vaccination units are often the first to go. It feels like the healthcare system sees these services as optional, not essential. The focus seems to lean toward wealthier populations, while those who need help the most, immigrants, low-income, and underserved communities, are left behind. It's frustrating because these programs are a lifeline. We've watched this happen repeatedly during financial crises. Historically, hospitals were founded to serve the poor and vulnerable, but now the systems seem disconnected from that mission. The wealthy don't depend on them, but many of us still do. It's clear that structural inequities in the system continue to deprioritize the very populations most at risk.

Transportation is another significant challenge, particularly for those residing in rural or remote areas with limited access to vehicles or public transportation. Mobile clinics can bridge this gap by bringing services directly to underserved neighborhoods. As one participant noted:

> I've seen how some states have addressed transportation challenges by creating mobile health units or deploying community health workers who understand the language and culture of the populations they serve. These workers, often from the same background as the communities they support, have been able to build trust with immigrant families. I've witnessed how effective they are in delivering important services like HPV vaccination and cervical cancer screening in a way that feels accessible and respectful.

Some participants think time is also a constraint for many women who work long hours and struggle to schedule appointments. They want healthcare institutions to offer flexible service hours, which could significantly improve access and convenience for immigrants by accommodating their busy schedules, reducing missed appointments, and making it easier for women to prioritize their health without sacrificing their work or family responsibilities. This approach can also foster greater trust in the healthcare system and encourage more consistent utilization of essential preventive services. As described by a participant:

> Implementing policies that remove financial and systemic barriers to care could make a huge difference. Considering the cost, if the government could subsidize it, that would really help a lot of people. I think the government should introduce funding for health facilities that offer these services. Also, the HPV vaccine should be made relatively cheaper to make it more affordable for many people. I took the vaccine in a private clinic, and it was expensive. I paid out of pocket because my health insurance did not cover it.

Improve Healthcare Provider Communication and Practice

Several participants emphasized the critical role healthcare providers play in shaping African immigrant mothers' decisions about cervical cancer screening and HPV vaccination. Respectful, compassionate, and culturally sensitive communication was described as essential to building trust and encouraging health-seeking behavior.

Many women reported that providers' communication styles, both verbal and non-verbal, can significantly influence their comfort with care. Participants advocated for clear, simple, non-technical language, especially when discussing sensitive topics such as reproductive health. They emphasized the need for providers to be mindful of differences in education levels and cultural norms, which can affect comprehension and engagement. As reported by one respondent:

> The discussion around it isn't as open as it should be, and when you go to hospitals, HPV and cervical cancer screening don't seem to get the same level of attention as other health issues. It's like there's still a stigma around it. More focus needs to be put on raising awareness and making it easier for people to get screened.

Cultural competence was identified as a vital skill. Several participants expressed a preference for being treated by providers who either share their cultural background or demonstrate a clear understanding of it. Respect for cultural values, along with the avoidance of racial undertones and discriminatory behavior, was viewed as fundamental to equitable care. As highlighted by a participant:

> At first, I wasn't that comfortable discussing HPV vaccination and cervical cancer screening with my provider, but over time, I became more at ease with it. I've changed my medical practitioner several times. It was mostly due to issues I faced with racism. When I would ask for certain tests, they would act strangely and ask questions that had nothing to do with why I was there. I just didn't feel comfortable anymore, so I decided to find someone who actually wanted to help. It was really frustrating, but eventually, I found a doctor I could trust.

Participants also highlighted the prevalence of misinformation and fear surrounding the HPV vaccine, particularly concerns about infertility and side effects. Healthcare providers were seen as trusted sources of information, with over 90 percent of participants reporting confidence in their provider's guidance. As such, providers were encouraged to proactively address myths and explain the vaccine's safety and importance for cancer prevention. As stated by a participant:

> I prefer seeking care at private hospitals because of the negative experiences I've had in public healthcare facilities. Each time I visited a public hospital, I encountered instances of racial discrimination and bias, which made me feel unwelcome and disrespected. Public hospitals also provide slow and inefficient services. The waiting times are significantly longer compared to private hospitals, and I usually end up spending hours just to receive basic care or consultation.

Implement Supportive Policies and Programs

Participants strongly advocated for the development and implementation of policies and programs that would eliminate systemic barriers to cervical cancer screening and HPV vaccination. Participants proposed integrating HPV vaccination into routine primary healthcare services, similar to childhood immunizations. This would help normalize the vaccine and ensure it is offered as part of standard care rather than an optional or unfamiliar service. Additionally,

school-based programs were widely supported. Participants felt that offering the vaccine as part of regular school health checks could significantly increase uptake among children and adolescents.

Several participants recommended establishing uniform policy guidelines, such as setting a standardized starting age for HPV vaccination across all healthcare facilities in Washington State. This, they argued, would eliminate inconsistencies and confusion across hospitals and clinics. To further boost participation in preventive services, some suggested that policymakers adopt goal-setting frameworks, such as setting specific screening rates for cervical cancer by age. These measurable targets would provide accountability and help guide program evaluation.

Participants also called for government investment in public education, particularly through awareness campaigns using a variety of communication channels, including TV, radio, social media, and community events. The use of storytelling and culturally tailored messaging was recommended to make campaigns more relatable and compelling. In the words of one participant:

> Even when translations are available, I've learned that not everyone can read or write in their native languages. For older women, literacy can be a real barrier. Younger women, on the other hand, may feel afraid or unsure about navigating the healthcare system. On top of that, I recognize the deep and painful history African-American and Indigenous communities have with the healthcare system. That history of racism and discrimination creates a lot of mistrust. People remember, and they carry those stories. So it's no surprise that many are hesitant to engage with the system unless it's absolutely necessary.

Expanding telehealth services was another priority area. Participants believed that teleconsultations could increase access to information about HPV and cervical cancer, especially for those with transportation or time constraints. The importance of community voice and feedback was also highlighted. Participants recommended that programs include mechanisms for

collecting community input, such as surveys or suggestion boxes. This would ensure that interventions remain relevant, respectful, and responsive to community needs.

Partnering with Community-Based Non-Profits

According to several participants, the State should consider forming partnerships with community-based nonprofits that are founded and operated by African immigrants to offer health education on cervical cancer prevention. These organizations often have deep roots in the communities they serve and possess the cultural knowledge, language skills, and trust needed to engage effectively. Participants emphasized that such partnerships could help bridge the gap between public health services and immigrant communities.

Participants recommended training peer educators, especially women and youth, to lead conversations about cervical cancer prevention, including cervical cancer screening and HPV vaccination. They noted that when information comes from familiar, relatable sources within the community, it is more likely to be accepted and acted upon. This approach not only enhances awareness but also empowers community members to take ownership of their health and become advocates for others. Partnering with grassroots nonprofits in this way could help ensure that public health efforts are culturally relevant, accessible, and sustainable. One participant reflected that:

> I believe grassroots partnerships are essential, especially with community-based organizations like the Washington West African Center. These are trusted messengers founded by us and for us. The people behind them have lived experience, and they truly understand the challenges our communities face because they've lived with us too. That kind of connection builds trust and makes a real difference in how messages are received and acted upon.

Finally, participants called for strict enforcement of anti-discrimination policies to ensure equitable access to care for all individuals, regardless of race, immigration status, or language proficiency. Participants envisioned a comprehensive, equity-focused policy framework that

combines universal access, cultural competence, education, and accountability to improve cervical cancer screening and HPV vaccination uptake among African immigrant communities.

Address Misconceptions and Stigma

A widespread lack of accurate knowledge about cervical cancer and the HPV vaccine was consistently highlighted by participants as a central barrier to prevention and treatment. Misinformation about the safety and purpose of the HPV vaccine remains prevalent in many African immigrant communities, often fueled by cultural beliefs and social fears. A participant recounted that:

> Some parents have heard a lot of misinformation and misconceptions about the HPV vaccine. For instance, some believe that the HPV vaccine causes infertility, so they fear there might be a long-term risk after their child is vaccinated……. They suspect that vaccination is a hidden attempt to reduce birth rates in African populations. This belief has led some to reject even basic vaccines like the tetanus shot. They see any foreign medical intervention with deep suspicion.

The fact that HPV is a sexually transmitted infection (STI) is not widely known or openly discussed, particularly among male community members. As a result, the burden of prevention is often placed solely on women, reinforcing gendered health inequalities. Participants widely agreed that community and religious leaders can play a transformative role in correcting these misconceptions. By integrating health education into sermons, community meetings, and everyday interactions, these leaders can normalize discussions about sexual health and prevention in culturally acceptable ways.

Furthermore, participants stressed that educational efforts should emphasize the connection between HPV and cervical cancer, clarify that HPV affects all genders, and promote men's involvement in prevention and care. One participant explained that:

> For me, the key is not imposing initiatives but meeting the community where they are. You can't overlook the influence of cultural and community leaders, especially women in churches or mosques who are deeply trusted. Engaging and empowering these

> leaders is the most effective way to shift perceptions and promote healthier behaviors. Lasting change starts from the ground up by building trust, respecting community values, and supporting women to educate the next generation. That's how we'll see real, sustained progress in HPV vaccination and cervical cancer screening.

Promoting the use of self-testing for HPV

Promoting self-testing for HPV was viewed by participants as a potentially transformative strategy to improve cervical cancer screening uptake among African immigrant mothers. Many women in the study expressed that traditional in-clinic screening procedures, such as Pap smears, are often associated with significant barriers, including lack of time, transportation challenges, fear of judgment, and discomfort with the clinical process, particularly when conducted by male providers. Self-HPV testing, where women collect their sample in the privacy of their homes, was perceived as a convenient, less intrusive alternative that could alleviate many of the cultural and logistical challenges linked to traditional screening.

Several participants noted that the sense of control and privacy offered by self-testing could reduce the stigma and discomfort that often deter women from attending gynecological appointments. In particular, the opportunity to screen themselves without having to explain their choices or undergo intimate examinations in clinical settings was seen as empowering. In addition to its emotional and logistical benefits, self-testing was also seen as a gateway to education and early detection. Participants believed that introducing self-testing could foster greater awareness of HPV's connection to cervical cancer and increase women's understanding of preventive health measures.

Participants recommended that clear instructions and educational support accompany the distribution of self-testing kits to ensure that women feel confident and informed during the process. They emphasized the importance of integrating self-testing into routine healthcare

services and community health outreach programs, with guidance provided by trusted healthcare professionals or community educators.

Moreover, self-testing was seen as a strategy to promote health equity, especially for women who face economic, linguistic, or immigration-related barriers to accessing traditional care. Participants believed it could help reduce the number of undiagnosed or late-stage cervical cancer cases in the community by reaching women who would otherwise remain unscreened. One mother explained that:

> Choosing HPV self-testing would help me avoid those uncomfortable experiences. Sometimes, healthcare providers asked questions that had nothing to do with my health, like where I was from, why I was in that state, or whether I had a green card or citizenship. It felt intrusive. When I go to the hospital, I expect to receive care, not to be questioned about my immigration status or personal life.

Results for Research Question 3

What are the perspectives of key informants regarding the social determinants affecting HPV vaccination and cervical cancer screening?

Social Determinants Influencing HPV Vaccination and Cervical Cancer Screening

Selected key informants were interviewed to gain insights into the social determinants impacting HPV vaccination and cervical cancer screening among African immigrant mothers and their children. Based on the interviews, several key social determinants were identified as significantly influencing access to these preventive health measures. These perspectives highlight the interconnected nature of the social determinants affecting HPV vaccination and cervical cancer screening.

Economic Stability

Table 8 below presents insights from key informant interviews that explore the role of economic stability as a critical social determinant influencing HPV vaccination and cervical cancer screening among African immigrant mothers and their children. Participants highlighted

how financial insecurity, lack of health insurance, and the high cost of medical services create significant barriers to preventive care. Additionally, limited awareness of available low-cost or free programs, coupled with immigration-related financial challenges, further restricts access to essential health services. The excerpts illustrate how economic constraints intersect with cultural and social factors, shaping decisions around healthcare utilization and underscoring the importance of addressing affordability and insurance coverage in intervention efforts.

Table 8: Participant Perspectives on Economic Stability in Cervical Cancer Prevention

Category	Code	Quote
Financial Barriers	Lack of health insurance, fear of medical bills	*"Many African immigrants wait years before they can regularize their status and qualify for health insurance. During that time, they are completely uninsured."*
Cost of Services	Screening/vaccines seen as unaffordable luxuries	*"Even low-cost services feel out of reach for some families—it's just not in the budget."*
Fear of Debt	Avoiding diagnostic tests due to cost	*"Even if they do go [to the hospital], they often decline tests or procedures because they're trying to avoid a hefty bill."*
Lack of Awareness of Free Programs	Unfamiliarity with low-cost/free services	*"There are free services, but people don't know about them or how to apply."*
Immigration & Financial Insecurity	Avoiding public services to appear self-reliant	*"They want to be seen as thriving, not relying on public assistance, so they don't go for help."*

Financial barriers emerged as a dominant and recurring theme across all key informant interviews. Participants consistently emphasized that a lack of financial resources, compounded by the absence of health insurance, significantly hinders access to preventive healthcare services such as HPV vaccination and cervical cancer screening. For many African immigrant mothers,

the high cost of medical care in the United States creates a persistent dilemma between addressing immediate financial obligations, such as rent, food, and childcare, and seeking preventive health services that are often perceived as non-urgent. As one participant noted:

> I can tell you one story about a woman who almost died because she was so afraid to go to the hospital. She thought that if she called 911 or went to the hospital, she'd be hit with thousands of dollars in bills, which she couldn't afford.

Informants noted that without health insurance, even routine screenings or vaccinations become unaffordable luxuries. Several participants shared examples of individuals who delayed or entirely avoided medical appointments due to concerns over potential medical bills. One participant described how members of the community often refuse diagnostic tests, even when seriously ill, out of fear of incurring debt. This financial stress is further magnified for recent immigrants who may be underemployed, working low-wage jobs, or navigating legal and residency challenges that exclude them from employer-sponsored health insurance or public healthcare programs. As described by a participant:

> Many African immigrants come here seeking better opportunities. They want to be seen as thriving, not as people relying on public assistance. That desire to "appear successful" leads many to avoid healthcare services or even hide their needs.

The interviews emphasized that while free or low-cost programs do exist, awareness of such resources is limited, and the application processes are often complex and inaccessible due to language or literacy barriers. Overall, financial insecurity not only limits the ability to access care but also shapes the prioritization of health within households, pushing preventive care like HPV vaccination and cervical cancer screening lower on the list of day-to-day necessities. Financial barriers were a dominant theme across all interviews. Participants consistently emphasized that a lack of financial resources and health insurance hinders access to preventive services like HPV vaccination and cervical cancer screening. As reported by one respondent:

> Many African immigrants wait years before they can regularize their status and qualify for health insurance. During that time, they are completely uninsured……Even if they do go [to the hospital], they often decline tests or procedures because they're trying to avoid a hefty bill.

Employment and Income levels

Table 9 highlights key informant perspectives on how employment conditions and income levels influence access to HPV vaccination and cervical cancer screening among African immigrant mothers. Participants emphasized that many women work in low-wage jobs with demanding schedules and limited job security, often without paid sick leave. These economic realities force individuals to prioritize immediate survival needs over preventive healthcare. The quotes presented illustrate how financial instability and workplace constraints create structural barriers that limit access to timely screening or vaccination services, underscoring the need for flexible, supportive health access strategies for working immigrant families.

Table 9: Participant Perspectives on Employment and Income Levels

Category	Code	Quotes
Low-Wage Jobs	Working long hours	*"Many African immigrant women work low-paying jobs… they're just trying to survive day to day."*
No Paid Sick Leave	Fear of losing income	*"Taking time off for an appointment means losing money or even your job."*
Health Prioritized Last	Daily survival over preventive care	*"Healthcare isn't ignored—it's postponed because survival comes first."*

Key informants mostly cited employment instability and low wages as significant social determinants that further complicate access to preventive health services among African immigrant mothers. Many of these women are employed in low-paying or unstable jobs that offer little to no benefits, including paid sick leave or flexible work schedules. As a result, they

are often forced to prioritize work over their health, making it challenging to attend routine medical appointments for services such as HPV vaccination and cervical cancer screening. As highlighted by a participant:

> Many African immigrant women work low-paying jobs and don't have the financial means to pay for healthcare out of pocket. They're underpaid because of their race, immigration status, and ethnicity, and that limits their options. The idea of spending money on something like preventive care, like screening for cervical cancer, isn't even a priority when they're just trying to survive day by day.

This statement reflects a broader reality for many African immigrant mothers, who are the primary caregivers and breadwinners in their households. The pressure to meet basic financial obligations often means that preventive healthcare becomes a secondary concern, not out of neglect, but out of necessity.

Job-related limitations, such as the inability to take time off without risking income loss or job security, further deter these women from seeking regular check-ups. In many cases, missing a day of work to attend a medical appointment could mean sacrificing a day's wages or even risking termination, especially in informal or hourly employment settings. For women balancing long shifts, childcare responsibilities, and the demands of multiple employers, carving out time for personal healthcare is often unfeasible.

This intersection of low income, job insecurity, and rigid work schedules underscores the need for workplace policies and healthcare systems that better accommodate the realities of immigrant communities through extended clinic hours, mobile health services, and culturally informed outreach that recognizes the economic pressures shaping health behaviors. Poverty was described by key informants as a significant determinant, making even low-cost services feel out of reach. Some parents even avoided healthcare services due to the fear of unexpected expenses.

Education Access & Quality

Table 10 summarizes key informant perspectives on how education access and quality influence African immigrant mothers' understanding and utilization of HPV vaccination and cervical cancer screening. Participants emphasized that limited health literacy, language and literacy barriers, and widespread misinformation significantly hinder awareness and informed decision-making. Even when educational materials are translated, many community members still struggle to comprehend them, underscoring the need for more accessible, culturally relevant communication approaches. The quotes below highlight the importance of adopting audio-visual and community-based education tools that resonate with diverse literacy levels and cultural contexts to improve health outcomes.

Table 10: Participant Perspectives on Health Literacy, Misinformation, and the Need for Culturally Relevant Education

Category	Code	Quote
Health Literacy	Limited understanding of screening	*"They don't really understand what [the HPV vaccine] is for or how it works."*
Language & Literacy Barriers	Difficulty even with translations	*"Even if materials are translated, some people can't read or write in their native language."*
Misinformation and Myths	Vaccine fear and infertility	*"Some people believe the vaccine causes infertility or is meant to reduce our population."*
Need for Culturally Relevant Education	Importance of audio-visual tools	*"They won't read a flyer, but they'll watch a video if it's in their language and from someone they trust."*

Key informants repeatedly highlighted a lack of health education and general awareness as a significant barrier limiting African immigrant mothers' engagement with HPV vaccination and cervical cancer screening. This issue is deeply rooted in both language limitations and gaps

in culturally relevant health literacy. Several informants noted that many community members, particularly older adults and those with limited formal education, find it difficult to understand complex medical information, even when it is translated into their native languages. In the words of one participant:

> Many women, particularly older immigrants or those with limited educational backgrounds, face significant challenges in understanding health information. Even when materials are translated into their native languages, medical terminology, complex explanations, and unfamiliar healthcare concepts often remain confusing.

