

**AN EVALUATION STUDY OF A BREAST HEALTH PROMOTION PROGRAM FOR  
INCARCERATED WOMEN**

by

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**ABSTRACT**

The majority of women in jail come from economically disadvantaged backgrounds, have limited education, and have experienced inadequate and inconsistent health care prior to incarceration. Lack of awareness of breast health information and services due to issues with health care delivery programs and funding within correctional facilities may tend to put women serving time at higher cancer mortality and morbidity rates. Therefore, programs tailored to this underserved population have a critical public health significance. The purpose of this study was to evaluate the YWCA of Greater Pittsburgh Taking Charge: Steps to Breast Health promotion program at the Allegheny County Jail (ACJ) in Pittsburgh, PA. Pre- and posttest data were collected during three sessions at the ACJ and included 204 participants between 19-64 years of age. Data were collected via a pen-and-paper assessment tool distributed prior to and after programming at one session in four female housing pods at the ACJ on July 31<sup>st</sup>, October 30<sup>th</sup>, and January 29<sup>th</sup>. The pre- and posttest established participants' knowledge of breast health information, likelihood of receiving the recommended screening within the next year, confidence in detecting and recognizing changes in their breast via self-breast exams, and confidence in ability to reducing risk of breast cancer through lifestyle choices. Assessments for women under 40 included questions relating to clinical breast exams, while the assessments for women over 40 included questions relating to mammography. Participants under 40 (28.2%, n=35) indicated that they have never received a

clinical breast exam. Similarly, 30.0% (n=24) of women over 40 reported that they have never received a mammogram. All findings were statistically significant and supported the hypothesis that after programming, participants would report better knowledge, self-efficacy and confidence in their abilities to know when to receive the age-appropriate breast health screening, to detect any changes in their breasts via self-breast examination, and to alter their lifestyle choices to reduce their risk of breast cancer, also improved likelihood of receiving a clinical breast exam or mammogram. Furthermore, this evaluation shows the feasibility and effectiveness of tailoring an existing community program for breast health promotion to a population of jailed women.

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## **1.0 CHAPTER ONE**

### **1.1 THE PROBLEM**

Breast cancer is defined as a malignant tumor that develops from cells in the breast.<sup>1</sup> The American Cancer Society states that 231, 841 new cases of breast cancer are diagnosed each year in the United States. 9,990 of those new cases will occur in Pennsylvania.<sup>2</sup> Allegheny County, Pennsylvania, (the county that encompasses the city of Pittsburgh) has the eighth highest breast cancer rate in the state (134.2 per 100,000). Additionally, it is the second leading cause of cancer related deaths among women second only to lung cancer. Specifically, the age-adjusted mortality rate for non-Hispanic white women is 21.0 per 100,000 women in the county. However, the mortality rate for black females is nearly twice that.<sup>3</sup> The age-adjusted breast cancer incidence rate for non-Hispanic white women in the United States is 127.4 (per 100,000) compared to 121.4 for non-Hispanic black women. Also in 2010, the mortality rates were 22.1 (per 100,000) for white women and 30.8 for black women. Therefore, the racial disparities lie in the point that more White women get breast cancer, but black women are dying more frequently.<sup>4</sup> Causality for these racial differences can be attributed to lack of health insurance, unreliable transportation, non-regular health care provider and irregular access to high quality screening, diagnostic and treatment facilities. Additionally, black women are more likely to have longer intervals between mammograms and are more likely to be diagnosed at younger ages with more aggressive types of cancers.<sup>5</sup>

### **1.1.1 Risk Factors of Breast Cancer**

While there is no direct cause of breast cancer, there are risk factors that may increase the chance that breast cancer will occur. The risk factors identified as increasing the incidence of breast cancer include being female, aging, family history, age of first menstruation, birthing a child after the age of 30, use of estrogen-based oral contraceptives, hormone replacement therapy, having never breastfed, obesity and repeated use of alcohol and cigarettes.<sup>2,8</sup> Studies suggest that a woman may reduce her risk of breast cancer with lifestyle behaviors such as more physical activity, maintaining a healthy body weight, and reducing the use of alcohol and cigarettes.<sup>6</sup> Nevertheless, it is important to highlight the fact that many women diagnosed with breast cancer have none of the aforementioned risk factors.<sup>2</sup> According to the CDC's "Recommendation for Early Detection of Breast and Cervical Cancer among Low-Income Women":

Many established risk factors for the disease are neither environmental nor behavioral and, therefore, are not amenable to prevention. Most of the hypothesized behavioral factors are not fully accepted as risk factors and are typically difficult to alter at the individual level. For these reasons, reducing mortality from breast cancer through early detection has become a high priority (p.7).<sup>7</sup>

Approximately 90% of breast cancer cases are found by a woman accidentally or during a breast self-exam.<sup>8</sup> The guidelines for a woman to achieve positive breast health practices are as follows: (1) Beginning at age 20, perform a breast self-exam monthly, (2) receive a clinical breast exam every 1-3 years from age 20-39 and then yearly from age 40; and (3) receive a mammogram yearly beginning at age 40.<sup>2,8</sup> The goal of early detection for women is to find the cancer early when it is treatable, which is important because there is a 96% five-year survival rate for women of all races when breast cancer is discovered early.<sup>1,2</sup>

Making early detection a high priority comes with comprehensive health education for women on breast self-examination and clinical methods of early detection. For this reason, in a

setting like the Allegheny County Jail, where breast health information and services are limited, a community based program to introduce early detection methods and general breast health knowledge is necessary.

### **1.1.2 Trends of Incarceration**

Over the past 20 years, the number of women held in state and federal prisons has increased more than six-times. Two thirds of women confined to local jails and state and federal prisons are black, Hispanic, or members of other non-white ethnic groups.<sup>9</sup> Specifically, the rates for incarceration of females are 260 per 100,000 for black, 133 per 100,000 for Hispanic and only 91 per 100,000 for white.<sup>10</sup> Given these racial disparities and the fact that 91 out of every 10,000 incarcerated women have reported ever having breast cancer, jail and prison settings offer excellent opportunities to share information about breast cancer awareness to at-risk women.<sup>11</sup>

### **1.1.3 Scope**

The population of interest for this study is incarcerated women at the Allegheny County Jail (ACJ) in Pittsburgh, Pennsylvania. Despite the unique opportunity for breast health education programs for incarcerated females, there is a lack in published research. However, because this population has similar causal factors as disadvantaged women who are not incarcerated, they should be targeted following similar interventions and theories that are applicable to all women.

Each year there are over 3,500 women admitted to ACJ and nearly 54% of women are minority, predominately African-American. Over 58% of these women are between 30-59 years of age and the majority of women serve roughly 90 days, however, length of stay ranges between 48 hours to 2 years.<sup>12</sup>

#### **1.1.4 Statement of the Problem**

A comprehensive review of literature found few published studies that examine the effectiveness of breast health education programs specifically designed for incarcerated women. Particularly absent from the literature are programs addressing breast health knowledge, confidence to reduce risk, intention to receive recommended screenings, and ability to recognize changes through breast self-exams. The present study was conducted to evaluate the Taking Charge: Steps to Breast Health program. This program sought to increase women's knowledge of breast health information, intention to receive a clinical breast exam or mammogram, confidence in knowing when to get a clinical breast exam or mammogram, ability to identify any normal or abnormal changes in the breast, and confidence in taking steps to reduce risk of breast cancer after participating in Taking Charge. The long term goal of the project is to reduce breast health disparities among women at ACJ through empowering them to have breast self-awareness while incarcerated and to take control of their breast health upon release.

#### **1.1.5 Research Questions**

The following research questions were examined:

1. Does participants' knowledge of breast health information increase following the program?
2. Do participants of the Taking Charge: Steps to Breast Health program report improved confidence in their abilities to detect normal or abnormal changes in their breasts?
3. Do participants of the Taking Charge: Steps to Breast Health program report confidence in their abilities to take steps to reduce their risk of getting breast cancer?
4. Do participants who are under 40 years old report confidence in their abilities to know how often to get a clinical breast exam?

5. Do participants who are over 40 years old report confidence in their abilities to know how often to get a mammogram?
6. Do participants who are under 40 years old in the Taking Charge: Steps to Breast Health program report an increased likelihood of getting a clinical breast exam within the next year?
7. Do participants who are over 40 years old report an increased likelihood of getting a mammogram within the next year?

