Enhanced Breast Cancer Screening among Middle Eastern North African (MENA) American Women: A Pilot Program

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Executive Summary

MENA, Middle Eastern North African, Americans are considered an underserved and misrepresented group in the United States, not accurately represented in government documentation and health care research (Abuelezam et al., 2017; Abuelezam et al., 2018). A project that encompassed the needs assessment, followed by the implementation and evaluation of a pilot health education program was provided at a local community center serving MENA American Women in the Detroit Metropolitan area. The findings of this project support the effectiveness of Advanced Practice Registered Nurses partnering with local businesses to provide culturally sensitive breast cancer screening education. Continuation of this program has the potential to improve the health of MENA American women by increasing the uptake of breast cancer screenings and detecting the disease earlier. Additional implications of this project are continuation of programming and expansion of health services at the community center.

Dedication

I dedicate this Doctor of Nursing practice project to my family, who have been a continuous source of encouragement and support. This work is also dedicated to all the MENA American women in the United States and MENA individuals globally in efforts to advocate and bring awareness for improved health outcomes and reduction of health disparities among all MENA individuals, including women.

Acknowledgements

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Enhanced Breast Cancer Screening among Middle Eastern North African (MENA) American Women: A Pilot Program

In the United States, breast cancer is the leading cancer diagnosis among women, affecting nearly 130 women in every 100,000 of the population (National Cancer Institute, 2023). Approximately 20 women per 100,000 die of breast cancer, which makes it the second highest mortality among cancers (National Cancer Institute, 2023). Incidence of breast cancer is higher among MENA, or Middle Eastern North African, American women compared to Hispanic Americans (Ayyash et al., 2019; Bergmans et al., 2014), African/Black Americans (Ayyash et al., 2019; Bergmans et al., 2014), and White American women (Abuelezam et al., 2018). According to Abuelezam et al. (2018) and Ziadeh et al. (2018), first-generation MENA American women have greater survival rates when compared to White, non-Hispanic Americans.

Middle Eastern North African (MENA) Americans are composed of a diverse cultural background from twenty-two countries in the MENA region and makeup over 3.7 million of the U.S. population (Abuelezam et al., 2017; Ayyash et al., 2019). Although MENA Americans have a growing presence in the United States, they are often misrepresented in the U.S. Census, research, and legal and government documentation as '*White-non-Hispanic'* (Abuelezam et al., 2017; Mellon et al., 2013). This limits research, increasing disparities due to the lack of data about the MENA population (Abuelezam et al., 2017; Abuelezam et al., 2018).

Problem Statement

Constituents and leaders of a MENA community identified a gap in women's preventative health, including breast cancer screening. There is a lack of knowledge in the population, in part due to lack of education provided by primary care providers who make referrals for breast cancer

screening. Culturally sensitive and respectful education that enhances patient knowledge provides an opportunity to increase breast cancer screening among MENA American women.

Target Population and Stakeholders

The target population will be MENA American women in the Detroit Metropolitan area. The stakeholders include MENA American women, their spouses, families, religious leaders, community leaders, organizational staff (secretary, board members, constituents), and primary care providers.

Aim

The aim of the program development and evaluation pilot program is to provide education and follow up to breast enhance breast cancer screening among MENA American women.

Clinical Question

Among 30–75-year-old MENA American women residing in the Detroit Metropolitan area, does a culturally sensitive breast cancer prevention education program in a community setting enhance breast cancer screening?

Literature Review

The literature search was performed by using CINAHL, Cochrane Library, and PubMed databases performed using the following keywords (1) Arab American, (2) Arab, (3) MENA American, Middle Eastern North African, (4) breast screening, (5) breast cancer, (6) mammography, (7) family nurse practitioner, (8) advanced practice registered nurse, (9) barriers to care, (10) cultural competence, and (11) cultural sensitivity. Initially, the literature search was limited to peer-reviewed and full-text articles within the last five years (2018-2023), resulting in

fewer than twenty relevant articles being found. Due to the lack of search results on the MENA population, the literature search was expanded to 10 years.

Breast Cancer and MENA American Women

Breast cancer incidence at an advanced stage with metastasis is higher among MENA American women compared to White non-Hispanic and African Americans (Ayyash et al., 2019). Abdulrashid et al. (2019) reports the increased breast cancer incidence may be due to increased oral contraceptive use, opting out of chest feeding, and increased nulliparity at an advanced maternal age among MENA American women. These breast cancer risk factors could be related to many MENA Americans being career-driven and focusing on school and their work/career prior to starting a family.

Modifiable risk factors among MENA American women include increased stress and decreased physical activity, lack of acculturation, and low levels of self-efficacy (Hardan-Khalil, 2020). MENA American women have higher levels of exposure to skin radiation and vitamin D deficiency when compared to White, non-Hispanic women (Abuelezam et al., 2018). In comparison, White, non-Hispanic American women have an increased risk for breast cancer related to increased alcohol use, tobacco use, and estrogen-related hormone therapy.

Breast Cancer Screening

According to the American College of Obstetricians and Gynecologists (2022), the recommended age to start annual mammography screenings for breast cancer is 40 years old. This is the standard used by most primary care, women's health, and obstetrics/gynecological providers. Self-breast exams are no longer recommended by the American College of Obstetricians and Gynecologists (2017) as they may lead to misinterpreted findings in women with an average risk for breast cancer. However, self-breast exams are still encouraged by many

providers and organizations such as the American Cancer Society (2019) as women should be knowledgeable of their breasts and any changes that may occur. In all women, especially those with an increased risk of breast cancer, breast risk assessments, self-breast exams and breast familiarity, and clinical breast exams are highly recommended by the American College of Obstetricians and Gynecologists (2017). The United States Preventive Services Task Force (2016) categorizes mammograms as a grade B recommendation for all women ages 50 to 74 years old, supporting the screening as a benefit to improve quality of health. Additionally, for women between the ages of 40 and 49 the United States Preventive Services Task Force categorizes mammography screening as a grade C recommendation, not as strongly recommended for this age group (United States Preventive Services Task Force, 2016). In contrast, the American Cancer Society (2022) recommends that women start screenings at 45 years old.

Among MENA American women, nearly half have had a mammogram in the past two years, as recommended by the American College of Obstetricians and Gynecologists (Hasnain et al., 2014). Barriers to adherence to breast cancer prevention and mammography screening guidelines mentioned by Hasnain et al. (2014) also include barriers to care (knowledge, cultural, religious, etc.), perceived negative mammography experiences, personal intent to complete mammography, and having a primary care provider. According to Donnelly et al. (2013), one-fourth of MENA women reported breast cancer prevention and screening being discussed with their primary care provider. In a cross-sectional survey study completed by Harper et al. (2022), MENA American women prefer providers of MENA background with the same religion to perform breast cancer screenings in a patient-provider setting. MENA women preferred women

of the same gender to be their health providers (Harper et al., 2022). This gender preference is also present in emergent health situations (Alqufly et al., 2019).

Among MENA American women, nearly half have had a mammogram in the past two years, as recommended by the American College of Obstetricians and Gynecologists (Hasnain et al., 2014). Barriers to adherence to breast cancer prevention and mammography screening guidelines mentioned by Hasnain et al. (2014) include barriers to care (knowledge, cultural, religious, etc.), perceived mammography experiences, personal intent to complete mammography, and having a primary care provider. According to Alatrash (2021), Muslim MENA American women (59.2%) have the lowest mammography screening due to their religious beliefs and fatalism when compared to MENA American Christians (73.8%).

Research about screening related to the genetic risk of breast cancer is limited in the United States. In a study completed in the Middle East, MENA individuals have negative perceived beliefs (i.e., the misconception of it being impermissible) and lack of knowledge regarding the genetic testing (Altaany et al., 2019; Abuelezam et al., 2018; Ayyash et al., 2019). Although no research articles were identified pertaining to MENA American women and breast cancer gene prevalence in the United States, MENA American women residing in the Middle East have a higher prevalence of BRCA2 gene compared to other breast cancer-linked genes and mutations (Abdulrashid et al., 2019).

MENA American women are less likely to complete their preventative screening and mammograms as compared to other minorities, such as African American women and Hispanic/Latino women (Ayyash et al., 2019). Many MENA American perceive there is no need due to lack of signs/symptoms and, therefore the assumption of well-being (Hardan-Khalil, 2020). Other factors contributing to lack of screening include the lack of medical insurance,

limited knowledge of community/health resources, and unknown family history (Ayyash et al., 2019). According to Abuelezam et al. (2018), MENA American women with higher education and who have lived in the United States for an extended time were more likely to participate in breast cancer screening mammograms.

Barriers to Care

Patient-Provider Barriers

According to Atari et al. (2018), nearly eighty percent of Arab Americans report personal experiences of racial profiling and discrimination in the United States. Barriers to seeking screening are related to previous experiences with discrimination and trauma along with the fear of deportation endured by MENA Americans (Abuelezam et al., 2017; Abuelezam et al., 2018; Campbell-Voytala et al., 2019). The result is many MENA American lack trust in health care, fear providers, and perceive discrimination (Campbell-Voytala et al., 2019). Additionally, a lack of culturally competent, sensitive providers has been identified as a barrier to care among MENA Americans (Abuelezam et al., 2018; Campbell-Voytal et al., 2019; Mellon et al., 2013). Additionally, Leh & Saoud (2020) mention that healthcare providers need to identify and become aware of their personal biases and views towards the MENA American population to reduce/prevent barriers to care among MENA Americans and improve patient-family-provider/nurse trust.

Breast cancer education among MENA Americans should be culturally sensitive and tailored to their needs. Alnaim (2019) mentions the lack of culturally sensitive breast cancer education on the internet tailored to MENA women. This is especially detrimental as there are several barriers to MENA women obtaining mammograms and breast cancer screenings, including cultural barriers, support of their spouse, personal education level, religious beliefs

(including fatalism and faith in the higher power) (Abuelezam et al., 2018; Alkhaifi et al., 2023; Mellon et al., 2013).

Cultural and Religious Barriers

There are several cultural barriers to care among the MENA American community, including fear of stigma from other community members (Mellon et al., 2013) and being diagnosis with a stigmatized condition such as cancer (Arshad et al., 2010; Ayyash et al., 2019). This stigma is rooted in cultural perceptions of the fear of the daughters of individuals diagnosed with cancer becoming undesirable for marriage among other MENA-American families in the community (Mellon et al., 2013). Therefore, cancer diagnosis is often hidden from others, including family, to protect against this stigma (Mellon et al., 2013). Many MENA Americans perceive cancer as a communicable if exposed to an individual with breast cancer (Mellon et al., 2013). Invasive treatments pertaining to breast cancer may be perceived as the cause for metastasis or disease advancement (Mellon et al., 2013). If MENA American women have limited awareness of their family history, this may prevent proper screening and health history reporting to their healthcare providers (Mellon et al., 2013). However, Mellon et al. (2013) mention that when a diagnosis of breast cancer is made known to the family, MENA American women have strong family support during their diagnosis and treatment. According to Fritz et al. (2016), the importance of providing patient-family-centered care and a welcoming patient-care environment for MENA Americans are essential in providing care for the MENA American population.

In addition to cultural practices, religious faith and spirituality influence many MENA Americans' perceptions and beliefs. MENA Americans view adequate hygiene practices and proper health maintenance as a fundamental part of religious and spiritual practices (Hardan-

Khalil, 2020). Both MENA American Christians and Muslims have strong practices of spirituality (Alatrash, 2020) and view any condition or event including the diagnosis of breast cancer, as fate from the Higher Power (Abuelezam et al., 2018; Mellon et al., 2013). Furthermore, Hardan-Khalil (2020) reveal that MENA Americans believe death and fate cannot be circumvented and are only controlled by the Higher Power. However, MENA American Muslim women had a higher percentage of early detection as it is a religious belief and a Muslim's religious duty to care for one's body and prevent disease in the Islamic faith (Alatrash, 2021; Padela et al., 2016).

