



## Adapting Champion's Breast Cancer Fear Scale to Explore the Correlation of Fear and Fatalism Among African American Middle Class (AAMC) Women: A Quantitative Study

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### Abstract

The American Cancer Society postulate breast cancer is the most common cancer in American women, except for skin cancers, with an average risk of a woman developing breast cancer is about 12%, presenting a 1 in 8 chance of a woman developing breast cancer. Hence, the purpose of this quantitative study was to explore whether fear and fatalism influence compliance with breast cancer screening among members of a selected target population of African American middle class (AAMC) women. Using a cross-sectional analysis, a subsegment sample of 120 AAMC women, ages 35 and older, was surveyed with an abridged version of the Champion Health Belief Model Scale (CHBMS); This scale in turn, is based on the Health Belief Model (HBM), the Champion Breast Cancer Fear Scale (CBCFS) and an adapted version of the Powe Fatalism Model (PFM). Results indicated that fear ( $\chi^2 (2) = 23.49, p < .001$ ) and fatalism ( $\chi^2 (1) = 21.04, p < .001$ ) belief scores were statistically related to breast cancer compliance. These barriers suggest a greater need for health interventions that are culturally specific, with the intention of improving the psychological aspects of health to address fear and fatalism. The social dimension of this change should involve building cohesive physician-patient relationships. This action serves to counteract fear, fatalism and negativism and to increase the level of comfort among individuals who are more apprehensive about seeking health care services.

**Keywords:** African American Middle Class (AAMC) Women; Psychosocial; Fear; Fatalism; Breast Cancer

### Adapting Champion's Breast Cancer Fear Scale to Explore the Correlation of Fear and Fatalism Among African American Middle Class (AAMC) Women

#### A Quantitative Study

According to the National Cancer Institute [1], breast cancer is the most common cancer among women worldwide. Although recent scientific and programmatic advances in health care and technology have led to a decreased mortality rate of breast cancer, many challenges remain in terms of reducing the health disparity between African American and Caucasian women with regard to this disease. African American women with breast cancer have a 38% higher mortality rate than Caucasian women [1,2]. Despite multiple breast cancer screening programs and services available to increase cancer awareness many barriers have been identified as factors that reduce breast cancer screening among African American women.

Several researchers have explored the perceived barriers that prevent minority women from seeking breast cancer screening. In an exploratory study, Thomas, Saleem and Abraham [3] discovered several factors that act as barriers among African Americans and other minority group members. Factors such as lack of knowledge, underlying health and cultural beliefs, language barriers and unhelpful attitudes of health professionals contributed to lower utilization of mammography screenings in minority women. Loerzel and Bushy [4] also identified barriers to cancer screening, including both systemic and human barriers that influence the health care seeking behaviors of women of low socioeconomic status (SES) and minority women.

There are many other barriers that deter African Americans from seeking screening, including acculturation limitations, lack of education and awareness and reduced access to medical services [5-7]. Rather than concentrating on these barriers, this study explored the psychosocial factors (i.e., fear and fatalism) that play a major role in discouraging African American middle class (AAMC) women from

seeking breast cancer screening. Stoner and colleagues [8] wondered why, with the increased efficacy of mammography screening, so many women fail to take advantage of screening. This study proposes that, along with so many other barriers, fear and fatalism are among the major impediments that deter screening. These factors, coupled with lower levels of education regarding the etiology of breast cancer and preventive guidelines, contribute to the inadequate levels of screening among African American women. As a result, this research explored how these barriers impede preventive screening.

### Game-Based Learning

The conceptual and theoretical framework of this study is the psychological aspect of human beliefs, attitudes and behavior intentions. The health belief model (HBM) is popular in exploring individual attitudinal factors, such as perceptions of susceptibility, barriers and health behaviors. As Mikhail [9] stated, the model examines certain health-related questions, such as, "Why do some people use health services, but others do not? Why is there a high rate of noncompliance with health and medical care recommendations?" (p. 65). This model helps to explore why some African American women are reluctant to seek preventive breast cancer screening and address the behavior of women who are noncompliant with breast cancer screening recommendations. The model's structural constructs have an innovative interdisciplinary approach to analyzing the behavioral and social sciences of human beliefs and attitudes.