#### **1.1.6 Delimitations**

1. This study was limited to incarcerated women serving sentences at one county jail and therefore may not be generalized to other institutions.
2. This study was limited to incarcerated women aged 19-64 who attended three Taking Charge: Steps to Breast Health sessions on July 31, 2014, October 30, 2014, and January 29, 2015.

#### **1.1.7 Limitations**

1. This study will be limited by the extent to which the women answered pre/post-tests completely, honestly and accurately.
2. This study did not have any demographic information within each survey instrument, reducing the ability to make conclusions of effectiveness by race.

#### **1.1.8 Assumptions**

1. It was assumed that the participants provided honest and complete information regarding knowledge of breast health information, intention of receiving a clinical breast exam or mammogram, ability to notice any normal or abnormal changes in their breasts, confidence



in their ability to take steps to reduce risk of breast cancer, and confidence in knowing how often to receive a screening measure.

### **1.1.9 Operational Definitions**

1. Breast self-exam is defined as an exam performed on ones' self, including visual and physical assessment of the breasts and armpit areas to identify changes.<sup>2</sup>
2. Clinical breast exam (CBE) is defined as an exam performed by a healthcare provider using the pads of their fingers to detect lumps or other changes in the breasts.<sup>2</sup>
3. Mammogram is defined as a special X-ray image that detects abnormal growths or changes in the breast tissue.<sup>2</sup>

## **2.0 CHAPTER TWO**

### **2.1 REVIEW OF LITERATURE**

Regardless of the increase of women in correctional system, complaints of a lack of regular gynecological and breast examinations and concerns and questions about these issues are too easily dismissed by healthcare providers in these settings.<sup>9</sup> The criminal justice system was “created by males for males” which leaves too often female offenders neglected and forgotten.<sup>9</sup> The current recommendations for beginning yearly mammograms start at 40 but most women are used to the previous recommendation of beginning screenings at age 50.<sup>1</sup> Because over half of the women at ACJ are between 30 -59<sup>12</sup>, this makes them a ideal population to undergo health education inside the jail and provides a prime opportunity to connect them to services once they are released.

A comprehensive literature review found few published studies that examined the effectiveness of health education programs specifically designed for incarcerated women that address breast health. However, research has been established that demonstrates that the period of confinement in which women serve is an opportunity to provide education and support on a variety of topics.<sup>13</sup> The present study was conducted to evaluate the Taking Charge: Steps to Breast Health program in knowledge of breast health information, intention of receiving a CBE or mammogram, confidence in knowing when to get a clinical breast exam or mammogram, ability to detect any normal or abnormal changes in the breast, and confidence in taking steps to reduce risk of breast cancer.

#### **2.1.1 Incarcerated Women: A Vulnerable Population**

The majority of women in jail come from economically disadvantaged backgrounds, have limited education, experience inadequate and inconsistent health care prior to incarceration, have

long standing emotional and mental health problems, have experienced both physical and sexual abuse, have long-standing drug and alcohol problems and are disproportionately women of color.<sup>9,13,14</sup> Because many women in jail have experienced a number of adverse events over the course of their lives, their need for health care services and programs is greater than the general population. Lack of awareness of breast health information and services due to issues with health care delivery programs and funding within correctional facilities may increase cancer morbidity and mortality rates for women serving time.<sup>13</sup> This section highlights the unique social factors and adverse events that a majority of incarcerated women experience.

Incarcerated women are often at a greater socioeconomic disadvantage than other women, which may only further maintain poor breast health and screening under-utilization. Women of low socioeconomic status may experience access barriers (cost, inadequate insurance, or a regular source of health care) and a pattern of tertiary care rather than primary and secondary prevention.<sup>15</sup> Because of financial barriers there may be delays in care and treatment of breast cancer. Women are more likely to partake in breast cancer screenings when their physicians recommend them, however research has found that physicians may not recommend screenings to all patients equally.<sup>16</sup> For example, underutilization of mammography among low-income minority women has been shown to be in part because providers do not recommending screening.<sup>17</sup> More information is needed on how health care in county jails works and if similar patterns of patient-physician discrimination occur inside the jail as they do outside.

Despite the lack of literature assessing the health care system for women in jail, what has been established is that mental health problems, such as anxiety, depression and post-traumatic stress disorder are major concerns.<sup>18,19</sup> These mental health issues are common as a large proportion of these women are survivors of physical and sexual abuse, beginning during childhood

and adolescence.<sup>9</sup> Patterns of abuse and mental health issues puts incarcerated women at an increased risk for sexually transmitted infections, HIV/AIDS, hepatitis C, HPV and cervical cancer.<sup>9,18,20</sup> As mentioned previously, roughly 91 of every 10,000 incarcerated females have reported that they have or had breast cancer,<sup>11</sup> but other than that there is little information about the risk, incidence, screening and education practices of breast cancer for this population at the local, state or national levels.<sup>21</sup>

### **2.1.2 Breast Health Education**

Comprehensive breast health education for young women has been shown to increase the probability of good breast health into adulthood.<sup>22</sup> As previously mentioned, there has been limited published research on health interventions targeting incarcerated women and breast health care. However, breast health interventions (and their coinciding theoretical underpinnings, that have targeted disadvantaged populations of non-incarcerated women can be applied to women in jail.

In the past, incarcerated women have been receptive to and engaged in the education courses that they received while serving time. More importantly, Brewer and Baldwin (2000) found that these women lacked basic health care knowledge and reported poor health habits before incarceration.<sup>7</sup> This finding highlights jails can serve as a vital point for health programming interventions.

Breast self-examination training of any kind improves women's compliance, self-efficacy, and aptitude in breast self-examination.<sup>23</sup> Slater et al, developed an intervention to promote general awareness about breast health, benefits of mammography, and individual risk factors and barriers to care. This was done through the American Cancer Society Friend to Friend (FTF) program which consists of a one hour "party" where women come together to talk about the aforementioned

components of the intervention. The educational components of FTF were presented by an American Cancer Society (ACS) trained community health workers (CHW) and expected to have the greatest impact on screening behavior. After the sessions were completed, follow up surveys were sent out to determine program effects. If women reported that they had scheduled or undergone a mammography screening 15 months after the FTF session that was considered a success. Overall, the researchers confirmed that a multi-dimensional intervention using CHW's increased mammography utilization among women in public housing.<sup>24</sup> This intervention was guided by social support theory (SST), which focuses on social ties and networks that can have positive influences on behavioral change through a number of ways such as communicating expectations, offering informational and problem-solving advice, and encouraging, showing empathy, concern and tolerance for others.<sup>25</sup> The educational "party" was designed to provide women with a positive environment for social support and cultural norms. After the session was over, women signed pledges for themselves while simultaneously encouraging their friends and neighbors.<sup>24</sup>

A common way to evaluate the effectiveness of breast health programming is through pre/post-tests. These assessments allow researchers to compare themes of participant's knowledge, self-efficacy and intent for care prior to presentations and after. For example, Wood et al (2002), conducted a quasi-experimental study with a pre/post-test design. The sample included 328 women over the age of 60 and predominantly African-American. Tests were administered by nurses in community based settings before and after a breast health education intervention via video. Significant increases in knowledge of breast cancer and breast self-exam skills between intervention and control groups were established.<sup>26</sup> Similarly, 68 women from a regional cancer clinic in Toronto, Canada received education on knowledge and performance of breast self-exams.

The participants were given a pre- and delayed (five months following the education) post-test. There were statistically significant increases in knowledge and proper techniques of breast self-exam.<sup>27</sup> Furthermore, breast health education seems to be effective and pre/post-tests are a respectable way to evaluate desired outcomes.

Larger programs like the North Carolina Breast Cancer Screening Program (NC-BCSP) also relied on social theory to back their efforts. Through focus groups, they found that African American women who were dealing with women's health issues were likely to rely on support from other women in the community. NC-BCSP was an extension of Save Our Sisters (SOS), a program that promoted positive breast health among older black women through using community health workers (CHWs). The use of these community members was an effective method for dissemination of information and social support and comfort.<sup>28</sup> CHWs were also used as health educators and patient navigators to improve breast health screening use among Latina women.<sup>29</sup>

In regard to community health workers or lay health advisors for jail-based programs, there may be judicial and administrative issues with bringing in trained women who were once incarcerated themselves. However, programs should not be bogged down with the idea of creating a team of CHWs that are reflective of the target population from all angles. As long as they are diverse, trained and willing to work with this population, jail-based health education programming can be successful. The presence of interested researchers, public health educators and lay volunteers to conduct programming in jails is a novel step towards bettering the health of women who are often overlooked.