Psychosocial Barriers

Among MENA Americans in the United States, psychosocial barriers to care may include (1) financial, (2) language barriers, (3) lack of transportation to health services, and (4) limited knowledge of or engagement in community health outreach programs/resources (Abuelezam et al., 2018; Ayyash et al., 2019; Mellon et al., 2013; Williams et al., 2011). Limited English language proficiency is an especially significant barrier among non-English speaking MENA Americans (Al-Jumaili et al., 2020). Overcoming these barriers with solutions, such as interpreters for non-English speaking MENA Americans or providing culturally sensitive and congruent care, aims to improve the quality of care among the population (Al-Jumaili et al., 2020).

Breast Cancer Screening Education Interventions Among MENA Americans

Literature on breast cancer education and screening programs pertaining to MENA Americans varies. Group-setting educational sessions featuring breast cancer screenings have been shown to be more effective in increasing breast cancer screening knowledge compared to individual education (Seven et al., 2015). Community-based programs using community patient

navigators have been beneficial in increasing mammography rates among MENA women (Ayash et al., 2022; Rodriguez-Torres et al., 2019). Programs offered in the participants' language improved breast cancer screening awareness (Erenoglu et al., 2020).

Breast cancer screening interventions demonstrated inconsistency with post-intervention follow-up. Studies of breast cancer education among MENA Americans did not specify their time for follow-up regarding self-breast examinations (Ahmad et al., 2022; Arshad et al., 2011). Two cross-sectional studies published by Ahmad et al. (2022) and Shubayr et al. (2022) on MENA women in the Middle East, showed an increased intention in breast cancer screening prevention (i.e., breast self-exams) after the interventions but not a follow-up indicating participation in screening. Guillaume et al. (2022) completed a breast cancer screening intervention using a mammography unit in which follow-up was described but the time frame was not designated. However, Hamed et al. (2022) completed an evaluation of a breast self-examination education program tailored to MENA women in the Middle East four weeks after completing the education session. Nearly half of the MENA women did not complete self-breast exams and around one fifth of the participants did not know of the preventative services provided (Hamed et al., 2022). Hamed et al. (2022) mentions the importance of utilizing community leaders, religious leaders, and policy leaders for breast cancer screening awareness.

Breast cancer screening program recommendations for MENA American and Muslim women include:

1. Delivery of a program that is culturally congruent and sensitive (Fung et al., 2021).
2. Female providers deliver the education (Fung et al., 2021).

3. Include individuals of the same background to mirror the target population (Fung et al., 2021).
4. Address barriers to care and needs through program development (Fung et al., 2021).

This also includes addressing cultural and religious beliefs and misconceptions among Muslim and MENA Americans and educating patients on their right to request a female provider or technician (Fung et al., 2021). These are all important parts of the development of breast cancer screening programs among MENA Americans.

Summary of Literature Review

Themes

The major themes identified in the literature review were (1) the importance of patient-family-centered education, (2) the involvement of the community, and (3) providing culturally sensitive care to prevent barriers within the MENA American population.

Limitations

While reviewing the literature for this proposal, there were no articles identified demonstrating the use of advanced practice nurses, registered nurses, and nurse practitioners among MENA Americans in the United States. Most articles reviewed utilized physicians and community health workers among the MENA American population in the United States. Therefore, the importance of understanding the significance of nurse practitioner-led community health education regarding breast cancer screenings and the intent of MENA American women to complete these screenings is very much needed within the community.

Organizational Assessment

Community Center Background

Hype Athletics is a local community center that aims to serve the diverse community of the Detroit Metropolitan area. Hype Athletics' mission "is to create and strengthen infrastructures that support the positive development of Wayne County youth through athletic participation and competition, educational tutoring and literacy development, and social awareness including mentoring, counseling, life skills training and substance abuse education and prevention" (Hype Athletics, n.d.a.). Key values identified by leadership include respect, engagement, community, innovation, and change (Hype Athletics, n.d.b.). They provide gym facilities, exercise programs/classes, and host cultural and school events to provide a safe and friendly environment for their members and the community they serve (Sayed, 2023). Additionally, resources provided within Hype Athletics include amenities, community/cultural/social events, exercise and self-defense classes, community scholarships, and food drives (Sayed, 2023).

A meeting with Hype Athletics leadership revealed that HYPE serves over 230,000 individuals annually between three locations in Wayne County, Michigan (Sayed, 2023). The gender percentages of members in the central locations are the following: Dearborn Heights (9200 individuals: 53% women; 47% men), Wayne (3000 individuals: 51% women, 49% men) (Sayed, 2023). However, the number of participants each year is Dearborn Heights (100,000 participants), Wayne (60,000 participants), and Belle Isle (20,000 participants) (Sayed, 2023). Hype athletics does not collect data on race, ethnicity, religion, or occupation (Sayed, 2023). Please refer to Appendix A for a SWOT analysis diagram.

Strengths

Strengths and advantages Hype Athletics holds include providing a wide variety of services to the Dearborn/Dearborn Heights area and surrounding areas in the Detroit Metropolitan area. Additionally, Hype Athletics strongly focuses on prevention through

education, wellness, physical activity, and nutrition. This incorporates a holistic view of health, including physical, mental, spiritual, social, occupational, and environmental health. Hype Athletics provides discounted rates, which makes physical activity and access to a gym more accessible (especially for women members). Leadership at Hype Athletics stated that their greatest achievement includes establishing a strong community of members that feel safe and empowered and bettering their health (Sayed, 2023).

Weaknesses

The leadership at Hype Athletics identified that a significant weakness regarding disease prevention education among the MENA American community available at the center. There is limited understanding by staff of the challenges facing MENA Americans in the community, as well as awareness of breast cancer screening guidelines.

Opportunities

Opportunities for growth within the organization can be accomplished through providing disease prevention education and establishing preventive health services (Sayed, 2023). The organization (Hype Athletics) intends to add walk-in health care services within the next two years. There are many clients within the Detroit metropolitan area who would utilize the services because they are limited in the community. Leadership also identified a need for disease prevention education specifically tailored to females by many health providers in the community. This includes that many of the community providers are male and may have their own cultural barriers preventing discussions with females about preventative screening. Leadership of Hype Athletics is committed to offer breast cancer prevention programs and services that are convenient and accessible to the MENA American community (Sayed, 2023).

Threats

Threats to Hype Athletics includes lack of knowledge and cultural acceptability regarding preventative screenings among their MENA American members. Robust advertisement and engagement will be required to encourage their members to participate in preventative education, yet there are limited resources in the community. There is a lack of health providers to effectively offer the education and services needed to encourage members to seek wellness (Sayed, 2023).

Cost Effectiveness

Hype Athletics is committed to decreasing the incidence of breast cancer diagnoses in the community. There will be a cost associated with providing educational programming and follow-up, to increase participation in disease preventative screenings (Sayed, 2023). Prevention and early detection are more cost-effective than treatment. Survival rates are ninety nine percent for five-year survival rate if breast cancer is detected early (National Breast Cancer Foundation, n.d.). Furthermore, nearly $100,000 will be saved per cost of quality adjusted life years related to early detection of breast cancer and treatment (Jayasekera & Mandelblatt, 2020).

Project Purpose

The purpose of this program development and evaluation was to improve breast cancer screening practices among MENA American women. The aims of the program included the following: (1) to understand the needs, barriers, and self-efficacy of MENA American women and breast cancer screenings, (2) to provide MENA American women with a culturally sensitive breast cancer screening education program, and (3) to determine the effectiveness of breast cancer screening education in the uptake of breast cancer screening. This project included a needs assessment, the pilot education session, follow up to determine participation in screening, and an evaluation of the program with recommendations for the breast cancer screening program continuation for the organization. After these concerns were addressed, there was an increase in

MENA American women's understanding and intent in obtaining preventative breast cancer screenings. Therefore, this program offered enhanced patient outcomes and quality of care.

The goals for this project were to (1) improve acceptability and motivation for mammography screening and (2) improve knowledge pertaining to the importance and frequency of breast cancer screening. The objectives included the following: (1) 75% of participants will indicate that they will go to their primary care provider for a mammography referral by the end of the educational session, (2) 75% of participants will report obtaining a referral for mammography at four weeks after completion of the intervention, and (3) 75% of participants will report completed self-breast exams at home four weeks after completion of the intervention.

For this program development and evaluation, the Center for Disease Control and Prevention (2018) logic model was used to guide the project, which encompasses six parts: (1) inputs, (2) activities, (3) outputs, (4) outcomes, (5) impacts, (6) moderators. Refer to Appendix B for the logic model.

The inputs for this project include the materials used (i.e., paper, ink, computers, printers, projectors, models/activity supplies used, etc.), and human resources (lead of this project and personnel at the site). The project activities included a needs assessment, pilot program (breast cancer screening education sessions), program evaluation using pre and post surveys and follow up phone calls. The outputs included a breast cancer screening education sample program plan (sustainability), letters to primary care and obstetrician gynecologist (OBGYN) offices (dissemination), social media involvement (dissemination and sustainability).

The outcomes included participants who reported

- an intent to schedule an appointment breast cancer preventative screenings, complete self-breast exams (initial outcome)

- participation in preventative practices and screenings (self-breast examinations, clinical breast exams, and/or mammograms) by the four/six/eight week follow-up (intermediate outcome)
- completion of their preventative screening (self-breast examinations, clinical breast exams, and/or mammograms) within eight weeks of completing the pilot program session (long term outcome).

The impact of this program among MENA Americans is to detect breast cancer earlier through increased participation in breast cancer screening . Additionally, there is a significant impact on the overbearing cost of cancer treatment detected later in the disease process compared to detection earlier through cost-effective preventative screening. Contextual factors include participant cultural beliefs, gender issues, participant religious beliefs/practices, political events, and environmental (weather changes).

This program development and evaluation program development and evaluation project aims to improve provider and community leader communications regarding patient preventative screening and women's health within the MENA American community. Please refer to Appendix C for the FISH diagram.

Theoretical Framework

The theories applied to the phenomenon of interest and the patterns of knowing (aesthetic, ethical, emancipatory, personal, empiric) in a community-based program or primary setting include the (1) Purnell model of cultural competence, (2) Neuman systems model, (3) the transtheoretical model of change, and (4) Health Belief Model. The application of these theories will focus on advanced practice registered nurses, the MENA American women population, and breast cancer screening.

The Purnell Model of Cultural Competence

According to the Purnell model of cultural competence, this theory aims for the provider to understand better and respect a patient's background/culture to deliver culturally sensitive treatment and care (Purnell, 2018). Purnell acknowledges that cultural beliefs and care are complex and include practices, values, and beliefs that are subject to change due to life and personal experiences (Purnell, 2018). This is also similar to understanding the strong dynamics among families and communities in MENA Americans (Mellon et al., 2013). Furthermore, Chinn & Kramer (2011) mention the importance of providers (i.e., nurse practitioners) to become knowledgeable of basic cultural and religious practices within the community they serve, such as the MENA American population in the Detroit Metropolitan area. Nurse practitioners should practice emancipatory knowing, which requires them to understand the origins of barriers related to societal, political, and health injustices and disparities in the community they serve (Chinn & Kramer, 2011). One example is healthcare providers understanding their biases and behaviors before caring for a MENA American patient population to prevent barriers of lack of trust and possible perceived discrimination hindering care (Atari & Han, 2018). Additionally, Purnell (2018) advanced practice nurses and nurse practitioners should not practice negative and condemning attitudes towards the patients, caregivers, families, and communities they serve. The lack of patient-family centered, culturally competent, sensitive care towards a population could lead to "cultural conflict, noncompliance, stress, and ethical or moral concerns" (Purnell, 2018, p.572).