The HBM examines attitudes and beliefs to predict behaviors related to an individuals' health. This integrative model asserts that behavior change depends on individual beliefs, certain behavioral patterns and habits. According to Glanz, Rimer and Lewis [10], the model was developed in the 1950s by social psychologists Hochbaum [11] and Rosenstock [12], who were working in the U.S. Public Health Service, "to explain the widespread failure of people to participate in programs to prevent and detect disease" (p. 46). Later, Kirscht [13] was responsible for broadening the model to explain and examine how people respond to being diagnosed with illnesses, along with their capacity for handling these conditions; It was then able to provide insight into how individuals respond to medical regimens and implement behavioral changes [10]. According to the theoretical framework, four constructs (i.e., perceived susceptibility, perceived severity, perceived benefits and perceived barriers) are hypothesized to precede an individual's decision to modify behavior. Later, other scholars added cues to action, which is understood as strategies to activate one's readiness. Then, the concept of self-efficacy was added, defined as confidence in one's ability to take action [10],

which affects one's capacity to change habitual unhealthy behaviors (e.g., smoking, overeating or excessive use of alcohol).

Researchers have also used the HBM to explain the lack of public participation in health screening and prevention programs, such as exploring women's behavior in seeking routine mammography screening [14-17]. In particular, Champion and Springston explored the constructs of perceived susceptibility to breast cancer, barriers and action and in conjunction added the transtheoretical model (TTM) to understand the barriers by stages of mammography adherence among low-income African American women. On the other hand, Brenes and Skinner assessed the psychological factors related to the stage of mammography adoption by using the HBM variables, response efficacy, knowledge and avoidance. Throughout this exploratory study, the authors investigated many salient factors regarding women's behavior concerning mammography, such as avoidance, which proved to be an important factor.

### Exploratory Questions

Very little research addresses the role of fear and fatalism together in predicting compliance with mammography screening among AAMC women. However, these variables have been explored independently among underserved and low-income African American women [18-20]. Consequently, the purpose of this study was to explore whether fear and fatalism affect a select target population of AAMC women's compliance with breast cancer screening. By comparing data, the study explores the difference between AAMC women who follow preventive measures to help reduce their risk of cancerous diseases versus those who neglect to seek screening. The study examined the following questions:

1. Do the two variables - fear and fatalism - have a relationship to AAMC women's compliance with breast cancer screening recommendations?
2. Does education moderate the relationship of fear and fatalism to compliance in this target population?

### Null Hypotheses

In pursuing answers to these questions, the research explored the following null hypotheses:

$H_{01}$ : Fear belief scores are not statistically significantly related to breast cancer compliance.

$H_{02}$ : Fatalism scores are not statistically significantly related to breast cancer compliance.

$H_{03}$ : Education does not statistically moderate significantly the relationship between fear beliefs and compliance.

$H_{04}$ : Education does not statistically moderate significantly the relationship between fatalism beliefs and compliance.

## Method

### Research Design

A descriptive study and a cross-sectional design were used to explore the research questions and the null hypotheses. As a result, the researcher explored whether these psychosocial variables were actually inherent problems that may influence breast cancer screening compliance among AAMC women. The cross-sectional design included samples of difference in age, income and education categories.

### Target Population

In this study, the researcher deliberately focused on AAMC women, aged 35 and older, who are affiliated with the Alpha Kappa Alpha college sorority, the Minneapolis Urban League and faith-based organizations. These organizations were chosen for this study because the researcher believes that these unions would provide more eligible participants than other organizations. The above organizations have developed educational information, created health programs and provided human services and advocacy to promote social changes for African Americans. These organizations work diligently to improve the status of individuals by improving industry working conditions, increasing wages, obtaining better housing and accessible health care and promoting health and wellness. Their exceptional and historical work aligns perfectly with the target population.

### Variables

This study explored psychosocial factors as obstacles that deter AAMC women from seeking breast cancer screening. Fear and fatalism each have a few different definitions and both offer various ways to explain human behavior adaptation. The word fear is defined "as a sufficiently potent, biologically driven, motivated state wherein selected features from the environment guide behavior, specifically a single salient threat" [21]. Fear has the effect of impairing judgment, behavior and standard practices. Some women may agonize over the anticipated pain that the mammography test presents or worry about being diagnosed with breast cancer. Phillips, Cohen and Moses [22] identified fear as a barrier to screening. When individuals are fearful of finding breast cancer, they may decide not to seek screening. Psychosocial fear has the effect of impairing one's cognitive behavior, thus creating dissonance and confusion while reducing the person's capacity for logical decision-making [23]. In contrast, Mitchell, Mathews and Mayne [24] argued, because beliefs about many physical and social consequences are interwoven within cultural ideologies, many African American women would rather not risk the social consequences of having others discover that they have breast cancer. In essence, fear can coerce African American women into thinking that the loss of a breast (through mastectomy), loss of hair, or loss of a mate presents too much of a risk. This mentality

can overpower their logical reasoning, impeding their rational decision-making capacity and causing them to avoid preventive screening.