This challenge is compounded by the fact that many African languages are primarily oral, and even translated materials may not reach those who cannot read or write in their first language. As a result, health messages, no matter how well-intentioned, often fail to convey the importance and safety of preventive care effectively. This lack of understanding fosters mistrust, confusion, and missed opportunities for prevention. A participant recounted that:

> They don't really understand what [the HPV vaccine] is for or how it works... There's no real awareness of the potential for cancer prevention. Many people just see it as another injection and don't know why it's important, especially for young girls. Some even think it's unnecessary because their daughters are not sexually active. Others have never heard anyone explain how the vaccine can actually protect them from cervical cancer in the future.

Without clear, accessible education, myths and misinformation persist. Some participants mentioned deeply rooted fears, such as the belief that vaccines are a method of population control or could cause infertility, fears that are often passed down through informal networks rather than corrected by credible sources.

These insights highlight the urgent need for culturally and linguistically appropriate educational materials that go beyond written pamphlets. Audio-visual formats, community-based workshops, and peer-led discussions in trusted settings such as churches, mosques, or

community centers were suggested as more effective methods of outreach. From one participant's perspective:

> Prioritizing health education is crucial, particularly in rural areas with limited access to well-equipped healthcare facilities. Additional education is necessary in communities where individuals may lack full awareness of the risks and available preventive measures. Public health campaigns emphasizing education, convenience, and accessibility would be beneficial.

Healthcare Access & Quality

Table 11 presents insights from key informant interviews regarding healthcare access and quality as a significant determinant of HPV vaccination and cervical cancer screening among African immigrant mothers. Participants identified several interconnected challenges, including language barriers, difficulties navigating the healthcare system, experiences of discrimination, and the limited availability of culturally competent providers. These barriers often result in miscommunication, delayed appointments, and reduced trust in healthcare institutions. The quotes illustrate how such systemic and interpersonal factors influence women's willingness and ability to engage in preventive care, highlighting the urgent need for inclusive, respectful, and culturally responsive healthcare delivery.

Table 11: Systemic Barriers and Cultural Competence Gaps in Healthcare Access and Quality

Category	Code	Quote
Language Barriers	Miscommunication	*"Language access is absolutely critical—it's the foundation of everything in healthcare."*
System Navigation Challenges	Scheduling difficulties	*"Getting an OB-GYN appointment can take six to eight months."*
Discrimination and Bias	Stereotyping, isolation	*"I felt I was treated differently—maybe because I'm Black or because of my name."*

Lack of Culturally Competent Providers	Preference for private care	*"I eventually switched to private healthcare. I just wanted to feel respected."*

Limited access to healthcare, driven by financial constraints, gaps in health insurance coverage, language barriers, and provider shortages, emerged as a central theme across all interviews. Most key informants emphasized that these systemic challenges not only limit the availability of services but also create a climate of hesitation and inaccessibility for African immigrant mothers seeking preventive care such as HPV vaccination and cervical cancer screening. Language was repeatedly described as a foundational barrier. As one participant noted:

> Language access is absolutely critical; it's the foundation of everything in healthcare. Limited English proficiency often leads to misinterpretation, dependence on family members or community intermediaries for translation, and, in some cases, avoidance of healthcare facilities altogether.

Many African immigrants, particularly recent arrivals and older adults, do not speak English fluently, and the absence of professional, culturally competent interpreters often leads to miscommunication, misdiagnosis, and a breakdown of trust between providers and patients. Healthcare navigation remains a significant hurdle. This illustrates the passive engagement that often results from a lack of familiarity with the healthcare system and low health literacy. Many immigrant mothers are unaware of their eligibility for services, do not know how to schedule screenings, or assume that such care is unaffordable or unavailable to them. Even when patients are motivated to seek care, logistical barriers persist. As described by a participant:

> Getting an appointment with an OB-GYN might take six to eight months, particularly in urban areas with overwhelmed health systems or rural areas with limited providers. These long wait times can discourage follow-through, especially for preventive services that are not perceived as urgent.

Health insurance challenges further compound access issues. Several informants noted that even when immigrants qualify for health insurance, the enrollment process is often confusing, especially when forms and instructions are only available in English. For undocumented individuals or those in the process of gaining legal residency, fear of exposure or disqualification prevents them from seeking care. As reported by one respondent:

> I once went to a public hospital, and it was a deeply unpleasant experience. I felt I was treated differently, maybe because I'm Black or because of my name. I arrived before 9 a.m., and after the initial consultation, I was told to wait for the next doctor. But as I sat on the bench, I watched others who came after me get seen first. When I asked, they just said, 'It's not your time yet.'……What hurt even more was the isolation. People avoided sitting next to me, even when there was space. I don't know why, but it made me feel invisible—like I didn't belong. The experience affected my self-esteem and left me feeling stereotyped and dismissed. That's why I eventually switched to private healthcare. I just wanted to be in a place where I felt respected and seen.

Neighborhood & Environment

Table 12 below presents key informant perspectives on how neighborhood and environmental factors influence access to HPV vaccination and cervical cancer screening among African immigrant mothers. Participants highlighted that challenges such as limited transportation options, housing instability, and food insecurity create significant barriers to consistent healthcare engagement. These structural issues contribute to stress and instability that extend beyond individual control, further compounding health inequities. The quotes below highlight that preventive health behaviors are deeply intertwined with broader social and environmental conditions, emphasizing the need for multi-sectoral approaches that address the social determinants shaping community well-being.

Table 12: Structural and Environmental Barriers Limiting Health Service Access Among African Immigrant Mothers

Category	Code	Quote
Transportation Challenges	No vehicle, long commutes	*"It's not easy to get from one place to another.*

		Transportation is a serious issue."
Housing Instability	Frequent moves, overcrowding	*"Housing is another big issue. It's hard to stay connected to services when you're constantly moving."*
Food Insecurity	Poor diet impacts health	*"Many families rely on food vouchers just to meet basic needs."*
Compounding Barriers	Structural stress	*"This is a multi-sectoral problem. Health is just one part."*

Key informants identified transportation challenges and housing instability as critical structural barriers limiting access to preventive health services among African immigrant mothers. These issues, though often viewed as separate from healthcare, emerged as compelling social determinants that shape whether and how individuals engage with services like HPV vaccination and cervical cancer screening. As highlighted by a participant:

> Transportation is a serious issue too. Most people who came from Africa in general, and Ethiopia in particular, have limited resources. It's not easy for them to move from one place to another to access services……. Housing is another big issue. That's why I said this is a multi-sectoral problem.

For many African immigrant families, especially recent arrivals or those with low incomes, owning a personal vehicle is not an option. Public transportation, while available in some urban areas, is not always reliable or convenient, particularly for people living in more remote neighborhoods. Long commutes, complicated transit routes, or the need to bring along children all add to the difficulty. For working mothers with limited time, these barriers can mean missing appointments or forgoing preventive care altogether.

Housing instability was another central theme raised by informants. Several participants noted that high rent prices, overcrowded living conditions, and frequent relocations make it difficult for families to maintain consistent engagement with healthcare providers. When families

are struggling to keep a roof over their heads or put food on the table, preventive care naturally takes a back seat to more immediate survival needs.

Food insecurity was also closely linked to housing and economic instability. One key informant described how many families in his community depend on biweekly food distributions and voucher programs to meet basic nutritional needs. Poor nutrition not only affects overall health but also reflects a broader pattern of limited access to essential services, including healthcare. These daily stresses create a psychological and emotional burden that can suppress motivation to pursue preventive screenings or vaccinations, even when they are available. These structural challenges, transportation, housing, and food insecurity, do not occur in isolation. Instead, they compound economic and systemic barriers, reinforcing a cycle of limited access and low healthcare utilization. For African immigrant families already navigating the complexities of a new cultural and legal environment, these additional stressors make it even more challenging to prioritize preventive health.

To improve outcomes, informants emphasized the need for multi-sectoral approaches that integrate healthcare with social services, housing support, and transportation assistance. Without addressing these foundational needs, efforts to increase HPV vaccination and cervical cancer screening are likely to fall short among this population.

One key informant shared the story of a woman's struggle:

> At the time, she didn't have a car, so getting to the hospital meant either finding a ride or paying for a taxi, which added to the financial burden. In addition, she had to take time off work to attend appointments, resulting in lost wages, a difficult sacrifice, especially while trying to settle in a new place and manage limited resources. What made it even more frustrating was that, despite the effort and expense, she often spent the entire day at the hospital waiting to be seen. It all felt overwhelming. However, things have improved now that she is more financially stable and can afford private healthcare services, so those barriers no longer stand in her way.

Social and Community Context

Table 13 below highlights key informant perspectives on the social and community context influencing HPV vaccination and cervical cancer screening among African immigrant mothers. Participants described how cultural taboos, gender norms, and deep-rooted mistrust of the medical system create barriers to open discussion and engagement with preventive healthcare. The role of religious and community leaders emerged as particularly influential in shaping community attitudes and health behaviors, while social gatherings and peer networks were identified as important venues for culturally sensitive health education. The quotes emphasize that fostering trust, leveraging respected community figures, and creating safe, inclusive learning spaces are essential strategies for improving health communication and participation in screening and vaccination programs.

Social and Community Context

Table 13: Participant Perspectives on Social Trust, Cultural Norms, and Community Engagement in Cervical Cancer Prevention

Category	Code	Quote
Cultural Taboos	Silence on sexual health	*"Cervical cancer isn't talked about. It's like a silent topic in the community."*
Mistrust of the Medical System	Historical trauma	*"We have been used before—Black and immigrant communities—for experiments and testing. That history has created deep mistrust."*
Gender Norms & Power Imbalances	Male decision-making	*"In many households, men make the decisions—even about women's health."*
Role of Trusted Leaders	Religious/community leaders	*"When pastors or imams speak, people listen. They are our gatekeepers."*
Importance of Social Spaces	Community events	*"We go to naming ceremonies, funerals, baby*

		showers—that's where people gather."
Culturally Responsive Engagement	Peer learning in safe settings	*"If we do a fun session with a nurse at a lunch meeting, women will show up and ask questions."*

Across interviews, key informants emphasized that deeply rooted traditions, taboos, and communal values influence how health information is received, interpreted, and acted upon. Cultural beliefs, gender dynamics, and the structure of social relationships within African immigrant communities play a powerful role in shaping attitudes and behaviors toward HPV vaccination and cervical cancer screening. Cultural stigmas around topics such as sexual health and cancer are pervasive and create significant barriers to open dialogue and preventive care. In many African cultures, discussions of sexual health are considered taboo, particularly for women. This stigma extends to preventive services like the HPV vaccine, which is often incorrectly associated with promiscuity or viewed as unnecessary unless illness is visible. This cultural silence can lead to shame, secrecy, and delayed care. As highlighted by a participant:

> I rarely hear parents in African immigrant communities express concern about cervical cancer. Discussions around sexual health remain taboo, so it's not often viewed as a priority. In contrast, there's much more awareness and concern about breast cancer; many know someone affected by it, and the fear is real. Cervical cancer, on the other hand, is rarely discussed. The location of the cervix makes the topic uncomfortable, even during routine health checks. One example I recall is a grandmother who showed signs of cervical cancer but never spoke about it, not even to her son, who is a doctor. By the time the family found out, it was too late. The silence around sexual health contributes to delayed care and tragic outcomes.

Some community members associate the HPV vaccine with infertility or population control, viewing it not as a preventive tool but as a threat to family and cultural values. This belief reflects long-standing historical traumas related to unethical medical experimentation and a deep-seated suspicion of Western healthcare interventions. These misconceptions significantly

influence decision-making, particularly around vaccinating children. In the words of one participant:

> Historically, our communities have been used as test subjects in unethical medical experiments. That's part of why there is still some mistrust. I've personally faced accusations from a few individuals who thought I was being used by outsiders to influence or harm our community. But overall, most people trust us and continue to come to us for support……We have been used before—Black and immigrant communities for experiments and testing in the healthcare system. That history has created a deep mistrust. So, when people see an initiative that doesn't include them, they assume it's not for them or it's another form of exploitation. But when we are involved from the start, we take ownership. We feel that our voice matters.

Some participants stated that gender roles and power dynamics further complicate healthcare access. In many African immigrant households, men are the primary decision-makers, and women may not feel empowered to seek healthcare services independently, even for critical cervical cancer screenings or HPV vaccinations. This imbalance can lead to delayed diagnosis, lack of follow-through, or complete avoidance of services. Additionally, women may be reluctant to disclose symptoms or health concerns due to fear of judgment, conflict, or being perceived as weak or problematic. One participant reflected that:

> In many cases, men make most of the decisions, even when it should be mutual. In our culture, there's still the expectation that women stay at home while men go out to work. Because women are at home, they often lack a voice. This creates mental stress, especially in a place like the U.S., where living costs are high and a single income isn't enough……When women aren't heard or supported, they tend to hide their feelings and struggles even from their husbands. That silence can lead to emotional and health complications. We need to encourage open communication and shared responsibility in households.

Despite these challenges, the interviews also revealed important opportunities for culturally responsive intervention. Trusted figures, particularly religious and community leaders, were identified as essential messengers in health promotion efforts. These individuals hold influence and respect within the community and can help legitimize health messages that might otherwise be ignored or resisted. This community-centered approach is critical in African

immigrant populations, where informal gatherings and religious events are central to social life. A participant recounted that:

> But for sure, the focus should be on getting the women involved. If we have a session that's fun, like a lunch meeting with an influencer or a nurse answering questions, that's when you're going to see people show up and get engaged. Women's issues need to be discussed in ways that feel supportive, and when it's done in a light, social setting, people are more likely to be open to learning.

The perspectives of key informants reveal that the interplay of economic hardship, cultural norms, systemic barriers, and limited education collectively shape African immigrant mothers' access to HPV vaccination and cervical cancer screening. Effective interventions must address these social determinants holistically and in a culturally competent manner.

Facilitators for Cervical Cancer Screening and HPV Vaccination

Facilitators serve as targeted solutions that bridge gaps in access, understanding, and trust. Some participants (key informants) mentioned some existing systems and structures that could improve cervical cancer screening and HPV vaccination rates, particularly among underserved groups like African immigrant mothers. It is important to build on and strengthen existing systems and structures that already have reach, trust, and community relevance. These include:

Community and Religious Institutions

Cultural Associations and Ethnic Community Organizations often organize events, celebrations, and support services. They are ideal for hosting health education sessions and distributing materials in native languages. Churches, Mosques, and Faith-Based Organizations are trusted gathering places for African immigrant communities and can serve as powerful platforms for education and advocacy. Faith leaders can incorporate health messaging into sermons or host health events. From one participant's perspective:

> Also, it's important to have community and religious leaders involved, even if it's just at the start. If they give us access to these women and can provide some form of endorsement, it will be easier to break through the reluctance. ……. Religious institutions also play a role. For example, during the COVID-19 pandemic, churches were effective channels for disseminating information. I'm not sure about mosques, but I can confirm that churches were very involved in spreading health-related messages.

School Systems

Schools can integrate HPV and cancer education into health classes, targeting youth directly and influencing family decision-making. Parent-Teacher Associations (PTAs) provide a direct line of communication between parents and teachers. Schools can distribute information about HPV and cervical cancer and support consent-based vaccination drives.

Community Health Centers (CHCs)

Participants highlighted the critical role Community Health Centers play in serving low-income and immigrant families. They noted that these centers are trusted spaces that already offer culturally competent care and language support, making them ideal for delivering services like HPV vaccination and cervical cancer screening at little to no cost. Some participants also emphasized the effectiveness of mobile clinics in reaching individuals living far from health facilities or facing transportation barriers. They pointed out that many of these clinics already provide essential services such as mammograms and dental care, and could be expanded to include cervical cancer prevention. Participants also suggested that local and state health departments should invest more in these efforts by funding outreach programs, supporting policy changes, and providing the infrastructure needed to improve access in underserved communities. As one participant noted:

> When it comes to the HPV vaccination, I think there's more of an acceptance. It should be a routine thing, something that's already part of childhood healthcare. So, parents, especially mothers, are more likely to agree to it because it's just seen as part of regular healthcare.

Digital and Social Media Platforms

Many Key informants noted that platforms like Community WhatsApp groups, Facebook pages, and YouTube channels are already widely used for sharing community news and updates. They emphasized that these familiar and trusted platforms could be powerful tools for delivering health education in culturally relevant ways. Suggestions included sharing short videos, personal testimonials, and clinic reminders tailored to the community's language and values. Some participants also recommended that clinics use their existing contact lists to send direct messages about HPV vaccination and cervical cancer screening events, thereby increasing awareness and turnout through trusted digital channels. As described by a participant:

> Personally, in my community, we've created a social media platform through the Ethiopian community network that has over 2,000 subscribers on Instagram. We also organize Zoom sessions with volunteer public health professionals, especially doctors, to educate our community.

Women's Support Networks

Some participants shared that Mothers' Groups, Women's Circles, and informal community gatherings serve as trusted spaces where women feel comfortable discussing health issues. They emphasized that these settings are ideal for peer-led education and sharing personal testimonies, which can help break down stigma, build trust, and encourage more women to participate in HPV vaccination and cervical cancer screening. As reported by one respondent:

> To really get the community involved, we need to find ways to speak to them through channels they trust. Women's circles could be a good start, gatherings where women can talk openly with others who share their experiences. It's all about building sisterhood and creating spaces where women feel comfortable learning about their health without judgment.

Nonprofit and NGO Partnerships

Most participants noted that nonprofit organizations serving African immigrants and refugees, particularly those already providing resettlement support, legal aid, or family services,

are deeply trusted within the community. They emphasized that these organizations are well-positioned to incorporate health education and referral services into their existing programs, making it easier for community members to access accurate information and connect with cervical cancer screening or vaccination services in a familiar, supportive environment. As expressed by one interviewee:

> As a nonprofit, we partner with several public health agencies to improve access to care and share vital health information. Before and during COVID-19, we helped organize over 30 vaccine clinics, reaching more than 5,000 West Africans in Washington. Currently, with support from the Snohomish Health Department, our Community Resource Navigation Department is creating culturally relevant materials, such as pull-up banners and videos in our most spoken languages, to raise awareness of rising diabetes rates among youth in our community.