As a form of personal knowing, providers and nurse practitioners should understand that the patient population served (i.e., MENA Americans) may not practice the same culture and beliefs as they do, and they must be comfortable in providing exceptional care to aid in wellness

and healing (Purnell, 2018). Also, as an advance practice nurse, one must tailor the care of their patients to their specific needs, considering their personal cultural practices and beliefs (Purnell, 2018). Therefore, a nurse practitioner must assess a patient's personal and cultural beliefs when caring and treating MENA American patients as the MENA region is complex and has a variety of cultural/ethnic backgrounds. In the case of this program development and evaluation program development and evaluation project, this should also include understanding cultural needs pertaining to females and gender-specific needs within the MENA American community. An example of this is providing a female provider to complete preventative screening education. This can be done by adjusting care to meet the patients' needs and improve the patients' quality of care (Purnell, 2018). This program development and evaluation program development and evaluation project are a main part of achieving breast cancer screening and mammography intent among MENA Americans. By incorporating aspects of the Purnell model, it aims to provide culturally sensitive care and incorporate patient culture, values, and beliefs to increase knowledge of breast cancer screening and treatments (if needed) among MENA American women.

The Neuman Systems Model

The Neuman Systems Model focuses on a participant's holistic health and prevention (primary/secondary/tertiary), which includes physical, mental, developmental, societal, cultural, and spiritual (Whetsell et al., 2018). According to Whetsell et al. (2018), there are four main parts to the Neuman Systems model: (1) patient/individual, (2) overall holistic health and wellbeing, (3) environment, and (4) nursing. This theoretical model is applicable to this breast cancer screening education proposal and MENA Americans. Overall, the sense of holistic care and well-

being with family support is a strong contributor to the MENA American population (Mellon et al., 2013).

Community-based programs that offer primary and secondary prevention education should offer services in disseminating information, educating on maintenance of breast cancer screenings/mammograms, and performing outreach to the MENA American population (Campbell-Voytala et al., 2019; Whetsell et al., 2018). Therefore, a community-based research participation should include the following: (1) involve stakeholders, (2) recruiting MENA American participants in person, and (3) involve lead stakeholders including trusted community members/leaders (including religious leaders) (Campbell-Voytala et al., 2019). Religious and respected community leaders can serve as resources to address perceived thoughts MENA American women may have (Campbell-Voytala et al., 2019). Therefore, including spirituality and religious practices, including prayer, among the MENA American population is essential to reduce stress and worry related to fears related to screening, whether related to a possible diagnosis or not, within a community health education-led program on breast cancer by a nurse practitioner.

Transtheoretical Model of Change

According to Prochaska & Velicer (1997), the transtheoretical model of change includes the following steps: (1) pre-contemplation, (2) contemplation, (3) preparation, (4) action, (5) maintenance, and (6) termination. Participants can move up or regress throughout the stages, and often, education and possible perceived thoughts and barriers will need to be assessed and addressed. This is usually done through long-term care in a primary care office. The significance of incorporating the transtheoretical model in this breast cancer screening education allows the nurse practitioner to understand the significance of the education and the intent of participants to

complete the breast cancer screening. It will also serve as an indicator to better understand if collaborating with breast cancer screening services or breast cancer screening education/screenings will be necessary to include in the organization's future health services offered.

Health Belief Model

The needs assessment in the pilot program will use the Health Belief Model. The health belief model focuses on exploring the following constructs to determine the means of behavior and behavior change: (1) perceived risk severity susceptibility, (2) perceived risk susceptibility, (3) perceived barriers, (4) perceived benefits, (5) cues to action and (4) self-efficacy (Jones et al., 2015). Understanding these constructs in the health belief model allowed for a better understanding of MENA American women's needs and the best delivery method of this pilot program. This will aid in a pilot program that is tailored to the population with a focus on health promotion among the MENA American population and educate participants on breast cancer screening.

Implications of the Theoretical Framework

Purnell's model of cultural competence, Neuman's systems model, the transtheoretical model of change, and the health belief model models all illustrate the unity of (1) cultural competence and sensitivity, (2) community involvement, (3) the aim of improvement of health outcomes, (4) perceived barriers to breast cancer screening, cues to action, and self-efficacy, and (5) an illustration of participant intent of behavior change. This breast cancer screening education aims to include many aspects of the community including nurse practitioners, individuals/patients, community leaders, and organizational leadership. This aims to understand the participant intent after nurse practitioner-led breast cancer screening. It also aims to provide

the patient's primary care provider with information on the session and contact for follow-up or questions as needed. As this is a pilot study, this program development and evaluation program development and evaluation project aims to provide significant cost-effective savings related to preventative education and women's health among the MENA American population.

Methods and Design

Ethical Consideration

Institutional Review Board (IRB) approval from the University of Detroit Mercy was approved. Hype Athletics does not have an IRB board; therefore, a letter of intent approving the program implementation and evaluation was obtained from the organization, Hype Athletics (see Appendix D). All required collaborative institutional training initiative (CITI) training and modules were completed by the project lead. Participants were provided with an information sheet (Appendix E) regarding the project and their consent was obtained with the survey. The surveys are confidential and anonymous, and the information collected did not include any participant identifiers.

Survey Development

The survey tool(s) used for this program development and evaluation program project include online surveys completed on the participant's phone using a QR code at the end of the education session. This survey was completed using the Survey Monkey website. If the participants' phones did not process or scan QR codes, a paper version of the survey was provided. There was no need to translate this education session and its materials as the participants needed to have beginner proficiency in English to complete the surveys. Refer to appendix F for applicable QR codes, pre-survey, and post-surveys.

Setting

The project was completed at Hype Athletics, a community center in the Detroit Metropolitan area. Hype Athletics serves ten thousand members in a diverse group of communities of all backgrounds. Additionally, Hype Athletics is dedicated to improving the health practices of their members and communities they serve.

Participants

Participants were members of the MENA American community, females ages 30-75 years old. Initially, the participant age group was aimed to be between 39 and 75. However, after completing the needs assessment, talking with MENA women and stakeholders, the participant age range was expanded to 30 to 75 years old. The goal is a minimum of 10 participants, which was surpassed at 15 participants. Voluntary enrollment was completed in a conference room at Hype Athletics. As mentioned previously, consent was not needed; however, participants of the education session were presented with the research information sheet regarding the education and program development and evaluation session (please refer to Appendix E for the research information sheet). Methods of recruitment included informational flyers disseminated throughout the women's gym and the main area and in-person invitations that encouraged participants to invite others.

Intervention

The breast cancer education screening program was designed to improve breast cancer screening among MENA American women. The pilot program included the following components: (1) needs assessment, (2) breast cancer screening education sessions, (3) evaluation of the program including participant appraisal of the education session, uptake of breast health screening (completing self-breast exams and having an appointment for clinical breast exam and

mammogram screenings, (4) recommendations for future implementation at Hype, and (5) distribution of informational letters to the participants' primary care and OBGYN providers.

Needs Assessment

The needs assessment was completed in two group sessions. This group session lasted approximately an hour, and refreshments were served. The participants were members of the organization and met the criteria for this pilot program. MENA American women community members were encouraged to participate. Using the health behavior model, the group session and conversation was led with questions that assessed the participants' perceived attitudes, behavioral norms, and social/cultural/religious norms, as well as practices regarding breast cancer prevention, and perceived barriers to breast cancer screening. Although participants spoke English, some conversational input was in Arabic, to allow participants to feel more comfortable discussing sensitive topics. The facilitator was proficient and fluent in both English and Arabic. Please see Appendix G for the conversational template used during the needs assessment.

Themes were extracted from the verbal responses provided by participants in the group session. The breast cancer education session was created and tailored according to the literature review and barriers identified earlier in this paper along with the needs assessment. Participants in the needs assessment were not obligated to attend the education session but encouraged to do so.

Breast Cancer Screening Education Sessions

There were two educational sessions in one week, and 15 participants attended the education sessions. The presentation was offered in English using an outline and talking points for the speaker if a projector and screen were not available. Although the participants were proficient in English, they were encouraged to communicate in English or Arabic to aid support

cultural sensitivity of this pilot program. The lead of the program providing the educational content is fluent in both English and Arabic.

The main topics discussed were (1) breast cancer risk factors, (2) breast cancer signs, (3) the importance of preventative screening, (4) how to perform self-breast exams, (5) the importance of faith for optimal wellness, and (6) importance of family/community for overall health. Refer to Appendix H for the outline of the presentation. Pre- and post-surveys were completed by the participants during this educational session. Participants were given a letter of completion to take to their primary care provider informing them of participation in and details about the breast cancer screening education session (please refer to Appendix I for a letter to the provider).

Measures, Tools, and Instruments

The evaluations were completed with a pre-survey and post-survey survey before and at the end of the educational session using QR code-linked surveys. Surveys were collected using the Survey Monkey site (Appendix F). At the end of the educational session, participants were provided with a letter to take to their PCP regarding the screening provided and to provide the patient with a breast cancer screening referral per guidelines (Appendix I). If the participants' phones did not process QR codes, a paper version of the survey was available. This did not need to be used as all participants' phones processed QR codes.

After the breast cancer screening education program, participants were contacted by telephone at four weeks, six weeks, and eight weeks after the educational session. The follow-up questions included topics on (1) scheduling an appointment with the primary care provider, (2) completing breast self-exams at home, (3) their perceived thoughts and benefits regarding the

program, and (4) open-ended participant's input to improve the program. Participants were asked questions as indicated in the template in Appendix K.

The results of the breast cancer screening follow-up were indicative of the benefit and need for pilot breast cancer educational programs in the MENA American community. Refer to appendix L for follow-up results.

Data Analysis

The effectiveness of the education program was determined by surveying participant knowledge of and participation in breast cancer screening measures (self-breast exams, appointments for clinical breast exam with PCP, and mammogram appointments). Pre- and post-surveys as well as 4-, 6-, and 8-week follow-up calls were utilized. There were seven groups of data analyzed: (1) demographics, (2) current practices, (3) knowledge, (4) perceived beliefs, (5) perceived barriers, (6) self-reported breast cancer screening behaviors, and (7) participant satisfaction. The demographic data was analyzed using descriptive statistics. A Likert scale was used to collect data for pre- and post-surveys. Quantitative results were analyzed using the survey monkey analysis feature, which includes an illustration of the results presented. A thematic analysis could not be used as many of the participants did not leave responses to the open-ended questions on the surveys.

Results and Findings

Pre-Survey Results

Pre-surveys were collected before the education program session was delivered. Fifteen members participated in the educational pilot program. A complete table of all the results is included in the Appendix J. Demographics collected included (1) age, (2) educational level, (3) religion, (4) marital status, (5) employment, (6) ethnic background, (7) health insurance, (8)

residing county, (9) personal history of breast cancer, (10) family history of breast cancer, (11) being established with a primary care provider, (12) primary care provider ethnic background, and (13) gender of primary care provider. The age of the participants ranged from 30 to 69 years old as 40% of the participants (n=6) were between 30 and 39 years old, 20% of participants (n=3) were between 40 to 49 years old, 20% of participants (n=3) were between 50 to 59 years old, and 20% of participants (n=3) were between 60 to 69 years old. None of the participants were over 70 years old.

Participants highest level of education ranged less than high school to a master's degree. The majority of participants had some college education (26.67%, n=4). Other responses included bachelor's degree (20%, n=3), high school (13.33%, n=2), associate's degree (13.33%, n=2), and master's degree (13.33%, n=2). Half of the participants reported being employed (50%). The majority of the participants were Muslim (93.33%, n=14). Most of the participants were married (60%, n=9), followed by divorced (33.33%, n=5), and then single (6.67%, n=1), respectively. The majority of the participants' ethnic background was from Lebanon (57.14%, n=8), followed by Yemen (14.29%, n=8), Iraq (7.14%, n=1), Egypt (7.14%, n=1), Jordan/Palestine (7.14%, n=1), and Algeria (7.14%, n=1). Almost all the participants (n=14, 93.33%) in this pilot program had health insurance and all participants resided in Wayne County. Most participants reported no personal history (n=13, 86.67%) and family history (n=9, 60%) of breast cancer. Of the participants that reported a family history of breast cancer (n = 6, 40%), they were mother (n=2), maternal aunt (n=2), maternal Grandmother (n=1), paternal grandmother (n=1), and maternal cousin (n=1). Nine of the participants did not answer this question. Over 85% (n=12) of participants had a primary care provider and 60% of participants (n=9) reported their primary care provider is of MENA American background. The majority of

participants reported their primary care provider is female (n=11, 73.33%) compared to male (n=4, 26.67%).