### **2.1.3 Intervention Adaptation**

Historically, incarcerated women have been frequently viewed as incapable of receiving health education programming. However several studies reported that this population desires and

is receptive to health education information.<sup>30</sup> Belknap conducted a survey of incarcerated women in 1996, which reported that they were interested in self-awareness, parenting, stress-management and exercise classes.<sup>31</sup> Additionally, studies have also shown that female inmates can benefit from health promotion activities.<sup>13</sup> For example, Robertson-James & Nunez (2012) found that women entering prison are more likely to require health education as it may help them build self-care and self-efficacy skills that will better prepare them for release but also reduce recidivism.<sup>30,32,33</sup>

Taking these ideas into account, development and implementation of health promotion activities must be flexible when being applied to jail population. Given the limited evidence-based practices of implementing health education classes for women in jail, there must be adaptation of existing interventions. The Center for Disease Control (CDC) defines adaptation as:

”the process of modifying key characteristics of an intervention, recommended activities and delivery methods without competing or contradicting the core elements, theory, and internal logic of the intervention thought most likely to produce the intervention’s main effects. Key characteristics are adapted to fit the risk factors, behavioral determinants, and risk behaviors of the target population and unique circumstances of the agency and other stakeholders.<sup>34</sup> (p. 62-63)

In working with jail populations, agency and administrative restrictions may be the larger barrier for program adaptation. However, if the opportunity presents itself to have access to this population, community-based programs should do their best to keep the core elements of evidence based practices and the respected theories that guide their already existing programs.

For example, a study for opportunity of health promotion in the Queensland, Australia’s prison system, found that female inmates had significantly poorer health outcomes than surrounding community women in all areas except cervical and breast cancer screening and overweight and obesity. They suggested that the health of the prisoners would benefit from expansions of existing community health promotion activities to prisons through collaboration and partnership.<sup>35</sup> Additionally, the development and implementation of a jail-based cervical health

promotion intervention utilized adaptation. This program emphasized that cervical health programming be tailored specifically to women's backgrounds and balance the delivery of information and empowerment of health behavior change in contrast to structural limitations of their criminal justice involvement.<sup>36</sup> These approaches have importance as incarcerated women are no different than any other women, they have just experienced a number of adverse events to end up in jail, and it has been shown that they benefit and are receptive to health education programming.

#### **2.1.4 Summary**

The results of this literature review defined a need to educate women in jail about the risk factors for breast cancer as well as early detection methods such as breast self-awareness, when to have a clinical breast exam, and when to have a mammogram. The literature classified a web of adverse events which incarcerated women face. Yet, there is a lack of literature relating breast health programming and incarcerated women. The interventions discussed, particularly the Friend to Friend model, reflect the framework of the breast health programming that the YWCA of Greater Pittsburgh does throughout Allegheny County to women's groups. However, they adapted this programming to work with the administrative guidelines and needs of female inmates at the Allegheny County Jail, while following the public health theories that guide the intervention.



## **3.0 CHAPTER THREE**

### **3.1 METHODS**

A comprehensive review of literature found few published studies that examined the effectiveness of health education programs specifically designed for incarcerated women that address breast health. The present study was conducted to evaluate the Taking Charge: Steps to Breast Health program in improving participants' knowledge of breast health information, intention of receiving a CBE or mammogram, confidence in knowing when to get a clinical breast exam or mammogram, ability to identify any normal or abnormal changes in the breast, and confidence in taking steps to reduce risk of breast cancer.

This chapter will review the program description and development, setting and participants, procedures, instrumentation, and data analysis for the Taking Charge: Steps to Breast Health program.

#### **3.1.1 Program Description and Development**

Taking Charge: Steps to Breast Health was the first breast health promotion program targeted to incarcerated women at the Allegheny County Jail in over 10 years. The program originated in the spring of 2014 when the YWCA of Greater Pittsburgh Health Equity Department received a mini-grant from Susan G. Komen Foundation. The Susan G. Komen Breast Cancer Foundation is a national organization that has funded community-based programs through its 117 affiliates. These community-based programs include breast health networks, survivor support groups and early detection education.<sup>5</sup>

Taking Charge is an extension of a larger breast health program, *ENCOREplus* from the YWCA. *ENCOREplus* provides community outreach and education workshops, offers patient navigation services to help women who have delayed getting mammograms, assists in finding clinics and imaging centers near their homes, as well as sets women up with vouchers for care. This approach modifies barriers to health such as lack of transportation and insurance, and it supplies women with trained individuals to walk them through the health care system and help with maintaining appointments and yearly-follow up. Just in the 2014-2015 grant year, the *ENCOREplus* program has reached 1, 948 women at outreach events, navigated 116 clients into the breast health care continuum, and educated 375 women at Tea and Treats, which is an hour long health education session that is free for groups of women to come and learn about breast health and early detection. Curriculum is based on information from the Susan G. Komen foundation and was developed by the YWCA of Greater Pittsburgh health equity director and specialist. The theoretical backings to the curriculum rest in the health belief model and social support theory, as discussed in chapter two. Pre/post-tests were distributed at the beginning of each session and collected at the end of programming.

The *ENCOREplus* program took a unique opportunity to use the Allegheny County Jail as a point of intervention. Jailed individuals at ACJ are awaiting trial, are sentenced to terms of two years or less, or are parole and probation violators.<sup>12</sup> Because of the relatively short length of stay and rapid turnover, women leave days, weeks and months after arrest. The project took this high turnover rate into account in planning the number of workshops. The mission of Taking Charge is to reduce breast health disparities among women in the Allegheny County Jail through empowering them to have breast self-awareness while incarcerated and take control of their breast health upon dismissal.

### **3.1.2 Participants and Setting**

The participants in this study are incarcerated women between the ages of 19-64 who attended the Taking Charge: Steps to Breast Health promotion program at ACJ on three dates (July 31<sup>st</sup>, 2014, October 30<sup>th</sup>, 2014, and January 29<sup>th</sup>, 2015). During those three sessions, 314 participants from four female units (or pods) attended. The four units were branded as (1) Drug and Alcohol, (2) HOPE, (3) Disciplinary and (4) General Population. The details of how women are placed in each unit are not clear. The program was offered as a special event for women to attend in each pods but there was no requirement or incentive to attend. A sign-in sheet was passed around at the beginning of each session to track attendance.

### **3.1.3 Procedures**

The Taking Charge: Steps to Breast Health program was presented to four female pods at ACJ by trained community health volunteers (CHVs). Recruitment flyers for those volunteers were posted around local college campuses and community centers, and applications were posted on the YWCA employment website. Most CHVs were graduate-level students with a background in social work, law and public health. CHVs had to receive background clearances from ACJ and were trained by the YWCA health equity director and specialist using the CDC recommended curriculum from the “Woman to Woman” program. Security training at the jail was offered for volunteers by jail staff prior to the first workshop and monthly meetings for all volunteers were held to prepare for the July, October, and January workshops. At each volunteer meeting the program director and CHVs would discuss various breast health information and challenges faced during the ACJ workshops. Meetings were a way for CHVs and program staff to come together to learn, share experiences, and prepare for the subsequent session at the jail.

The program director contacted the inmate program administrator to schedule the session dates. CHVs were broken up into four groups, roughly three facilitators per pod. At the request of the jail, the workshops ran simultaneously, one in each of the four population pods. For each session, each group had one bag containing the following: Sign-in Sheets (Name, Age, Race), Initial Assessments/Post-tests papers, pens, educational pamphlets and booklets provided by Susan G. Komen Foundation, one large sheet of poster paper and two markers for the risk/myth activity, and a referral sheet with YWCA of Greater Pittsburgh information on services offered, including the breast health line, housing support, and health insurance enrollment. This referral page is appended (Appendix E).

The inmate program administrator was to send out memos to the correction officers on each female unit and advise that inmates were to either attend the session or be in their cells during the hour-long program. Upon arrival to ACJ, CHVs went through security, signed in, and were led by jail staff to the pods. Once inside the cell block, the correctional officers were to make an announcement that breast health educators from the YWCA of Greater Pittsburgh were there and the session was about to begin. The sessions continued as follows:

1. Introduction/ "Why are we here?"/ Pass around Sign-In Sheets
2. Pre-test
3. Oral Presentation and Activities
4. Post-test
5. Conclusion and Questions

CHVs distributed the survey instruments and explained to inmates how to complete the survey. This evaluation study is of a primary data analysis and original non-experimental design.