Policy and Health Insurance Programs

Some key informants recognized that existing programs like the Breast, Cervical, and Colon Health Program, the Children's Health Insurance Program (CHIP), Medicaid, and state immunization initiatives are already helping families access cervical cancer screening and HPV vaccination. They emphasized the importance of ensuring that families are aware of and enrolled in these programs, as this often determines whether they can receive care. Several participants also highlighted the value of federally funded programs such as the Vaccines for Children (VFC) Program, which provides free vaccines to eligible children. They suggested that promoting these programs more actively through schools, clinics, and community events could significantly increase HPV vaccination rates.

Participants agreed that building on these trusted systems and services makes outreach more sustainable and culturally appropriate and helps reduce disparities in access and outcomes.

Chapter 5: Discussion, Conclusions, and Recommendations

Cervical cancer remains a leading cause of morbidity and mortality among women globally, despite being largely preventable through regular screening and HPV vaccination (Hamid et al., 2025; WHO, 2023, n.d.). In the United States, persistent disparities in HPV vaccine uptake and cervical cancer screening continue to affect immigrant and minority women disproportionately (Adegboyega et al., 2017; N. L. Johnson et al., 2020). Among African immigrant mothers, these disparities are compounded by cultural, structural, and informational barriers that limit access to preventive care (Omenka et al., 2020). This qualitative study explored the African immigrant mothers' knowledge, awareness, and utilization of HPV vaccination and cervical cancer screening. It examined the cultural, social, and systemic factors, as well as broader social determinants and policy contexts, that shape access to and utilization of cervical cancer prevention services in Washington State. Using the Health Belief Model (HBM) and the Social-Ecological Model (SEM) as guiding frameworks, the research examined how individual perceptions, interpersonal relationships, and systemic determinants interact to shape preventive health behaviors.

Research Purpose and Questions

The primary aim of this study was to understand the factors influencing African immigrant mothers' engagement with HPV vaccination and cervical cancer screening, with particular attention to cultural and structural influences. The research also sought to identify effective intervention strategies to enhance screening rates and vaccine uptake among mothers and their children aged 9 to 17. Three research questions guided this investigation:

1. What are the levels of knowledge, awareness, and utilization among African immigrant mothers regarding HPV vaccination and cervical cancer screening?

2. What intervention strategies can effectively improve cervical cancer screening rates among African immigrant mothers and increase HPV vaccination uptake among their children?
3. What are the perspectives of key informants regarding the social determinants affecting HPV vaccination and cervical cancer screening?

Overview of Research Design

This was a cross-sectional study guided by an interpretative phenomenological approach. This study sought to capture the lived experiences and meaning-making processes of African immigrant mothers as they navigate preventive health systems. The qualitative design, featuring individual interviews, focus group discussions, and key informant interviews, allowed for a deep exploration of how cultural beliefs, gender norms, healthcare experiences, and systemic barriers shape women's engagement in cervical cancer prevention (Creswell & Poth, 2018). The integration of HBM and SEM frameworks enabled the examination of both personal and contextual influences, providing a multi-level understanding of health behaviors (McLeroy et al., 1988; Rosenstock, 1974).

Summary of Findings

Analysis across all data sources revealed 25 emergent themes organized at the individual, interpersonal, community, institutional, and policy levels. These themes illuminated a complex interplay among cultural values, limited health literacy, and structural inequities that influence preventive health behavior. Participants reported moderate levels of awareness about HPV and cervical cancer, often shaped by misinformation, cultural taboos, and religious beliefs. Many mothers expressed confusion regarding the purpose and safety of the HPV vaccine, frequently

associating it with early sexual activity or Western cultural norms, echoing findings from prior research among immigrant women (Kingori et al., 2018b; Sewali et al., 2015).

Structural barriers further compounded these challenges. Participants described limited access to healthcare services due to language difficulties, transportation constraints, immigration-related fears, and lack of health insurance. These factors are consistent with the broader literature on immigrant health disparities (Omenka et al., 2020; Roberts et al., 2021). Despite these barriers, many women expressed strong motivation to protect their families' health, underscoring the need for culturally appropriate, community-centered approaches that build trust and empower informed decision-making.

The study found that trust in healthcare systems and the alignment of information delivery with cultural norms are central to improving preventive health behaviors. Participants highlighted the importance of faith-based and community-led education, particularly through churches, mosques, and local associations, settings where they felt understood and respected. Key informants, including public health professionals and community leaders, reinforced these perspectives, stressing that sustainable change must involve culturally tailored interventions, peer advocacy, and systemic support mechanisms that reduce socioeconomic and linguistic barriers (Adegboyega et al., 2017; Farajimakin, n.d.).

Furthermore, the findings underscore the role of social determinants of health (SDOH), including education, income, housing stability, and neighborhood environment, in shaping healthcare access and utilization (Chelak & Chakole, n.d.). Limited English proficiency and experiences of discrimination further constrained mothers' ability to navigate the healthcare system effectively. However, community networks and trusted leaders served as powerful

sources of information and motivation, suggesting that culturally embedded communication strategies are vital for improving uptake of preventive services.

Contribution and Significance

This research contributes to a deeper understanding of how African immigrant mothers conceptualize and engage with cervical cancer prevention within the context of migration, culture, and systemic inequities. By situating findings within the frameworks of HBM and SEM, the study bridges the gap between individual beliefs and structural realities, offering an integrated perspective on immigrant women's health behaviors. The insights gained extend theoretical applications of both models by incorporating the lived experiences of African immigrant mothers and emphasizing collective, faith-based, and relational decision-making processes often overlooked in traditional behavioral theories.

Ultimately, the findings advance efforts toward health equity, cultural competence, and community empowerment in public health practice. They call for a paradigm shift from awareness campaigns focused on individual behavior to multi-level interventions that address cultural values, systemic barriers, and social determinants simultaneously. As such, this dissertation contributes not only to academic understanding but also to practical, policy, and community-based strategies for reducing cervical cancer disparities among African immigrant women and their families.

Interpretation of the Findings

The findings of this study provide insight into the complex interplay of individual, cultural, and systemic factors that shape preventive health behaviors in this population.

Influence of Key Demographic Patterns in the U.S. on Healthcare Engagement

Length of Stay in the United States

The length of time African immigrant mothers had lived in the United States emerged as a critical determinant of their engagement with the healthcare system, particularly regarding preventive services such as HPV vaccination and cervical cancer screening. This finding aligns with a robust body of literature highlighting length of stay as a proxy indicator for acculturation, system navigation ability, and overall healthcare utilization (Juárez et al., 2024; Maru et al., 2021).

Firstly, Participants who had lived in the U.S. for fewer than five years face considerable barriers, including language difficulties, unfamiliarity with the healthcare system, and limited knowledge of preventive services. These challenges are consistent with findings from Abood et al., (2021) and Khanal, (2025), who observed that recent immigrants often experience confusion and frustration when interacting with complex healthcare systems, leading to underutilization of preventive services.

Moreover, limited English proficiency has been repeatedly cited as a barrier to accessing health information, scheduling appointments, and understanding provider recommendations (Khanal, 2025; Twersky et al., 2024; Uscher-Pines et al., 2023). As a result, many newly arrived immigrants depend heavily on informal networks, particularly religious and ethnic communities, for guidance, as also noted in studies by Jacquez et al., (2024) and Galstyan et al., (2024). However, while these networks may provide emotional and social support, they can sometimes perpetuate misinformation, particularly around stigmatized health issues such as HPV and cervical cancer.

Secondly, those residing in the U.S. for 5 to 15 years achieve partial integration, demonstrated by having health insurance and established relationships with regular providers. This group experience mixed levels of trust in healthcare professionals, shaped by both positive and negative encounters. This reflects findings by D'Alonzo & SN, (2020), Radl-Karimi et al., (2022) and (Jongen et al., 2018) who emphasized that trust in the healthcare system among immigrants is often contingent on culturally responsive care and prior treatment experiences. Their attitudes toward HPV vaccination and cervical cancer screening may appear to reflect a state of cultural negotiation. Previous studies have found that mid-term immigrants may adopt some U.S. preventive health norms while still holding on to cultural health beliefs from their countries of origin (MacPherson & Gushulak, 2017; Zaidi et al., 2024). This dual influence often results in ambivalence about the necessity or safety of HPV vaccines and cervical cancer screenings, especially when preventive care is less emphasized or differently conceptualized in their home countries (H. W. Kim & Kim, 2015; Zach & Bentwich, 2023).

Thirdly, Participants with over 15 years of residence were more acculturated and autonomous in healthcare decision-making. These participants exhibited bicultural competence, adopting U.S. health norms while maintaining aspects of their cultural identity. Research by Coughlin et al., (2020), Fox et al., (2017) and Levin-Zamir et al., (2017) supports the notion that bicultural individuals often demonstrate the highest levels of health literacy and system navigation skills, contributing to improved preventive care utilization. These findings are also consistent with Rosowicz & Hewitt, (2025b) and Santiago-Rodríguez et al., (2023), who reported that the longer immigrants remain in the U.S., the more likely they are to engage in preventive services, such as cancer screenings. Increased exposure to health education campaigns, routine provider interactions, and public health messaging over time likely contributed to these

participants' more profound understanding and acceptance of services such as HPV vaccination and Pap testing (Leung et al., 2019).

The results reaffirm that length of stay serves as both a determinant of health and a marker of acculturation, influencing access to, beliefs about, and behaviors related to preventive care. This echoes arguments by Commodore-Mensah et al., (2016), "Disparities In Healthcare," (2021) and Liu et al., (2016), who noted that the length of residence in the U.S. is often positively associated with health knowledge and system utilization, although disparities can persist due to systemic and structural barriers.

To address the varying needs across immigrant populations, tailored interventions are essential. For newer immigrants, efforts should focus on culturally and linguistically appropriate health education, community-based navigation support, and partnerships with trusted cultural and faith-based organizations (Abood et al., 2021b; Bekele et al., 2024; Theodosopoulos et al., 2024). For mid-term residents, initiatives that build trust in providers and clarify the benefits and safety of preventive services may be especially impactful. Long-term residents may benefit from being engaged as peer health advocates or cultural brokers to support newer immigrants (M. Pandey et al., 2021a; Stubbe, 2020).

Educational Levels

In this study, 71% of African immigrant mothers reported having a bachelor's degree or higher, indicating that the sample was relatively well educated. This demographic trend is consistent with broader research on African immigrants in the U.S., who are among the most highly educated immigrant populations (Anderson, 2017; Malika et al., 2023). While this level of educational attainment is often presumed to correlate with improved health literacy and greater

uptake of preventive care, this study's findings highlight a more complex reality (G. Chen et al., 2021).

Although formal education equips individuals with cognitive skills that may help them understand health information (Auld et al., n.d.; Raghupathi & Raghupathi, 2020), it does not automatically ensure high health literacy, particularly in a new cultural and healthcare environment (Levy & Janke, 2016; Rice & Liamputtong, 2023; Zhou et al., 2022). Health literacy, especially in the U.S. context, requires the ability to access, process, and act on health information within a highly bureaucratic and insurance-driven healthcare system, skills that even well-educated immigrants may lack (Allen-Meares et al., 2020; Griese et al., 2020; Kyle & Frakt, 2021; Sepassi et al., 2023).

This gap is particularly evident in preventive services like HPV vaccination and cervical cancer screening, which require knowledge not only of the diseases they prevent but also of U.S.-specific recommendations, insurance navigation, and provider interaction styles (Allen-Meares et al., 2020; Beavis et al., 2022; Dean et al., 2025). In this study, participants with higher levels of education expressed a desire for more information, as reflected in critical questioning and heightened concern about vaccine safety, long-term effects, and conflicting messages from various sources. This finding echoes Parker, (2024) and Jansen et al., (2018), who found that higher education can lead to more engagement with media and information sources, which when conflicting, can foster skepticism rather than confidence.

Participants with post-secondary education demonstrated greater autonomy in health decision-making, including questioning physicians, seeking second opinions, and conducting personal research. This behavior aligns with findings from Demir et al., (2023), and S. Liu et al., (2023) who observed that educated individuals are more likely to exhibit active health-seeking

behaviors and a participatory communication style. However, this autonomy can sometimes delay preventive service uptake if information needs are not met or if trust in providers is lacking (Hoagland & Kipping, 2024; Malika et al., 2023).

Indeed, several participants emphasized the importance of clear, culturally tailored, and evidence-based information before consenting to HPV vaccination for their children. This reflects the theoretical framework of the Health Belief Model, where perceived susceptibility, severity, benefits, and barriers filtered through cultural and educational lenses determine health behaviors (Alyafei & Easton-Carr, 2025a; Rosenstock, 1966).

For African immigrant mothers, education does not occur in a cultural vacuum. The intersection of educational attainment, cultural beliefs, and past healthcare experiences in their countries of origin may shape how they interpret and act on health information. In some cases, higher education levels may reinforce culturally embedded mistrust of vaccines or modern medical interventions, particularly when these are perceived as conflicting with religious beliefs or traditional values (Malika et al., 2023; Trangerud, 2023a). Participants with advanced education sometimes expressed sophisticated reasoning, but also sometimes displayed suspicious reasoning, demanding scientific proof or expressing concern about pharmaceutical motives behind vaccination campaigns. This critical stance is mirrored in the work of Sharma et al., (2023) and Coulibaly (2023), who found that even among educated African immigrants, exposure to transnational misinformation networks via WhatsApp, social media, and diaspora networks could heighten hesitancy.

On the other end of the spectrum, participants with only high school or associate degrees reported being more likely to rely on oral information, especially from trusted community figures, healthcare providers, family members, or social media. Their engagement with

preventive services was often dependent on interpersonal communication rather than personal research. This is supported by findings from Muscat et al., (2021) and Visscher et al., (2018), who argue that individuals with lower educational attainment benefit most from simplified, pictorial, and community-embedded health messaging.

Despite this, several of these participants still expressed motivation to protect their children, indicating that protective maternal instincts may bridge the gap between lower formal education and positive health behavior, especially when culturally sensitive support is provided (Rezaeizadeh et al., 2024; Vikram & Vanneman, 2020).

Religion

In this study, a large majority of participants (87%) identified as Christian, with 13% identifying as Muslim, highlighting the centrality of faith in the lives of many African immigrants. Religion is not just a personal belief system; it is a powerful social determinant of health, influencing perceptions of illness, healthcare-seeking behavior, and community trust (Balboni et al., 2022; Koenig et al., 2023; Long et al., 2024b; Oman, 2018). Among African immigrants in the U.S., faith-based communities often serve as vital spaces for social support, identity preservation, and moral guidance (A. W. Nguyen, 2020; Sackey-Ansah, 2020).

Faith institutions, particularly churches and mosques, have long been recognized as effective vehicles for health promotion and disease prevention in minority communities. Religious leaders, due to their moral authority and deep community ties, often play dual roles as spiritual counselors and informal public health educators (Abu-Ras et al., 2024; Kwon et al., 2017). Several studies have documented the success of engaging faith leaders in promoting HPV vaccination, breast cancer screening, and HIV testing, particularly among African and African

American populations (Kaaria et al., 2024; Lahijani et al., 2021a; Le et al., 2018). For example, Habila et al., (2021) and Kapambwe et al., (2019) found that when Nigerian faith leaders endorsed cervical cancer screening, uptake increased significantly among women who had previously been hesitant. Similarly, Heward-Mills et al., (2018) and Long et al., (2024a) emphasized that religiously framed health messages, those that incorporate scriptural references, promote bodily stewardship, and appeal to divine responsibility, can resonate strongly with faith-based audiences (Foran et al., 2025).

However, religious interpretations can also contribute to vaccine hesitancy or rejection of reproductive health services, especially when linked to beliefs about sexuality, modesty, or divine protection (Kibongani Volet et al., 2022; Tiwana & Smith, 2024; Trangerud, 2023b). For instance, in some Christian denominations, HPV vaccination may be wrongly associated with sexual promiscuity, leading to parental resistance (Best et al., 2019; Hittson et al., 2023). Among Muslims, some concerns include the permissibility of vaccine ingredients (e.g., gelatin), despite fatwas that support HPV vaccination (Kisa & Kisa, 2024; Maravia & House, 2020). Thus, collaborating with religious leaders to co-create and disseminate health messages rooted in both scientific evidence and faith-aligned values could significantly improve community engagement. As Williams et al., (2024) and Barmania & Reiss, (2021) point out, health interventions anchored in religious networks often enjoy higher participation rates, deeper trust, and longer-lasting impact (Foran et al., 2025).

Country of Birth

The finding that 52% of participants were Kenyan suggests that Kenyan-specific cultural beliefs, health-seeking practices, and diaspora community dynamics may heavily shape the overall data. This is important given that the country of origin strongly influences immigrants'

baseline understanding of diseases, gender norms, and trust in medical systems (Ahmadinia, 2023; Maehler & and Daikeler, 2024).

In Kenya, as in many parts of East Africa, topics like HPV, cervical cancer, and sexual health are often stigmatized or surrounded by cultural taboos, especially within more conservative or rural communities (Adewumi et al., 2022; Ginjupalli et al., 2022; Rosser et al., 2016). This stigma can lead to silence around reproductive health, delayed screening, and discomfort discussing vaccination with children (McKenzie et al., n.d.). Choi et al., (2020) and Onyango et al., (2024) found that even educated Kenyan women in Nairobi had significant misconceptions about the causes and prevention of cervical cancer.

Moreover, for Kenyan immigrants, cultural norms around deference to authority, modesty, and collective decision-making often persist even after resettlement in the U.S. (Kabuiku, 2017). This can influence both the reliance on community networks for health information and the hesitancy to adopt preventive services without consensus from respected community members or elders (Coombs et al., 2022).

Transnational ties, including connections to WhatsApp groups, religious networks, and family in the home country, also shape health beliefs and decisions. This flow of information can introduce both supportive messages and misinformation, such as vaccine conspiracy theories or spiritual alternatives to medical care (Heidinger, 2024; Omenka et al., 2020; Plaza & Plaza, 2019).

Importantly, while many participants have lived in the U.S. for years, acculturation is not uniform. Cultural values often remain intact across generations, especially when reinforced through ethnic enclaves or regular interaction with their country of origin. This aligns with

Berry's Acculturation Model, which suggests that immigrants may retain their heritage identity while adopting select aspects of the host culture (van der Zee & van Oudenhoven, 2022; M. S. Williams & Liu, 2023; Worthy et al., 2025).

Age of Participants

The findings revealed that 71% of participants are aged 30–39. This reflects a pivotal stage of adulthood where women often balance work, family, and community roles. In this age bracket, mothers are typically the primary health decision-makers for their children, especially regarding preventive services such as HPV vaccination and cervical cancer screening (Macias, 2023). Numerous studies have emphasized that mothers in this demographic serve as gatekeepers of health for their households (Berger et al., 2022; Macias, 2023; Schoppe-Sullivan et al., 2015). These women are not only more likely to attend pediatric visits, but are also in a developmental phase where they may be navigating reproductive health concerns (Daniel et al., 2018; Starrs et al., 2018), thus increasing their relevance and sensitivity to HPV-related education and services (Sood et al., n.d.; Stephens et al., 2023).

