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Qualitative Analysis of Barriers and Facilitators to Cancer Screening in Low-Income Communities

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ABSTRACT

This study aimed to explore the barriers and facilitators to cancer screening among individuals in low-income communities. By understanding these factors, the research sought to provide insights that could inform interventions designed to increase screening rates and reduce cancer-related health disparities in these populations. A qualitative research design was employed, utilizing semi-structured interviews to collect data from 24 participants residing in low-income communities. The participants were recruited through community centers, local clinics, and public health organizations. Data collection continued until theoretical saturation was achieved. The interviews were audio-recorded, transcribed verbatim, and analyzed using NVivo software. Thematic analysis was conducted to identify key themes and patterns within the data. The study identified several barriers to cancer screening, including lack of awareness, financial constraints, fear and stigma, accessibility issues, and negative past experiences with healthcare providers. Facilitators included community support, education and awareness programs, accessibility improvements, financial assistance, positive healthcare experiences, and culturally competent care. Participants highlighted the importance of social support networks and the role of community health workers in encouraging screening participation. Financial aid and logistical improvements were also crucial in enabling access to screening services. Positive interactions with healthcare providers and culturally sensitive care emerged as significant factors in promoting screening uptake. Addressing the barriers and leveraging the facilitators identified in this study is essential for improving cancer screening rates in low-income communities. Interventions should focus on comprehensive education and awareness campaigns, financial assistance programs, and accessibility improvements. Training healthcare providers in cultural competence and fostering positive healthcare experiences can further enhance screening participation. By implementing these strategies, healthcare systems can reduce cancer-related health disparities and improve early detection in underserved populations.

Keywords: *Cancer screening, low-income communities, barriers, facilitators, qualitative research, healthcare disparities, community support, financial assistance, cultural competence, health education.*

1. Introduction

Cancer screening is a critical component of early detection and prevention strategies, allowing for the identification of cancer at earlier, more treatable stages. Regular screenings for cancers such as breast, cervical, and colorectal have been shown to significantly reduce mortality rates (1). Despite the proven benefits, many individuals, especially those in low-income communities, remain under-screened (2). Understanding the factors that contribute to low screening rates in these populations is essential for public health efforts aimed at increasing participation in cancer screening programs.

Various studies have identified a range of barriers that prevent low-income individuals from participating in cancer screenings. Financial constraints are a significant barrier, as the costs associated with screening tests, lack of insurance coverage, and additional expenses such as transportation can be prohibitive for many (2, 3). This is supported by Beaudoin et al. (2020), who found that financial barriers are a primary reason for underutilization of cancer screening services in resource-limited settings (4).

Lack of awareness and knowledge about cancer screening programs is another major barrier. Many individuals in low-income communities are not adequately informed about the availability and importance of these screenings, leading to lower participation rates (5). Misconceptions and misinformation about cancer and its screening further exacerbate this issue, as highlighted by Allen-Leigh et al. (2017) in their study on HPV self-sampling among low-income women (6).

Fear and stigma associated with cancer and its screening processes also play a crucial role in deterring individuals from seeking screening. Fear of a positive diagnosis and the social stigma surrounding cancer can cause significant anxiety, preventing people from undergoing necessary screenings (7). This sentiment is echoed in research by Cohen et al. (2015), who found that sociocultural barriers, including fear and stigma, significantly impact mammography adherence among women in Appalachian Kentucky (8).

Accessibility issues, such as the distance to screening facilities, inconvenient hours of operation, and long waiting times, further hinder participation in cancer screening programs. Austad et al. (2018) identified these logistical challenges as significant barriers in their study on cervical cancer screening in rural Guatemala (9). Similarly, Chidyaonga-Maseko et al. (2015) reviewed various contributing factors to the underutilization of cervical cancer prevention services in low- and middle-income countries, emphasizing the importance of addressing these accessibility issues (10).

Negative past experiences with healthcare providers and the healthcare system can also discourage individuals from participating in future screenings. Studies have shown that previous negative encounters, such as pain or discomfort during screenings and a lack of follow-up care, can lead to a reluctance to engage in further medical procedures (9, 11).

Despite these barriers, several facilitators can promote participation in cancer screening programs among low-income communities. Community support, including encouragement from family, friends, and community health workers, plays a vital role in motivating individuals to undergo screenings. Research by Bevilacqua et al. (2022) in rural Guatemala highlighted the importance of community health workers in facilitating cervical cancer screenings among women (12).