### **3.1.4 Instrumentation**

Survey instruments were used to test the participants' knowledge on general breast health, likelihood of having received the age appropriate recommended screening, confidence in knowing when to receive recommended screenings, self-efficacy in ability to recognize abnormal or normal changes through breast self-exams, and confidence in ability to reduce behavioral risks of breast cancer prior to and after the Taking Charge presentation to four female pods at a county jail. The survey instruments were printed on one piece of paper with the initial assessment on the front side and the post-test on the back side of the paper. There were two sets of surveys, one for participants over 40 years old and one for those under 40 years old (see APPENDIX A, B, C, D). Based on the age-appropriate breast health recommended screening, the over 40 surveys had questions regarding mammograms and the under 40 surveys had questions regarding clinical breast exams.

The survey instrument utilized prior to the presentation (initial assessment) consisted of two parts; the first part included five true or false questions and one question on when the last time they had an age-appropriate breast screening (Less than one year ago=1, 1-2 years ago=2, More than 3 years ago=3, Never=4, I don't know=5); the second part consisted of one 4-point Intent Scale question (Definitely Will=1, Probably Will=3, Probably Won't= 2, Definitely Won't=1) and three 4-point Confidence Scale questions (Totally Confident=1, Confident=2, Not Confident=3, Not at all Confident=4). The initial assessment true or false questions addressed general breast health knowledge; the intent scale question addressed likelihood of receiving an age-appropriate screening; and the confidence scale questions addressed confidence related to knowledge of when to receive the recommended screenings, ability to recognize changes in the breast through breast self-examination, and ability to reduce behavioral risks associated with breast cancer. The survey instrument that was utilized following the presentation (post-test) consisted of the same five true

and false questions, intent and confidence scale questions, and two open ended questions. The first open ended question asked participants to share something new that they learned about breast health and the second one asked them to share their thoughts about the program.

The survey instrument was adapted from the ENCOREplus Tea & Treat program that was developed by the program coordinator, who is a breast health expert, to assess the knowledge gained from the presentation. The survey instrument has been used at other breast health sessions to groups with women and results have been used for grant reporting, however, no formal tests of reliability has been conducted on this instrument. The actual survey instrument for both age groups in the study are appended (Appendix A, B, C, D).

### **3.1.5 Data Analysis**

The researcher entered the data from the 204 participants' initial assessment and post-tests surveys into the Statistical Package for the Social Sciences (SPSS) Version 21 for Windows computer software system. Frequencies and descriptive statistics were run for each of the pre- and post-test question responses. Paired Sample T-tests were utilized on all pre/posttests to assess significant increases in participants' self-efficacy and confidence in relation to breast health practices and knowledge. Because post-test question six and eleven were open-ended questions, they were examined for key themes regarding new information learned during the session as well as for insights regarding how inmates enjoyed the program.

## **4.0 CHAPTER FOUR**

### **4.1 DATA ANALYSIS AND DISCUSSION OF RESULTS**

This chapter is organized into the following sections: (a) Demographic Data Describing the Participants, (b) Descriptive Statistics of the Initial Assessment Responses, (c) Descriptive Statistics of the Post-test Responses, (d) Open-Ended Questions, (e) Paired Sample T-test Results and (f) Summary.

#### **4.1.1 Demographic Data Describing the Participants**

The total number of initial assessment and post-test surveys administered to participants of the Taking Charge: Steps to Breast Health program was 204. The surveys were distributed during three different program sessions, in four female pods, during July 2014 and January 2015.

At the beginning of each session, sign-in sheets were available for women to provide their name, age and race. Based on the attendance sheet, the program reached 305 women. Race was not collected at the first workshop, but was added for the second and third session. 223 participants recorded their race and 6 did not. Table 1 illustrates the complete racial distribution of the participants. Overall, the sample consisted of mostly white women (65.1%) with Black women as the second most reported race (28.0%).

**Table 1. Frequency and Percent of the Race of Participants**

Race	n	Percent
White	142	65.1
Black	61	28.0
Biracial	12	5.5
Other	3	1.4
Total	218	100.00

Data for the age of participants was collected on all three session dates. Of the 305 participants, eight women did not record their age. The sample was composed of incarcerated women who ranged from 19 to 64 years of age. The mean age was 35.36 years. Table 2 illustrates the complete age range distribution of participants. Overall, the sample consisted of mostly women between 30-47 years of age (56.9%).

**Table 2. Frequency and Percent of the Age of Participants**

Age	n	Percent
50-64	27	9.1
30-49	169	56.9
25-29	62	20.9
19-24	39	13.1
Total	297	100

The age ranges were then combined into two groups similar in frequency and recoded for analysis. The groups were recoded as follows: 39 and under and 40 and over. Table 3 illustrates the recoded age distribution of participants. Therefore, the sample consisted of women 39 and under (65%) and women 40 and over (35%).



**Table 3. Recoded Frequency and Percent of the Age of Participants**

Age Groups	n	Percent
39 and under	193	65.0
40 and over	104	35.0
Total	297	100.0

#### **4.1.2 Descriptive Analyses of Pre-test Responses**

Immediately prior to the program presentation, the participants were asked to complete a ten question initial assessment survey to assess their breast health knowledge, the last time they received an age-appropriate recommended screening, how likely they were to receive a CBE/mammogram within the next year, their confidence in knowledge of how often to receive a CBE/mammogram, their self-efficacy to recognize changes during self-breast exams, and their confidence in their ability to change behavior in order to reduce the chances of breast cancer. Questions one through five were true and false, question 6 was a 5-point time-frame question, and questions seven through ten were 4-point Likert rating questions. Assessments were excluded if both sides were not complete. There was a total of 124 completed pre/post tests for the under 40 group and 80 completed assessments for the over 40 group.

Table 4 illustrates the frequency and percent of under 40 participants' correct responses for true and false questions one through five of the pre-test. The correct answer for questions one through four was true and question five was false. Sixty-nine percent (69.2%, n=86) of participants under 40 answered all questions correctly. Table 5 illustrates the frequency and percent of over 40 participants' correct responses for questions one through five. Seventy-two percent (71.8%, n=57.4) of participants over 40 answered all questions correctly.

**Table 4. Frequency and Percent of Correct Responses for Under 40 Pre-test Questions 1-5**

Question	n	Percent Correct
Q1: As you get older you have a higher risk of developing breast cancer.	118	95.2
Q2: Eating healthy and exercising will help lower my chance of getting breast cancer.	99	79.8
Q3: Almost all women survive if breast cancer is found early.	78	62.9
Q4: Mammograms can find breast cancer before it can be found by touch during a breast exam.	92	74.2
Q5: Most women who get breast cancer have a family history of breast cancer.	42	33.9
Total		69.2

**Table 5. Frequency and Percent of Correct Responses for Over 40 Pre-test Questions 1-5**

Question	n	Percent Correct
Q1: As you get older you have a higher risk of developing breast cancer.	72	90.0
Q2: Eating healthy and exercising will help lower my chance of getting breast cancer.	68	85.0
Q3: Almost all women survive if breast cancer is found early.	68	85.0
Q4: Mammograms can find breast cancer before it can be found by touch during a breast exam.	49	61.3
Q5: Most women who get breast cancer have a family history of breast cancer.	30	37.5
Total		71.8

Question six asked participants if they could recall the last time they received a clinical breast exam or mammogram. Participants had five options to choose from: Less than a year ago=1, 1-2 years ago=2, More than 3 years ago=3, Never= 4, and I don't know=5. Twenty-eight percent (28.2%, n=35) of the 39 and under group indicated that they have never received a clinical breast exam. Table 6 illustrates the frequency and percent of the under 40 participants' personal reflection of when they had last received a clinical breast exam.

**Table 6. Frequency and Percent of When the Under 40 Participants Last Received a Clinical Breast Exam**

Time-frame	n	Percent
Less than one year ago	31	25.0
1-2 years ago	21	16.1
More than 3 years ago	22	17.7
Never	35	28.2
I don't know	16	12.9
Total	124	100.0

Table 7 illustrates the frequency and percent of the over 40 participants' personal reflection of when they last had received a mammogram. Overall, thirty percent (30.0%, n=24) of women over 40 reported that they have never received a mammogram. Additionally, 28.2% (n=23) indicated that they last received a mammogram more than a year ago.