Importantly, mothers in their thirties are also more likely to be exposed to health promotion campaigns via digital platforms and social networks, which they often use to seek health-related information (Fitzpatrick, 2023; Saher et al., 2024; Waring et al., 2023). This provides a strategic opportunity for targeted digital health interventions and culturally tailored messaging about HPV vaccination.

Additionally, developmental theories, such as Erikson's psychosocial stages, position adults in their 30s within the "Generativity vs. Stagnation" stage (Erikson, 1968; Mitchell et al., 2021), where the desire to protect and nurture the next generation is paramount (Marcia, 2017;

Orenstein & Lewis, 2025). This psychosocial motivation can enhance mothers' receptivity to health messages that emphasize protecting their children's long-term health through vaccination and screening (I. L. Chan et al., 2024; Novilla et al., 2023; Olvera et al., 2025).

Relationship Status

The research revealed that 81% of participants identified as married. This highlights the importance of family dynamics in healthcare decision-making. Marital status can serve as both a facilitator and a filter for health behavior, particularly in immigrant communities where decision-making is often collective rather than individual (Kavanagh et al., 2023; J. A. Kim et al., 2015; Loi et al., 2025).

Married women may benefit from greater emotional, logistical, and financial support, which are critical factors in navigating the U.S. healthcare system (Grand-Guillaume-Perrenoud et al., 2022; Idris et al., 2023; K. R. Pandey et al., 2019). The involvement of spouses, especially male partners, has been shown to significantly influence women's willingness to engage in sexual and reproductive health services, including HPV vaccination for daughters and Pap smear testing (de Fouw et al., 2023; Dsouza et al., 2022; Y. Lin et al., n.d.).

Conversely, the small number of single, separated, or divorced participants in the study raises important considerations around health autonomy and structural barriers. These women may possess greater autonomy in making health decisions for themselves and their children, but they often face heightened barriers such as limited childcare, lower income, and reduced access to transportation, all of which are known to affect preventive health uptake negatively (Alvarez et al., 2022; Gaur et al., 2024; McMaughan et al., 2020).

From a social-ecological perspective, relationship status intersects with structural and interpersonal levels of influence, reinforcing the need for multi-level interventions that consider the role of partners, economic stressors, and caregiving burdens (A. E. Austin et al., 2020; Castillo et al., 2019; Tough et al., 2022).

Geographic Distribution

The concentration of African immigrant mothers in urban and suburban counties such as King, Snohomish, Pierce, and Kitsap reveals how geography continues to play a decisive role in shaping healthcare engagement, access, and outcomes. These counties are home to the majority of Washington State's immigrant populations and have comparatively stronger healthcare infrastructure, more culturally responsive services, and public health systems designed to support immigrant health needs (Bolton, n.d.; Bulger et al., 2017; *Home*, n.d.; Roberts et al., 2021; Upadhyay & Smith, 2020).

King County serves as a hub for refugee and immigrant populations, including many East African immigrants. The county has been proactive in developing community-based health initiatives that integrate cultural mediators, faith-based leaders, and language access services to promote preventive care (Roberts et al., 2021; R. K. Sharma et al., 2023). These efforts have been shown to increase trust and utilization of services such as HPV vaccination and cervical cancer screening (Rathod et al., n.d.; Xu et al., 2023).

The urban advantage in healthcare access aligns with findings from national studies that show immigrant health outcomes often vary significantly by geographic location (Labban et al., 2023; Woodgate et al., 2017), with urban areas offering better access to specialized services, interpreter support, and public health campaigns (Anawade et al., n.d.; Cyr et al., 2019; Mseke et

al., 2024; M. Pandey et al., 2021b). For instance, urban counties are more likely to have Federally Qualified Health Centers (FQHCs), school-based health clinics, and culturally tailored programs that enhance HPV vaccination uptake (Shin et al., n.d.; Vinci et al., 2022). While counties like Whatcom, Skagit, Thurston, and Clark had modest representation in the study, the noticeable absence of participants from Central and Eastern Washington counties, including Spokane, Benton, and Franklin, reflects a broader challenge in healthcare equity research: the systematic underrepresentation of rural immigrant populations (X. Chen et al., 2019; Healthcare Access in Rural Communities Overview - Rural Health Information Hub, n.d.).

Rural communities often suffer from healthcare deserts, where residents face long travel distances, limited public transportation, and a shortage of healthcare professionals, especially those trained in culturally competent care (Brînzac et al., 2023; National Academies of Sciences et al., 2021a). These structural barriers are exacerbated for immigrant families, who may also face language barriers, immigration-related fear, and social isolation (Asif & Kienzler, 2022; Derr, 2016; Martinez et al., 2015; T. P. Nguyen et al., 2024).

Studies have documented that immigrants living in rural areas have lower rates of preventive service utilization, including HPV vaccination, due to a lack of targeted outreach and mistrust in the healthcare system (Du et al., 2024; Perreira & Pedroza, 2019). This underrepresentation raises concerns about the generalizability of urban-centric studies, as the lived experiences and barriers faced by rural African immigrant mothers may go undocumented and unaddressed in current public health efforts (Bailey et al., 2015).

The findings resonate with place-based health frameworks, which argue that geography is not merely a backdrop for health but an active determinant shaped by economic opportunity, political will, and historical inequities (Arcaya et al., 2015; Burgemeister et al., 2021). The

Social Determinants of Health (SDOH) model underscores how place, urban versus rural, intersects with ethnicity, socioeconomic status, and immigration history to influence health behavior and service access (Brakefield et al., n.d.; C. Lin et al., 2024).

Public health scholars increasingly call for structural competency, which urges providers and systems to move beyond cultural explanations and recognize how geographic segregation, funding disparities, and policy decisions shape access to care (Bazargan et al., 2021; Bourgois et al., 2017; Metzl et al., 2018). For African immigrant mothers in rural Washington, the interplay between geography and immigration status can magnify vulnerabilities, creating a perfect storm of underserved needs and invisible barriers (Castañeda et al., 2015; Perreira & Pedroza, 2019).

Demographic Interactions

The findings reveal multidimensional interactions between education, religion, trust in providers, and acculturation. For example, women with higher education demonstrated greater awareness but were equally constrained by cultural norms. Religious affiliation both facilitated and hindered engagement; churches and mosques were safe spaces for learning, yet moral taboos limited open dialogue. Both race and gender preferences shaped trust in providers; many preferred female doctors due to modesty, while others expressed discomfort with insensitive care.

These dynamics suggest that interventions cannot treat demographics as isolated variables. Instead, they intersect to produce complex behavioral outcomes. The results extend existing literature by showing that, for immigrant mothers, knowledge alone is insufficient; trust, communication, and social validation are equally decisive. These challenges stem from prior

studies that overemphasized awareness as the primary barrier (Omenka et al., 2020; Ozturk et al., 2024b).

Taken together, the findings illustrate that African immigrant women's engagement with preventive healthcare is shaped by intersecting personal, cultural, and structural realities. Low health literacy and misinformation shape beliefs; cultural and gender norms regulate behavior; and systemic inequities constrain access. However, substantial social capital within communities provides an avenue for transformation through faith-based engagement, peer education, and policy-level inclusion.

Thus, improving HPV vaccination and cervical cancer screening requires a multi-level strategy that empowers women, trains culturally competent providers, and strengthens cross-sector collaboration. This study reinforces that health behavior change among immigrant populations is not merely an individual process; it is socially negotiated and structurally conditioned.

Research Question 1

What are the levels of knowledge, awareness, and utilization among African immigrant mothers regarding HPV vaccination and cervical cancer screening?

This research question explores the individual and interpersonal factors that shape African immigrant mothers' knowledge, awareness, and utilization of HPV vaccination and cervical cancer screening. Guided by the Health Belief and the Social Ecological frameworks, this section examines how personal beliefs, cultural norms, interpersonal dynamics, and information access collectively influence decision-making.

Theme 1: Knowledge and Awareness of HPV and Cervical Cancer

Findings revealed that African immigrant mothers demonstrated varied yet generally high knowledge and awareness of human papillomavirus (HPV) and its connection to cervical cancer. However, some participants had never heard of HPV or the HPV vaccine before migrating to the United States. In contrast, others confused it with HIV or perceived it as a concern only for sexually active individuals. As one mother asked, "Why vaccinate now when she is not even sexually active?" (P07). This perception aligns with the Health Belief Model (HBM) construct of perceived susceptibility, where mothers underestimated their daughters' vulnerability to HPV infection due to assumptions about age and sexual activity. Similarly, several women viewed cervical cancer as a disease affecting only older, promiscuous, or already ill women, reflecting a low perceived severity of risk (Rosenstock, 1974).

These misconceptions were reinforced by cultural and religious beliefs that shape how sexual health is discussed within families. Some participants described modesty norms that discourage open dialogue: "In our culture, you only discuss such things when someone is ill." (P06). Myths and misinformation, such as fears that the HPV vaccine causes infertility or promotes promiscuity, further amplify hesitancy. One participant shared, "They say if you take the vaccine, you become barren." (P09). These findings mirror prior research showing that cultural taboos surrounding reproductive health education contribute significantly to low HPV vaccine uptake among African immigrant women (Mohd. Tohit & Haque, n.d.; Netfa et al., 2020).

In line with earlier studies by Adegboyega et al., (2025) and Ko et al., (2019), the present findings confirm that misinformation, stigma, and limited understanding of HPV transmission hinder preventive health behavior. The lack of accurate knowledge about HPV's role in cervical

cancer has been identified as a barrier to vaccine acceptance and screening participation across African immigrant populations in the United States (Adegboyega et al., 2023; Ojeaga et al., 2019). Furthermore, Baandrup et al., (2024) and D. N. S. Chan et al., (2023) emphasize that awareness and perceived relevance of the HPV vaccine are essential precursors to uptake; without this foundation, individuals often remain disengaged, even when preventive services are available and affordable.

Beyond informational barriers, participants' narratives revealed issues of trust and communication with healthcare providers. Some described negative clinical encounters in which they felt dismissed or inadequately informed: "They did not explain anything, just said go and take the vaccine." (P04). Such experiences reflect both perceived barriers in HBM and the social determinants of healthcare access and quality within the SEM framework (McLeroy et al., 1988). Inadequate provider communication, lack of cultural sensitivity, and limited translation services compounded uncertainty and eroded confidence in the healthcare system. These experiences are consistent with previous studies indicating that African immigrant women often rely on informal networks for health information, which can perpetuate myths or misinformation (Cudjoe et al., n.d.).

Addressing these knowledge gaps requires not only informational interventions but also culturally grounded communication strategies. Evidence suggests that culturally and linguistically appropriate education, including visual and community-based formats, significantly improves HPV vaccine acceptance and screening participation (Adegboyega et al., 2022, 2025; Makadzange et al., 2022). By engaging trusted community leaders, faith organizations, and peer educators, public health initiatives can create culturally safe spaces where mothers feel respected and empowered to ask questions and make informed decisions.

Theme 2: Cultural and Religious Beliefs

Cultural and religious beliefs emerged as powerful influences shaping African immigrant mothers' perceptions of HPV vaccination and cervical cancer screening. Many participants described deep discomfort with discussing topics related to sexual and reproductive health, viewing them as inappropriate, taboo, or morally sensitive. The association of HPV vaccination with sexual activity generates significant hesitation, as mothers fear it might be interpreted as promoting early sexual behavior or violating cultural norms of modesty and purity. One mother explained, "Talking about sexuality and sexual health is difficult for us because of cultural barriers" (P08). This finding aligns with the Health Belief Model (HBM) constructs of perceived barriers and cues to action, as cultural taboos and moral restrictions act as psychological and social barriers to preventive behaviors (Rosenstock, 1974). It also reflects the Social Ecological Model's dimension of social and community context, in which shared values, social norms, and religious influences shape health decision-making within immigrant communities (McLeroy et al., 1988).

Several participants reported that religious doctrines or the guidance of community elders discouraged open discussions about sexuality and reproductive health. Similar to findings by Kingori et al. (2018), Amuta-Jimenez et al. (2022), and Mohd Tohit and Haque (n.d.). Participants indicated that topics such as HPV and cervical cancer were often framed within moral discourses emphasizing chastity and faith. As one mother stated, "My Imam will never talk about something like this at the mosque, no way" (P06).

These attitudes were further reinforced by mistrust in Western medicine, often stemming from historical injustices, negative experiences with healthcare providers, or fear of exploitation. Studies by Hassan et al., (2021), Prall, (2024), and Shukla et al., (2025) similarly found that

skepticism toward biomedical interventions, combined with religious and cultural values, contributes to vaccine hesitancy among African and Muslim immigrant populations. For many participants, health decisions were also mediated through family hierarchies, particularly male partners. Several mothers shared that they sought their husbands' approval before scheduling screening appointments or vaccinating their children, illustrating how gendered power dynamics intersect with cultural expectations of respect and obedience.

This aligns with HBM's perceived barriers and self-efficacy constructs; women felt limited in their autonomy to act despite awareness of potential benefits, and with SDOH's emphasis on social structure and gendered roles (Idris et al., 2023; Okeke-Ihejirika et al., 2022). In line with studies by Hassan et al., (2021) and Swihart et al., (2025), participants noted that preventive care was more acceptable when framed within culturally familiar narratives of family protection and moral responsibility, rather than sexuality.

Theme 3: Misinformation and Stigma

Misinformation and stigma were pervasive across participants' accounts, serving as major deterrents to HPV vaccination and cervical cancer screening. Participants cited inaccurate messages circulating through community networks, social media, and informal peer discussions. Common myths included claims that the HPV vaccine causes infertility, promotes sexual promiscuity, weakens the immune system, or is part of a population control effort targeting African communities. One participant reflected, "I heard they made this vaccine to stop Africans from having children" (P09). These narratives demonstrate how misinformation operates at the community and interpersonal levels of the SEM, where social networks serve as powerful conduits of information and cultural meaning (McLeroy et al., 1988). They also align with

HBM's perceived barriers, such as fear, distrust, and confusion, which reduce motivation to engage in preventive behaviors (Rosenstock, 1974).

When misinformation comes from trusted community figures, elders, faith leaders, or social influencers, it becomes more difficult to counter with factual messages. This echoes findings from Nasuto & Rowe, (2024) and Sylvia Chou et al., (2020, p. 020), who found that emotionally charged or fear-based misinformation spreads rapidly within immigrant networks and often outweighs clinical advice. Participants explained that even after receiving accurate information from healthcare providers, their perceptions and decision-making remained shaped by prior exposure to alarming rumors.

Structural factors also exacerbate the impact of misinformation. Language barriers, limited access to credible health education, and underrepresentation of African voices in public health campaigns create a vacuum that misinformation readily fills (Ekezie et al., 2022; Etowa et al., 2024). This reflects the SEM dimensions of education access and healthcare quality, illustrating how systemic inequities in health communication infrastructure perpetuate misinformation among marginalized populations (Vlasak et al., 2023). Consistent with findings by McFadden et al., (2021), Rodrigues et al., (2023), and Wilson et al., (2016), participants' reliance on digital platforms like WhatsApp, Facebook, and YouTube amplified misinformation faster than official health messages could correct it. Such misinformation exploits preexisting distrust, historical trauma, and racialized experiences with healthcare systems (Amazeen et al., 2024; Shukla et al., 2025).

Theme 4: Trust in Healthcare Providers and Systems

Trust in healthcare systems and providers emerged as a decisive factor influencing mothers' engagement with HPV vaccination and cervical cancer screening. Participants

described how provider demeanor, communication style, and cultural awareness directly affected their comfort and confidence in healthcare decisions. Positive experiences in which providers explained procedures clearly, listened attentively, and showed respect encouraged uptake of preventive services, whereas rushed consultations, judgmental language, or perceived insensitivity led to disengagement.

These findings align with HBM's cues to action, emphasizing the provider's role as a catalyst for health behavior, and with SEM's institutional and healthcare access dimensions, which emphasize the structural importance of provider-patient relationships in shaping health equity (Rosenstock, 1974; McLeroy et al., 1988). Prior research supports this association, showing that provider recommendation is one of the strongest predictors of HPV vaccine uptake (Chido-Amajuoyi et al., 2024; Gilkey et al., 2016; Oh et al., 2021).

Participants' mistrust was often rooted in experiences of discrimination or feeling dismissed by healthcare professionals. One mother stated, "There is so much discrimination in the public hospitals, so I prefer going to the private hospitals" (P04). Such experiences reflect HBM's perceived barriers and systemic inequities operating across the organizational and policy levels of the Social-Ecological Model (SEM), particularly within the domain of healthcare access and quality. Studies by Omenka et al., (2020), Malika et al., (2023), and Coombs et al., (2022) confirm that lack of cultural competence, limited interpreter services, and low provider diversity exacerbate mistrust among African immigrants. Conversely, research by Lip et al., (2023) and Holford et al., (2024) demonstrates that providers who communicate confidently yet empathetically using a presumptive approach while addressing concerns achieve higher vaccination acceptance. Trust is thus relational, built on mutual respect, transparency, and shared understanding rather than solely technical expertise (Correia, 2024; Ghio et al., 2021).

Theme 5: Perceived Risk and Benefits

A recurring theme across participants' narratives was the underestimation of susceptibility to HPV infection and cervical cancer. Many mothers perceived their children as "too young" or "not sexually active," concluding that vaccination was unnecessary. Others regarded cervical cancer as a distant or unlikely risk. These perceptions correspond with the HBM constructs of perceived susceptibility and perceived severity, both of which strongly predict engagement in preventive behaviors (Rosenstock et al., 1988). This aligns with findings by Ghosh et al., (2024) and X. Chen et al., (2024), who found that when individuals underestimate personal or familial risk, they are less likely to participate in screening or vaccination. Cultural sensitivities around sexuality reinforced these perceptions; mothers equated the HPV vaccine with premature exposure to sexual topics, reducing perceived benefits and heightening perceived barriers (Huang et al., 2022; Wong et al., 2020).

Some participants also feared potential side effects, expressing concerns that the vaccine might cause infertility or other long-term health problems. These fears diminished the perceived benefits of preventive care and were often perpetuated by misinformation within social networks (Vázquez-Otero et al., 2024). According to Beavis et al., (2022) and Sharp et al., (2024), perceived benefits are enhanced when individuals clearly understand the protective function of vaccines and perceive the health system as trustworthy.

Theme 6: Family and Community Influence

Family and community influence played a defining role in shaping mothers' preventive health decisions. Participants described relying heavily on spouses, relatives, and community leaders for guidance, often seeking approval before acting. For many, health decisions were communal rather than individual. One participant explained, "If my husband does not agree, I

cannot go ahead to take the vaccine or screening" (P10). This reflects the SEM's interpersonal and community levels, where family hierarchies and collective values exert substantial influence over individual health behaviors (McLeroy et al., 1988). It also corresponds to HBM's modifying factors, which recognize social norms and interpersonal dynamics as key determinants of perceived benefits and barriers.