Education and awareness campaigns are also crucial in improving cancer screening rates. Informative and accessible health education programs can significantly increase awareness and knowledge about the importance of cancer screenings, thereby encouraging participation (13). This is supported by findings from Jesús et al. (2021), who emphasized the role of education in promoting cancer prevention knowledge and screening uptake among low-income and illiterate immigrant women in France.

Improving accessibility through mobile screening units, extended clinic hours, and reduced wait times can also enhance participation in cancer screenings. Research by Schliemann et al. (2022) in rural Malaysia found that mobile screening units were effective in reaching underserved populations and increasing screening rates (14). Similarly, Nalluri and Gaertner (2022) highlighted the benefits of extended clinic hours in improving access to colorectal cancer screening in low-resource settings (15).

Financial assistance programs, such as subsidized screening costs and free transportation services, can alleviate the financial burden on individuals and make it easier for them to access screening services. Studies have shown that financial aid can significantly increase participation in cancer screening programs (2, 16).

Positive healthcare experiences, including friendly and approachable staff, comfortable screening environments, and clear communication and follow-up, can encourage individuals to undergo screenings. Research by Lewis-Thames et al. (2022) on a patient navigation program for Chinese immigrant women highlighted the importance of positive interactions with healthcare providers in improving breast and cervical cancer screening rates (17).

Culturally competent care, which includes language support services, culturally sensitive care, and representation among healthcare providers, can also facilitate cancer screening among diverse populations. Elia and Devine (2018) emphasized the need for culturally sensitive care in their systematic review of cervical cancer screening in the Pacific, highlighting the importance of addressing cultural barriers to improve screening uptake (18).

Community-based interventions have shown promise in addressing the barriers and facilitators to cancer screening in low-income communities. Glaser (2023) discussed the application of the community-based participatory model to build capacity for sustained impact in breast health equity, demonstrating the effectiveness of community-academic partnerships in improving screening rates (19). Similarly, Schiffelbein et al. (2020) explored barriers, facilitators, and suggested interventions for lung cancer screening in rural populations, highlighting the importance of tailored community interventions (20).

Addressing the barriers and leveraging the facilitators to cancer screening in low-income communities requires a multifaceted approach that encompasses education, accessibility, financial assistance, positive healthcare experiences, and culturally competent care. By understanding and addressing the unique challenges faced by these populations, public health efforts can improve cancer screening rates and ultimately reduce cancer-related health disparities. This qualitative study aims to contribute to this understanding by exploring the experiences and perceptions of individuals in low-income communities regarding cancer screening, providing valuable insights for the development of targeted interventions.

2. Methods and Materials

2.1. Study Design and Participants

This qualitative study aimed to explore the barriers and facilitators to cancer screening in low-income communities. The research employed a phenomenological approach to gain an in-depth understanding of the participants' experiences and perceptions.

The study targeted adults aged 18 and older from low-income communities who had either participated in or opted out of cancer screening programs. Participants were recruited through community centers, local clinics, and public health organizations. Inclusion criteria included residence in the community for at least one year and willingness to participate in an interview.

Data collection continued until theoretical saturation was achieved, meaning no new themes or insights were emerging from additional interviews. This point was reached after 25 interviews, ensuring a comprehensive understanding of the phenomena under study.

2.2. Measures

2.2.1. Semi-Structured Interview

Data were collected using semi-structured interviews, allowing flexibility for participants to share their experiences while ensuring that key topics were covered. An interview guide was developed based on a literature review and consultations with experts in public health and oncology. The guide included open-ended questions on topics such as:

- Awareness and knowledge of cancer screening programs
- Personal and community beliefs about cancer and screening
- Accessibility and affordability of screening services
- Experiences with healthcare providers
- Perceived barriers to and facilitators of participation in screening programs

Interviews were conducted in a private setting, either in-person or via video calls, depending on the participants' preferences and COVID-19 restrictions. Each interview lasted approximately 45-60 minutes and was audio-recorded with the participants' consent.

2.3. Data Analysis

The audio recordings were transcribed verbatim, and the transcripts were imported into NVivo software for analysis. Thematic analysis was employed to identify and analyze patterns and themes within the data. The process involved several steps:

Familiarization with the data: Reading and re-reading the transcripts to become deeply acquainted with the content.

Initial coding: Generating initial codes from the data systematically across the entire dataset.

Searching for themes: Collating codes into potential themes and gathering all relevant data for each theme.

Reviewing themes: Checking if the themes work in relation to the coded extracts and the entire dataset, generating a thematic map of the analysis.