Regarding clinical breast exams being performed by primary care providers at annual wellness visits, many participants reported they were completed (n-9, 60%), compared to not being completed (n=4, 26.67%) or unsure (n=2, 13.33%). Participants' responses regarding comfort with their primary care provider completing their clinical breast exam ranged from strongly agree (n=8, 53.33%), agree (n=5, 33.33%), disagree (n=2, 13.33%). There was a difference between clinical breast exams and mammography screening, with 20% of participants (n=3) reporting they always received mammography screening around the time of their annual Wellness exam. Furthermore, 40% of participants (n=6) reported they strongly agree with the importance of mammography compared to 40% agreeing (n=6) and 20% disagreeing (n=3) with this statement. Participants reported being mostly comfortable performing their own self breast exams (strongly agree n=2 13.33%; agree 60% n=9), with some not being comfortable (n=4, 26.67%). Nearly half of participants reported their religious beliefs limit their comfort with getting a mammogram (strongly agree n=1, 6.67%; agree n=6, 40%). Additionally, around half of participants (strongly agree n=2, 13.33%; agree n=6, 40%) reported knowing how an abnormal breast lump feels. Over half of participants (disagree n=6, 40%; strongly disagree n=2, 13.33%) reported not performing self-breast exams.

Post-Survey Results

The post survey results obtained immediately after the education session demonstrated increase in knowledge overall on subjects regarding mammography, self-breast exams, beliefs regarding importance of receiving preventative screening, comfort of health provider completing breast exam and the participant knowledge of abnormal lumps in breast. The majority of

participants (86.67%) indicated they will be contacting their primary care provider for a mammogram referral. All participants indicated they will complete routine self-breast exams. Almost all participants (93.33%) indicated they will get a mammogram and clinical breast exam around the same time as their annual wellness exam every year and believe it is important to get both for breast cancer screening. All participants indicated they will be comfortable with their healthcare provider completing their clinical breast examination. Almost all participants indicated they are comfortable doing and intend to complete self-breast exams (93.33%), and all reported they knew how an abnormal lump feels. For the majority of participants (93.33%) the educational session was beneficial with 100% of them agreeing that the style and method of delivery was engaging.

Follow Up Results

Follow-up for this pilot education program was at four, six, and eight weeks after the program was completed through phone calls. Out of the 15 participants, 12 participants responded by the end of the eight-week follow-up period. Most participants (58.2%) stated they strongly agree that the educational program increased their knowledge and their willingness to participate in routine breast cancer screening. The majority of participants indicated they found the class easy to understand and were comfortable discussing information with the female health provider who instructed the breast cancer education screening class. By the end of the eight week follow up period, most of the participants indicated they had scheduled an appointment for a clinical breast exam (83.3%) and a referral for mammography (75%). The majority of participants indicated they found the materials were beneficial in increasing their understanding of breast cancer prevention. Over 80% of participants indicated they are completing self-breast cancer examinations at home and comfortable doing them. Most participants indicated they

would find a Facebook page about breast cancer risks and screening beneficial. All reported they found the program beneficial and that they do not need to find a primary care provider.

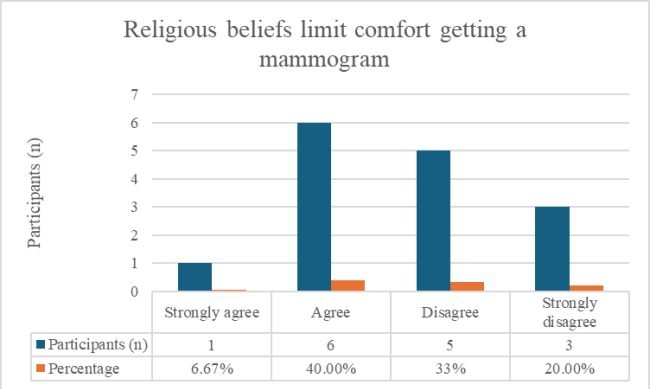
Respondents also indicated they enjoyed several aspects of this course, which included (1) women exclusive session, (2) privacy and ability to talk about sensitive topics, (3) the presenter's personality and the engaging way the information was presented, (4) a sense of community and familiarity during the session, and (5) hearing stories from other women younger and older than me with breast cancer scares or diagnoses. Areas of improvement indicated by participants verbally throughout the course of the program included (1) arrange for a breast cancer dedicated event on a larger scale, (2) have a breast cancer patient or survivor speaker to tell their story, (3) offer clinical breast exam program for MENA American women with MENA nurse practitioners as one of the new health services at Hype, and (4) the QR codes on education materials were confusing.

Discussion

The findings in the literature supported the need for this community-based program in the MENA American community. Strengths of this pilot program reported by participants include: (1) women lead and exclusive, (2) ability to privately discuss ideas and concerns, (3) hearing stories from other individuals diagnosed with breast cancer or with diagnosis scare, (4) presenter was personable and engaging, and (5) feeling a sense of community.

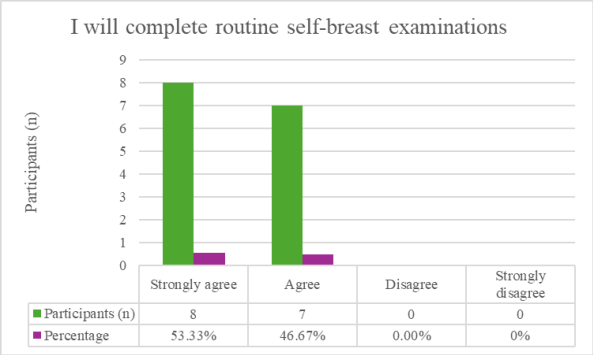
Limitations may include (1) timing of educational session time offered, (2) not including religious leaders, (3) lack of financial compensation. The educational sessions were offered shortly after the Islamic holiday and celebration of Ramadan and Eid Al-Fitr. Another limitation may have been the lack of a religious leader, preferably female, as a part of the education session. The leader would reinforce that it is permissible for females to have breast examinations

completed by male providers when medically necessary and a female is unavailable. However, due to the timing of the program community religious leaders in the community were unavailable. Although mentioned by the presenter during the educational session, many participants indicated discomfort getting a mammogram due to their religious beliefs. Future programs will need to focus on the difference between religious and cultural beliefs and practices among MENA Americans.



After completing the educational session, many participants mentioned there would have been increased participants if an incentive encompassing financial compensation was provided. During the education session, refreshments were provided along with a voucher for a smoothie. This feedback should be considered for future offerings.

Upon review of the data during analysis, there were two similar post– survey questions: question 3 and 12. One of the questions used the term regular self-breast examinations and the other used routine self-breast examinations. Both showed an increase in knowledge during the post test, but only one of them will be needed in future work.



The program was tailored towards MENA American women between the ages of 30 and 75 years old who are part of the MENA American community and are involved in activities at Hype Athletics. The health beliefs of this population might have been influenced by the setting, which is designed to support health promotion activities and offers a female only gym. It is also important to consider that all were insured and therefore had access to screenings. Expanding surveys to include health beliefs and activities should be considered in the future. Providing the program in other community settings, such as religious leaders and/or to those with limited access to care may have a different impact.

Implications for Practice

Community-based participatory programs incorporating nurse practitioners and other advanced practice registered nurses using a culturally sensitive approach among the MENA American population are needed. The presentation to the Hype Athletics board was impactful, as it represented a successful partnership between business leaders and health care providers to address the health needs of the community. The project supported the leadership's plan to start preventative health clinical services for underserved individuals in the next two years. In addition to enhanced breast cancer screening uptake, the project improved awareness of the role of nurse practitioners in the local MENA American community and at the broader public health level. Many MENA Americans and some of their providers may not understand the role of

APRNs in their health care. A key aspect of the project included letters about the education session that were disseminated to primary care and OBGYN offices throughout the local MENA American community. These brought awareness to the importance of breast cancer screening for both participants and their providers, while increasing the visibility of the APRN role. Future dissemination of the program may include presentations at professional conferences and to civic leaders, along with engaging with legislative leaders and policy makers to enhance visibility and inclusion of the MENA population.

Sustainability

Breast cancer is a leading cause of cancer death and an important health topic for all women, regardless of age, race, or ethnic background. Due to the importance of addressing the unique cultural and religious needs of the MENA American community that are barriers to screening, it is essential this project is sustained after it is completion. Sustainability includes: (1) breast cancer program sample plan, (2) dissemination of the education program to primary providers, (3) continuation of APRN lead education sessions with the organization, (4) a social media page open to all members of Hype Athletics and the MENA female community, and (5) a community event featuring breast cancer screening education as well as a breast cancer survivor.

Breast Cancer Sample Program Plan

A presentation of the program, results, recommendations was given to stakeholders and leaders of the community organization on July 18, 2024. The benefits of health education sessions for the business's development and expansion of health services were also discussed. Lastly, a sample program plan was discussed with leadership at Hype Athletics. The topics discussed included (1) materials and equipment which may be needed (i.e., advanced practice providers, support staff, social worker, educators), (2) different methods to deliver this program,

(3) recruiting more Hype members through offering comprehensive community services, (4) expanding community partnerships to improve access to women's health promotion activities, including breast cancer screening education.

Dissemination of Education Program to Primary Providers

The dissemination of information from this pilot program demonstrates strategies to encourage community providers to contribute to health screening uptake. These include letters for participants to present at their primary care provider or OBGYN office when they schedule their clinical breast exam and/or obtain a mammography referral (Appendix I). A second letter with outcomes and recommendations of the program was sent directly to local primary care and OBGYN offices (Appendix I). This letter included (1) an overview of results and (2) recommendations regarding the treatment/care of MENA (Middle Eastern North African) American women. By increasing collaboration among local businesses, community centers, and health care providers, the importance of health screenings are emphasized to patients seeking care.

Continuation of Involvement in the Community Organization

The lead of this program will continue providing educational and preventative education at Hype Athletics, having demonstrated effectiveness during the pilot phase. Furthermore, this will be achieved while collaborating with the advanced practice provider offering preventative health services at the site in the future.

Social Media

A social media Facebook page acts as supporting material to the sustainability parts noted above and was created with discussions and videos regarding breast cancer prevention and screenings (Appendix N). These videos were completed in both English and Arabic. Even though

the participants may be fluent in English, having videos available in Arabic, enhances the cultural sensitivity of the education to MENA Americans interacting with social media.

Conclusion

Nurse Practitioner Care

Advanced practice registered nurses (APRNs) including nurse practitioners (NPs) have the potential to positively influence preventative health participation in communities. This project demonstrated the effectiveness of NP led culturally sensitive education and support to enhance health screening participation in a vulnerable population. Expanding the education program to include preventative screenings by APRN's in the community setting has the potential to improve outcomes through earlier breast cancer detection and treatment. APRNs are poised to address health care disparities among vulnerable populations, including MENA Americans.

Considerations to MENA Americans: A Vulnerable Population

In order to better understand the health promotion needs of the population, current efforts that advocate for MENA American representation in health care research and health promotion policies is needed in the United States. Providers and APRN's are encouraged to be of the same race/ethnic background to encourage MENA American participation as demonstrated in the doctoral project. Preventative screening education should be provided by APRNs of the same gender to provider culturally sensitive care tailored to the MENA community. Language and cultural barriers should be taken in consideration to encourage engagement. Future programs should tailor health education and APRN care towards the individualized ethnic group practices of MENA Americans.