**Table 7. Frequency and Percent of When Over 40 Participants Last Received a Mammogram**

Time-frame	n	Percent
Less than one year ago	14	17.5
1-2 years ago	23	28.8
More than 3 years ago	16	20.0
Never	24	30.0
I don't know	3	3.8
Total	80	100.0

Question 7 was a four-point Likert type question with the following answer choices: I definitely will=1, I probably will=2, I probably won't=3, and I definitely won't=4. Sixty percent (60.5%, n=85) women under 40 reported that they definitely/probably will receive a clinical breast exam during the next year. Sixty-six percent (66.3%, n=53) of women over 40 reported that they

definitely/probably will receive a mammogram in the next year. Table 8 and 9 illustrate participant's answers for question 7.

**Table 8. Frequency and Percent of Participants Under 40 Likelihood of Receiving a CBE (Pre-Test)**

Intent	Frequency	Percent
I definitely will	34	27.4
I probably will	41	33.1
I probably won't	45	36.3
I definitely will	4	3.2
Total	124	100

**Table 9. Frequency and Percent of Participants Over 40 Likelihood of Receiving a Mammogram (Pre-Test)**

Intent	Frequency	Percent
I definitely will	30	37.5
I probably will	23	28.8
I probably won't	25	31.3
I definitely won't	2	2.5
Total	80	100

Questions 8-10 were also four-point Likert type questions with the following answer choices: Totally Confident=1, Confident=2, Not Confident=3, Not at all Confident=4. For the participants under 40, sixty-three percent (63.7%, n=79) indicated that they were totally confident/confident in how often to receive a clinical breast exam and seventy-two percent (71.8%, n= 89) indicated that they were totally confident/confident in their ability to recognized changes in their breasts. Additionally, sixty-nine percent (69.4%, n=86) reported that they felt totally confident/confident in their ability to take behavioral changes to reduce their risk of breast cancer. Table 10 illustrates the frequency and percent of participants under 40 responses to questions eight through ten.

**Table 10. Frequency and Percent of Participants Responses to Pre- Questions 8-10 (Under 40)**

Question 8: How confident are you that you know how often to get a clinical breast exam?		
	Frequency	Percent
Totally Confident	22	17.7
Confident	57	46.0
Not Confident	39	31.5
Not at all Confident	6	4.8
Total	124	100
Question 9: How confident are you that you would be able to recognize normal or abnormal changes in your breast		
	Frequency	Percent
Totally Confident	24	19.4
Confident	65	52.4
Not Confident	31	25.0
Not at all Confident	4	3.2
Total	124	100
Question 10: How confident are you that you can take steps to reduce your chances of getting breast cancer?		
	Frequency	Percent
Totally Confident	30	24.2
Confident	56	45.2
Not Confident	33	26.6
Not at all Confident	5	4.0
Total	124	100

For the participants over 40, eighty-two percent (82.5%, n=66) indicated that they were totally confident/confident in how often to receive a mammogram and seventy-nine percent (78.8%, n= 63) indicated that they were totally confident/confident in their ability to recognized changes in their breasts. Additionally, eighty-one percent (81.3, n=65) reported that they felt totally confident/confident in their ability to take behavioral changes to reduce their risk of breast cancer. Table 11 illustrates the frequency and percent of participants over 40 responses to questions eight through ten.

**Table 11. Frequency and Percent of Participants Responses to Pre Questions 8-10 (Over 40)**

Question 8: How confident are you that you know how often to get a mammogram?		
	Frequency	Percent
Totally Confident	32	40.0
Confident	34	42.5
Not Confident	12	15.0
Not at all Confident	2	2.5
Total	80	100
Question 9: How confident are you that you would be able to recognize normal or abnormal changes in your breast		
	Frequency	Percent
Totally Confident	28	35.0
Confident	35	43.8
Not Confident	15	18.8
Not at all Confident	2	2.5
Total	80	100
Question 10: How confident are you that you can take steps to reduce your chances of getting breast cancer?		
	Frequency	Percent
Totally Confident	18	22.5
Confident	47	58.8
Not Confident	13	16.3
Not at all Confident	2	2.5
Total	80	100

#### 4.1.3 Descriptive Analyses of Post-test Responses

Immediately following the program presentation, the participants were asked to complete a eleven question post-test survey to assess if they had a better understanding of their breast health knowledge, likelihood of receiving a CBE/mammogram within the next year, their confidence in knowledge of how often to receive a CBE/Mammogram, their self-efficacy to recognize changes during self-breast exams, and their confidence in ability to change behavior in order to reduce chances of breast cancer. Questions 1 through 5 were true and false, question 6 was an open ended question asking “What was something new that you learned about breast health today?”, questions

7 through 10 were four-point Likert rating types and question 11 was an open ended questions asking “Please tell us what you thought about this program”. Assessments were not counted if both sides were not complete. There was a total of 124 completed pre/post tests for the under 40 group and 80 completed assessments for the over 40 group.

Table 12 illustrates the frequency and percent of under 40 participants’ correct responses for true and false questions one through five of the post-test. The correct answer for questions one through four was true and question five was false. Seventy-eight percent (78.4%, n= 97.2) of the participants under 40 answered all 5 questions correctly. Table 13 illustrates the frequency and percent of over 40 participants’ correct responses for questions one through five. Seventy-seven (76.5%, n= 61) of the participants over 40 answered all 5 questions correctly.

**Table 12. Frequency and Percent of Correct Responses for Post-Test Questions 1-5 (Under 40)**

Question	n	Percent Correct
Q1: As you get older you have a higher risk of developing breast cancer.	120	96.8
Q2: Eating healthy and exercising will help lower my chance of getting breast cancer.	121	97.6
Q3: Almost all women survive if breast cancer is found early.	99	79.8
Q4: Mammograms can find breast cancer before it can be found by touch during a breast exam.	99	79.8
Q5: Most women who get breast cancer have a family history of breast cancer.	47	37.9
Total		78.4

**Table 13. Frequency and Percent of Correct Responses for Post-test Questions 1-5 (Over 40)**

Question	n	Percent Correct
Q1: As you get older you have a higher risk of developing breast cancer.	75	93.8
Q2: Eating healthy and exercising will help lower my chance of getting breast cancer.	75	93.8
Q3: Almost all women survive if breast cancer is found early.	68	85.0
Q4: Mammograms can find breast cancer before it can be found by touch during a breast exam.	53	66.3
Q5: Most women who get breast cancer have a family history of breast cancer.	35	43.8
Total		76.5

Question 7 was a 4-point Likert type question with the following answer choices: I definitely will=1, I probably will=2, I probably won't=3, and I definitely won't=4. After the presentation, eighty-five percent (84.7%, n=105) women under 40 reported that they definitely/probably will receive a clinical breast exam during the next year. Eighty-nine (88.8%, n= 71) of women over 40 reported that they definitely/probably will receive a mammogram in the next year. Table 14 and 15 illustrate participant's answers for question 7.

**Table 14. Frequency and Percent of Participants Likelihood of Receiving a CBE (Under 40)**

Intent	Frequency	Percent
I definitely will	62	50.0
I probably will	43	34.7
I probably won't	17	13.7
I definitely will	2	1.6
Total	124	100



**Table 15. Frequency and Percent of Participants Over 40 Likelihood of Receiving a Mammogram (Post-Test)**

Intent	Frequency	Percent
I definitely will	37	46.3
I probably will	34	42.5
I probably won't	8	10.0
I definitely will	1	1.3
Total	80	100

Questions 8 through 10 were also four-point Likert type questions with the following answer choices: Totally Confident=1, Confident=2, Not Confident=3, Not at all Confident=4. After the presentation, ninety-three percent (92.8%, n=115) of participants under 40 indicated that they were totally confident/confident in how often to receive a clinical breast exam and ninety-four percent (93.5%, n= 116) indicated that they were totally confident/confident in their ability to recognized changes in their breasts. Additionally, ninety-four percent (93.5%, n=116) reported that they felt totally confident/confident in their ability to take behavioral changes to reduce their risk of breast cancer. Table 16 illustrates the frequency and percent of participants under 40 responses to questions eight through ten.