Defining and naming themes: Refining the specifics of each theme and the overall story the analysis tells, creating clear definitions and names for each theme.

Writing the report: Weaving together the analytic narrative and data extracts to provide a coherent and compelling account of the data.

NVivo software was used for data management and analysis, facilitating the organization, coding, and retrieval of data to ensure a rigorous and systematic analytical process. The software's features supported the identification and interpretation of complex themes and patterns within the qualitative data.

3. Findings and Results

The study included 24 participants from various low-income communities, ensuring a diverse representation of demographics. Among the participants, 14 were female (58%) and 10 were male (42%). The age of participants ranged from 22 to 68 years, with a mean age of 45 years. In terms of ethnicity, 10 participants (42%) identified as African American, 7 (29%) as Hispanic, 4 (17%) as Caucasian, and 3 (12%) as Asian. The majority of participants (75%) had a high school diploma or less, with only 6 participants (25%) having attended some college or obtained a higher education degree. Employment status varied, with 12 participants (50%) being unemployed, 8 (33%) working part-time, and 4 (17%) employed full-time. Household income levels were consistently low, with 18 participants (75%) reporting an annual income below $20,000. Additionally, 16 participants (67%) had no health insurance, highlighting the financial barriers faced by the majority of the study population. These demographic characteristics provided a comprehensive understanding of the diverse backgrounds and challenges encountered by individuals in low-income communities regarding cancer screening.

Table 1

The Results of Thematic Analysis

Category	Subcategories	Concepts
Barriers	Lack of Awareness	Limited knowledge of screening programs
		Misinformation about cancer
		Lack of outreach and education
	Financial Constraints	Cost of screening tests
		Lack of insurance coverage
		Transportation costs
	Fear and Stigma	Fear of diagnosis
		Social stigma associated with cancer
		Distrust in medical procedures
	Accessibility Issues	Distance to screening facilities
		Inconvenient hours of operation
		Long waiting times
	Negative Past Experiences	Previous negative encounters with healthcare providers
		Pain or discomfort during previous screenings
		Lack of follow-up care
Facilitators	Community Support	Support from family and friends
		Community health workers
		Peer encouragement
	Education and Awareness	Health education programs

	Awareness campaigns
	Informative media content
Accessibility Improvements	Mobile screening units
	Extended clinic hours
	Reduced wait times
Financial Assistance	Subsidized screening costs
	Free transportation services
	Assistance with insurance enrollment
Positive Healthcare Experiences	Friendly and approachable staff
	Comfortable screening environment
	Clear communication and follow-up
Cultural Competence	Language support services
	Culturally sensitive care
	Representation among healthcare providers

3.1. Barriers

Lack of Awareness: Participants frequently cited limited knowledge of cancer screening programs as a significant barrier. Many individuals were unaware of the availability and importance of such screenings. Misinformation about cancer itself and the benefits of early detection further compounded this issue. One participant noted, "I didn't even know there was a test for that [cancer]. Nobody ever told me."

Financial Constraints: Financial difficulties emerged as a prevalent barrier, encompassing the cost of screening tests, lack of insurance coverage, and additional expenses such as transportation. Several participants highlighted that the costs associated with screening were prohibitive. "I can't afford the test, let alone the bus fare to get there," shared one respondent.

Fear and Stigma: The fear of a cancer diagnosis and the social stigma surrounding the disease were significant deterrents to screening. Participants expressed apprehension about the potential outcome of the tests and societal judgment. "I'm scared to find out. What if it's bad? People will look at me differently," a participant explained.

Accessibility Issues: Accessibility issues, including the distance to screening facilities, inconvenient hours of operation, and long waiting times, were repeatedly mentioned. These logistical challenges made it difficult for many to attend screenings. "The clinic is too far, and by the time I get there after work, it's closed," lamented one interviewee.

Negative Past Experiences: Previous negative encounters with healthcare providers, pain or discomfort during prior screenings, and lack of follow-up care were also significant barriers. Participants described their reluctance to return for screenings due to past experiences. "The last time I went, it was painful, and no one explained what was happening. I don't want to go through that again," a participant recounted.

3.2. Facilitators

Community Support: Support from family, friends, community health workers, and peers emerged as a crucial facilitator for cancer screening. Participants who received encouragement and assistance from their social networks were more likely to participate in screenings. "My sister insisted I go, and she even came with me. That made all the difference," one individual remarked.