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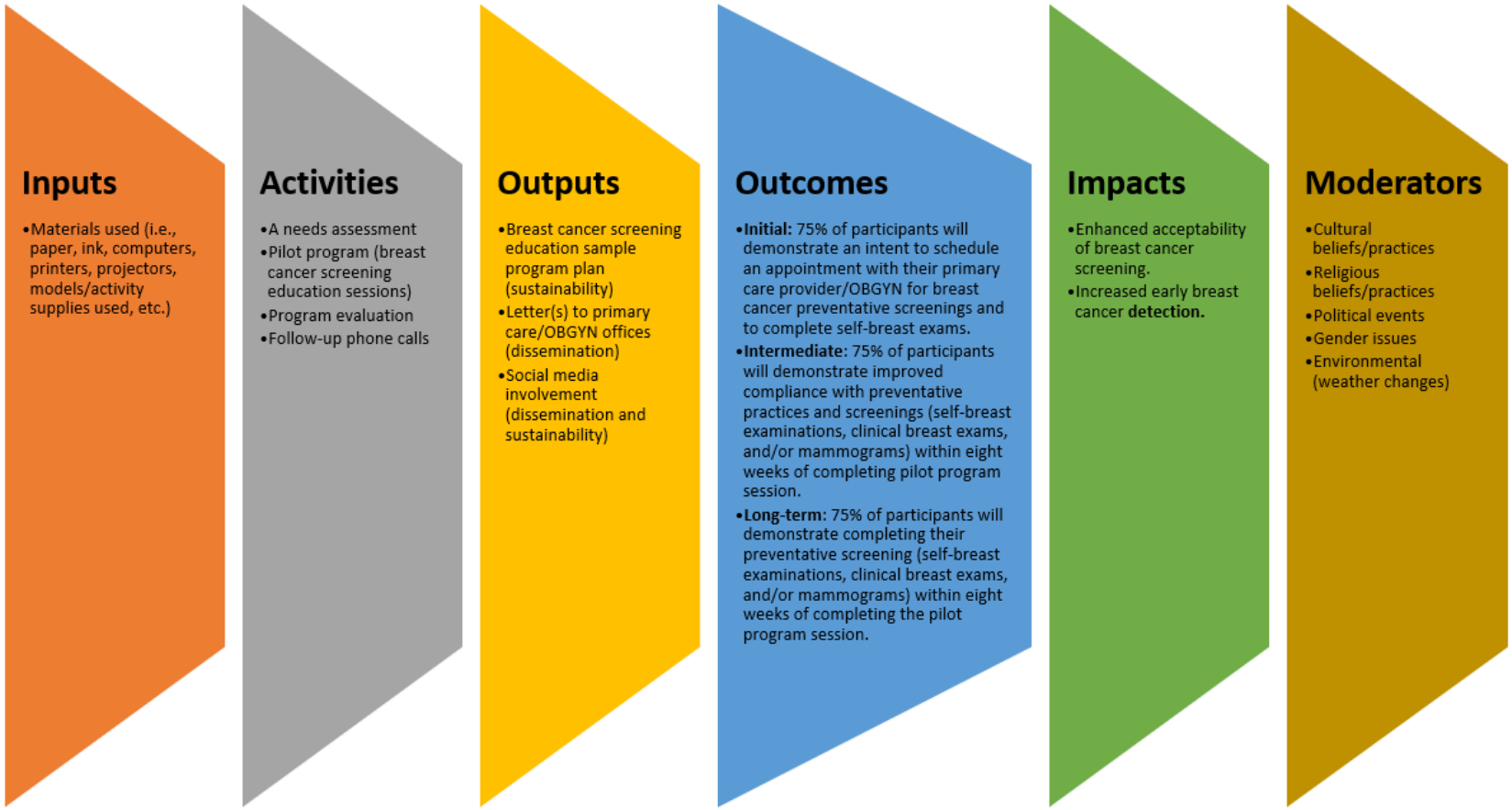
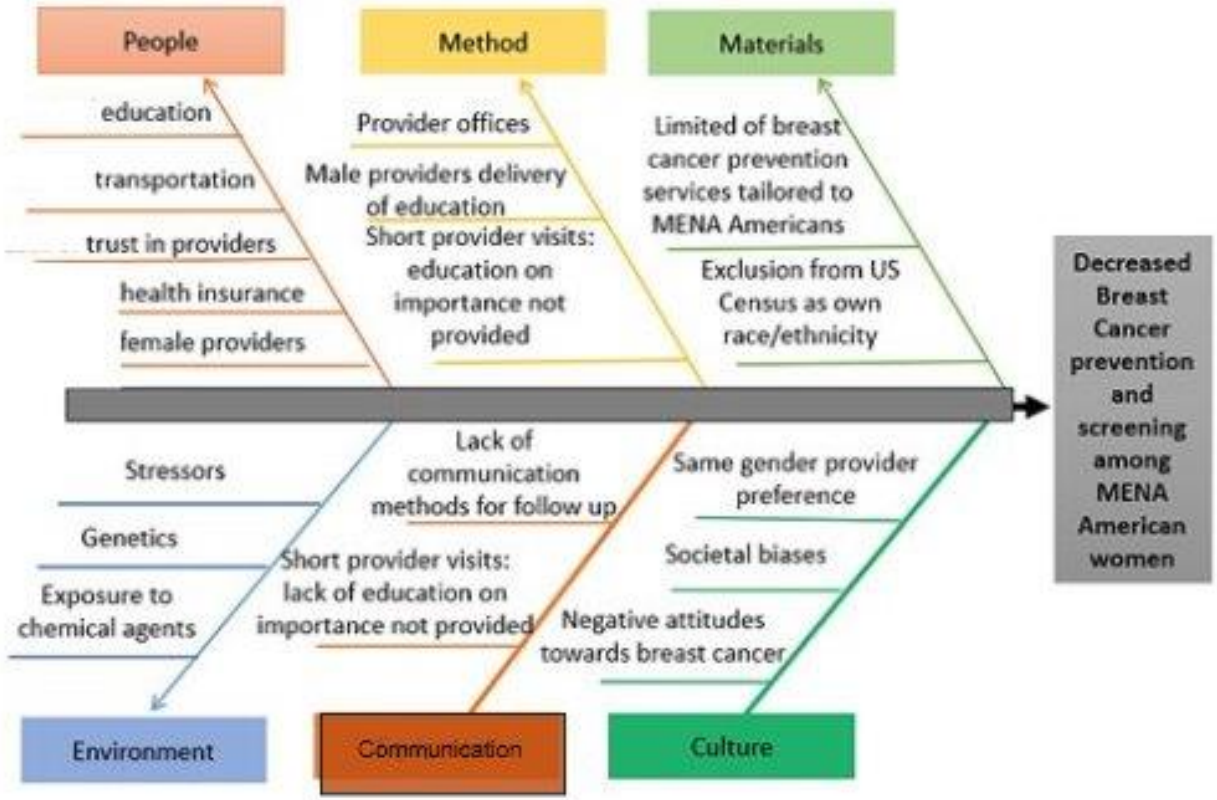
Appendix A: SWOT Analysis

S	W	O	T
• Provides wide variety of services • Disease prevention driven • Discounted membership rates • Empowerment of members to take lead in their health	• Lack of disease prevention education in the MENA community • Possible lack of understanding of MENA related barriers from staff of non-MENA origin • Lack of staff awareness of breast cancer guidelines	• Establishing disease prevention services • Disease screening services tailored to women, breast cancer screening and prevention. • Including more female providers to lead or provide preventative screening education and services to MENA American women.	• Lack of knowledge and cultural acceptability among the MENA American community regarding preventative screenings.

Appendix B: Logic Model



Appendix C: Fish Diagram



Appendix D: Letter of Intent from Hype Athletics

Hype Athletics
23302 W. Warren Ave.
Dearborn Heights MI

November 30, 2023

University of Detroit Mercy
Institutional Review Board (IRB)
4001 W McNichols Rd
Detroit, MI 48221

To whom it may concern,

Please accept this as a formal letter of agreement and support having Noor Khalil complete her Doctor of Nursing Practice project at Hype Athletics. Her Doctor of Nursing Practice project will focus on preventative screening education among the women at our organization. This has been identified as a need in our organization. Noor is welcome to complete all parts of her Doctoral project including recruitment, implementation, and evaluation at Hype Athletics. We acknowledge our members and organization's cooperation is voluntary. We welcome Noor to complete her Doctor of Nursing practice project at Hype Athletics.

Sincerely,

Ali Sayed
Founder / CEO
HYPE Athletics Community
SAFE Substance Abuse Coalition

Appendix E: Research Information Sheet

Research Information Sheet: University of Detroit Mercy
Title of Study: Breast Cancer Screening education among MENA American Women

Principal Investigator (PI): Noor Khalil, Doctor of Nursing practice student
School and Department/Division: University of Detroit Mercy, College of Health Professions & McAuley School of Nursing

Purpose of the Study
The purpose of this program development and evaluation project is to improve MENA American women participant motivation and knowledge regarding the importance of breast cancer screening per guidelines.

Study Procedures
You will take part in the project, by attending one breast cancer screening education session that will last for approximately one hour. This session may be provided virtually as an alternative mode of delivery, rather than in-person educational sessions, may be considered if weather restrictions are present for two consecutive scheduled sessions. As part of participation, you will complete a survey before and after the educational session. Between 4, and 8 weeks after the education session, you will receive a follow up phone call from the project lead about the education program. Participation is entirely voluntary, and you may withdraw from the project at any time with no penalty to you.

Potential Benefits
Although you may not receive direct benefit from your participation in this study, others may ultimately benefit from the knowledge obtained in this study.

Foreseeable Risks
This project is unlikely to have more than minimal risk, or any risk greater than that encountered in your routine daily activities.

Costs to You
There will be no costs to you for participation in this research study.

Compensation
If you are part of this study, you will receive no compensation or payment.

Confidentiality
You will not be identified in any reports on this study. Results of the study will be reported in aggregate form only. Records will be kept confidential to the extent provided by federal, state, and local law. However, the Institutional Review Board, the sponsor of the study, or university and government officials responsible for monitoring this study may inspect the records.

Questions:
If you have any questions about this study now or in the future, you may contact Noor Khalil, Doctor of Nursing Practice student, at the following phone number (313) 451-3452. If you have questions or concerns about your rights as a research participant, Elizabeth Hill, Interim Chair of the Institutional Review Board can be contacted at hillelm@udmercy.edu.

Appendix F: Surveys

Appendix F(a): Pre-session Questions for Breast Cancer Screening Educational Session (Pre-survey questions)

By participating in this breast cancer screening education program and completing the associated surveys, you are giving consent to the investigator to use the results to evaluate the program and characteristics of the participants. There is no anticipated harm that is greater than the risks you encounter in everyday life. Possible benefits will be from the education provided. The surveys are anonymous, and no one will be able to link your responses back to you. Your responses to the survey will not be linked to your computer, email address or other electronic identifiers. Information provided in this survey can only be kept as secure as any other online communication. Information collected for this study will be published and possibly presented at scientific meetings. Your participation is voluntary, and you may opt out (discontinue) at any time.

QR Code to survey to be provided to participants.

By continuing with the survey, you consent to participating in the breast cancer screening education project and its surveys.