Fatalism is another factor analyzed as a psychosocial barrier that decreases screening compliance. Fatalism is identified as a doctrine of fate, a philosophical doctrine held by individuals who believe that all events are fated to happen and that human beings have no control over their futures and are unable to change their outcomes [25,26]. Fatalism is the belief that situations, such as illnesses or catastrophic events, happen because of a higher power (such as God), or they are just meant to happen and cannot be avoided. To draw attention to Powe's [27] philosophy, which specifically addresses cancer fatalism, she stated, "Cancer fatalism represents a surrender of the human spirit to perceptions of hopelessness, powerlessness, worthlessness and social despair" (p. 135). Some women facing the prospect of breast cancer may feel powerless; they reason that this disease was "meant" to happen to them. Unfortunately, this belief has prevented many African American women from seeking preventive cancer screening [28].

### Eligibility Criteria

Participation in this study was limited to African American women, aged 35 and older and whose income ranged from \$35,000 to \$74,999 yearly. In categorizing middle-income women, Wheary [29] suggested that middle income denotes the way of life or the comfort level in which an individual lives and that it "connotes a level of financial security and stability" (p. 8). The U.S. Census Bureau [30] does not provide an official definition of the middle class; however, the census used several formulated instruments, such as the Gini index and aggregate data, to derive a scale for categorizing financial rank and then divided the results into quintiles. Wheary postulated that income level can be used as another criterion for determining middle class; in this protocol individuals may be further classified into an income range. For the purpose of this research study, "middle class" was classified by household income in the range of \$35,000 to \$74,999 yearly financial income.

### Sample and Procedure

After receiving Institutional Review Board approval, the following sample method was initiated to study the relationship of fear and fatalism with breast cancer screening among AAMC women. For this research, selected participants of a subsegment were part of this study, utilizing a nonrandom sampling method, because subjects were easily accessible within the selected organizations and it would have been more challenging to find a significant number of participants utilizing other sampling approaches (such as in a simple random study). More specifically, the subsegment sample suited the purpose of the study and well-documents that a particular characteristic or phenomenon occurs within the target population [31]. The study relied on, therefore, on a subsegment sample of the AAMC female population affiliated with several women organizations.

An electronic survey tool was used to collect and coordinate data and consisted of two instruments (i.e., CHBMS and CBCFS) and a descriptive survey tool, which was combined into one complete survey tool. This process was selected because having a single survey questionnaire was more effective and efficient for the participants than otherwise. Also, the combined survey tool was able to reach many individuals across all major communication networking platforms. According to Internet World Statistics [32], it is estimated that over 1.04 billion people, from various racial and ethnic cultural milieus, access the Web. More importantly, the Internet system offers an excellent means of communication via e-mail or by the development of survey questionnaires.

The Qualtrics® program was used to transfer the instruments and the demographic questionnaire to participants online. The Qualtrics program is intelligent survey software that enables individuals to create a professional online survey, collect responses and analyze data. Qualtrics is a privately held experience management company, with co-headquarters in Provo, Utah and Seattle, Washington, in the United States. The company was founded in 2002 by Scott M. Smith, Ryan Smith, Jared Smith and Stuart Orgill. It is an exceptional system make easy to incorporate feedback into every product decision, prioritize product features and build a data-driven product roadmap - all on a single platform. Using an electronic survey tool to disseminate and collect information is advantageous because: (a) the program is capable of forwarding the survey to multiple parities; (b) the survey was developed in a simple and computer friendly format; (c) more participants were willing to contribute because of their frequent professional and personal use of computers; (d) participants were able to answer questions in a private environment; (e) the program is cost effective; and (f) the provision of confidentiality and anonymity is built into the secure database. Basically, this process operated as an excellent network platform to provide and receive an array of information [33].