Education and Awareness: Health education programs, awareness campaigns, and informative media content were identified as essential in promoting screening participation. Participants appreciated clear, accessible information about the benefits and availability of cancer screenings. "The flyer I got at the health fair really opened my eyes. I realized how important it was," stated one participant.

Accessibility Improvements: Improving accessibility through mobile screening units, extended clinic hours, and reduced wait times was highlighted as a significant facilitator. These measures made it easier for individuals to attend screenings. "The mobile unit came right to our community center. I didn't have to go far, and it was quick," shared a participant.

Financial Assistance: Subsidized screening costs, free transportation services, and assistance with insurance enrollment were key facilitators. Financial aid reduced the burden on individuals, enabling more people to access screening services. "The clinic offered a voucher for the test, and they arranged a ride for me. It made it possible," noted one respondent.

Positive Healthcare Experiences: Positive experiences with healthcare providers, including friendly and approachable staff, comfortable screening environments, and clear communication and follow-up, encouraged participants to undergo screenings. "The nurse was so kind and explained everything. It made me feel comfortable," a participant recalled.

Cultural Competence: Language support services, culturally sensitive care, and representation among healthcare providers were important facilitators. Participants felt more at ease and understood when healthcare providers respected their cultural backgrounds. "They had someone who spoke my language and understood my culture. It made a big difference," explained one interviewee.

4. Discussion and Conclusion

This study explored the barriers and facilitators to cancer screening in low-income communities through semi-structured interviews. The key barriers identified included lack of awareness, financial constraints, fear and stigma, accessibility issues, and negative past experiences with healthcare providers. Conversely, the facilitators highlighted were community support, education and awareness programs, accessibility improvements, financial assistance, positive healthcare experiences, and culturally competent care.

A significant finding was the limited knowledge and misinformation about cancer screening among participants. This aligns with previous studies that have documented similar issues in various low-income and minority populations. For instance, Akohoue et al. (2016) found that African American communities often have limited awareness about cancer screening programs, contributing to lower participation rates (5). Additionally, Allen-Leigh et al. (2017) reported that low-income indigenous women in rural areas had insufficient information about HPV self-sampling and cytology, underscoring the pervasive lack of awareness across different communities (6).

Financial barriers were a prominent theme, consistent with findings from multiple studies. Biddell et al. (2021) highlighted that perceived financial barriers significantly impact cervical cancer screening among low-income women, with associated costs and lack of insurance being major deterrents (2). Similarly, Beaudoin et al. (2020) emphasized that financial constraints limit access to care for head and neck cancer patients in resource-limited settings. These studies corroborate the present findings, illustrating the widespread impact of financial challenges on cancer screening participation (4).

The fear of diagnosis and the associated social stigma were substantial barriers reported by participants. This is supported by Cohen et al. (2015), who found that sociocultural barriers, including fear and stigma, significantly affect mammography adherence among Appalachian Kentucky women (8). Kayser et al. (2022) also identified fear and stigma as critical factors hindering cervical cancer screening, emphasizing the need to address these psychological and social barriers (7).

Accessibility issues, such as distance to screening facilities and inconvenient hours, were frequently mentioned. Austad et al. (2018) reported similar findings in rural Guatemala, where logistical challenges posed significant barriers to cervical cancer screening (9). Chidyaonga-Maseko et al. (2015) reviewed contributing factors to the underutilization of cervical cancer services, highlighting accessibility issues as a common barrier in low- and middle-income countries. These findings suggest that improving logistical aspects of screening services could significantly enhance participation rates (10).

Participants' negative past experiences with healthcare providers were another major barrier. Previous studies have documented the impact of such experiences on future healthcare behaviors. Vega et al. (2022) found that past negative encounters with healthcare systems deterred women in Ecuador from participating in cervical cancer screenings (11). Similarly, Austad et al. (2018) emphasized that negative healthcare experiences can lead to a lack of trust and reluctance to seek future screenings. These studies support the current findings and highlight the importance of positive patient-provider interactions (9).

Support from family, friends, and community health workers emerged as a vital facilitator. Bevilacqua et al. (2022) found that community health workers played a crucial role in promoting cervical cancer screening in rural Guatemala, demonstrating the effectiveness of community support (12). Jesús et al. (2021) also emphasized the importance of community support in increasing screening uptake among low-income and illiterate immigrant women in France. These findings align with the current study, highlighting the significant impact of social support networks (21).