Gender norms were particularly salient: male partners often acted as gatekeepers for healthcare decisions, echoing findings by Klu et al., (2024), Idris et al., (2023), and Nambile Cumber et al., (n.d.), who note that patriarchal family structures in African immigrant communities can limit women's autonomy in reproductive health.

Community networks also acted as both barriers and facilitators. When respected community or faith leaders endorsed HPV vaccination or screening, mothers expressed greater trust and willingness to participate. Studies by de Fouw et al., (2023) and Adewumi et al., (2019) similarly found that male and religious leader involvement increased awareness and improved vaccine uptake.

Theme 7: Access to Accurate Health Information

Finally, participants emphasized the lack of access to accurate, culturally and linguistically appropriate health information. Many reported experiencing confusion due to limited English proficiency or difficulty navigating complex medical systems. Participants preferred receiving information through trusted sources in their native languages, such as community health workers, religious leaders, or ethnic media.

This theme reflects HBM's cues to action, as timely and comprehensible information is essential for informed preventive behavior (Adunlin et al., 2019; Beltran et al., 2016). Culturally tailored communication builds trust and bridges gaps in health literacy, especially among

immigrant populations with diverse linguistic backgrounds (Milton et al., 2023). Consistent with Adegboyega et al., (2023), Sewali et al., (2015), and Gebre et al., (2021), these findings reinforce the need for community-based and culturally grounded interventions. Collaborative efforts involving public health agencies, community-based organizations, and religious institutions can dismantle stigma, correct misinformation, and build community trust.

Research Question 2:

What intervention strategies can effectively improve cervical cancer screening rates among African immigrant mothers and increase HPV vaccination uptake among their children?

Research Question 2 explores strategies that can enhance awareness, accessibility, and utilization of cervical cancer prevention services among African immigrant mothers and their families. Grounded in the Health Belief Model (HBM) and Social Ecological Model (SEM) frameworks, the findings revealed that effective interventions must simultaneously address individual perceptions of susceptibility and benefits, cultural and social contexts, and structural determinants such as access, education, and trust in the healthcare system. The main strategies identified include community-based health education, faith- and culture-informed messaging, peer advocacy and storytelling, collaboration with community leaders, mobile outreach, culturally and linguistically appropriate materials, and HPV self-sampling.

Theme 1: Community-Based Health Education

Community-based education emerged as a foundational strategy for improving HPV vaccination and cervical cancer screening uptake. Participants emphasized that health education is most effective when delivered in trusted community settings, such as churches, mosques, women's groups, and community centers, where participants feel respected and understood. Some research have shown that community champions or leaders help translate knowledge into

action by providing appointment assistance, reminders, accompaniment, and culturally framed counseling (Lofters et al., 2023; Niccolai & Hansen, 2015). These spaces facilitate open discussions about topics that might otherwise be stigmatized, including reproductive and sexual health. This aligns with the HBM constructs of perceived barriers and cues to action, as culturally safe community spaces reduce psychological resistance and enhance readiness to act (Rosenstock, 1974). From an SEM perspective, these strategies address social and community context by leveraging local networks and relationships to promote engagement (McLeroy et al., 1988). Lahijani and colleagues conducted a qualitative case study with an African Methodist Episcopal church to explore perceptions of HPV and potential church-led promotion strategies; their findings emphasized the church's credibility and capacity to deliver tailored messages, but also cautioned about theological and organizational constraints that can limit message content or reach (Lahijani et al., 2021b).

Participants described how peer-led workshops, live question-and-answer (Q&A) sessions with healthcare professionals, and storytelling could dispel myths and improve understanding. One mother stated, "We wish our community leaders could share some of these health topics with us during our meetings". This finding echoes Koku et al., (2025) and Majekodunmi et al., (2024), who found that community-driven initiatives effectively reduce stigma and mistrust among African and other immigrant groups. Similarly, Ko et al. (2018) observed that East African mothers were more receptive to HPV education when delivered through community networks rather than through clinical institutions. Narrative and storytelling approaches (including digital storytelling) have been used to make HPV messages culturally resonant. Chen et al. (2023) tested a digital storytelling intervention for Korean American communities; it used participant-generated narratives to address concerns and model vaccine

behavior. The study reported improvements in vaccine-related knowledge, reduced hesitancy, and increased intention to vaccinate among participants exposed to digital stories. Storytelling works as a culturally congruent cue to action by leveraging shared experiences and social proof (A. C.-C. Chen et al., 2023).

Moreover, integrating religious institutions and community leaders into educational programs provides strong cues to action and enhances perceived benefits by framing preventive care as a community responsibility (Swihart et al., 2025a; Vanderslott et al., 2024). The World Health Organization (2016) supports this model through its Framework for Integrated People-Centered Health Services, advocating for "bringing health services to people, not people to services."(Hafiz et al., n.d.; World Health Assembly, 2016)

Finally, the use of storytelling, visual materials, and participatory discussions helps overcome literacy barriers and improves educational access within the community. Redd et al. (2024) found that a religiously focused video reduced beliefs that vaccination contradicts family values and increased parents' intentions to vaccinate their children compared with standard information (Redd et al., 2024). These approaches strengthen self-efficacy within the Health Belief Model (HBM) by empowering women to feel confident in engaging with preventive care and reflect the Social-Ecological Model (SEM) by promoting social learning and collective dialogue that reinforces trust, shared understanding, and community-level participation in cervical cancer prevention (Glanz et al., 2015; McLeroy et al., 1988). By empowering mothers with practical and relevant knowledge, community-based health education enhances confidence, autonomy, and the likelihood of preventive action (Aliyu et al., 2025; L. A. Brooks et al., 2019). A targeted educational program for Vietnamese American women (Fang et al., 2019) demonstrated improved knowledge and more favorable screening attitudes after community

workshops held at culturally familiar sites. Similarly, Choi & Kim, (2022) evaluated a cervical cancer prevention education program for rural Korean immigrant women and reported positive changes in awareness and intent to screen. These programs typically use bilingual educators, culturally framed materials, and group discussion.

Theme 2: Faith- and Culture-Informed Messaging

Faith and culture-informed messaging was identified as an intervention strategy for promoting cervical cancer screening and HPV vaccination. Participants emphasized that religious institutions and traditional leaders hold significant moral authority within African immigrant communities. When traditional leaders communicate health messages aligned with spiritual values such as family protection, stewardship of health, and collective well-being, participants report greater acceptance and comfort. This finding reflects HBM's perceived benefits and cues to action, as trusted religious figures can reframe vaccination as a moral duty and faith-consistent act (Adegboyega et al., 2023; Harmon et al., 2021). It also aligns with the SEM framework of social context, highlighting the influence of social cohesion and belief systems on health decisions (McLeroy et al., 1988). Empirical work has therefore tested interventions that embed cancer prevention messages in faith contexts (sermons, women's fellowships), use spiritually framed language, or deliver spiritually oriented reminders and testimonials to reach congregants in culturally meaningful ways (Le & Holt, 2018; Syed et al., 2023).

Participants shared that linking HPV vaccination to protection rather than sexuality made the message more acceptable. Studies by Petagna et al., (2024) and Xu et al., (2023) similarly, demonstrate that reframing HPV prevention as a family and faith issue improves uptake. Engagement with religious gatekeepers, such as pastors, imams, and traditional or ethnic elders or leaders, serves as a culturally appropriate cue to action, building legitimacy and reducing

stigma (Kingori et al., 2018b; Mustafa et al., 2017). Research by Yeary et al., (2019) and Padela et al., (2018) supports this approach, emphasizing that religiously contextualized health interventions foster reconciliation between faith and science. Again, Le et al. developed "CervixCheck," a faith-based SMS program for churchgoing Black women that increased awareness and intentions for Pap screening (Le & Holt, 2018). Jong et al., (2022) and Lahijani et al., (2021) also describe codeveloped interventions in churches that combined educational sessions with faith leader endorsement and community action (e.g., sign-ups for screening), yielding improvements in knowledge and intent and, in some cases, increased uptake when paired with service access.

Overall, faith-based health messaging fosters collective efficacy, extending HBM's self-efficacy construct at the community level by reinforcing communal trust, reducing perceived barriers, and promoting culturally congruent engagement with health services.

Theme 3: Peer Advocacy and Storytelling

Peer advocacy and storytelling were mentioned as trusted, practical, and effective approaches for increasing awareness and motivation. Participants emphasized that hearing personal stories from peers, especially mothers with similar experiences, humanized preventive care and dispelled myths. Testimonials were described as emotionally resonant, relatable, and easier to understand than clinical explanations. Within the HBM framework, peer narratives act as cues to action by modeling positive health behaviors and enhancing self-efficacy through vicarious learning (Bandura, 1997; Rosenstock, 1974). From the Social-Ecological Model (SEM) perspective, these peer-driven interventions capitalize on existing social networks and community trust, critical determinants that enhance the effectiveness of health communication and behavior change (McLeroy et al., 1988).

Several participants shared that witnessing friends complete screening or vaccination helped overcome fear. This reflects findings by Gobbo et al., (2023) and Iova et al., (2024), who reported that peer-led programs enhance HPV vaccine confidence in minority communities. Storytelling in collectivist cultures fosters shared understanding, reinforces cultural identity, and addresses taboo topics (Molleman & Gächter, 2018; Volkman, 2017). As one mother expressed, "If a woman like me says she did the cervical cancer screening and was fine, I would believe her and also get mine." This testimonial highlights the emotional and cultural relevance of peer influence, particularly in communities with a history of medical mistrust. Incorporating peer storytelling into education programs increases credibility and relevance while addressing both perceptual and social barriers to health-seeking behavior. Gobbo et al.'s 2023 systematic review of peer-based education and vaccine acceptance found generally positive effects but noted heterogeneity across studies and limited high-quality evidence; combined peer + health-expert approaches and longer or group-specific peer interventions tended to produce stronger results. This suggests peer programs can work but need careful design and evaluation (Gobbo et al., 2023b). Again, Iova et al. (2024) synthesized interventions targeting adolescents for HPV prevention: peer education reliably increased knowledge and often improved vaccine uptake when embedded in multicomponent programs (school or community settings). Peer education led to rapid knowledge gains, but the impact on sustained uptake depended on intervention intensity and system supports (e.g., access to vaccination) (Iova et al., 2024b).

Theme 4: Collaboration with Community Leaders

Participants repeatedly identified collaboration with community leaders, such as tribal elders, association heads, and diaspora organization leaders, as critical to the intervention's success. These leaders are seen as custodians of cultural legitimacy, whose endorsements

validate preventive programs and mitigate resistance to health interventions perceived as foreign. According to Meghani et al., (2024) and Baker et al., (2023), tribal COVID-19 vaccine programs (India case studies and U.S. Indian Health Service- and National Indian Health Board–led efforts) that explicitly involved elders and tribal leadership to craft messaging and open clinic access; programs reported improved community acceptance and service uptake when elders publicly endorsed vaccination. Within the HBM, leader endorsement serves as a cue to action, enhancing perceived benefits and reducing uncertainty. In the SEM framework, community leadership engagement addresses the social and community context by fostering social cohesion, ownership, and trust (McLeroy et al., 1988).

Participants shared that when community leaders publicly supported health or vaccination campaigns, attendance and trust increased dramatically. This observation echoes findings from Oppenheim et al., (2019) and Joo & Liu, (2020), who showed that leader involvement enhances cultural resonance and program credibility. Similarly, Ghebre et al., (2015b) and Luig et al., (2023), found that community leaders act as cultural brokers, translating medical language into culturally meaningful concepts and facilitating access for limited-English-speaking populations. Engaging leaders in program design also improves perceived self-efficacy within communities by fostering a sense of inclusion and urgency (Mudyarabikwa et al., 2022; Tamankag et al., 2025). As one participant noted, “When we see or hear our community leader supports something, everyone rallies behind him.” This shows how structural trust and collective action can bridge systemic gaps and strengthen preventive health behaviors.

Theme 5: Mobile Clinics and Outreach Services

Participants widely endorsed mobile clinics and outreach programs as practical strategies to reduce structural barriers, such as transportation challenges, childcare responsibilities, and

inflexible work schedules. Mobile health units located in familiar community spaces, such as churches or community centers, were seen as symbolic of inclusion and respect, bringing care to those who had been historically marginalized. Research by Rennert et al., (2024), shows that mobile vaccination units achieve high uptake in medically underserved neighborhoods when sited in familiar community locations and combined with local outreach. These mobile clinics worked best when outreach staff coordinated schedules, provided on-site registration/consent, and offered flexible hours (including evenings/weekends). This approach improves healthcare access by decentralizing services and reducing logistical constraints (Adunlin et al., 2019; Gebre et al., 2021). In HBM terms, mobile services reduce perceived barriers, enhance self-efficacy by simplifying access, and provide environmental cues to action that encourage participation (Rosenstock et al., 1988).

Studies by Coaston et al., (2023) and Yu et al., (2017) support these findings, demonstrating that mobile health programs substantially increase preventive service uptake among minority and low-income populations. Participants recommended that mobile clinics be staffed by culturally competent, multilingual providers and coordinated with trusted local organizations. This approach builds trust while addressing both perceptual barriers (mistrust, stigma) and structural inequities (distance, cost, and scheduling).

Participants also suggested regular, recurring outreach events rather than one-time visits to ensure continuity and familiarity. Consistent engagement, coupled with on-site education, enhances both trust and perceived benefits, transforming mobile clinics into sustained community health anchors (Rabiou et al., 2024). CDC analyses of mobile mammography programs report that delivering mammograms in neighborhood settings eliminates transportation

and cost barriers and increases participation among medically underserved women. Programs that partnered with local community organizations or churches saw good reach (Vang, 2018).

Theme 6: Culturally and Linguistically Appropriate Materials

Participants emphasized the need for culturally relevant and linguistically accessible health information. Many described challenges in understanding complex medical terms or written English materials. Even translated brochures were ineffective when literacy barriers persisted. To address this, participants recommended using visuals, storytelling videos, radio messages, and infographics tailored to specific cultural and linguistic contexts. This theme reflects HBM's constructs of perceived barriers and self-efficacy. Clear communication enhances comprehension and confidence in taking preventive action (AuYoung et al., 2023; Beltran et al., 2016). According to Amundsen et al., (2024) literal translation often fails to convey meaning, metaphors, and norms, but culturally adapted materials produce larger gains in comprehension and behavior.

Studies by Nardi et al., (2016) and Romelus et al., (2024) highlight the effectiveness of co-created materials developed with community members, which foster ownership and resonance. Participants in this study echoed that collaboration with community media, faith leaders, and peer educators would ensure that materials reflect authentic voices and aesthetics. According to Drokow et al., (2021), higher knowledge, intentions, and sometimes uptake when videos and pictorial decision aids are used instead of (or alongside) brochures. As one participant shared, "There are African radio stations or online platforms that can share some of this health information. If I hear it in my own language on the radio, I will believe it more." This insight reinforces HBM's cue-to-action construct, demonstrating that culturally congruent communication triggers recognition, understanding, and behavioral intent. Ensuring cultural and

linguistic appropriateness is therefore essential to overcoming both perceptual and systemic barriers to preventive care (Netfa et al., 2020; Peprah et al., 2023).

Theme 7: HPV Self-Sampling as a Strategy

HPV self-sampling emerged as a promising strategy that promotes privacy, autonomy, and convenience, particularly for women facing cultural discomfort or logistical barriers to clinical screening. Many participants expressed unease with pelvic exams and preferred self-sampling as a discreet, self-directed alternative. Pragmatic randomized trials that mailed HPV self-sampling kits to eligible/overdue participants reported meaningful increases in screening completion compared with invitation or usual care; direct mailing outperforms opt-in (Montealegre et al., 2025). Within the HBM, self-sampling enhances perceived benefits (e.g., ease, privacy) and reduces perceived barriers (e.g., embarrassment, mistrust), thereby strengthening self-efficacy (control over one's health). It mitigates disparities linked to healthcare access and cultural norms, making preventive care more equitable (Alam et al., 2023; Sewali et al., 2015).

Participants noted that home-based testing would allow women to participate without disclosing to spouses or facing stigma, aligning with findings by Battagello et al., (2022) and Fullerton et al., (2024). Several participants recommended that test kits be distributed through mobile health units, community centers, and places of worship, accompanied by clear pictorial instructions in native languages or navigation support to interpret results and follow up on care. These findings support research by Andersson et al., (2021) and Polman et al., (2019), which found self-sampling to be highly acceptable and effective among underserved and immigrant women. Beyond convenience, self-sampling also symbolizes empowerment, aligning with HBM's self-efficacy construct and promoting health equity through culturally safe, accessible

participation in preventive care. Studies show that distributing kits at community events, clinics, or via Community Health Workers document reasonable return rates and reach among women who previously avoided clinic screening. These pilots also report improvements when accompanied by education and navigation (Sahlgren et al., 2022).

Research Question 3:

What are the perspectives of key informants regarding the social determinants affecting HPV vaccination and cervical cancer screening?

Key informants provided valuable insights into the broader systemic, structural, and contextual factors influencing HPV vaccination and cervical cancer screening among African immigrant mothers in Washington State. Framed within the Social Determinants of Health (SDOH) and guided by the Health Belief Model (HBM) and Social Ecological Model (SEM), their perspectives emphasized how structural inequities and contextual barriers shape health behaviors and access to preventive care. Informants identified four major determinants, which include economic stability, education access and quality, healthcare access and quality, and the neighborhood and built environment as key influences on health decision-making.

Theme 1: Economic Stability

Key informants emphasized that economic instability, including underemployment, low wages, and housing insecurity, was a significant barrier to preventive healthcare among African immigrant families. Mothers facing financial hardship often prioritize immediate survival needs such as rent, childcare, food, and transportation over non-urgent services like HPV vaccination or cervical cancer screening. This reflects the HBM construct of perceived barriers, as financial constraints diminish perceived feasibility and urgency for preventive care (Rosenstock, 1974). From the SDOH perspective, economic stability is a fundamental determinant of health, directly

influencing access to resources, health insurance, and continuity of care (Truman et al., 2025; Vrtikapa et al., n.d.). Participants noted that out-of-pocket costs, even for partially subsidized services, discouraged screening attendance. Key informants also observed that families in lower socioeconomic brackets were more likely to delay care until symptomatic, reinforcing low perceived susceptibility and perceived severity, two critical HBM constructs influencing health behavior (Beavis et al., 2022).

These observations align with findings from Reyes-Ortiz & Markides, (2010) and Adegboyega et al. (2023), who identified poverty and food insecurity as predictors of poor screening rates in immigrant populations. Similarly, Gao et al., (2025) and Gebre et al. (2021) found that limited economic stability reduces the likelihood of initiating HPV vaccination, even when it is available through public health programs. Economic instability not only constrains financial access but also shapes perceptions of preventive care's relevance and attainability.