The participants were forwarded e-mail that consisted of instructions regarding the survey process and the link to the survey's web page. The participants were allotted three months to complete the survey. In addition, reminder notifications were sent to all participating organizations and the researcher made periodical checks to ensure that the database was working correctly.

### Sample Size

The G Power analysis program calculated that an appropriate sample size to test the hypothesis was 110. This calculation is considered highly accurate; according to Erdfelder, Faul and Buchner, "G Power is a general power analysis program that performs high precision statistical power analyses for the most common statistical tests in behavioral research" ([34], p. 2). The

calculated effect size  $d$  (EF) of the medium was 0.5 with an alpha level of 0.05 and set power at 80%.

### Instruments

This study used a demographic survey comprised of three collective instruments: an abridged version of the Champion Health Belief Model Scale (CHBMS), the Champion Breast Cancer Fear Scale (CBCFS) and an adapted version of the Powe Fatalism Model (PFM). In the process, the instruments were combined into one testing survey and placed online for the convenience of collecting data and employing simplicity for the target audience. Demographic data collected consisted of participants' ages, educational levels, ethnicities and income levels. Additional information regarding mammography screening and BSE history were included in the survey. The collected information was extrapolated and divided into individual groups to assist with analyzing the data. This information was then developed in order to verify eligibility criteria and to collect general comprehensive information regarding participants' history of mammogram screening and BSE.

The CHBMS was originally developed in 1984 [35] and a revised model was crafted in 1999. This research uses an abridged version of the revised model, which was "developed for measuring perceived susceptibility to breast cancer and perceived benefits and barriers to mammography utilization" (p. 341). The scale had a total of 53 breast cancer behavior questions. The abridged version included a total of 30 items and utilized a three-point, Likert-type rating scale with a scoring range of 1 (strongly disagree/disagree) to 3 (strongly agree/agree). Furthermore, the model was analyzed for construct validity and theory testing. "A Cronbach Alpha and Pearson  $r$  were used to compute reliabilities" [36]. Scales were later revised, then tested and retested for reliability [35]. The study obtained a Cronbach alpha coefficient scale of .88.

The CBCFS was designed specifically to measure the perceived fear of breast cancer. The measure is unique in the sense that it analyzes the general emotion or the physiological arousal relating to human behavior regarding mammography testing. The CBCFS is an eight-item, five-point, Likert-type rating scale with a scoring range of 1 (strongly disagree) to 5 (strongly agree). The instrument has been tested for reliability and validity. The "CBCFS construct validity was verified through factor analysis and regression analysis predicting mammography. All items loaded on a single factor and theoretical relationships were verified by linear and logistic regression" [37]. The study obtained a Cronbach alpha coefficient scale of .91.

The next instrument included was the PFM [38]. The PFM was established to test the participants' level of fatalism by exploring their negativity and those thoughts of hopelessness that may have some correlation with cancer diseases. The author and many others have

used this model in a variety of diseases to explain human behavior. The PFM is a 15-item scale that was developed to explore an individual’s fatalistic beliefs regarding physical diseases. In this study, the researcher selected an adapted version of the PFM. The instrument has been tested for reliability and validity and has a Cronbach alpha of .87. In regard to the instruments, higher numbers indicated levels of fear and fatalism. Therefore, individual numbers were calculated to create a total score for fear and fatalism.

**Analysis**

The data analysis plan included two significant components that evaluated the collected data by using descriptive statistics and employing a logistic regression analysis method. This plan provided general information regarding the statistics produced, which were used to explore the research questions, test the hypotheses and draw a conclusion regarding the psychosocial barriers that influence breast cancer screening. After completing the information collection stage, demographic information was analyzed with descriptive statistics, including mean, range, variance and standard deviation of such variables as age, educational level and income. Certain behavioral patterns were also analyzed (i.e., a frequency of mammography testing and BSE). Next, in order to explore the research questions and test the hypotheses, data from the collected groups were analyzed using logistic regression. An analysis of data was completed using the Statistical Package for Social Sciences (SPSS) computer software program (version 24 for Mac) to analyze variables of the quantitative data.