Pre Session questions			
Question	Answers response options	Categorization of answer responses	Levels of measurement
Demographic Information			
Random Identifier provided to you	Open response	Open response	n/a
What is your age (years)?	30-39 40-49 50-59 60-69 70+	Multiple choice	Ratio
Highest level of education	Less than high school High school Some college Associate degree Bachelor's degree Master's degree Doctorate	Multiple choice	Ratio
Religion	Muslim Christian Other	Multiple choice	Ratio
Marital status	Single Married	Multiple choice	Ratio

	Divorced		
Number of Children	0 1 2 3 or more	Multiple choice	Ratio
Employment	Employed Unemployed Retired	Multiple choice	Ratio
Do you have health insurance?	Yes No	Multiple choice	Nominal
Ethnic background	Open response	Open response	Nominal
Which county do you reside in?	Wayne Oakland Macomb Other	Multiple choice	Nominal
Health Information			
Do you have a personal history of breast cancer?	Yes No	Multiple choice	Nominal
Do you have a family history of breast cancer?	Yes No	Multiple choice	Nominal
If yes, then indicate who in your family was diagnosed with breast cancer.	Mother Father Sister Brother Maternal grandmother, (list all first order relatives) Maternal Aunt UNKNOWN	Multiple choice	Nominal
Do you have a primary care provider?	Yes No	Multiple choice	Nominal
What is the gender of your primary care provider?	Male Female	Multiple choice	Nominal
Is your primary care provider of MENA American background?	Yes No	Multiple choice	Nominal
My last annual wellness exam included a breast exam performed by	Yes No Unsure	Multiple choice	Nominal

my primary care provider.			
I am comfortable when my health care provider does a breast exam during my annual wellness exam.	Strongly agree. Agree Disagree Strongly disagree.	Likert scale	Ordinal
I get a screening mammogram every year around the time of my annual wellness exam.	Always Often Sometimes Rarely Never	Multiple choice	Interval
I believe it is important to get routine mammograms that check for signs of breast cancer.	Strongly agree. Agree Disagree Strongly disagree	Likert scale	Ordinal
I am comfortable doing self-breast exams.	Strongly agree. Agree Disagree Strongly disagree	Likert scale	Ordinal
My religious beliefs limit my comfort with getting a mammogram.	Strongly agree. Agree Disagree Strongly disagree	Likert scale	Ordinal
I know how an abnormal lump feels in the breast.	Strongly agree. Agree Disagree Strongly disagree	Likert scale	Ordinal
I do regular self-breast exams.	Strongly agree. Agree Disagree Strongly disagree	Likert scale	Ordinal

Appendix F(b): Post Session Questions for Breast Cancer Screening Educational Session

By participating in this breast cancer screening education program and completing the associated surveys, you are giving consent to the investigator to use the results to evaluate the program and characteristics of the participants. There is no anticipated harm that is greater than the risks you encounter in everyday life. Possible benefits will be from the education provided. The surveys are anonymous, and no one will be able to link your responses back to you. Your responses to the survey will not be linked to your computer, email address or other electronic identifiers. Information provided in this survey can only be kept as secure as any other online communication. Information collected for this study will be published and possibly presented at scientific meetings. Your participation is voluntary, and you may opt out (discontinue) at any time.

QR Code to survey to be provided to participants.

By continuing with the survey, you consent to participating in the breast cancer screening education project and its surveys.

Post Session Questions			
Question	Answers response options	Categorization of answer responses	Levels of measurement
Identifier (first letter first name, first letter last name, last four numbers of phone number)	Open response	Open response	n/a
I will be contacting my primary care provider for a mammogram referral.	Strongly agree. Agree Disagree Strongly disagree	Likert scale	Ordinal
I will complete routine self-breast exams.	Strongly agree. Agree Disagree Strongly disagree	Likert scale	Ordinal
I will get a mammogram every year around the same time of my annual wellness exam.	Strongly agree. Agree Disagree Strongly disagree	Likert scale	Ordinal
I believe it is important to get routine mammograms that check for signs of breast cancer.	Strongly agree. Agree Disagree Strongly disagree	Likert scale	Ordinal
I will be comfortable when my health care provider does a breast exam during my annual wellness exam.	Strongly agree. Agree Disagree Strongly disagree. Not applicable	Likert scale	Ordinal

I will get a screening clinical breast self-exams every year around the time of my annual wellness exam.	Always Often Sometimes Rarely Never	Likert scale	Interval
I believe it is important to get routine mammograms that check for signs of breast cancer.	Strongly agree. Agree Disagree Strongly disagree	Likert scale	Ordinal
I am comfortable doing self-breast exams.	Strongly agree. Agree Disagree Strongly disagree	Likert scale	Ordinal
I know how an abnormal lump feels in the breast.	Strongly agree. Agree Disagree Strongly disagree	Likert scale	Ordinal
I will do regular self-breast exams.	Strongly agree. Agree Disagree Strongly disagree	Likert scale	Ordinal
I found this educational session beneficial.	Strongly agree. Agree Disagree Strongly disagree	Likert scale	Ordinal
The method of delivery of the session was engaging.	Strongly agree. Agree Disagree Strongly disagree	Likert scale	Ordinal
Suggestions I would give to the presenter include	Open response	Open ended question	Nominal

Appendix G: Needs Assessment Group Session Materials.

Conversation template for the needs assessment session.

Hello everyone and welcome to this group session about breast cancer screening in breast cancer in our community.

I want to remind all of you that participation in this group session is voluntary. You have been provided with the research information sheet which describes the main points of participation in the session. Although the sheet does mention research, this is not a research study and is part of a program development and evaluation to develop a breast cancer screening program within Hype Athletics.

Question discussion template:

Perceived attitudes (susceptibility and severity of breast cancer)	1. How common do you think breast cancer is within the MENA Community? 2. Do you know anyone who has been diagnosed with breast cancer recently? What are your thoughts? 3. What do you think you are at risk of getting breast cancer?
Perceived behavioral norms	1. What are some practices you do to prevent breast cancer? 2. What are some breast cancer screening practices you do? a. Self-breast exams – thoughts? Beliefs? Practices? b. Mammograms – thoughts? Beliefs? Practices?
Perceived social/cultural/religious norms	1. What do you think the MENA American community thinks of a breast cancer diagnosis? a. Is there shame? Embarrassment? If so, why? b. Does it affect a family's reputation in our community? 2. Is it seen as a contagious disease in our community? a. How do you think a breast cancer diagnosis is perceived among our community culturally? 3. A person being diagnosed is less desired by their Husband or for marriage (if not married)? 4. Do you think there are any religious implications or thoughts regarding a breast cancer diagnosis? a. Do you see it as a test of faith? b. Do you see it as a 'punishment from the Higher Power? c. Do you see breast cancer as a test of fate?
Practices regarding breast cancer prevention	1. What are some things that may prevent you from performing breast cancer screenings? a. Self-breast exam barriers b. Mammography barriers
Perceived barriers	1. What are some barriers you or other women in the community have regarding breast cancer screening? a. Such as Financial, transportation, spousal support, legal status, not trusting their provider, previous experiences with discrimination, etc.

Thank you for your participation in time. It is truly appreciated. Have a wonderful day.


BREAST CANCER EDUCATION SESSION & SURVEY
CLASSROOM A
This survey is part of a quality improvement and Doctor of Nursing Project for Noor Khalil who is studying at the University of Detroit Mercy.
March 7 @ 2:30
REFRESHMENTS OFFERED!
For more information, please contact Noor Khalil at (313)451-3452

	Needs assessment results
Perceived attitudes (susceptibility and severity of breast cancer)	• **Most of the participants noted breast cancer has become common in the MENA community, including younger women.** • **Some participants noted family members that were diagnosed with breast cancer recently. One even noted it was 'scary', as that family member was very health conscious and physically active.** • **The majority of the participants thought that their breast cancer risk was extremely low if they ate healthily and were physically active. They reported they did not know their exact risk due to lack of breast cancer family. One of the participants mentioned how back in the day people died and people never knew why'. Many of them shared that a lot of older MENA Americans do not share their diagnosis because they do not want others to petty them.**
Perceived behavioral norms	• Participants reported breast cancer prevention behaviors include healthy eating. Physical activity, hydrating, going to the doctors and completing lab work. • Only a few participants noted they do self-breast exams. Many stated that if the Higher Power had it in their cards, it would happen no matter what they did. They reported strong belief in fate and the higher power. • Many of the participants stated they were not fond of mammograms due to radiation fears. Some of the participants stated they get mammograms and that the experience of getting a mammogram (the procedure) has improved over the past few years.
Perceived social/cultural/religious norms	• More people are starting to accept it and it is still taboo and unaccepted by many MENA Americans. • There isn't shame or embarrassment, rather not wanting petty reactions from others regarding a breast cancer diagnosis. • The majority said that it won't ruin the reputation of a family. It can affect the family's reputation if people don't bring breast cancer genes into their family. • The majority stated breast cancer is not contagious. They also state it is becoming more accepting of breast cancer diagnosis because people are becoming brave and are sometimes talking about their experiences. • Many of the participants stated that if the women lose her breasts, she may become undesirable. Some of the participants noted that women that have mastectomies usually qualify for breast implants, which many women state some men may prefer over real breasts. • Breast cancer was reported as a test of faith and fate. Some of the participants stated it is not a punishment from Higher Power.

Practices regarding breast cancer prevention	• At least half of the participants did not believe mammography is necessary. Some of the participants noted they will not complete mammograms due to their perception of mammograms being painful. • At least half stated they complete self-breast exams but don't know what to look for other than masses in their breasts. A few women stated they do not even want to look at their breasts as being familiar with their breasts made them feel uncomfortable.
Perceived barriers	• The participants reported most people in the community do not have a financial or health insurance issue due to many being covered by Medicaid. • Some of the participants report spousal support being a possible barrier with more conservative Muslim and MENA Americans. They also reported some women may not trust their provider due to previous discrimination experiences and them not wanting to be judged by their provider.

Appendix H: Breast Cancer Screening Education Session Materials

The following is an outline of the group session. This will serve as a template for the presentation and session.

Total time: 90 minutes (about 1 and a half hours)
Refreshments will be provided and funded by the presenter.
Information to be covered with tentative time lengths of each sub session.

- **Introduction (20 minutes)**
  - The presenter (Noor Khalil) will introduce themselves as a Doctor of Nursing practice student and will review the 'research information sheet. Questions will be encouraged and answered by the doctoral student (5 minutes).
  - Pre-survey completion (5 minutes)
  - Ice breaker activity (10 minutes)
    - Volunteers will be encouraged to share the following:
      - Name
      - What interested them in this session?
      - One interesting thing about themselves
- **Breast cancer risk factors (CDC, 2023b) (5 minutes)**
  - Non-modifiable: Age, genetics (BRCA1 and BRCA2), reproductive history (starting MP before 12 years old or menopause after 55 years old), dense breasts, personal and/or family history of breast cancer or related GYN cancers, cancer treatments, chemical exposure (i.e., diethylstilbestrol, DES, which used to be used during pregnancy between 1940-1971) (CDC, 2023b)
  - Modifiable: Physical activity, obesity/weight, hormone use, not chest feeding, having first child after 30 years old, not having a pregnancy full-term (which is after 37 weeks' gestation), drug use, smoking, alcohol use (CDC, 2023b).
- **Breast cancer signs (5 minutes)**
  - "New lump in the breast or underarm (armpit)" (CDC, 2023c).
  - "Thickening or swelling of part of the breast" (CDC, 2023c).
  - "Irritation or dimpling of breast skin" (CDC, 2023c).
  - "Redness or flaky skin in the nipple area or the breast" (CDC, 2023c).
  - "Pulling in of the nipple or pain in the nipple area" (CDC, 2023c).
  - "Nipple discharge other than breast milk, including blood" (CDC, 2023c).
  - "Any change in the size or the shape of the breast" (CDC, 2023c).
  - "Pain in any area of the breast" (CDC, 2023c).
- **Importance of preventative screening (5 minutes)**
  - Early detection
  - Early intervention
  - Aimed to improve outcomes.
  - Breast self-exams are not to be used as a main preventative screening tool and NEVER substitute your breast exam completed at your annual visit by your health provider and mammography screening (Mayo Clinic, 2022).
- **How to perform self-breast exams (30 minutes)**
  - Visual inspection (5 minutes)
    - Remove all clothing and stand in front of a mirror. Look at your breast for any abnormalities: breast changes (symmetry, size, dimpling, puckering), nipple changes

(inverted) (Mayo Clinic, 2022). Do the visual inspection with your hands on your side, hands on your hips and hands above your head to see if there are any abnormalities in different position changes (Mayo Clinic, 2022).