Theme 2: Education Access and Quality

Language proficiency, education level, and health literacy emerged as significant determinants of HPV vaccine and cervical cancer screening uptake. Key informants reported that some African immigrant mothers had limited exposure to formal health education before arriving in the United States, leading to difficulty interpreting medical terminology, completing insurance forms, or understanding the purpose of preventive services. This challenge aligns with HBM's concept of self-efficacy, as limited health literacy undermines individuals' confidence to navigate healthcare systems or make informed decisions (Rosenstock, 1974).

From the SDOH perspective, access to quality education and health information is a crucial determinant of health equity (McLeroy et al., 1988; Truman et al., 2025). Informants explained that low literacy compounded by language barriers often forced women to rely on

family members, friends, or community interpreters, which sometimes compromised confidentiality or led to misinformation. This dependency reflects broader inequities in education access and quality, where systemic language barriers hinder meaningful engagement with healthcare systems.

Research by Adunlin et al., (2019) and Beltran et al., (2016) emphasize that poor health literacy limits the utilization of preventive care, as individuals with low literacy are less likely to understand disease risks or vaccine benefits. Similarly, Khanal, (2025) and Olsavszky et al., (2025) show that limited English proficiency increases mistrust, reduces perceived control, and delays preventive action. Incorporating health literacy programs into community settings, such as through culturally adapted workshops or peer navigators, could strengthen self-efficacy and act as cues to action, motivating mothers to seek screening and vaccination for themselves and their children.

Theme 3: Healthcare Access and Quality

Key informants identified systemic barriers within healthcare delivery as significant obstacles to preventive service uptake. These included lack of insurance, confusion about eligibility for subsidized programs, and limited awareness of available low-cost options.

According to some participants, these African immigrant mothers sometimes think they are ineligible for public programs such as Medicaid or state health insurance because of their immigration status. Others express fear of discrimination, deportation, or being misunderstood by healthcare providers. These findings align with the HBM construct of perceived barriers, which posit that institutional and interpersonal challenges discourage healthcare engagement. They also align with SEM and SDOH dimensions of healthcare access and quality, which

encompass insurance availability, provider communication, and institutional trust (McLeroy et al., 1988; Truman et al., 2025).

Informants described how negative experiences, such as cultural insensitivity, rushed consultations, or dismissive attitudes, undermined trust and reinforced skepticism toward the healthcare system. The lack of interpreter services and limited provider diversity further compounded misunderstandings, sometimes leading to misdiagnoses or missed follow-ups. This mirrors the work of Omenka et al., (2020) and McFadden et al., (2021), who argue that culturally incongruent healthcare environments perpetuate disparities by failing to address immigrant patients' linguistic and cultural needs. When communication gaps and discrimination coexist, perceived benefits of screening or vaccination are diminished, and perceived barriers become insurmountable.

Building structural competence through healthcare provider training, interpreter access, and culturally responsive care models is therefore essential. Strengthening these dimensions not only mitigates systemic bias but also enhances self-efficacy and trust, both of which are vital to increasing participation in preventive care.

Theme 4: Neighborhood and Built Environment

Key informants emphasized that geographic isolation, transportation challenges, and inadequate healthcare infrastructure in some communities limited access to preventive care. Some African immigrant families lived in suburban or semi-rural areas far from major hospitals or community clinics, making it difficult to schedule and attend multiple appointments. This theme reflects the SDOH domain of neighborhood and built environment, which includes access to safe housing, reliable transportation, and nearby healthcare facilities (Healthy People 2030 | Health.Gov, n.d.; Healthy People - Healthy People 2020, 2023; National Academies of Sciences

et al., 2021b). Transportation barriers also connect with HBM's perceived barriers construct. If screening or vaccination requires long commutes or costly transport, individuals are less likely to perceive preventive care as feasible (Rosenstock, 1974).

Informants noted that the lack of public transit and flexible clinic hours compounded these barriers, particularly for working mothers juggling multiple jobs. Without evening or weekend availability, preventive care was often deprioritized. These findings are consistent with Luque et al., (2015) and Roberts et al., (2021), who found that limited clinic accessibility disproportionately impacts low-income and immigrant populations.

In addition to physical access, informants highlighted the role of social environments. Some neighborhoods lacked visible health promotion efforts or trusted community health organizations, reinforcing feelings of isolation. Establishing mobile health clinics, community-based screening drives, and localized outreach programs could serve as cues to action, bridging geographic and informational gaps. Key informants' perspectives highlight that a confluence of structural, social, and psychological factors shapes African immigrant mothers' preventive health behaviors. Using the HBM, these barriers can be understood as interacting with perceptions of susceptibility, severity, benefits, and barriers shaped by systemic realities outlined in the SDOH.

Synthesis of Key Informant Perspectives

Collectively, the perspectives of key informants reinforce the critical role of social determinants, particularly economic hardship, educational limitations, healthcare system barriers, and environmental challenges in influencing health behaviors and service utilization among African immigrant mothers. These findings are aligned with the Social Determinants of Health (SDOH) framework and reflect broader patterns observed in immigrant health literature (CDC, 2024; Kingori et al., 2018; Pinder et al., 2016).

Addressing these interconnected challenges requires a multi-level and coordinated response, including:

- Policy changes that expand access to affordable care (Deng, 2024),
- Health literacy initiatives tailored to culturally and linguistically diverse communities (Zhang et al., 2022),
- Investment in culturally competent provider training (Sewali et al., 2015), and
- Community-based outreach that leverages trusted institutions such as churches, mosques, and ethnic associations (Kingori et al., 2018).

The findings highlight the necessity of addressing both individual and structural barriers to ensure equitable access to HPV vaccination and cervical cancer screening among African immigrant populations. Key informant insights serve as a potent reminder that without intentional, inclusive strategies that consider the full spectrum of social determinants, health disparities will persist even in states like Washington that offer broad access to preventive care.

Practical Action Plan for Public Health, NGOs, and Healthcare Providers

Beyond research, a coordinated practical action plan is needed to translate evidence into practice and create sustainable, community-led solutions. The following steps can help operationalize culturally responsive interventions:

Public Health Departments (e.g., Washington State Department of Health)

- Partner with African community associations, churches, and mosques to conduct vaccination drives and educational workshops.
- Expand funding for mobile clinics and HPV self-sampling programs in high-immigrant-density areas.
- Integrate cultural navigators into preventive health outreach teams.

Non-Governmental Organizations (NGOs)/Non-Profits and Community-Based Organizations

- Use peer advocacy and storytelling campaigns to dispel myths and build community trust.
- Train community leaders and volunteers as health ambassadors using simplified, language-accessible materials.
- Collaborate with schools and youth groups to normalize vaccination through youth-led education.

Healthcare Providers and Clinics

- Offer flexible appointment scheduling, telehealth options, and child-friendly spaces to accommodate working mothers.
- Provide staff training in cultural humility and trauma-informed care to foster patient trust and safety.
- Develop internal referral systems linking patients to community-based resources for insurance, transportation, and health education.

This integrated plan supports a multi-sectoral approach aligning clinical, community, and policy efforts to achieve measurable improvements in vaccination and screening rates.

Cultural Co-Design and Participatory Development

To ensure interventions are both practical and culturally relevant, future efforts must adopt a co-design approach that involves African immigrant women as active collaborators rather than passive recipients.

Participatory design empowers women to contribute their experiences, values, and cultural insights to the creation of educational materials, outreach strategies, and evaluation frameworks. This aligns with the Community-Based Participatory Research (CBPR) model,

which fosters mutual learning and shared ownership between researchers and community members (Marrone et al., 2022; Wallerstein & Duran, 2010a). Examples of participatory methods include focus group–driven message testing, community advisory boards, and peer-led dissemination networks. Such collaboration ensures that interventions respect cultural norms, address real barriers, and build long-term community trust and engagement.

Understanding Through the Lens of Culture, Belief Systems, and Risk Perception

Findings from this study revealed that African immigrant mothers' limited knowledge and underutilization of HPV vaccination and cervical cancer screening reflect long-standing disparities in immigrant health. Participants often lacked essential information about HPV and its causal link to cervical cancer, echoing findings from Ojeaga et al., (2019) and Netfa et al., (2020), who identified similar knowledge gaps among African immigrant populations in the U.S. and Australia. According to the Health Belief Model (HBM), individuals are more likely to adopt preventive health behaviors when they perceive themselves at risk and believe the consequences of inaction are severe (Baandrup et al., 2024). In this study, mothers who perceived HPV-related risks were more inclined to consider screening and vaccination, consistent with previous literature that connects HPV knowledge with increased vaccine uptake (Gebre et al., 2021; Nickel et al., 2017).

However, knowledge alone was not always sufficient. Cultural and religious beliefs significantly shaped risk perception and health behavior. Some mothers feared that HPV vaccination could promote early sexual activity, a concern similarly documented by McFadden et al., (2021) and Kingori et al., (2018), who noted that in many African communities, HPV vaccination is perceived as conflicting with norms of abstinence and modesty. These deep-rooted

beliefs can undermine the effectiveness of biomedical messages, suggesting the need for culturally tailored strategies that respect and engage with community values.

Structural and Social Determinants: Systemic Barriers Beyond Individual Control

Participants also described systemic barriers that limited access to preventive services, barriers that align closely with the Social Ecological Model, which considers multilevel influences on health behavior (Gebre et al., 2021). These included immigration status, language barriers, financial hardship, and unfamiliarity with the healthcare system, which together compounded delays in or complete avoidance of screening and vaccination. These issues are widely reported across studies of African immigrant health, where socioeconomic challenges and low health literacy contribute to underutilization of services (Adegboyega et al., 2022; Ko et al., 2018).

Moreover, structural racism, including provider bias and institutional mistrust, emerged as significant deterrents. Participants cited experiences of disrespect and dismissal by healthcare workers, issues echoed in the literature as systemic contributors to disparities among immigrant women (Amuta-Jimenez et al., 2022; Omenka et al., 2020). These findings suggest that even when services are physically accessible, sociocultural dynamics and negative provider interactions can dissuade engagement.

Willingness to Engage: A Foundation for Change

Despite the challenges, participants expressed a strong willingness to learn and act when supported by culturally appropriate education. They preferred receiving information from community health workers, peer educators, and trusted settings such as churches and community organizations. This aligns with findings by Ko et al., (2018) and Chu et al., (2021), who

emphasize the effectiveness of community-based outreach in African immigrant communities. Trust and cultural resonance were vital; participants believed that messengers who shared their cultural and linguistic background could better communicate sensitive health information.

These insights reinforce prior evidence that African immigrant mothers are not resistant to preventive care but rather face complex barriers that can be overcome through respectful, tailored, and community-anchored interventions (A. Chan et al., 2015; Roberts et al., 2021).

Implications of the study

Implications for Practice

Findings from this study stress that effective cervical cancer prevention and HPV vaccination programs for African immigrant mothers must be culturally responsive, community-anchored, and relationship-driven. Healthcare providers must go beyond the dissemination of medical facts to engage patients through culturally tailored communication strategies that recognize the profound influence of faith, language, and collective identity on health decision-making (McFadden et al., 2021; Swihart et al., 2025b).

Training in cultural competence, implicit bias, and trauma-informed care should be mandatory for healthcare workers serving immigrant populations. Providers in Federally Qualified Health Centers (FQHCs), hospitals, and private practices should receive ongoing education on how to deliver sensitive care, use interpreters effectively, and build trust through transparency and empathy (Moss et al., 2016; Timbie et al., 2019).

Public health nurses and health educators should implement community-centered outreach, for example, by partnering with faith institutions, ethnic associations, and women's groups, to conduct educational sessions in familiar, trusted settings such as churches, mosques,

or community halls. Visual and oral communication tools, videos, storytelling, and peer advocacy in simple English should replace text-heavy materials that alienate low-literacy audiences (Adegboyega et al., 2017). Through these approaches, healthcare professionals can foster psychological safety, address stigma, and empower women to make informed decisions about their health and their children's vaccination (O'Donovan et al., 2021).

Implications for Policy

From a policy perspective, this study reveals an urgent need to institutionalize equity-driven frameworks that ensure access to preventive health services for immigrant populations. Policymakers should strengthen Medicaid expansion, particularly for undocumented and low-income immigrant residents, and invest in mobile health clinics and community-based health centers within immigrant-dense neighborhoods. Washington State's recent policy to expand Medicaid coverage to undocumented residents marks a significant step toward equitable access (Deng, 2024).

Local and state governments should also establish language-access and cultural navigation mandates within all health programs to ensure information is understandable and relevant. Federal and state public health agencies should fund cross-sector partnerships among healthcare systems, immigrant-serving nonprofits, and faith-based organizations to sustain outreach programs beyond short-term grants.

At the national level, agencies such as the Centers for Disease Control and Prevention (CDC) and the Office of Minority Health (OMH) should integrate immigrant-specific health equity targets into national cancer prevention goals. Policies must also support community health worker (CHW) certification and reimbursement models, allowing trusted community members to be compensated for their role as health navigators and educators.

Ultimately, equity-oriented policies should move beyond access to care toward accountability and structural change, ensuring that healthcare systems dismantle racial and cultural inequities embedded in their practices.

Implications for Theory

This study extends and refines both the Health Belief Model (Rosenstock, 1974) and the Social Ecological Model (McLeroy et al., 1988) by integrating cultural and intersectional insights from African immigrant women's lived experiences and by extending the Health Belief Model (HBM). The findings demonstrate that the traditional HBM constructs perceived susceptibility, severity, benefits, barriers, cues to action, and self-efficacy do not fully capture the socially negotiated nature of health beliefs among African immigrant mothers. For instance, perceived barriers are shaped not only by logistical factors (e.g., cost, time, or transportation) but also by cultural taboos, faith-based beliefs, and gender norms. Perceived benefits are reframed through a collective lens, where protecting the family or community is often valued over individual well-being.

Moreover, “cues to action” in this study emerged predominantly from faith leaders, peers, and community elders, rather than from medical professionals, indicating that social authority and moral legitimacy within the community play stronger roles in prompting preventive behaviors than clinical advice alone. These findings suggest a sociocultural extension of the HBM, emphasizing that individual health behaviors among African immigrants are co-constructed through shared cultural meanings rather than solely personal cognition.

Refining the Social Determinants of Health (SDOH)

The study also expands the SDOH framework by situating immigrant health behavior within a context of intersectional structural disadvantage. Economic insecurity, unstable housing,

limited education, and systemic discrimination interact to create persistent barriers to care. However, the analysis also highlights protective social determinants, including faith-based networks, social capital, and communal resilience, that buffer against exclusion and support collective empowerment. Thus, this study proposes a "Contextualized SDOH model" that integrates the effects of immigration, race, and culture into the traditional SDOH domains (economic stability, education, access, and social context), making the model more responsive to the realities of transnational and immigrant populations.

Implications for Intervention Design

To translate these findings into action, interventions must be multi-level, participatory, and culturally anchored, and involve collaboration among public health institutions, healthcare systems, and community organizations. The following sections expand on these implications and situate them within current research evidence.

First, public health agencies such as the Washington State Department of Health and the CDC play a critical role in shaping statewide awareness efforts. Research consistently shows that culturally tailored communication campaigns, especially those integrating community narratives and faith-based messages, are more effective in immigrant communities than generic health messaging (Escoffery et al., 2023a; Luque et al., 2012). These agencies are positioned to provide grants to immigrant-led nonprofits, develop linguistically appropriate educational materials, and implement standardized evaluation tools to monitor intervention outcomes (Kurlander et al., 2023).

State-level support is vital because financial and resource constraints often limit the capacity of grassroots organizations that serve African immigrant communities. Some studies emphasize that public funding improves sustainability and allows programs to adapt interventions to

community-specific needs (Akintobi et al., 2025; Cyril et al., 2015). The literature therefore aligns with the recommendation that public health agencies lead culturally responsive HPV and screening campaigns and support community organizations through funding and centralized evaluation frameworks (Alshammari et al., 2024).

Furthermore, Federally Qualified Health Centers (FQHCs) and clinics remain critical access points for preventive services. A significant body of research demonstrates that linguistic and cultural concordance, primarily through bilingual and bicultural staff, improves trust, patient engagement, and follow-through for immigrant and refugee populations (Espinoza & Derrington, 2021; Jacobs et al., 2004; Sacks et al., 2024; Yeo, 2004). Cultural navigation programs and community advisory boards have also been shown to facilitate more inclusive and responsive clinical environments (Fabry et al., 2024; Nashwan, 2023).

In addition, mobile and home-based screening interventions are widely documented as effective strategies for addressing structural barriers such as transportation, childcare, and competing demands. According to Arbyn et al., (2014 & 2020), self-sampling HPV kits and mobile outreach units significantly increase screening uptake among underserved women, including migrants and refugees (Arbyn et al., 2014, 2020). These findings support the recommendation that clinics integrate accessible, culturally informed service designs that reduce logistical burdens on women.

Again, faith communities serve as culturally safe spaces for many African immigrants. Studies show that faith-based interventions, particularly those involving pastors, imams, women's ministry leaders, and respected elders, can effectively disseminate health information and increase participation in preventive services (M. K. Campbell et al., 2007; Foster et al., 2022; Haughton et al., 2020). Storytelling, testimonial-sharing, and peer-to-peer education

further strengthen message credibility because they are rooted in communal values and lived experiences (Dixon et al., 2012).

Similarly, community health ambassador programs have also demonstrated success in promoting sustainable health engagement beyond clinical settings. Ambassadors act as cultural brokers who bridge health systems and communities, improving health literacy and reducing mistrust (S. P. Brooks et al., 2022; Perrier & Martin Ginis, 2018). These findings directly reinforce the recommendation that faith and community coalitions collaborate to deliver linguistically and culturally resonant cervical cancer prevention messaging.

Also, Community-based participatory research (CBPR) is widely recognized as an effective model for addressing health disparities among immigrant and minority communities. CBPR centers community members as co-researchers, ensuring that interventions reflect their cultural realities and priorities (Israel et al., 2005; Wallerstein & Duran, 2010b). Academic institutions contribute technical expertise, such as training, evaluation, and data analysis, while communities retain ownership of the intervention's cultural direction (Cross et al., 2015; Doubeni et al., n.d.).

Studies have shown that CBPR-driven HPV and cervical cancer screening interventions lead to higher participation, stronger trust, and more sustainable community engagement (Castle, 2024; Scarinci et al., 2010a). As such, the recommendation to strengthen academic–community partnerships aligns closely with current evidence supporting the development of partnership-based, equity-oriented interventions.

Ultimately, when considered together, these findings reflect a coherent intervention ecosystem where responsibilities are shared across sectors. Available research supports the idea that culturally grounded, community-engaged, multi-level interventions lead to more meaningful

and sustained behavior change compared to isolated educational efforts (Escoffery et al., 2023b; Scarinci et al., 2010b). Aligning public health infrastructure, healthcare systems, community coalitions, and academic partners ensures both individual empowerment and systemic transformation, two conditions essential for improving HPV vaccination and cervical cancer screening among African immigrant mothers (Antunes et al., n.d.; Lindsay et al., 2025).