**Results**

One hundred twenty individuals participated in the survey; 119 (99.2%) of the participants reported their ethnicity as African American and 1 (0.8%) participant reported African American/mixed ethnicity. The frequencies and percentage distribution of participants by education level were as follows: high school 5 (4.2%), some college 34 (28.3%), undergraduate degree 48 (40%) and graduate degree 33 (27.5%). The mean response for age was 44.51 (SD = 7.00). Frequencies and percent distribution of participants by annual income range were as follows: 39 (32.5%) had incomes of \$35,000 to \$45,000; 38 (31.7%) and incomes of \$45,000 to \$54,999; 30 (25%) had incomes of \$55,000 to \$74,999; and 13 (10.8%) had incomes of greater than \$75,000.

Of the participants, 53 (44.2%) reported having had a mammogram, while 67 (55.8%) reported that they have not. Of the 53 participants who have had a mammogram, the mean age at the time of their first mammogram was 43.41 (SD = 8.38). One hundred eighteen (98.3%) of the participants reported believing

that mammography and BSE are important for reducing breast cancer mortality and 2 (1.7%) did not.

The descriptive statistics and reliability coefficients of the scales used in this research were seven Cronbach’s alpha tests of reliabilities, conducted to assess the internal consistency of fear, fatalism and the five HBM subscales (i.e., susceptibility, severity, benefits, barriers and self-efficacy). Results are presented in table 1, where all alpha coefficients were in the .75 to .95 range, which suggests the instrument had acceptable to excellent internal consistency [39].

Subscales/scales	N	Min.	Max.	M	SD	α	No. of Items
Susceptibility	120	1.00	4.20	2.67	0.74	.750	5
Severity	119	1.00	4.80	3.27	0.87	.900	5
Benefits	120	1.80	5.00	3.68	0.46	.857	5
Barriers	119	2.80	5.00	4.01	0.66	.799	5
Self-Efficacy	119	1.40	4.80	2.98	0.85	.853	5
Fear	120	1.00	5.00	3.56	0.81	.930	8
Fatalism	120	1.00	5.00	3.48	0.98	.878	4

**Table 1:** Descriptive Statistics and Cronbach Alpha Reliabilities.

**Hypotheses Review and Results**

The concluding results showed that the null hypotheses were rejected in all cases. Regarding the first and second hypotheses, the findings indicated that fear and fatalism belief scores were significantly related to breast cancer compliance with health screening recommendations. The remaining hypotheses supported the conclusion that education does moderate the relationship between fear and fatalism beliefs and compliance. As a whole, these results indicated that women who hold fearful and fatalistic beliefs are less likely to seek screening and be in compliance with the recommended guidelines. These psychosocial barriers are associated only with mammography compliance in this study; as a result, further exploratory research is imperative. The collective information could be used as a building block of knowledge to address fear and fatalism.

Table 2 divulges the results of the hypotheses. For instance, a logistic regression was conducted using fear and fatalism belief scores (i.e., hypotheses 1 and 2) as the predictors and compliance (i.e., compliant vs. noncompliant) as the criterion. Afterward, hypotheses 3 and 4 explores whether education moderates the relationship between fear/fatalism and compliance. The corresponding logistic regression model reveals the following results:

	Results			
	Predictor	Regression	p value	Nagelkerke R <sup>2</sup>
Hypothesis 1	Fear scores	$\chi^2(1) = 14.27$	$p < .001$	.159
Hypothesis 2	Fatalism scores	$\chi^2(1) = 21.04$	$p < .001$	.229
Hypothesis 3*	Education/Fear Belief	$\chi^2(1) = 2.18^a$	$p = .140$	.077
		$\chi^2(1) = 11.51^b$	$p < .01$	.192
Hypothesis 4	Education/Fatalism	$\chi^2(1) = 5.00$	$p < .05$	.192

**Table 2:** Logistic Regression of the Compared Variables.

\*Note. Two logistic regressions were conducted to assess if education moderates the relationship between fear belief scores and compliance. Education was dichotomized into participants with at least a bachelor’s degree (n = 80, 68.4%) versus participants without a bachelor’s degree (n = 37, 31.6%). A logistic regression was conducted for each of the educational groups: a high school/some college and b undergraduate/graduate.

In regard to Hypothesis 3, logistic regression using participants with high school/some college was not found to be significant (a):  $\chi^2(1) = 2.18, p = .140$  (Nagelkerke R<sup>2</sup> = .077). Fear belief scores correctly classified 81.0% of the noncompliant participants and 31.3% of the compliant participants, with an overall correct classification of 59.5%. The logistic regression using undergraduate/graduate participants was significant (b):  $\chi^2(1) = 11.51, p < .01$  (Nagelkerke R<sup>2</sup> = .192) and fear belief scores correctly classified 91.2% of the noncompliant participants and 26.1% of the compliant participants, with an overall correct classification of 72.5%. It is acceptable to affirm that education moderates the relation of mammography compliance to noncompliance and is an important predictor of mammography screening.

