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# Mobile Mammography Unit Utilization: Perceptions and Interests Among African American Women

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**Abstract:** Among women globally, breast cancer is the most frequently diagnosed malignancy and the leading cause of cancer mortality. Moreover, for racial/ethnic minorities and those of low socioeconomic status (SES), these groups experience a poorer quality of life and diminished survival. This is due, in part, to underutilization of mammography screening and a lack of adherence to subsequent follow-up guidelines. The purpose of this study is to gain insight on perceptions of and interest in mobile mammography unit (MMU) utilization among African American (AA) women, primarily of low SES; as well as obtain strategies for effective information dissemination. Researchers partnered with local grocery stores, community centers, churches, shopping centers and hair salons to act as recruitment sites. Each establishment was within a 10 mile radius of the multi-service center being used to conduct the focus groups. Participant eligibility included: (a) the individual must be female, (b) between 35 and 65 years of age, (c) a current resident of Harris County, Texas, (d) self-identified as AA and (e) had no previous cancer history. Sixty-one AA women participated across six focus groups. The focus groups revealed that participants perceived the availability of MMUs as an effective strategy to increase guideline adherence. In addition, all participants stated MMUs would be of interest to women in their communities. Various suggestions to strengthen engagement were conveyed by participants as well. Specifically, offering services during non-traditional hours and in highly accessible locations; and partnering with community venues and incorporating principles of social support were conveyed.

**Keywords:** African Americans, Breast Cancer, Mobile Mammography, Cancer Prevention

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## 1. Introduction

Among women in the United States (US), breast cancer is the most frequently diagnosed malignancy regardless of race and/or ethnicity [1-3]. Additionally, it is the leading cause of death for Hispanic women and second leading for Indian/Alaska Native, Asian/Pacific Islander, African American (AA) and Caucasian women [3]. According to data available for 2014, the number of US women diagnosed with breast cancer was 236,968 and 41,211 died from the disease [3]. Moreover, for racial/ethnic minorities and those of low socioeconomic status (SES), these groups experience a

poorer quality of life and diminished survival [4-6] compared to Caucasian women and those of a higher socioeconomic status. This is due, in part, to underutilization of mammography screening and a lack of adherence to subsequent follow-up guidelines [7-8]. Both enables late stage diagnosis, thus having the potential to reduce effectiveness of treatment if abnormalities are present.

Specifically related to AA women, overall, the incidence of breast cancer is lower compared to Caucasian women. However, collectively, AAs have a higher breast cancer

mortality rate in comparison [9]. Additionally, the disparity gap is wider when accounting for SES, with low SES AAs being less compliant to screening adherence. As affirmation, researchers have assessed mammography behaviors of Medicaid-insured AA women in the US. The results demonstrated that the population is significantly less likely to adhere in 30% of the 44 states examined, in comparison to Caucasian women of varying income levels [10].

Various barriers to screening and follow-up adherence have been identified in the literature. These include lack of access to preventive services, particularly for those who lack transportation or reside in a location without an adequate public transportation system [11-13]. In addition, being uninsured or underinsured [13-14]; and having time constraints due to employment and/or familial responsibilities [15] are also prevalent barriers to care. Although many interventions have been implemented to improve compliance, the utilization of low-cost mobile mammography units (MMUs) has been proven highly effective to overcome the aforementioned challenges for underserved women [11].

Some of the attributes of successful outcomes of MMU usage is its availability during non-traditional hours. Likewise, being stationed in highly accessible and influential locations (e.g., community centers, shopping centers and churches) also facilitate heightened levels of engagement [15]. Additionally, many services are provided free of charge or on a sliding fee scale to underwrite payment for screening and follow-up [16]. However, to the authors' knowledge, there is no published literature in PubMed specifically related to community opinion regarding efficacy of MMU screening equipment. To further build on the existing literature of culturally-appropriate mammography promotion programs and interventions, the purpose of this study is to gain insight on (1) perceptions of the efficiency of MMUs, (2) interest in MMU utilization engagement and (3) information dissemination strategies among AA women, primarily of low SES.