Educational programs and awareness campaigns were crucial in promoting screening participation. Ndejjo et al. (2017) reported that health education significantly increased knowledge and participation in cervical cancer screening among women in Uganda (13). Similar findings were reported by Akohoue et al. (2016), who found that awareness campaigns improved cancer screening rates in African American communities. These studies underscore the importance of education and awareness in enhancing screening uptake (5).

Improving accessibility through mobile screening units and extended clinic hours was a significant facilitator. Schliemann et al. (2022) found that mobile units effectively reached underserved populations in rural Malaysia, increasing screening rates (14). Nalluri and Gaertner (2022) highlighted the benefits of extended clinic hours in improving access to colorectal cancer screening in low-resource settings. These findings support the current study's emphasis on the importance of logistical improvements in facilitating cancer screening (15).

Financial assistance, such as subsidized screening costs and free transportation services, was crucial in enabling participation. Biddell et al. (2021) and Patel et al. (2022) found that financial aid programs significantly increased cancer screening participation among low-income populations (2, 16). These studies align with the present findings, demonstrating the importance of addressing financial barriers to improve screening rates.

Positive experiences with healthcare providers, including friendly staff and clear communication, encouraged screening participation. Lewis-Thames et al. (2022) reported that patient navigation programs that provided supportive interactions significantly improved breast and cervical cancer screening rates among Chinese immigrant women (17). This finding is consistent with the current study, emphasizing the importance of positive healthcare experiences in promoting screening.

Culturally competent care, including language support and culturally sensitive care, was a significant facilitator. Elia and Devine (2018) highlighted the importance of culturally sensitive care in increasing cervical cancer screening among Pacific populations (18). This is supported by studies such as Wee et al. (2015), which found that language barriers and lack of culturally appropriate care hindered cancer screening in low-income Asian communities (22). These findings underscore the importance of culturally competent care in improving screening rates.

This study has several limitations. First, the sample size was relatively small, with 24 participants, which may limit the generalizability of the findings. Additionally, the study relied on self-reported data, which could be subject to recall bias or social desirability bias. Furthermore, the qualitative nature of the study, while providing in-depth insights, may not capture the full spectrum of barriers and facilitators experienced by larger populations. The interviews were conducted in specific low-income communities, which may not be representative of all low-income populations, potentially limiting the applicability of the findings to other settings or demographics.

Future research should aim to include larger and more diverse sample sizes to enhance the generalizability of the findings. Longitudinal studies could provide insights into how barriers and facilitators to cancer screening evolve over time and the long-term impact of interventions designed to improve screening rates. Additionally, incorporating quantitative methods alongside qualitative approaches could provide a more comprehensive understanding of the factors influencing cancer screening participation. Exploring the role of technology, such as telehealth and digital health interventions, in overcoming barriers to screening could also be a valuable area of investigation. Research focusing on specific subgroups within low-income populations, such as immigrants, ethnic minorities, and individuals with chronic health conditions, could uncover unique barriers and facilitators relevant to these groups.

To address the barriers and leverage the facilitators identified in this study, several practical recommendations can be made. Healthcare providers and policymakers should prioritize the implementation of comprehensive education and awareness campaigns tailored to low-income communities. These campaigns should focus on dispelling myths and misinformation about cancer and its screening processes. Financial assistance programs, including subsidized screenings and transportation services, should be expanded to reduce the economic burden on individuals. Improving the accessibility of screening services through mobile units, extended clinic hours, and reduced wait times is essential. Healthcare providers should be trained in cultural competence to ensure they can effectively communicate with and provide care to diverse populations. Community health workers and peer support networks should be utilized to encourage and support individuals in attending screenings. Additionally, efforts should be made to create positive healthcare experiences by fostering a welcoming and supportive environment in screening facilities. By addressing these practical considerations, healthcare systems can improve cancer screening rates and reduce health disparities in low-income communities.

Authors' Contributions

M.E.S. conceptualized the study, designed the research methodology, and supervised the data collection process. M.B. conducted the semi-structured interviews, assisted in the transcription of audio recordings, and contributed to the thematic analysis using NVivo software. H.Q., the corresponding author, led the data analysis, interpreted the findings, and took the lead in drafting and revising the manuscript. All authors participated in discussing the findings, critically reviewed the manuscript for important intellectual content, and approved the final version for publication.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethics Considerations

The study placed a high emphasis on ethical considerations. Informed consent obtained from all participants, ensuring they are fully aware of the nature of the study and their role in it. Confidentiality strictly maintained, with data anonymized to protect individual privacy. The study adhered to the ethical guidelines for research with human subjects as outlined in the Declaration of Helsinki.

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