Lastly, in regard to Hypothesis 4, the results showed that education moderates the relationship between fatalism and compliance. This logistic regression, using participants with high school/some college, was significant:  $\chi^2(1) = 5.00, p < .05$ ; fatalism correctly classified 71.4% of the noncompliant participants and 50.0% of the compliant participants, with an overall correct classification of 62.2%. Additionally, for every unit increase in fatalism scores, participants that have high school/some college education levels were 2.20 times less likely to be compliant.

These data support the conclusion that education moderates the relationship between fear and fatalistic beliefs and compliance with mammography screening. As educators and clinicians work to increase screening, a major caveat that must be considered is the level of knowledge of African American women regarding this disease. Serious effort should be invested to help individuals understand the etiology of the disease, promote preventive screening and establish culturally specific health interventions to reduce the mortality of breast cancer.

Table 3 reveals that fear belief scores correctly classified 88.5% of noncompliant participants and 25.6% of compliant participants, with an overall correct classification of 67.5%. Beta coefficients reported that, for every unit increase in fear belief scores, participants were 2.55 times less likely to be compliant. Table 3 divulges that fatalism scores correctly classified 84.6% of the noncompliant participants and 38.5% of the compliant participants, with an overall correct classification of 69.2% (see Table 4). Beta coefficients reported that, for every unit increase in fatalism scores, participants are 2.60 times less likely to be compliant.

Observed	Predicted (N = 117)		
	Noncompliant	Compliant	Percentage Correct
Noncompliant	69	9	88.5
Compliant	29	10	25.6
Overall Percentage			67.5
Relative Risk			1.9

**Table 3:** Classification Table on Fear Belief Scores (Compliant vs. Noncompliant).

Observed	Predicted (N = 117)		
	Noncompliant	Compliant	Percentage Correct
Noncompliant	66	12	84.6
Compliant	24	15	38.5
Overall Percentage			69.2
Relative Risk			2.0

**Table 4:** Classification Table on Fatalism (Compliant vs. Noncompliant).

**Analysis of the CHBMS**

In this section, additional analysis is presented regarding the participants’ responses in relation to the CHBMS and HBM. The frequency and percentages of participants’ responses to the CH-

BMS questions are presented in table 5. Composite scores were created for each of the HBM subscales (Susceptibility, Severity, Benefits, Barriers, Self-efficacy and Clues to Action). Composite scores were calculated by adding the items in each subscale and dividing by the total number of items (3).

Questions (N = 120)	Strongly Disagree/ Disagree		Neither Agree/ nor Disagree		Strongly Agree/ Agree	
	N	%	N	%	N	%
<b>Susceptibility (M = 2.67, SD = 0.74)</b>						
It is extremely likely I will get breast cancer in the future.	39	33	64	53	17	14
I feel I will get breast cancer in the future.	42	35	68	57	10	8
There is a good possibility I will get breast cancer in the next 10 years.	42	35	64	53	14	12
My chances of getting breast cancer are great.	44	36	56	47	20	17
I am more likely than the average woman to get breast cancer.	45	37.2	55	46	20	16.8
<b>Seriousness (M = 3.27, SD = 0.87)</b>						
I am afraid to think about breast cancer.	33	27	13	11	74	62
Problems I would experience with breast cancer would last a long time.	19	16	24	20	77	64
Breast cancer would threaten a relationship with my boyfriend, husband or partner.	52	43	26	22	42	35
If I had breast cancer my whole life would change.	12	10	18	15	90	75
If I developed breast cancer, I would not live longer than 5 years.	45	37	63	53	12	10
<b>Benefits of Mammography (M = 3.68, SD = 0.46)</b>						
When I get a recommended mammogram, I feel good about myself.			65	54	55	46
When I get a mammogram, I don’t worry as much about breast cancer.	13	11	64	53	43	36
Having a mammogram or x-ray of the breast will help me find lumps early.	3	3	25	21	92	76
Having a mammogram or x-ray of the breast will decrease my chance of dying from breast cancer.	9	7	21	18	90	75
Having a mammogram will help me find a lump before it can be felt by [me] or a health professional.	15	12	13	11	92	77
<b>Barriers of Mammography (M = 4.01, SD = 0.66)</b>						
Having a routine mammogram or x-ray of the breast would make me worry about breast cancer.	55	46	13	11	52	43
Having a mammogram or x-ray of the breast would be embarrassing.	69	57	30	25	21	18
Having a mammogram or x-ray of the breast would take too much time.	112	93	8	7		
Having a mammogram or x-ray of the breast would be painful.	38	32	9	7	73	61
Having a mammogram or x-ray of the breast would cost too much money.	96	80	15	12.5	9	7.5
<b>Self-Efficacy (M = 2.98, SD = 0.85)</b>						
I know how to perform breast self-examination.	47	39	5	4	68	57
I am confident I can perform breast self-examination correctly.	52	43	8	7	60	50
If I were to develop breast cancer I would be able to find a lump by performing self-examination.	55	46	17	14	48	40