## 2. Method

### 2.1. Participants and Recruitment

After receiving institutional review board approval, researchers partnered with local grocery stores, community centers, churches, shopping centers and hair salons to act as recruitment sites. Each establishment was within a 10 mile radius of the multi-service center being used to conduct the focus groups. Participants eligibility included: (a) the individual must be female, (b) between 35 and 65 years of age, (c) a current resident of Harris County, Texas, (d) self-identified as AA and (e) had no previous cancer history. After eligibility was determined, the staff member verbally conveyed the purpose of the study and information regarding participation. At the end of each recruitment activity, all interested parties' names and contact information were placed in an Excel file on an institution-provided secure

drive. Follow-up calls to potential participants began at least 48 hours before the scheduled date of the focus group. In the event contact was not made, calls continued until three hours prior to the start of the focus group to ensure adequate participation.

### 2.2. Procedure

At the beginning of each focus group, all attendees were reminded that participation was voluntary and that they could choose to stop participating at any time. Participants were then guided through the informed consent process, which included designated minutes for the facilitator to read aloud the consent documentation and answer any questions. Additional time was also allotted for participants to re-read the documentation and privately ask the facilitator questions. Upon obtaining informed consent, participants completed a brief demographic questionnaire. A digital recorder was used to document the discussions and participants were instructed to refrain from using their names at any time to foster anonymity. As an incentive, participants received a \$25 gift card to a national department store chain.

### 2.3. Interview Guide

To guide the focus groups and ensure consistency between each session, facilitators were trained on proper protocol and used a common interview guide. The interview guide was developed upon review of the existing literature, incorporating items related to previous findings, and in consultation with trusted community health workers. Each session ranged between 60-90 minutes, in which participants were asked about their perceptions of and interest in MMUs. The women were also asked to offer guidance to increase accessibility and utilization of MMU services for their respective communities.

### 2.4. Data Analysis

Using procedures described in previous research [17], each of the focus groups were transcribed verbatim. To avoid biases, team members analyzed, categorized, and coded participants' responses independently, applying inductive-deductive content analysis method to develop themes [18]. Relevant themes were identified using inductive analysis and categories were determined through deductive methods. NVivo qualitative analysis computer software enabled this process. Furthermore, upon the selection of key participant responses, a color code was given using the software and gathered into specific themes [19]. Lastly, team members met to discuss independent analyses and determine final categories and themes.

## 3. Results

A total of six focus groups were conducted in six multi-service centers in Harris County, Texas. Each location was strategically selected to accommodate residents from all regions of the area to maximize both participation and

community representation. Each session included 9 to 12 participants in an effort to foster meaningful interaction.

### 3.1. Respondent Characteristics

As shown in Table 1, the total number of respondents was 61 AA women, with an average age of 52.5 years (range, 35 to 65 years). Regarding marital status, 68.9% (n=42) of participants were single or divorced. Additionally, 41.0% (n=25) stated they had received some college or an Associates degree. Mutually, 49.2% (n=30) were employed and 52.4% (n=32) noted an annual income of less than \$20,000. Approximately 68.9% (n=42) of participants were currently insured and 78.7% (n=48) had a mammogram in the past.

*Table 1. Participant Demographics.*

ITEM	Respondents (n=61)
Age, mean (SD)	52.5 (8.7)
Marital status	
Single	32.8% (20)
Married	14.7% (9)
Divorced	36.1% (22)
Widow	13.1% (8)
Living with partner but not married	3.3% (2)
Highest level of education	
Less than high school	9.8% (6)
Completed high school	13.1% (8)
Some vocational or training after high school	14.8% (9)
Some college or an Associates degree	41.0% (25)
Bachelors degree or post-baccalaureate training	19.7% (12)
Masters degree	1.6% (1)
Employment status	
Unemployed	50.8% (31)
Employed	49.2% (30)
Household income (annual)	
None	9.8% (6)
Less than \$20,000	42.6% (26)
\$20,000 to \$29,999	18.0% (11)
\$30,000 to \$39,999	11.5% (7)
\$40,000 to \$49,999	4.9% (3)
\$50,000 to \$59,999	3.3% (2)
\$60,000 to \$69,999	6.6% (4)
Equal to or greater than \$70,000	3.3% (2)
Health insurance coverage	68.9% (42)
Has received a mammogram in the past	78.7% (48)
Family history of breast cancer	19.0% (11)

### 3.2. Perceptions of Mobile Mammography Units

When asked about whether or not the quality of the equipment in the mobile unit (rather than what is available in the clinic) should be of concern to participants, the following quotes were received:

1. "No, most women will not think like that because they do not have a medical background."
2. "I don't know what it is supposed to look like and can only go by what you tell me."
3. "The equipment being used is probably the same as in the clinic".