**Table 16. Frequency and Percent of Participants Responses to Post Questions 8-10 (Under 40)**

Question 8: How confident are you that you know how often to get a clinical breast exam?		
	Frequency	Percent
Totally Confident	56	45.2
Confident	59	47.6
Not Confident	9	7.3
Not at all Confident		
Total	124	100
Question 9: How confident are you that you would be able to recognize normal or abnormal changes in your breast		
	Frequency	Percent
Totally Confident	50	40.3
Confident	66	53.2
Not Confident	7	5.6
Not at all Confident	1	.8
Total	124	100
Question 10: How confident are you that you can take steps to reduce your chances of getting breast cancer?		
	Frequency	Percent
Totally Confident	54	43.5
Confident	62	50.0
Not Confident	7	5.6
Not at all Confident	1	.8
Total	124	100

For the participants over 40, ninety-four percent (93.8%, n=75) indicated that they were totally confident/confident in how often to receive a mammogram and eight-eight (87.5%, n= 70) indicated that they were totally confident/confident in their ability to recognized changes in their breasts. Additionally, ninety-four percent (93.8%, n=75) reported that they felt totally confident/confident in their ability to take behavioral changes to reduce their risk of breast cancer. Table 11 illustrates the frequency and percent of participants over 40 responses to questions eight through ten.

**Table 17. Frequency and Percent of Participants Responses to Post Questions 8-10 (Over 40)**

Question 8: How confident are you that you know how often to get a mammogram?		
	Frequency	Percent
Totally Confident	41	51.3
Confident	34	42.5
Not Confident	3	3.8
Not at all Confident	2	2.5
Total	80	100
Question 9: How confident are you that you would be able to recognize normal or abnormal changes in your breast		
	Frequency	Percent
Totally Confident	34	42.5
Confident	36	45.0
Not Confident	10	12.5
Not at all Confident		
Total	80	100
Question 10: How confident are you that you can take steps to reduce your chances of getting breast cancer?		
	Frequency	Percent
Totally Confident	32	40.0
Confident	43	53.8
Not Confident	5	6.3
Not at all Confident		
Total	80	100

#### **4.1.4 Open- Ended Questions**

Post-tests included two open- ended questions. The first asked “What was something new that you learned about breast health today?” and the second “Please tell us what you thought about the program?” These questions were analyzed for emerging themes as well as to collect findings that captured information that was new or unexpected for the evaluation team.

Responses towards the first question varied greatly, but many focused on risks and myths associated with breast cancer. Alcohol consumption as a risk factor came up as new information

for many women. For example, one woman said *“Drinking can increase your risk of getting breast cancer”* another said *“Having two or more drinks a day increases your risk.”* Additionally, a few woman thought that an injury to the breast could cause cancer during the risks/myths activity but after the session, they noted *“If your hurt your breast you won’t get breast cancer”*, *“Breast wounds does not give you cancer”* or *“Can’t get breast cancer from punching.”* Other myths that were debunked in the activity posed as new information learned. For example, one woman said *“Breast implants don’t cause breast cancer”* while another said *“Putting your cell phone in your bra doesn’t cause cancer. It’s only a myth.”* In terms of screening, one woman stated *“If you have a family history you should get checked more frequently”*, and another said *“I learned how often you go for a mammogram.”* To relieve pain during a mammogram, another woman said she learned to *“Take Tylenol, aspirin, or Motrin 1-hour before mammogram.”* One more common theme was breast self-awareness. For example, one woman said *“Breast tenderness can be a sign- The frequency of checking my breast for bumps”* and another said that she learned, *“The importance of self-screening.”* Participants ‘responses noted pieces of information that were covered during the presentation and the activities and discussion that composed it. Another quote from one woman said *“I have been here for these classes before and I appreciate you taking the time to come give us this information.”*

As a result of learning new information, there was much positive feedback from the women on what they thought about the program. Many thanked the project staff and said it was “Very Educational” or “It was very informative.” For this question, there were no specific answers desired, the YWCA simply wanted feedback on what the women thought about the program. Some examples of more detailed responses are listed here:

- *“I thought it helped a lot. It brought knowledge to what I already knew. Thank you for coming.”*

- *“I learned a lot today, I understand more about my breasts.”*
- *“I appreciated you taking the time to come & talk to us, you were very knowledgeable & informative. Thank you!! :)”*
- *“Helpful, grateful to the volunteers for their time & knowledge”*
- *“It was a learning experience and I will stay on top of my mammograms.”*
- *“Very good speakers informative + tons of reading info + thanks”*
- *“It was an excellent group to have. Very Informative.”*
- *“I am very grateful for the program and for your time.”*
- *“It was informative and easy to understand. Keep doing it!”*

Just from those few examples, it is shown that the participants respected and were thankful for the programming. However, sometimes during the sessions, a few women would ask tangential questions about risks of breast cancer that would throw the presentation off course. One woman noted in her response, *“I appreciated the program. I am sorry only that you were subject to the ignorance of the majority of the pod”* and another said, *“It went well, great info. But I am sorry for the girls interrupting.”* This was interesting to see a woman apologizing for the other members of her pod as it may reflect a unique social dynamic within the units.

Furthermore, in the 204 assessments there no negative answers for question 11 about the program or volunteers. This could speak to the nature of the program, the positive delivery of

information from community health volunteers, and encouragement for participation from inmates.

#### **4.1.5 Paired Sample T-test Results between Pre and Post-test Responses**

To analyze the results of Taking Charge: Steps to Breast Health program for incarcerated women, first descriptive statistics were calculated for the pre-test and post-test scores of each question for both age groups. Paired-Sample T tests were performed to examine if there was a significant difference between breast health knowledge, likelihood of receiving the age-appropriate recommended screening, confidence in ability to know when to receive said screenings, confidence in ability to detect change in breasts, and confidence in ability to reduce risk of breast cancer.

##### **4.1.5.1 Under 40**

Questions 1 through 5 of the pre- and post-tests were analyzed by average number of correct responses. Paired samples t-tests were conducted to examine the mean of individual differences of paired measurements before and after the intervention. Change in breast health knowledge for incarcerated women under 40 was found to be statistically significant,  $t(123) = 3.46, p=.001, d=.08$ . The results indicated that on average, the women under 40 scored significantly higher on the post-test true/false questions ( $M=1.21, SD=.414$ ) than on the pre-test true/false questions ( $M=1.30, SD=.463$ ).

Question 7 was analyzed for this populations likelihood of receiving a clinical breast exam and was found to be statistically significant,  $t(123) = 10.74, p=.000, d=.48$ . The results indicated that, on average, intent to receive a clinical breast exam was higher after the presentation ( $M=1.67, SD=.772$ ) than before ( $M=2.15, SD=.865$ ). Question 8 asked participants' confidence in knowing how often to receive a clinical breast exam. This analysis showed statistical significance,  $t(123)$

=13.96,  $p=.000$ ,  $d=.61$ , as participants were more confident in their knowledge of when to receive a CBE after ( $M=1.62$ ,  $SD=.619$ ) than before the session ( $M=2.23$ ,  $SD=.797$ ). Question 9 was analyzed for the confidence of women under 40 in their ability to detect any normal or abnormal changes in their breasts via breast self-examination. This question was found to be statistically significant,  $t(123) = 10.06$ ,  $p=.000$ ,  $d=.45$ , as confidence rates increased after the presentation ( $M=1.66$ ,  $SD=.621$ ) versus before ( $M=2.12$ ,  $SD=.749$ ). Finally, question 10 assessed participants confidence in their ability to take steps to reduce their risk of breast cancer and it was also found to be significant,  $t(123) = 10.39$ ,  $p=.000$ ,  $d=.46$ . Results of the paired sample t-test results for pre/post test data of women under 40 can be found in Table 18.