- Physical self-examination (5 minutes)
  - Can be done lying down or in the shower (Mayo Clinic, 2022).
  - Start from outer collar bone to inner breast/nipple area including the arm pit area in a circular pattern using the pads of your fingers (Mayo Clinic, 2022).
  - Feel for any changes or lumps or texture of the breast (Mayo Clinic, 2022).
  - Note if you feel tenderness or pain (also note if you do not feel pain) (Mayo Clinic, 2022).
  - If you notice any abnormalities in your self-breast exam, contact your health provider (Mayo Clinic, 2022).
- **ACTIVITY: Self Breast exam (20 minutes)**
  - Supplies/resources:
    - Medical breast examination demonstration models
    - Hand sanitizer
    - Sanitation wipes that cover a wide spectrum a virus including COVID
    - APRN (Advanced Practice Registered Nurses) (Doctor of Nursing Practice Student: Noor Khalil)
    - Participants
  - Objectives
    - Participants will be able to:
      - Identify a lump in the breast.
      - Demonstrate proper self-breast cancer examination.
      - Demonstrate knowledge of abnormal signs in the breast which warrant follow up with health provider.
  - Activity:
    - Demonstration of how to perform breast exam (10 minutes).
      - No gowns will be needed as this will be completed over clothing.
      - The nurse practitioner will not physically contact and/or touch participants during any part of the activity or presentation.
    - Identifying abnormal lumps in breast (10 minutes)
    - Participants will perform breast exams and locate abnormalities on the medical breast examination demonstration models.
    - Questions will be encouraged and answered by the Doctoral student.

- **Importance of faith for optimal wellness (10 minutes)**
  - Prayer is important and vital in wellness but does not substitute medical preventative screenings or treatments.
  - Breast cancer diagnosis does not equal being short religiously.
- **Importance of family/community for overall health: Family and community importance in encouragement and awareness of breast cancer screening. (10 minutes)**
  - Encourage your family and friends to have breast cancer screenings.
  - Inform your family about a breast cancer diagnosis. They are your support system.
- **Questions and closing remarks. Post session survey (5 minutes).**

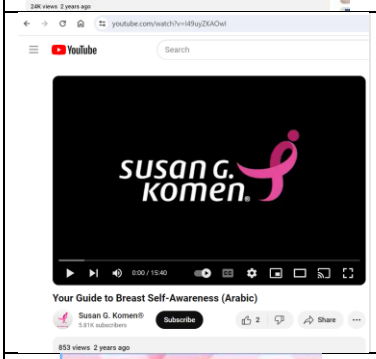
References

Centers for Disease Control and Prevention. (2023b). *What Are the Risk Factors for Breast Cancer?* https://www.cdc.gov/cancer/breast/basic_info/risk_factors.htm

Centers for Disease Control and Prevention. (2023c). *What Are the Symptoms of Breast Cancer?* https://www.cdc.gov/cancer/breast/basic_info/symptoms.htm

Mayo Clinic. (2022). *Breast self-exam for breast awareness.* https://www.mayoclinic.org/tests-procedures/breast-exam/about/pac-20393237

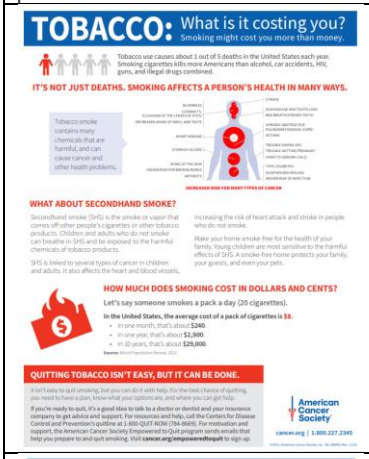
Handouts Distributed During Education Program

Image	Description	Reference Link	QR Code
	Educational video in English on breast self-awareness and exams.	Komen, S. (2021). Your Guide to Breast Self-Awareness [YouTube]. https://www.youtube.com/watch?v=vtLiV9TXFg8&list=PL6PlpBVEjB8d5_kT9_nIRRGN1l0cIlafV&index=14&t=9s	
	Educational video in Arabic on breast self-awareness and exams.	Komen, S. (2021). Your Guide to Breast Self-Awareness (Arabic) [YouTube]. https://www.youtube.com/watch?v=I49uyZKAOwI	
	Informational handout on self-breast exams in English	Missouri Department of Health and Senior Services. (2022). Breast self-exam: How to perform monthly exams? https://health.mo.gov/living/healthconditions/chronic/showmehealthywomen/pdf/BSEbrochure.pdf	
	Informational handout on self-breast exams in Arabic	Breast Cancer Now. (n.d.). Know your breasts – quick guide, Arabic (BCC227). https://breastcancernow.org/sites/default/files/files/tlc_infographic_blank_poster_tlc4_ar.pdf	
	Handouts and informational sheets in BOTH English and Arabic on Cancer prevention, screening, and risk factors.	American Cancer Society. (n.d.). Cancer Information in Arabic. https://www.cancer.org/cancer-information-in-other-languages/arabic.html	

Reference for QR code generator: https://qr.io/?gad_source=1&gclid=EAIaIQobChMI_p2Np_H8gwMVumVHAR0a8QDcEAAYASAAEgKsjfD_BwE

Image	Description	Reference Link	QR Code
	Mammogram informational sheet: English	American Cancer Society. (n.d.). Infographic: 7 Things to Know About Getting a Mammogram. https://www.cancer.org/cancer/types/breast-cancer/mammogram-tips-infographic.html	
	Mammogram informational sheet: Arabic	American Cancer Society. (n.d.). Getting a mammogram [Arabic]. https://www.cancer.org/cancer/types/breast-cancer/mammogram-tips-infographic.html	
	Educational information on reducing risk for cancer – English.	American Cancer Society. (n.d.). You Can Help Reduce Your Cancer Risk. https://www.cancer.org/content/dam/cancer-org/cancer-control/en/booklets-flyers/help-reduce-cancer-risk.pdf	
	Educational information on reducing risk for cancer – Arabic.	American Cancer Society. (n.d.). You Can Help Reduce Your Cancer Risk. [Arabic]. https://www.cancer.org/cancer/types/breast-cancer/mammogram-tips-infographic.html	
	Educational information on Healthy eating and Being Active can lower your cancer risk – English	American Cancer Society. (n.d.). Healthy eating and Being Active can lower your cancer risk. https://www.cancer.org/content/dam/cancer-org/cancer-control/en/booklets-flyers/healthy-eating-and-being-active-can-lower-your-cancer-risk.pdf	

Reference for QR code generator: https://qr.io/?gad_source=1&gclid=EAIaIQobChMI_p2Np_H8gwMVumVHAR0a8QDcEAAYASAAEgKsjfD_BwE

Image	Description	Reference Link	QR Code
	Educational information on Healthy eating and Being Active can lower your cancer risk – Arabic	American Cancer Society. (n.d.). Healthy eating and Being Active can lower your cancer risk [Arabic]. https://www.cancer.org/content/dam/cancer-org/cancer-control/ar/booklets-flyers/healthy-eating-and-being-active-can-lower-your-cancer-risk.pdf	
	Educational information on the effects and harms of tobacco and cancer risk [English].	American Cancer Society. (n.d.). Tobacco: What is it costing you? https://www.cancer.org/content/dam/cancer-org/cancer-control/en/booklets-flyers/tobacco-what-is-it-costing-you.pdf	
	Educational information on the effects and harms of tobacco and cancer risk [Arabic].	American Cancer Society. (n.d.). Tobacco: What is it costing you? [Arabic]. https://www.cancer.org/content/dam/cancer-org/cancer-control/ar/booklets-flyers/protect-from-the-sun.pdf	

Reference for QR code generator: https://qr.io/?gad_source=1&gclid=EAIaIQobChMI_p2Np_H8gwMVumVHAR0a8QDcEAAYASAAEgKsjfD_BwE

GROUP DISCUSSION:
BREAST CANCER & THE ARAB-AMERICAN COMMUNITY

Are you interested in learning more about breast cancer screening and prevention, and meet the following criteria?

- **Biologically female**
- **35-75 years old**
- **Arab American**
- **Live in the Detroit Metropolitan area**

Thursday May 2nd

10:00 am - 11:00 am

Classroom 210

Hosted by Noor Khalil - Doctoral Student at
University of Detroit Mercy for her Doctor of Nursing Practice Project

*Refreshments Offered!**

COUPON FOR ONE FREE SHAKE FROM HYPE NUTRITION

***Cupcakes, donuts, and coffee**

For more information, please contact Noor Khalil at (313) 451-3452

Appendix I: Letters to Health Providers

University of Detroit Mercy (IRB)
Institutional Review Board (IRB)
4001 W McNichols Rd
Detroit, MI 48221

[Insert Date]

Dear health provider,

This letter is to inform you that your patient has received informational flyers on breast cancer prevention and screening at Hype Athletics. These flyers included information on risk factors, preventative screenings, and self-breast exams. At the time of your patient obtaining these flyers, your patient was encouraged to follow up at your practice for preventative breast cancer screening as appropriate and specific to your patient and per the American Academy of Obstetrics and Gynecology guidelines. Thank you.

If you have any questions, please feel free to contact Noor Khalil, Doctor of Nursing practice student at the University of Detroit Mercy at khalilna@udmercy.edu.

Best regards,

Noor Khalil
Doctor of Nursing Practice Student
University of Detroit Mercy

University of Detroit Mercy (IRB)
4001 W McNichols Rd
Detroit, MI 48221

[Insert Date]

Dear health provider,

This letter is to inform you of recent results of a preventative breast screening education program conducted at a local community center. Below are recommendations regarding the treatment/care of MENA (Middle Eastern North African) American women.

- The educational program session focused on breast cancer detection, screening, and prevention.
- Participants were female and of MENA origin between 30 and 75 years old.
- This program was conducted over one week span with a follow-up at four, six, and eight weeks.
- Participants reported having a female provider and nurse practitioner as their provider.
- Preventative education conducted by a female provider was reported by participants as favorable and impactful.

If you have any questions, please feel free to contact Noor Khalil, Doctor of Nursing practice student at the University of Detroit Mercy at khalilna@udmercy.edu.

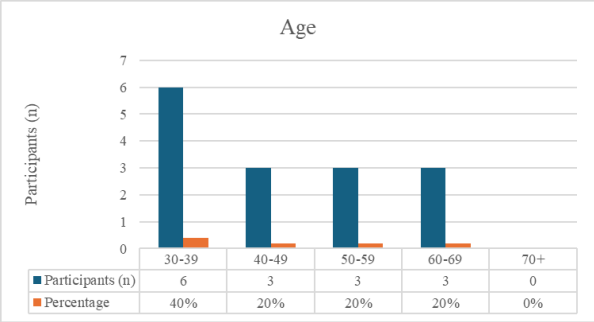
Best regards,

Noor Khalil
Doctor of Nursing Practice Student
University of Detroit Mercy

Appendix J: Educational Session Results

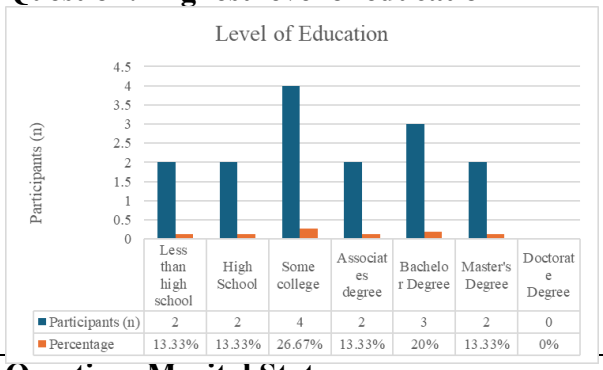
Pre-survey results

Question: What is your age?