### 3.3. Utilization of Mobile Mammography Units

The focus groups revealed that participants perceived the

availability of MMUs as a successful strategy to stimulate guideline adherence. All participants vocalized that women in their respective communities would be interested in utilizing a MMU for screening services and offered suggestions to increase engagement.

1. "Services should be offered all around town, in worksites, churches, health fairs, shopping malls and community centers."
2. "Make sure the locations are on the bus route."
3. "Have services offered during the early mornings, weekends and after 7:00 p.m. during the week."
4. I think that would make the difference for the communities if the hours were flexible for working people and even Saturdays. Whenever I schedule my appointment, I always say 'hey, can I get the earliest one'. The earliest one can be at 6:00 or 6:45 a.m. because some people don't have a lot of flexibility to get off of work."
5. "Bosses are willing to work with you as long as you come in. If I can come in to get my mammogram early and I'm out of there and at work by 8:30 a.m., it will work for me. You need the flexibility, need the flexible hours."
6. "Even if it's not every Saturday, alternate Saturdays, but the word needs to get out there for African American women."
7. "Allow them to come out as a whole, as a group. As you know, we are family oriented type of people so if we would go as a group, as a people. We need that support."

### 3.4. Information Dissemination Strategies

Focus group facilitators also sought to obtain strategies for information dissemination. The following responses were obtained:

1. "Word of mouth will go a long way."
2. "A lot of women get their information from a direct referral from someone working in the clinic that knows about the services."
3. "Churches, have information and flyers sitting out in the lobby."
4. "Health fairs in the community or in churches."

## 4. Discussion

Within this study, crucial data was collected related to perceptions and utilization of MMUs and strategies to increase subsequent MMU engagement among AA women. Although respondents conveyed an interest in personal MMU utilization, which is a promising result, there are environmental and cultural nuances that must be proactively addressed to maximize participation. For example, the women stressed the importance of partnering with community venues and events (e.g., community centers, health fairs and churches) as locations for service in highly accessible areas (e.g., on a public transportation route). For those who may have attitudes of medical mistrust and/or lack

transportation, this approach is essential to facilitate engagement [4, 13, 20].

Regarding ideal settings, churches were specifically mentioned as a location of interest for mobile breast screening. There is an abundance of literature which suggests church-based cancer prevention and control interventions are beneficial among racial and ethnic minority populations. This is due, in part, to churches having a longstanding history in the surrounding communities as a strong cultural, familial, and social institution [21-22]. In addition, incorporating a collaborative approach with community-based organizations provides support through strengthened recruitment and follow-up outcomes [23-24].

The importance of peer support to promote screening was an insight offered by focus group participants as well. Various studies have shown the usefulness of training community health advisors to provide psychosocial support and act as a liaison between clinicians and individuals they seek to serve [25-27]. By sharing similar cultural, social and economic characteristics as the populations of interest, they are more inclined to connect and understand the subtle distinctions that influence health behaviors [26]. Likewise, this approach fosters community empowerment and capacity building which creates an environment conducive and receptive to healthful initiatives [28].

In addition, many suggestions were given related to timing of service availability. Most respondents recommended early morning, evening and weekend appointments for screenings. With nearly half of the study population being employed either full or part-time, these non-traditional timeslots are vital to encourage adherence. Moreover, enhanced access has been proven effective to increase receipt of preventative care, thus improving health outcomes [29-30].

Furthermore, based on the responses, there was no concern regarding the efficacy of the screening equipment. In fact, participants were confident that the application of standard equipment would be employed by the clinicians. To the authors' knowledge, there is not published literature available specifically related to this element of MMU utilization. Other notable strengths of the study include detailed recruitment and consent protocols. Additionally, analyses incorporated evidence-based transcription and coding techniques.

Regarding limitations, although potential barriers to data collection were addressed prior to implementation, altered strategies for facilitator training will be implemented in future projects. Specifically, modules will address facilitator bias and strategies to keep participants on topic. Also, mock trials will be arranged to provide facilitators with real world application experience. Moreover, the usage of field notes will occur as well to further document any participant characteristics (e.g., age, body language and enthusiasm) associated with individual remarks.

## 5. Conclusion

This research supports the existing literature regarding

the utilization of mobile mammography units to promote screening adherence among disadvantaged populations. Gaining insights from AA women about breast cancer screening promotion is critical to inform the design of culturally appropriate and tailored interventions. With this informed approach, participants may become empowered to engage in health promoting behaviors. As a result, reduction of health disparities may occur through the facilitation of reinforced capacity building and increased access to services.

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## Competing Interests

The authors declare that they have no competing interests.

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