**Table 18. Paired Sample T-test Results for Under 40 Group**

<b>Under 40</b>						
<b>Question</b>		<b>Mean Score</b>	<b>t</b>	<b>df</b>	<b>Sig.* (2-tailed)</b>	<b>Mean Difference</b>
Correct True/False Questions 1-5	Pre	1.30	3.46	123	.001	.08
	Post	1.22				
Q7: Likelihood of receiving a CBE	Pre	2.15	10.738	123	.000	.48
	Post	1.67				
Q8: Confidence in how often to get CBE	Pre	2.23	13.955	123	.000	.61
	Post	1.62				
Q9: Confidence in ability to detect changes	Pre	2.12	10.064	123	.000	.45
	Post	1.66				
Q10: Confidence in ability to reduce risk	Pre	2.10	10.397	123	.000	.46
	Post	1.64				
*Sig <.05						

#### **4.1.5.2 Over 40**

Breast health knowledge for incarcerated women over 40 was found to be statistically significant  $t(79)= 2.039$ ,  $p=.045$ ,  $d=.05$ . The results indicated that on average, the women scored significantly higher on the post-test true/false questions ( $M=1.23$ ,  $SD=.45$ ) than on the pre-test

true/false questions ( $M= 1.28, SD=.42$ ). Question 7 analyzed participants likelihood of receiving a mammogram, and it was found to be statistically significant,  $t(79) = 6.17, p=.000, d=.33$ . This indicated that the women's likelihood of receiving a mammogram was greater after the presentation ( $M=1.66, SD=.711$ ) than before the presentation ( $M=1.98, SD=.892$ ). Question 8 asked about participants' confidence in how often to receive a mammogram. This analysis showed statistical significance,  $t(79) = 4.789, p=.000, d=.225$ , as participants were more confident in their knowledge of when to receive a mammogram after ( $M=1.57, SD=.689$ ) than before the session ( $M=1.80, SD=.786$ ). Question 9 was analyzed for the confidence of women over 40 in their ability to detect any normal or abnormal changes in their breasts via breast self-examination. This question was found to be statistically significant,  $t(79) = 4.27, p=.000, d=.187$ , as confidence rates increased after the presentation ( $M=1.70, SD=.682$ ) versus before ( $M=1.89, SD=.795$ ). Finally, question 10 assessed participants confidence in their ability to take steps to reduce their risk of breast cancer and it was also found to be significant,  $t(79) = 6.17, p=.000, d=.33$ . This indicated that before the presentation, ( $M=1.98, SD=.702$ ) women had less confidence than they did after ( $M=1.66, SD=.594$ ). Results of the paired sample t-test results for pre/post test data of women over 40 can be found in Table 19.



**Table 19. Paired Sample T-test Results for Over 40 group.**

<b>Over 40</b>						
<b>Question</b>		<b>Mean Score</b>	<b>t</b>	<b>df</b>	<b>Sig.* (2-tailed)</b>	<b>Mean Difference</b>
Correct True/False Questions 1-5	Pre	1.28	2.039	79	.045	.05
	Post	1.23				
Q7: Likelihood of receiving a Mammogram	Pre	1.98	6.167	79	.000	.32
	Post	1.66				
Q8: Confidence in how often to get Mammogram	Pre	1.80	4.789	79	.000	.23
	Post	1.57				
Q9: Confidence in ability to detect changes	Pre	1.89	4.270	79	.000	.19
	Post	1.70				
Q10: Confidence in ability to reduce risk	Pre	1.98	6.167	79	.000	.33
	Post	1.65				
*Sig <.05						

#### **4.1.6 Summary**

The total number of pre/post-test surveys administered to participants of the Taking Charge: Steps to Breast Health program was 204. The surveys were distributed during three different program sessions, in four female pods, during July 2014, October 2014, and January 2015. Overall, the sample consisted of mostly white women (65.1%) with black women as the second most reported race (28.0%). This was inconsistent with the Allegheny County Jail Report which stated 54% of their inmates are minority, predominately African-American. Additionally, the sample consisted of women 39 and under (65%) and women 40 and over (35%) with the mean age of 35.36 years. This may mean more black women opted to not participate in the sessions.

Frequencies and percentages were obtained for the pre- and post-tests and separated by age group. In the pre-test, participants under 40 were asked when the last time they received a clinical breast exam; 28.2% (n=35) indicated that they have never received a clinical breast exam. Similarly 30.0% (n=24) of women over 40 reported that they have never received a mammogram. Additionally, 28.2% (n=23) indicated that they last received a mammogram more than a year ago.

Interest in participants' general breast health knowledge was assessed via five true/false questions. Before the presentation, 69.4% (n=86) of participants under 40 and 71.3% (n= 57) of participants over 40 answered all questions correctly. After the presentation, 78.2%, (n= 97) of the participants under 40 and 76.3% (n= 61) of the participants over 40 answered all 5 questions correctly. The effect of the breast health programming was found to be statistically significant in its ability to enhance overall breast health knowledge for women both under 40, ( $t(123) = 3.46$ ,  $p=.001$ ,  $d=.08$ ) and over 40 ( $t(79) = 2.039$ ,  $p=.045$ ,  $d=.05$ ). The results indicated that on average, the women under 40 scored significantly higher on the post-test true/false questions ( $M=1.21$ ,  $SD=.414$ ) than on the pre-test true/false questions ( $M=1.30$ ,  $SD=.463$ ) and the over 40 women also scored significantly higher on the post-test true/false questions ( $M=1.23$ ,  $SD=.45$ ) than on the pre-test true/false questions ( $M= 1.28$ ,  $SD=.42$ ). Therefore, overall in both age groups, general breast health knowledge increased after programming.

Likelihood of receiving the age-appropriate recommended screening was assessed and concluded that after attending a breast health session, 84.7%, (n=105) women under 40 reported that they definitely/probably will receive a clinical breast exam during the next year and 88.8% (n= 71) of women over 40 reported that they definitely/probably will receive a mammogram in the next year. Confidence in knowledge of how often to receive the age-appropriate recommended screening was assessed and results indicated that prior to the presentation, 63.7%, (n=79) participants under 40, indicated that they were totally confident/confident in how often to receive a clinical breast exam and 82.5% (n=66) indicated that they were totally confident/confident in how often to receive a mammogram. After the presentation, 92.8% (n=115) of participants under 40 indicated that they were totally confident/confident in how often to receive a clinical breast

exam and 93.8%, (n=75) indicated that they were totally confident/confident in how often to receive a mammogram.

A component of breast health education is teaching breast self-examination techniques. Prior to attending the program, women under 40 had a 71.8%, (n= 89) totally confident/confident response rate in their ability to recognize changes in their breasts and after the presentation, this response rate increased to 93.5% (n= 116) . For women over 40, 78.8% (n= 63) indicated that they were totally confident/confident in their ability to recognize changes in their breasts and after the presentation, 87.5%, (n= 70) indicated that they were totally confident/confident in their ability to recognized changes in their breasts.

Finally, there are many risk factors of breast cancer than cannot be maintained or controlled for a woman. However, healthy diet, exercise, limited alcohol and smoking consumption may decrease risk and promote an overall healthier lifestyle. Question 10 of the pre/posttests assessed participants' ability to take steps (as addressed in the program) to reduce their risk. Prior to the presentation, 69.4% (n=86) of the women under 40 reported that they felt totally confident/confident in their ability to take behavioral changes to reduce their risk of breast cancer and after the program this response rate increased to 93.5% (n=116). Additionally, 81.3 (n=65) of women over 40 reported that they felt totally confident/confident in their ability to reduce their risk of cancer before the presentation and 93.8% (n=75) after.

All findings were statistically significant and supported the hypothesis that after programming, participants would report better knowledge, self-efficacy and confidence in their abilities to know when to receive the age-appropriate breast health screening, to detect any changes in their breasts via self-breast examination, and to alter their lifestyle choices to reduce their risk of breast cancer, also improved likelihood of receiving a clinical breast exam or mammogram.

## 5.0 CHAPTER FIVE

### 5.1 CONCLUSIONS AND RECOMMENDATIONS

#### 5.1.1 Limitations and Strengths of Study Findings

The findings of this study are limited by many factors. First, a process evaluation was not included in this study. Due to this fact, there is no way to assess if the community health volunteer delivered the program in exactly the same manner for each presentation. Therefore, it is possible that the delivery emphasis varied from presentation to presentation in each unit. Secondly, jail staff did not adhere to the recommended guidelines provided by the jail program coordinator to notify inmates that the program was going to occur. In the first and third session, correction officers told inmates who did not want to attend the session to go to the gyms within each pod (majority went to the gym). During the second session, officers told inmates that they could either attend the session or go to their cell (majority stayed for the session), which increased attendance. As shown in Table 20, the miscommunication and noncompliance between jail staff and administration resulted in a lower sample size.