Equity and Intersectionality Implications

This study highlights the intersectional nature of health disparities among African immigrant mothers, illustrating how race, gender, class, religion, and immigration status intersect to shape health beliefs and access to preventive care (King-Mullins et al., 2023). These women often navigate multiple systems of marginalization: racial discrimination within healthcare institutions, patriarchal decision-making within households, and economic precarity shaped by immigrant status.

Applying a health equity framework (Carmichael et al., 2023; Peterson et al., 2021), this study reveals that improving vaccination and screening uptake requires not only expanding access but also transforming systems of power that marginalize women's voices. Health equity interventions must therefore:

- Integrate gender-transformative strategies that empower women to make autonomous health decisions.
- Promote representation and leadership of African immigrants in public health policymaking and program design.
- Address racialized healthcare practices through institutional accountability mechanisms.

Incorporating intersectionality into public health practice means acknowledging that equal treatment is not equitable treatment. Instead, interventions must tailor approaches to meet the

unique cultural, linguistic, and socioeconomic contexts of immigrant mothers. This aligns with the National Institute on Minority Health and Health Disparities (NIMHD) framework, which emphasizes multi-level strategies to reduce health inequities among minority populations (Alvidrez et al., 2019; NIMHD Research Framework | NIMHD, n.d.).

Implications for Research

Future research should continue to explore how cultural identity, faith engagement, and acculturation influence health behaviors over time among African immigrant populations. Longitudinal and mixed-method designs could examine how changes in immigration policy, socioeconomic status, and community integration impact preventive health uptake. Comparative research between African, Asian, and Latinx immigrant groups may also uncover cross-cultural patterns and unique contextual differences in HPV vaccination and cervical cancer screening behaviors.

Moreover, future studies should evaluate the effectiveness of culturally tailored interventions, such as peer education programs, digital storytelling, and faith-based outreach, in improving health literacy and participation rates. By centering immigrant voices in both design and dissemination, research can advance participatory, decolonized approaches that move beyond deficit narratives toward empowerment and co-creation.

Limitations of the Study

This study encountered several limitations that should be acknowledged when interpreting its findings.

Sample Size and Generalizability

The research involved a relatively small, purposive sample of African immigrant mothers from specific communities in Washington State. Although the sample provided rich, in-depth

data, the limited number of participants constrains the generalizability of findings to the broader African immigrant population. Experiences and beliefs may vary across ethnic subgroups, migration histories, or regions of the United States. Future studies employing larger and more diverse samples across multiple geographic areas are needed to enhance external validity and capture broader perspectives.

Self-Report Bias

Data collected through semi-structured interviews and focus group discussions relied on self-reported information. Such data may be subject to recall bias, misinterpretation, or social desirability bias, particularly regarding sensitive issues such as sexual health, vaccination, and cultural taboos. Participants may have underreported stigma-related experiences or overstated positive health behaviors to align with perceived social norms. To mitigate this, the researcher fostered a confidential, empathetic environment that encouraged openness and authenticity.

Limited Research Funding

This study was entirely self-funded, which created several limitations that directly affected the scope and inclusiveness of the research. Due to financial constraints, it was not possible to hire professional interpreters or translators. As a result, individuals who could not communicate in English were excluded from participating. This exclusion was significant, as non-English-speaking African-born immigrant mothers often face the greatest barriers to accessing cervical cancer prevention services. Their experiences, challenges, and perspectives would have provided valuable insights, and in many ways, they should have been central to the study. Unfortunately, without the resources to support language interpretation, their voices could not be adequately represented. The lack of funding, therefore, not only limited the diversity of the participant pool but also prevented the study from capturing important data that could have

strengthened the findings and provided a more comprehensive understanding of the barriers faced by this population.

Study Duration

The study was conducted within a limited timeframe, capturing participants' experiences and perceptions at a single point in time (cross-sectional design). Consequently, the findings reflect a "snapshot" rather than longitudinal trends. Longer-term research would allow examination of how beliefs, awareness, and preventive behaviors evolve, especially following community interventions, public health campaigns, or acculturation over time.

Limited Focus on Children's Perspectives

While this study concentrated on African immigrant mothers, it did not include the perspectives of children or adolescents, who are key stakeholders in HPV vaccination decisions. Including their voices in future studies would provide valuable insights into family communication dynamics and the intergenerational transmission of health beliefs, further enriching the understanding of decision-making processes.

Potential Researcher Bias

As the principal researcher, my positionality, including professional background in public health and immigrant identity, may have shaped the interpretation of participants' narratives. Reflexive journaling, peer debriefing, and transparent documentation of analytic decisions were employed to mitigate this bias. Nevertheless, qualitative inquiry inherently involves subjectivity, and complete neutrality is neither possible nor desirable. Instead, reflexivity was embraced as a strength that deepened interpretive insight.

Geographical Limitation

The study's setting in Washington State limits transferability to regions with different

sociopolitical contexts, healthcare systems, and cultural demographics. Regional variations in Medicaid coverage, health outreach infrastructure, and community composition could produce different outcomes. Comparative research in other states or national-level analyses would enhance understanding of how context shapes immigrant health behaviors.

Implications for Positive Social Change

This study has important implications for fostering positive social change, particularly in addressing the significant health disparities faced by African immigrant communities in the United States. By investigating the knowledge, awareness, and utilization of HPV vaccination and cervical cancer screening among African immigrant mothers, the research sheds light on the multifaceted barriers, cultural, informational, and systemic, that limit access to preventive healthcare.

The findings revealed that a lack of culturally relevant education, combined with misinformation, mistrust of the healthcare system, and logistical challenges, contributes to low uptake of HPV vaccination and cervical cancer screening (McFadden et al., 2021; Netfa et al., 2020). These barriers not only impede individual health decision-making but also perpetuate community-wide vulnerabilities. Addressing them through culturally sensitive and community-engaged health promotion efforts is essential for empowering African immigrant women to make informed health choices.

Health education programs designed in partnership with community leaders, faith institutions, and peer educators can help dispel myths, foster trust, and promote the adoption of preventive services. As emphasized by Kingori et al., (2018) and Chan et al., (2015), interventions that are linguistically and culturally tailored are more likely to resonate with

immigrant communities and result in sustained behavior change. Enhancing knowledge and awareness within this population is directly linked to increased participation in cervical cancer screening and HPV vaccination, two essential measures for reducing cervical cancer incidence and mortality (Baandrup et al., 2024; Ojeaga et al., 2019).

At a systemic level, the study highlights the need for public health policies that promote equity in healthcare access. Structural interventions such as expanding health insurance eligibility, funding mobile outreach services, and integrating HPV education into school curricula can help bridge longstanding gaps in care (Beltran et al., 2016; Reyes-Ortiz & Markides, 2010). These measures are significant for undocumented and low-income families who face compounded barriers to care.

Moreover, this research supports the value of community-based participatory approaches that position community members as co-designers and implementers of health interventions. Such models not only ensure cultural appropriateness but also empower individuals and build capacity within communities (Adunlin et al., 2019). These strategies can serve as templates for improving health outcomes among other underserved populations facing similar barriers.

Ultimately, this study contributes to long-term positive social change by advocating for inclusive healthcare practices and promoting health equity. It provides evidence that investing in culturally competent outreach and preventive care can support the health and well-being of immigrant families. In doing so, it aligns with broader public health goals of reducing disparities, enhancing community resilience, and ensuring that all populations have the opportunity to lead healthy lives (Omenka et al., 2020; Sewali et al., 2015).

Conclusion

This study examined African immigrant mothers' knowledge, awareness, and utilization of HPV vaccination and cervical cancer screening, exploring how cultural, social, and systemic factors, along with broader social determinants of health (SDOH), shape access to preventive care in Washington State. Guided by the Health Belief Model (HBM) and the Social-Ecological Model (SEM), the study illuminated how individual perceptions, interpersonal influences, and structural determinants intersect to influence preventive health behaviors (Glanz et al., 2015; McLeroy et al., 1988).

Findings revealed that limited knowledge, cultural and religious beliefs, misinformation, and systemic barriers, including economic instability, language difficulties, and healthcare inaccessibility, collectively hinder women's engagement in cervical cancer prevention. These barriers highlight that participation in preventive care is not merely a matter of individual motivation but is shaped by broader social, cultural, and structural contexts (Adegboyega et al., 2023; Adunlin et al., 2019; Omenka et al., 2020). For example, perceived susceptibility and perceived barriers, key constructs of the HBM, were strongly influenced by SDOH such as education, income, and healthcare access (Alyafei & Easton-Carr, 2025b; Rosenstock et al., 1988).

Consistent with prior studies, this research reinforces the need for multi-level, culturally grounded interventions that integrate theory, practice, and policy (Gebre et al., 2021; Pinder et al., 2016; Zhang et al., 2022). Approaches such as community health worker programs and faith-based outreach have been shown to improve knowledge, health literacy, and trust among immigrant populations (Ghebre et al., 2015a; Kingori et al., 2018b; Sewali et al., 2015). Similarly, participants viewed community engagement and culturally tailored health education as

acceptable and effective ways to increase uptake of HPV vaccination and cervical cancer screening, reflecting findings by A. Chan et al., (2015) and Chido-Amajuoyi et al., (2021). Beyond these behavioral insights, this study extends the HBM and SEM by situating individual beliefs within the broader realities of migration, acculturation, and systemic inequality (Bronfenbrenner, 1979; Opara et al., 2024). Mistrust, stigma, and logistical challenges were exacerbated by institutional inequities, including a lack of interpreters and culturally competent providers. Conversely, cues to action, such as provider recommendations and community-based education, proved most effective when delivered through trusted religious or social networks (Amuta-Jimenez et al., 2022; Swihart et al., 2025b).

The study also contributes to the equity-centered public health discourse, underscoring that reducing cervical cancer disparities requires systems-level reform. Strategies must combine policy change, culturally responsive communication, and community partnerships that empower women to make informed health decisions (Hood et al., 2023; Stover et al., 2024). Public health institutions should prioritize linguistically accessible education, workforce diversity, and community-based collaborations to address inequities at their roots (Adunlin et al., 2019; Curtis et al., 2019).

Ultimately, this study contributes to the pursuit of health equity and immigrant empowerment, demonstrating that closing the cervical cancer gap requires both behavioral change and structural transformation. Future initiatives should foster cross-sector collaboration among researchers, healthcare providers, policymakers, and faith leaders to ensure equitable access to culturally safe and sustainable preventive care (Allen-Meares et al., 2020; Makadzange et al., 2022; Zhu et al., 2019). By centering the lived experiences of African immigrant mothers,

this study lays the groundwork for community-informed interventions that promote trust, inclusivity, and long-term well-being.

Recommendations for Future Research

This study highlights critical areas for future research that can inform culturally grounded, equity-driven public health strategies to improve HPV vaccination and cervical cancer screening among African immigrant populations.

Longitudinal Studies on Culturally Tailored Interventions

Future research should evaluate the long-term impact of culturally sensitive interventions on HPV vaccination and cervical cancer screening uptake. Longitudinal studies tracking changes in behavior, beliefs, and engagement over time can provide insights into sustainability, generational adaptation, and the scalability of interventions. As Roberts et al., (2021) note, culturally informed education efforts have shown promise in increasing awareness, yet their long-term behavioral impact remains underexplored. Such studies could also assess whether interventions led by trusted community figures (e.g., pastors, imams, or community health workers) maintain effectiveness beyond initial implementation.

Comparative Research Across Immigrant Communities

Comparative studies examining African immigrant mothers alongside other immigrant groups (e.g., Latino, Asian, or Middle Eastern populations) would help distinguish shared structural barriers from culture-specific beliefs. As Omenka et al., (2020) observed, many immigrant communities face overlapping obstacles such as language limitations, healthcare mistrust, and lack of insurance while navigating unique cultural and gendered norms regarding

reproductive health. Cross-group analyses could thus generate both universal strategies for immigrant health equity and targeted interventions that respect community-specific dynamics.

Youth and Adolescent Perspectives on HPV and Sexual Health

While this study focused on mothers, future research should incorporate the perspectives of adolescents, the primary recipients of the HPV vaccine. Understanding their beliefs, fears, and trusted sources of information is crucial for developing age-appropriate, culturally resonant messaging. Kingori et al., (2018b) argue that engaging youth directly helps shift community norms around sexuality and vaccination, particularly in cultures where these discussions remain taboo. Participatory youth-centered approaches can foster peer-led education models that normalize preventive health practices in future generations.

The Role of Men in Health Decision-Making

Future studies should explore the influence of fathers, male guardians, and religious leaders on HPV vaccination and screening behaviors. Research consistently shows that men's perceptions of health, gender roles, and moral authority significantly affect women's healthcare decisions in African immigrant households (Chu et al., 2021). By involving men in education and dialogue, public health practitioners can challenge misconceptions, reduce stigma, and support shared decision-making. Male-inclusive approaches can also strengthen household-level support for preventive care and improve overall program uptake.

Healthcare Provider Communication and Cultural Competency

There is a need to assess how healthcare providers communicate with African immigrant families and evaluate the effectiveness of cultural competency training in clinical settings. Studies have shown that inadequate interpreter services, cultural insensitivity, and dismissive attitudes erode trust and discourage participation in preventive care (Adegboyega et al., 2017;

Sewali et al., 2015). Future research should test provider education programs that emphasize empathy, cultural humility, and active listening, alongside system-level reforms that ensure equitable access to linguistically and culturally appropriate care. Evaluations of these programs could inform national competency standards and guide continuing medical education requirements for healthcare professionals serving diverse populations.

Policy Impact Analyses on Immigrant Health

Researchers should evaluate how recent policy changes, such as Medicaid expansion, school-based vaccine mandates, and language access laws, affect immigrant health outcomes and service utilization. Washington State's Apple Health expansion for undocumented residents is one example of a policy that could reduce disparities in vaccination access (Deng, 2024). However, continuous monitoring is necessary to ensure equitable implementation. Policy analysis should focus on identifying unintended exclusions (e.g., digital literacy or citizenship documentation barriers) and informing evidence-based legislative revisions that promote inclusive health systems.

Policy Recommendations for Equitable Implementation

To sustain progress toward equity, policymakers at the state and federal levels should prioritize the following measures:

Language Access Legislation

Mandate multilingual health communication and interpreter services across federally funded clinics and hospitals to eliminate linguistic barriers to care.

Workforce Diversification

Promote the recruitment and retention of bilingual and bicultural healthcare professionals,

particularly from African immigrant communities, through scholarships and mentorship programs (Harris et al., 2025; Yi et al., 2025).

Medicaid Reimbursement for Community Health Workers (CHWs)

Institutionalize CHW programs by ensuring Medicaid and private insurers reimburse CHW-led education, outreach, and case management services (S. Austin & Qu, 2024; Gunter et al., 2023). This formal recognition would enhance the sustainability and professionalization of community-led health promotion.

Health Equity Accountability

This requires healthcare systems and public health departments to include equity metrics in their quality assessments, with a particular emphasis on outcomes for immigrant and minority populations. By aligning policy, community, and healthcare systems, these recommendations operationalize a whole-of-society approach to improving equity in HPV vaccination and cervical cancer screening.

This study contributes to public health by offering a deeper understanding of how African immigrant mothers in Washington State make decisions about HPV vaccination and cervical cancer screening. Guided by the Health Belief Model (HBM) and the Social-Ecological Model (SEM), the research highlights cultural, social, and structural influences that are often missing from traditional health behavior theories (Glanz et al., 2015; McLeroy et al., 1988). The findings show that these decisions are shaped not only by perceptions of risk or benefit but also by faith, gender expectations, community identity, and trust in relationships (Kingori et al., 2018; Adegboyega et al., 2023).

The results point to the vital role of trust and culturally grounded engagement in promoting preventive health. Faith leaders, peer advocates, and community organizations

emerged as essential messengers, raising awareness and encouraging action (Beltran et al., 2016; Sewali et al., 2015). At the same time, the study highlights the impact of broader systemic challenges, such as limited insurance coverage, language barriers, and experiences of discrimination, that continue to restrict access to care (Marmot & Allen, 2014; Omenka et al., 2020).

By highlighting the voices of African immigrant women, this research moves away from deficit-based perspectives toward an equity- and empowerment-based approach. It calls for culturally relevant education, stronger community partnerships, and public health systems built on trust and inclusion (Hernandez & Murcia, 2025). Ultimately, preventive care should not depend on privilege; it should be a shared right sustained through empathy, respect, and collective responsibility (Jemal et al., 2023; Olejarczyk & Young, 2025).

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Appendix A: Interview Schedule for Main Study

Interview Schedule

Protocol Title: Assessing the Health Behavior of African-born Immigrant mothers in Washington State toward the utilization of cervical cancer Prevention Services**: A Qualitative Study**

Principal Investigator: Isaac Ayereka, Teachers College, Columbia University

269 443 4807 – ika2107@tc.columbia.edu

Research Question: What are the levels of knowledge, awareness, and utilization among African immigrant mothers regarding HPV vaccination and cervical cancer screening, and what factors influence their decisions about screening and vaccinating their children aged 9 to 17?

Semi-Structured Interview Guide

Introduction:
Hello, and thank you for taking the time to participate in this interview. My name is Isaac Ayereka, and I am conducting research to assess the health behavior of African-born immigrant mothers in Washington State toward the utilization of cervical cancer prevention services. Your insights will help identify factors that influence decision-making about these preventive services.

This interview is completely voluntary, and you may choose not to answer any question or stop at any time. Your responses will be kept confidential and used for research purposes only. Do you have any questions before we begin?

Your insights will help researchers better understand the knowledge, awareness, and decision-making processes of African-born immigrant mothers regarding HPV vaccination and cervical cancer screening. This study may inform public health strategies and interventions aimed at increasing vaccination uptake and screening rates within your community.

(Review Informed Consent Form) Before we get started, I wanted to confirm that you received the "Informed Consent" form I sent to you by email or text. Did you get a chance to review it? In any case, I will briefly review it with you at this time in case you have any questions. I will begin sharing my screen. The top of the consent form gives you some information on this study. Again, you have been invited to participate in a study on cervical cancer prevention.

The interview should take 45 to 60 minutes to complete, and you will receive $25 as a thank you for your participation.

(**Purpose**) During the interview, you will be asked questions on your knowledge, awareness, and utilization of cervical cancer prevention services (HPV vaccination and cervical cancer

screening) and factors that influence your decisions about screening and vaccinating your children. If at any point you feel uncomfortable answering the questions, you are more than welcome to ask me to skip them. This interview will be audio recorded, which is required for participating. After the audio recording is written down (transcribed) the audio recording will be deleted. Video recording is optional. I will be using an ID number instead of your name to keep your identity confidential.