I am able to find a breast lump if I practice breast self-examination alone.	48	40	18	15	54	45
I am able to identify normal and abnormal breast tissue when I do breast self-examination.	74	62	17	14	29	24
<b>Clues to Action (M = 2.75, SD = 0.76)</b>						
I want to discover health problems early.	2	1.7	1	0.8	117	97.5
Maintaining good health is extremely important to me.	1	0.8	1	0.8	118	98.3
I search for new information to improve my health.	25	21	28	23	67	56
I feel it is important to carry out activities which will improve my health.	1	0.8	0	0	119	99.2
I have regular health check-ups even when I am not sick.	44	36.7	4	3.3	72	60

**Table 5:** Frequency and Percentages Participants CHBMS Responses.

With the CHBMS, the statistics revealed that susceptibility among this target population was extremely low, averaging at 14%. Therefore, a large percent of women in this study appeared to have low perceived susceptibility to breast cancer. Furthermore, 62% of participants reported that they were afraid of developing breast cancer. In essence, the participants have a much greater trepidation regarding breast cancer than an understanding of the susceptibility of the disease. This underscores the necessity of continued work in educating AAMC women regarding breast cancer awareness. In analyzing the benefits of mammography screening, 46% of the participants expressed that the positive advantage of having a mammogram was how reassuring a negative outcome would make them feel. Many of the participants indicated that the barriers of mammography screening were: increased worry, embarrassment and pain, which are the most significant predictors of AAMC women’s adherence to breast cancer screening guidelines [40].

In viewing the CHBMS construct “self-efficacy,” 39% of participants stated that they did not know how to perform BSE and, in regard to the CHBMS construct “clues to action,” an average of 97.5% of participants declared that they want to discover health problems at an early stage. Although many of the women were noncompliant, this empirical evidence is reassuring and emphasizes the need for greater promotion of breast cancer awareness in a manner that truly underscores susceptibility to this disease and more importantly, focuses on the benefits of prevention and early detection. Such empowerment can change the status quo, strengthen self-efficacy and enhance the action.

**Discussions**

The findings of this study furnish pertinent observations regarding the participants’ beliefs, attitudes and behavior intentions in relation to screening. The participants also expanded their feelings concerning breast cancer screening and the importance of their health beyond the limits of the quantitative

survey. First, although the participants showed a significant level of fear and fatalism regarding breast cancer screening, many individuals seemed receptive in that they expressed concern for their health. Thus, these findings suggest that, although psychosocial barriers may influence a woman’s decision to have a mammogram in a timely manner, AAMC women are still concerned with their health and further positive personal guidance may perhaps motivate a change toward better screening practices.

The second significant finding of this analysis concerns preventive care and pertains to the HBM construct clues to action. The intrinsic value of primary preventive services helps ameliorate the root causes of diseases before they develop into major illnesses and, in many cases, can help avert secondary or tertiary stages of illness. Primary prevention is one of those factors that must continue to be a focus of intervention programs. It is more beneficial to the patient economically, physically and mentally to seek preventive care now rather than later, when the body starts to deteriorate into poor health. As denoted by Gillum, Gorelick and Cooper [41] primary prevention is a message that must continue to emerge resoundingly. The information for this report revealed that many participants stated that they are less likely to schedule a routine medical visit to their physicians, especially when they are not sick. Therefore, AAMC women may benefit from concurrent interventions from multiple sources, such as grassroots leaders, physicians and breast cancer awareness organizations. Using multiple robust interventions will increase breast cancer screening adherence and empower AAMC women to take a proactive role in their own health.