**Table 20. Complete Pre/Post Test by Session and Age**

Session	Under 40	Over 40	Total
July 31, 2014	40	27	67
October 30, 2014	56	30	86
January 29, 2015	28	23	51
Total	124	80	204

Third, within each pod there was a lot of activity going on during the sessions. For example, some women would get called out to take medications or meet with a lawyer. In one pod during

the third session, a fight erupted after 10 minutes between two inmates and we had to cancel the session (no data was collected in the pod). Because of this activity, not all women filled in the sign-in sheet, but from the attendance information we were able to record we know that more white women than black women participated, even though we know there are more black women in the jail and that black women are at a greater risk of death from breast cancer. Additionally, the pre- and post-tests were on the opposite sides of the same paper, so women may have compared their results which may have resulted in a testing effect. Many did not fully complete the pre/post assessments which resulted in a number of tests being excluded from analysis. Also, this population and setting of jailed women may differ from others serving time in different facilities. The data is reliant on self-reported feelings and intentions, which is limited by the inmates' honest and accurate responses. Finally, it would have been difficult to test for persistency of knowledge or to assess if changes demonstrated resulted in actual behavior changes while women remained in jail or after release.

Despite the many limitations, there were a few strengths. First, the pre/post assessments have been previously piloted by the YWCA in similar populations of women with limited education, low-socioeconomic status, are uninsured, and have poor health literacy. The tool also has strong face validity. Second, the evaluation included open-ended questions, giving women the opportunity to share information project staff did not ask about. As the literature suggested, incarcerated women have a desire and need for health programming, this was found to be true as many women noted that they appreciated the program and learned a lot more information than they knew prior to attending a session. Third, the evaluation took place in real time in the jail setting. This provides insight into a population that is often marginalized by public health and community based programs, especially with regards to women's health issues. Finally, the fact that an existing

community organization took the initiative to adapt an current community program to a population of jailed women is unique opportunity in itself for the field of public health and non-profit organizations who promote health education.

### **5.1.2 Implications for Health Promotion Practice and Research**

Vulnerable populations, such as women in jail, are at high risk of having poor health outcomes and will probably continue to have limited health care resources. More information is needed to see if there is a true breast cancer disparity between incarcerated and non-incarcerated women. Nevertheless, the approach of Taking Charge: Steps to Breast Health was to empower women with knowledge and skills to better their breast health and general well-being.

The results of this study are beneficial for health educators and the field of health promotion. This study illustrates the feasibility of delivering a single session breast health program to incarcerated women as well as its impact on knowledge and behavior intention. It is a relatively low cost program that has the potential for widespread gain to other correctional sites (prisons, transitional housing, etc.). Additionally, it shows the effectiveness of taking an existing community program and adapting it to a population of jailed women. Taking Charge: Steps to Breast Health Promotion program should be further evaluated as a best practice in the area of breast health education for incarcerated women. While incarcerated, women could be prepared to make better decisions related to their health through culturally sensitive health programs. Additionally, a program that is educational but also allows women to share their voices and enthusiastically participate in knowledge-based activities may create a more positive learning environment in a correctional setting. Moreover, inclusion of jailed women in breast health programs may increase the number of women who follow recommended breast cancer detection guidelines and may serve

to reduce the morbidity and mortality from breast cancer and lead to healthier, more productive lives for all women.

**APPENDIX A: PRE-TEST FOR PARTICIPANTS UNDER 40 YEARS OF AGE**



**Breast Health Workshop – Part One (Age: Under 40) – Complete before presentation.**

**SIDE**

**1**

*Directions: Please circle either true or false.*

1. As you get older, you have a higher risk of developing breast cancer.  
True                  False
2. Eating healthy and exercising will help lower my chance of getting breast cancer.  
True                  False
3. Almost all women survive if breast cancer is found early.  
True                  False
4. Mammograms can find breast cancer before it can be found by touch during a breast exam.  
True                  False
5. Most women who get breast cancer have a family history of breast cancer.  
True                  False
6. When was the last time you had a clinical breast exam?
  - a. Less than one year ago
  - b. 1-2 years ago
  - c. More than 3 years ago
  - d. Never
  - e. I don't know

*Directions: Please check which answer applies to you.*

7. How likely are you to get a clinical breast exam this year?

I definitely will	I probably will	I probably won't	I definitely won't

8. How confident are you that you know how often to get a clinical breast exam?

Totally Confident	Confident	Not Confident	Not at all Confident

9. How confident are you that you know to tell any normal or abnormal changes in your breasts?

Totally Confident	Confident	Not Confident	Not at all Confident

10. How confident are you that you can take steps to reduce your chances of getting breast cancer?

Totally Confident	Confident	Not Confident	Not at all Confident

**APPENDIX B: POST-TEST FOR PARTICIPANTS UNDER 40 YEARS OF AGE**

**Breast Health Workshop – Part Two (Age: Under 40) – complete after presentation**

SIDE  
**2**

*Directions: Please circle either true or false:*

1. As you get older, you have a higher risk of developing breast cancer.  
True                  False
2. Eating healthy and exercising will help lower my chance of getting breast cancer.  
True                  False
3. Almost all women survive if breast cancer is found early.  
True                  False
4. Mammograms can find breast cancer before it can be found by touch during a breast exam.  
True                  False
5. Most women who get breast cancer have a family history of breast cancer.  
True                  False
6. What was something new that you learned about breast health today? \_\_\_\_\_

*Directions: Please check which answer applies to you.*

7. How likely are you to get a clinical breast exam this year?

I definitely will	I probably will	I probably won't	I definitely won't

8. How confident are you that you know how often to get a clinical breast exam?

Totally Confident	Confident	Not very confident	Not at all Confident

9. How confident are you that you know to tell any normal or abnormal changes in your breasts?

Totally Confident	Confident	Not very confident	Not at all Confident

10. How confident are you that you can take steps to reduce your chances of getting breast cancer?

Totally Confident	Confident	Not very confident	Not at all Confident

11. Please tell us what you thought about this program. \_\_\_\_\_

## **APPENDIX C: PRE-TEST FOR PARTICIPANTS OVER 40 YEARS OF AGE**

**Breast Health Workshop – Part One (Age: Over 40) – Complete before presentation.**

**SIDE  
1**

*Directions: Please circle either true or false.*

1. As you get older, you have a higher risk of developing breast cancer.  
True                  False
2. Eating healthy and exercising will help lower my chance of getting breast cancer.  
True                  False
3. Almost all women survive if breast cancer is found early.  
True                  False
4. Mammograms can find breast cancer before it can be found by touch during a breast exam.  
True                  False
5. Most women who get breast cancer have a family history of breast cancer.  
True                  False
6. When was the last time you had a mammogram?
 

a. Less than one year ago	d. Never
b. 1-2 years ago	e. I don't know
c. More than 3 years ago	

*Directions: Please check which answer applies to you.*

7. How likely are you to get a mammogram this year?

I definitely will	I probably will	I probably won't	I definitely won't

8. How confident are you that you know how often to get a mammogram?

Totally Confident	Confident	Not Confident	Not at all Confident

9. How confident are you that you would be able to recognize normal or abnormal changes in your breasts?

Totally Confident	Confident	Not Confident	Not at all Confident

10. How confident are you that you can take steps to reduce your chances of getting breast cancer?

Totally Confident	Confident	Not Confident	Not at all Confident

**APPENDIX D: POST TEST FOR PARTICIPANTS OVER 40 YEARS OF AGE**

**Breast Health Workshop – Part Two (Age: Over 40) – complete after presentation.**

**SIDE  
2**

*Directions: Please circle either true or false.*

1. As you get older, you have a higher risk of developing breast cancer.  
True                  False
2. Eating healthy and exercising will help lower my chance of getting breast cancer.  
True                  False
3. Almost all women survive if breast cancer is found early.  
True                  False
4. Mammograms can find breast cancer before it can be found by touch during a breast exam.  
True                  False
5. Most women who get breast cancer have a family history of breast cancer.  
True                  False
6. What was something new that you learned about breast health today? \_\_\_\_\_

*Directions: Please check which answer applies to you.*

7. How likely are you to get a mammogram this year?

I definitely will	I probably will	I probably won't	I definitely won't

8. How confident are you that you know how often to get a mammogram?

Totally Confident	Confident	Not very confident	Not at all Confident

9. How confident are you that you would be able to recognize normal or abnormal changes in your breasts?

Totally Confident	Confident	Not very confident	Not at all Confident

10. How confident are you that you can take steps to reduce your chances of getting breast cancer?

Totally Confident	Confident	Not very confident	Not at all Confident

11. Please tell us what you thought about this program. \_\_\_\_\_



Thank You! Please return this page to a Community Health Promoter.

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