The last few pages describe your rights as a participant. You will also find my contact information if you have any questions.

I will now stop sharing my screen.

(Obtaining Verbal Consent) Before recording,

Do you have any questions about the study or the consent form that I have reviewed with you?

Do you give consent to be recorded?

Are you ready to be recorded for the interview?

I will begin recording and ask you the same questions, so your consent is recorded.

BEGIN RECORDING

- Do you have any questions about the study or the consent form that I have reviewed with you?
- Do you give consent to be recorded?

(**Transition**: This interview will be recorded and all the information you provide today will be kept confidential. I want to thank you again for participating in this study.

What is your zip code?.....

Date:

Code: Interview #

Interview start time:

Section 1: Demographic Information

1. How many years have you lived in the US?.....
2. What is the highest level of education that you have completed?.....
3. What is your religious affiliation?.....
4. What is your country of birth?.....

5. How old are you?.....

6. What is your current relationship status?.....

Section 2: Knowledge and Awareness of HPV and Cervical Cancer Screening

7. Have you heard of the Human Papillomavirus (HPV)? If yes, what do you know about it?
8. Are you aware that HPV is linked to cervical cancer? If yes, where did you learn about it?
9. Have you heard about the HPV vaccine? If yes, what do you know about it?
10. Have you heard about cervical cancer screening (Pap smear and HPV testing)? If yes, where did you get this information?
11. How do you perceive the risk of cervical cancer for yourself and other women in your community?

Section 3: Utilization of HPV Vaccination and Cervical Cancer Screening

12. Have you ever received a Pap smear or HPV test? If yes, how often? If not, why not?
13. Have your children (aged 9–17) received the HPV vaccine? If yes, what influenced your decision? If not, what were your concerns?
14. Where do you typically seek healthcare services, and do you feel comfortable discussing HPV vaccination and cervical cancer screening with your healthcare provider?
15. Have you faced any challenges in accessing cervical cancer screening or HPV vaccination for yourself or your children? If yes, can you describe them?

Section 4: Factors Influencing Decision-Making

16. What are your main concerns about HPV vaccination for your children, if any?
17. Do cultural beliefs or religious perspectives influence your decisions about HPV vaccination or cervical cancer screening? If so, in what way?
18. Have family members, friends, or community leaders influenced your decision regarding these preventive health services?
19. Do you trust healthcare providers when they recommend HPV vaccination or cervical cancer screening? Why or why not?
20. How do financial costs, health insurance, or access to healthcare facilities affect your ability to use these services?
21. Does your immigration status influence your decision to seek healthcare, including HPV vaccination or cervical cancer screening? If so, in what way?

Section 5: Suggestions and Closing Thoughts

22. What do you think could be done to improve awareness and acceptance of HPV vaccination and cervical cancer screening in your community?
23. What kind of information or support would make it easier for you to access these services?
24. Is there anything else you would like to share about your experiences or thoughts on this topic?

Closing Statement:
Thank you for your time and for sharing your experiences and perspectives with me. Your insights are invaluable in understanding how to improve cervical cancer prevention efforts within your community. If you have any questions, please let me know.

Would you be open to participating in follow-up focus group discussions if needed?

Transition: Well, it has been a pleasure speaking with you

I Closing

II **(Maintain rapport)** Thank you and I appreciate the time you took for this interview. Is there anything else you think would be helpful for me to know about taking care of your child's oral health?

III **(Action)** I should have the information I need. Would it be alright to call you again if I have any more questions?

Thank you again for your time.

END RECORDING

Now that we have finished the recording, I would like to ask if you can refer friends or family who may qualify for the study and who may be interested.

I would now like to review the method of payment with you.

Appendix B: Focus Group Discussion Schedule

Focus Group Discussion

Protocol Title: Assessing the Health Behavior of African-born Immigrant mothers in Washington State toward the utilization of cervical cancer Prevention Services**: A Qualitative Study**

Principal Investigator: Isaac Ayereka, Teachers College, Columbia University

269 443 4807 – ika2107@tc.columbia.edu

Research Question: What intervention strategies can effectively improve cervical cancer screening rates among African immigrant mothers and increase HPV vaccination uptake among their children?

Focus Group Discussion (FGD) Guide

Introduction:

Hello, and thank you for taking the time to participate in this discussion. My name is Isaac Ayereka, and I am conducting research to assess the health behavior of African-born immigrant mothers in Washington State toward the utilization of cervical cancer prevention services. Your insights will help identify factors that influence decision-making about these preventive services.

The goal of this discussion is to explore ideas and strategies that can help increase awareness, accessibility, and acceptance of these preventive health services within your communities.

This discussion is voluntary, and you may choose not to answer any question or leave at any time. Your responses will be kept confidential and used only for research purposes. Please respect each other's views and allow everyone to speak. There are no right or wrong answers—we are here to learn from your experiences and insights.

(Review Informed Consent Form) Before we get started, I wanted to confirm that you received the “Informed Consent” form I sent to you by email or text. Did you get a chance to review it? In

any case, I will briefly review it with you at this time in case you have any questions. I will begin sharing my screen. The top of the consent form gives you some information on this study. Again, you have been invited to participate in a study on cervical cancer prevention.

The discussion should take 45 to 60 minutes to complete, and you will receive $25 each as a thank you for your participation.

(**Purpose**) During the discussion, you will be asked questions on your ideas and strategies that can help increase awareness, accessibility, and acceptance of these preventive health services within your communities.

If at any point you feel uncomfortable answering the questions, you are more than welcome to ask me to skip them. This interview will be audio recorded, which is required for participating. After the audio recording is written down (transcribed) the audio recording will be deleted. Video recording is optional. I will be using an ID number instead of your name to keep your identity confidential.

The last few pages describe your rights as a participant. You will also find my contact information if you have any questions.

I will now stop sharing my screen.

(Obtaining Verbal Consent) Before recording,

Do you have any questions about the study or the consent form that I have reviewed with you?

Do you give consent to be recorded?

Are you ready to be recorded for the interview?

I will begin recording and ask you the same questions, so your consent is recorded.

BEGIN RECORDING

- Do you have any questions about the study or the consent form that I have reviewed with you?
- Do you give consent to be recorded?

(**Transition**: This discussion will be recorded and all the information you provide today will be kept confidential. I want to thank you again for participating in this study.

Do you have any questions before we begin?

Section 1: Current Challenges and Barriers

1. What do you think are the biggest challenges African immigrant mothers face in accessing cervical cancer screening services?
2. What are the main reasons why some mothers do not get their children vaccinated against HPV?
3. Are there cultural, religious, or personal beliefs that influence your decision to participate in screening or vaccination programs?
4. How do financial, insurance, or logistical factors (such as transportation or time constraints) affect access to these services?
5. Do you feel that healthcare providers understand and respect your concerns about cervical cancer screening and HPV vaccination? Why or why not?

Section 2: Community Awareness and Knowledge Gaps

6. How do most mothers in your community get information about HPV vaccination and cervical cancer screening? (e.g., doctors, social media, religious leaders, community groups, etc.)
7. What kind of information do you think is missing or not well understood regarding HPV vaccination and cervical cancer prevention?
8. Have you seen any existing health education campaigns targeting African-born immigrant communities? If so, were they helpful? Why or why not?

Section 3: Preferred Intervention Strategies

9. What type of intervention do you think would work best to increase cervical cancer screening among mothers in your community? (e.g., mobile screening clinics, free or low-cost services, health education, reminders, peer support groups)
10. What would encourage more mothers to get their children vaccinated against HPV? (e.g., school-based vaccination programs, community outreach, healthcare provider recommendations, testimonials from other mothers)
11. How can community and religious leaders help in promoting cervical cancer prevention services?

12. Do you think culturally tailored educational materials (such as brochures, videos, or social media campaigns) would make a difference? What format would be most effective?

Section 4: Healthcare System and Policy Recommendations

13. How can healthcare providers and clinics improve the way they communicate with African immigrant mothers about these services?
14. What policies or programs do you think should be implemented to make HPV vaccination and cervical cancer screening more accessible?
15. What role should schools, community centers, and public health organizations play in increasing uptake?

Section 5: Closing Reflections and Suggestions

16. If you could design a program to help mothers in your community feel more comfortable with cervical cancer screening and HPV vaccination, what would it look like?
17. What advice would you give to healthcare professionals or policymakers to better support African immigrant mothers in making informed decisions about these services?
18. Is there anything else you would like to share that we haven't discussed?

Closing Statement:
Thank you all for your time and valuable insights. Your thoughts and experiences will help shape future interventions aimed at improving cervical cancer prevention efforts. If you have any other questions, please let me know.

Appendix C: Key Informant Interview Schedule

Key Informant Interview

Protocol Title: Assessing the Health Behavior of African-born Immigrant mothers in Washington State toward the utilization of cervical cancer Prevention Services**: A Qualitative Study**

Principal Investigator: Isaac Ayereka, Teachers College, Columbia University

269 443 4807 – ika2107@tc.columbia.edu

Research Question: What are the perspectives of key informants regarding the social determinants affecting HPV vaccination and cervical cancer screening?

Semi-Structured Interview Guide

Introduction:
Hello, and thank you for taking the time to participate in this interview. My name is Isaac Ayereka, and I am conducting research to assess the health behavior of African-born immigrant mothers in Washington State toward the utilization of cervical cancer prevention services. Your insights will help identify factors that influence decision-making about these preventive services.

This interview focuses on your perspectives as a key informant—whether as a public health professional, community leader, or policymaker—on the social determinants that affect the uptake of these preventive health services. Your insights will help identify barriers and facilitators to improve health outcomes in this population.

This conversation is voluntary, and you may choose not to answer any question or stop at any time. Your responses will be kept confidential and used only for research purposes. There are no right or wrong answers—please share your honest perspectives.

(Review Informed Consent Form) Before we get started, I wanted to confirm that you received the "Informed Consent" form I sent to you by email or text. Did you get a chance to review it? In any case, I will briefly review it with you at this time in case you have any questions. I will begin sharing my screen. The top of the consent form gives you some information on this study. Again, you have been invited to participate in a study on cervical cancer prevention.

The interview should take 45 to 60 minutes to complete, and you will receive $25 as a thank you for your participation.

(**Purpose**) During the interview, you will be asked questions on social determinants that affect the uptake of these preventive health services. Your insights will help identify barriers and facilitators to improve health outcomes in this population. If at any point you feel uncomfortable answering the questions, you are more than welcome to ask me to skip them. This interview will be audio recorded, which is required for participating. After the audio recording is written down (transcribed) the audio recording will be deleted. Video recording is optional. I will be using an ID number instead of your name to keep your identity confidential.

The last few pages describe your rights as a participant. You will also find my contact information if you have any questions.

I will now stop sharing my screen.

(Obtaining Verbal Consent) Before recording,

Do you have any questions about the study or the consent form that I have reviewed with you?

Do you give consent to be recorded?

Are you ready to be recorded for the interview?

I will begin recording and ask you the same questions, so your consent is recorded.

BEGIN RECORDING

- Do you have any questions about the study or the consent form that I have reviewed with you?
- Do you give consent to be recorded?

(**Transition**: This interview will be recorded and all the information you provide today will be kept confidential. I want to thank you again for participating in this study.

Do you have any questions before we begin?

Section 1: Background and Role

1. Can you briefly describe your role and experience in working with African immigrant communities regarding healthcare services?
2. What has been your involvement in HPV vaccination and cervical cancer screening initiatives, if any?

3. In your professional experience, what are the most significant health concerns affecting African-born immigrant mothers and their families?

Section 2: Awareness and Knowledge

4. From your perspective, how knowledgeable are African immigrant mothers about HPV vaccination and cervical cancer screening?
5. What are the most common misconceptions or knowledge gaps you have observed in this community regarding these services?
6. What sources of information do mothers in these communities typically rely on for health-related decisions?

Section 3: Social and Cultural Determinants

7. How do cultural beliefs and practices influence decisions about HPV vaccination and cervical cancer screening in this community?
8. What role do religious, and community leaders play in shaping health behaviors related to cervical cancer prevention?
9. How do gender dynamics and family decision-making impact mothers' ability to access these services?
10. What are the most effective ways to engage this community in discussions about cervical cancer prevention?

Section 4: Structural and Systemic Barriers

11. What systemic barriers (e.g., access to healthcare, insurance coverage, transportation, language) prevent African immigrant mothers from utilizing HPV vaccination and cervical cancer screening services?
12. Are there specific challenges in the healthcare system that discourage this population from seeking preventive care?
13. How does the immigration experience, including legal status and acculturation, impact healthcare access and decision-making?

Section 5: Existing and Potential Interventions

14. What interventions have been successful in increasing HPV vaccination and cervical cancer screening rates in this population?
15. What types of programs, outreach strategies, or policies do you think would be most effective in addressing social and systemic barriers?
16. How can healthcare providers improve their communication and engagement with African immigrant mothers regarding these services?
17. What partnerships (e.g., community organizations, faith-based groups, schools) could be leveraged to improve awareness and access to HPV vaccination and screening?

Section 6: Policy and Future Recommendations

18. What policy changes or healthcare system improvements do you believe would increase cervical cancer screening and HPV vaccination uptake among African-immigrant mothers?
19. Are there any best practices from other communities or regions that could be adapted to address the needs of this population?
20. What additional research or data would be helpful in guiding interventions for this community?

Section 7: Closing Thoughts

21. If you had one key message or recommendation for improving HPV vaccination and cervical cancer screening rates among African immigrant mothers, what would it be?
22. Is there anything else you would like to share that we haven't covered?

Closing Statement:
Thank you for sharing your time and insights. Your input is invaluable in helping to shape more effective interventions and policies to support cervical cancer prevention efforts in African-born immigrant communities. If you are open to follow-up questions, please let me know.

Appendix D: Recruitment Flyer

Appendix E: Key Informant Invitation Letter

Isaac Ayereka
Teachers College, Columbia University,
525 W. 120th Street,
New York, NY 10027
ika2107@tc.columbia.edu
269 443 4807
2/8/2025

[Recipient's Name]
[Title]
[Name of Organization]
[Office Address]
[City, State, ZIP Code]

Subject: Invitation to Participate in a Dissertation Research Study

Dear [Recipient's Name],

I hope you are doing well. My name is Isaac Ayereka, and I am a doctoral student in Health Promotion and Education at Teachers College, Columbia University. I am conducting a research study to assess the health behavior of African-born immigrant mothers in Washington State toward the utilization of cervical cancer prevention services (cervical cancer screening and HPV vaccination).

This study applies both the Health Belief Model (HBM) and the Social-Ecological Model (SEM) to explore the personal, social, and systemic factors that impact health behaviors.

As a key stakeholder in immunization and public health efforts, I would like to invite you to participate as a key informant in this study. Your insights into immunization policies, public health outreach, and social determinants of health will provide valuable perspectives on how to improve HPV vaccination rates and cervical cancer screening participation within this community.

Study Participation Details:

- A one-on-one interview (approximately 45–60 minutes) conducted via Zoom at a time convenient for you.
- Discussion will focus on social determinants influencing HPV vaccination and cervical cancer screening among African-born immigrant mothers, as well as potential intervention strategies.

- Participation is voluntary, and your responses will remain confidential, used solely for academic purposes.

If you are available and willing to participate, please reply to this email at ika2107@tc.columbia.edu or call/text me at 269 443 4807 to schedule an interview. Your expertise would be instrumental in shaping findings that may inform future public health strategies.

Thank you for your time and consideration. I look forward to hearing from you.

Sincerely,

Isaac Ayereka
Doctoral Candidate, Columbia University

Appendix F: Site Permission Letter

[Your Name]

[Your Address]

[City, State, ZIP Code]

[Your Email]

[Your Phone Number]

[Date]

[Manager's Name]

[Institution Name]

[Institution Address]

[City, State, ZIP Code]

Subject: Request for Permission to Post Research Recruitment Flyers

Dear [Manager's Name],

I hope this letter finds you well. I am Isaac Ayereka, a doctoral candidate in Health Promotion and Education at Teachers College, Columbia University. I am conducting a research study on cervical cancer prevention among African-born immigrant mothers with children aged 9 to 17 in Washington State. The goal of this study is to understand the factors influencing their healthcare decisions and identify ways to improve access to preventive services.

I am reaching out to request permission to post research recruitment flyers at [Institution Name]. These flyers will provide information about the study and invite eligible participants to take part in interviews or focus group discussions. Participation in the study is entirely voluntary, and all responses will be kept confidential.

Your support in allowing the placement of these flyers would greatly contribute to reaching potential participants and ensuring diverse representation in the study. I am happy to provide additional information about the research and address any questions or concerns you may have. If needed, I am also available to meet at your convenience to discuss this request further.

Please let me know if you require any formal documentation or an approval process to proceed. I truly appreciate your time and consideration. You may reach me at **ika2107@tc.columbia.edu** or 269 443 4807 for any further discussion.

Thank you for your support.

Sincerely,

Isaac Ayereka

Doctoral Candidate, Health Promotion and Education

Teachers College, Columbia University

Appendix G: Informed Consent

TEACHERS COLLEGE
COLUMBIA UNIVERSITY
525 West 120th St. New York, NY 10027
212-678-3000 | www.tc.columbia.edu

INFORMED CONSENT

Protocol Title: Using the Health Belief Model and the social-ecological model as frameworks to assess the health behavior of African-born immigrant mothers in Washington State toward the utilization of cervical cancer prevention services (cervical cancer screening and HPV vaccination)

Principal Researcher: Isaac Kwabena Ayereka, Teachers College, Columbia University
2694434807, ika2107@tc.columbia.edu

INTRODUCTION

This study aims to assess the health behavior of African-born immigrant mothers in Washington State toward the utilization of cervical cancer prevention services (cervical cancer screening and HPV vaccination) using the Health Belief Model and the social-ecological model as frameworks. The research seeks to understand the factors influencing healthcare decisions and identify effective strategies to improve access to these critical services.

Who Can Participate?
Individual Interviews (25 to 30 participants) & Focus Group Discussions (2 groups)
You may qualify if you:

- Are between 21 and 65 years old
- Identify as an African-born immigrant mother
- Currently reside in Washington State
- Have at least one child between the ages of 9 and 17

Key Informant Interviews (7 participants)
You may qualify if you:

- Are a public health professional, community leader, or policymaker with experience in HPV vaccines and cervical cancer screening or immigrant health.
- Work with African-born immigrant communities in Washington State
- Have insights into barriers, intervention strategies, or policy implications related to HPV vaccination and cervical cancer screening

All interviews and discussions will take approximately 45 to 60 minutes and will be conducted via Zoom at a time that works for you. Participation is voluntary, and all responses will remain confidential.

Teachers College, Columbia University
Institutional Review Board
Protocol Number: 25-257
Consent Form Approved Until: 03/16/2026