The research also underscored the need for interventions that improve psychosocial wellbeing, raise breast cancer awareness and augment informative messages that promote breast cancer screening in a culturally specific and sensitive way. A well-rounded intervention plan is essential to reach the goals of increasing mammography screening and ameliorating mortality. As health officials continue to work assiduously to meet the goals of Healthy People 2020, it is vital to follow



a detailed road map to build a healthier society [42]. In doing so, clinicians should continue working to promote health and wellness by changing negative attitudes toward screening. Wellness programs that are developed to promote the overall benefits of prevention, deter apprehension and support individuals' beliefs while educating women regarding breast cancer fallacies are essential to increasing the rates of screening compliance.

The study affords profound information regarding why some AAMC women do not seek regular preventive screening. Borrayo and Jenkins [43] reaffirm that healthy women may not "engage in screening because they rely on their subjective sense of feeling healthy more than epidemiological risk factors" (p. 821), which may explain the low rate of perceived susceptibility in this study. This would also explain why AAMC women have a low level of perception of their susceptibility to breast cancer. The HBM construct susceptibility denotes that an individual needs to have some cognitive sensibility that she is at risk to the disease at hand [10]. However, as Borrayo and Jenkins postulated, some women may not perceive any reason to engage in regular prevention because of good health conditions. This is also an instrumental component that can be used to encourage AAMC women to adhere to screening recommendations by teaching individuals that maintaining good health means seeking routine prevention visits [44].

### Limitations

Despite the study's multiple strengths, limitations pertaining to the study findings should be acknowledged. First, an increased sample size would allow for information to be generalized beyond the target population. Second, results are constricted to the limits of human integrity or honesty - the questions were personal and some women may have felt obligated to select what seemed to be the right answer, instead of answering wholeheartedly and expressing their true feelings and actions. Possible confounding factors could be the environment, mood and frame of mind of the women to interpose experimenter bias. Third, the cross-sectional nature of the study relative to interpreting the cause and effect directionality linking fear and fatalism with cancer screening may also be a limitation factor. However, the study remains important and actionable overall, despite the presence of the aforementioned limitations.

### Recommendation

To increase breast cancer awareness and routine screening, it is vital to form aggressive prevention and education measures to increase knowledge among African American women. Before educators, clinicians and researchers can undertake this prob-

lem, however, it is first critical to understand the delayed action from seeking screening and the many diversions. Also, it might be advantageous to discern the psychological and psychosocial barriers that hinder screening and use this information to compose culturally-specific literature that addresses those barriers and to create compelling strategies to promote awareness.

Yet, before crafting such literature, it is essential to understand the evolution of this quandary and decipher how deeply rooted fear and fatalism is within the African American population [27,33]. After gathering a detailed understanding of these barriers, there is a greater need for physiological service agencies and public health officials to collaborate and work to dismantle some of the fallacies and fears of breast cancer. These efforts can empower those women who feel powerless and help them gain a sense of control in relation to breast cancer as well as other health concerns.

A fundamental direction for future research is to explore other racial and ethnic groups of middle class status. Throughout this study, the research focused on AAMC women - who are members of the ethnic group with the highest mortality of breast cancer [2]. Therefore, interventional studies that explore other racial and ethnic groups of middle class status may identify comparative variables and uncover strategies from dismantling these confounding barriers. Furthermore, those scholars may find intricate processes that diverse groups are doing to improve mammography screening and this information can be used to promote breast cancer screening among African American women.

Further arduous efforts should seek to build upon this study and overcome the subsegment population barrier to increase the target population and generalizability of these findings. It would be comparatively significant to expand on this study by utilizing a simple randomized trial in an environment where AAMC women's citizenship is greater and the chance of eliciting participants would be much better. Meanwhile, researchers must continue exploring women's emic perspective regarding breast cancer and include this information, as well as cultural beliefs and practices, within persuasive messages that will encourage screening among African American women. Last, it is imperative to support organizations, such as the American Cancer Society, Breast Cancer.org, Susan G. Komen for the Cure and the National Breast Cancer Foundation that are working diligently to change the status quo by providing patient education, promoting mammogram utilization and cultivating a platform to give women an open dialogue to talk about these issues including addressing fear and fatalism beliefs.

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