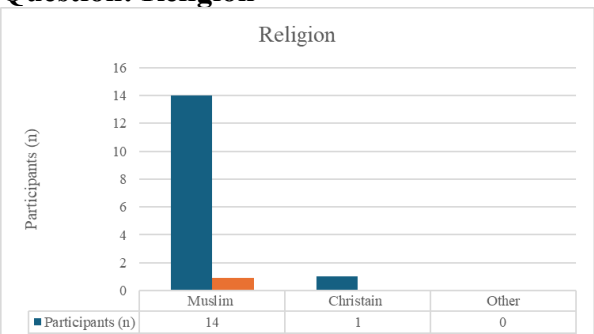
	30-39	40-49	50-59	60-69	70+
Participants (n)	6	3	3	3	0
Percentage	40%	20%	20%	20%	0%

Question: Highest level of education



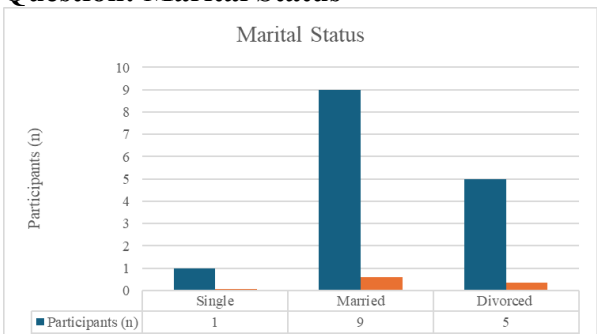
	Less than high school	High School	Some college	Associates degree	Bachelor Degree	Master's Degree	Doctorate Degree
Participants (n)	2	2	4	2	3	2	0
Percentage	13.33%	13.33%	26.67%	13.33%	20%	13.33%	0%

Question: Religion



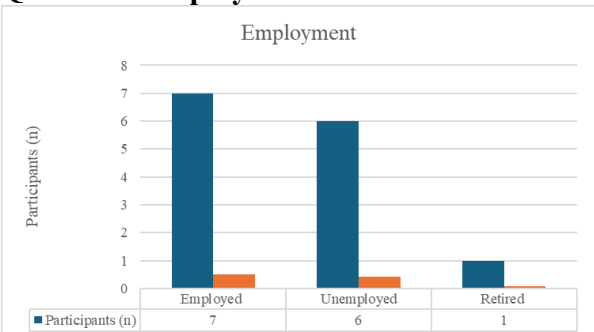
	Muslim	Christain	Other
Participants (n)	14	1	0
Percentage (%)	93.33%	6.67%	0%

Question: Marital Status



	Single	Married	Divorced
Participants (n)	1	9	5
Percentage (%)	6.67%	60%	33.33%

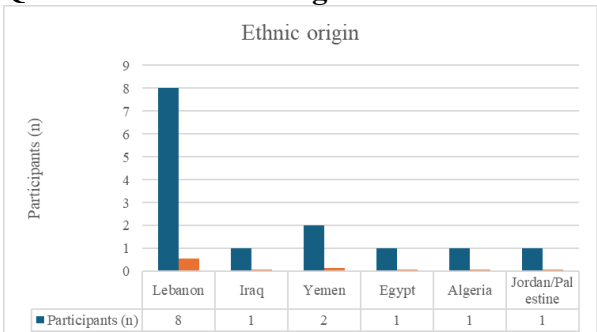
Question: Employment



	Employed	Unemployed	Retired
Participants (n)	7	6	1
Percentage (%)	50%	42.86%	7.14%

*One participant skipped this question

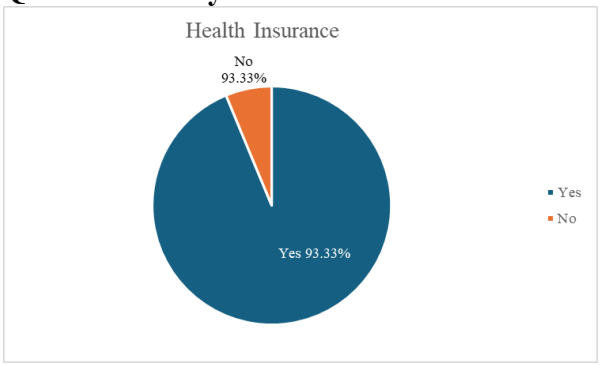
Question: Ethnic Background



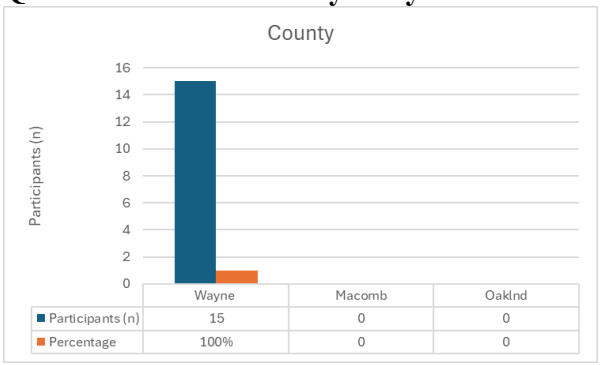
	Lebanon	Iraq	Yemen	Egypt	Algeria	Jordan/Palestine
Participants (n)	8	1	2	1	1	1
Percentage (%)	57.14%	7.14%	14.29%	7.14%	7.14%	7.14%

*One participant skipped this question

Question: Do you have health insurance?

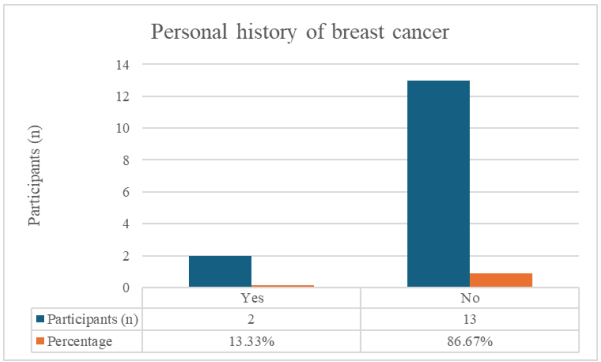


Question: Which county do you reside in?



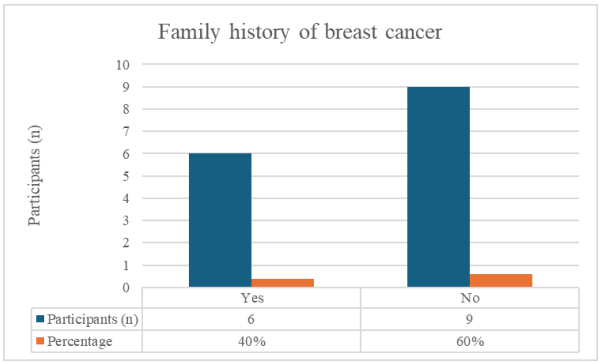
	Wayne	Macomb	Oaklnd
Participants (n)	15	0	0
Percentage	100%	0	0

Question: Do you have a personal history of breast cancer?



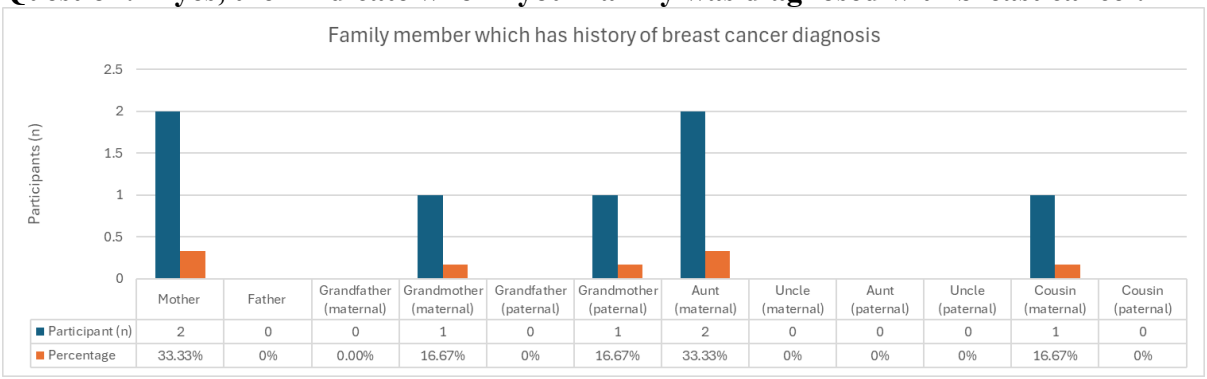
	Yes	No
Participants (n)	2	13
Percentage	13.33%	86.67%

Do you have a family history of breast cancer?



	Yes	No
Participants (n)	6	9
Percentage	40%	60%

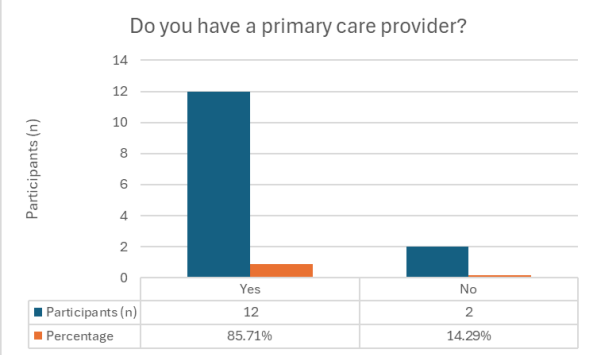
Question: If yes, then indicate who in your family was diagnosed with breast cancer.



	Mother	Father	Grandfather (maternal)	Grandmother (maternal)	Grandfather (paternal)	Grandmother (paternal)	Aunt (maternal)	Uncle (maternal)	Aunt (paternal)	Uncle (paternal)	Cousin (maternal)	Cousin (paternal)
Participant (n)	2	0	0	1	0	1	2	0	0	0	1	0
Percentage	33.33%	0%	0.00%	16.67%	0%	16.67%	33.33%	0%	0%	0%	16.67%	0%

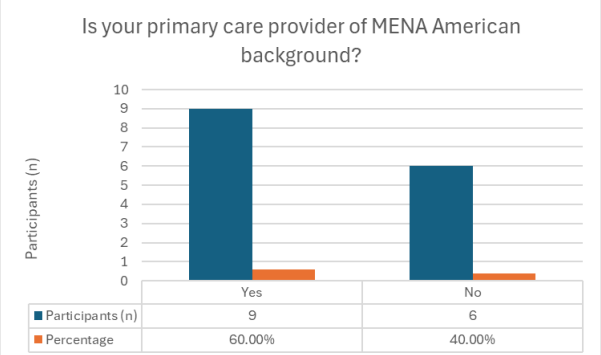
*Seven participants skipped this question

Question: Do you have a primary care provider?

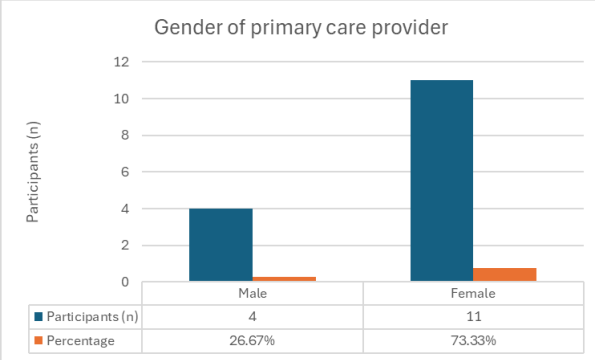


*One participant skipped this question

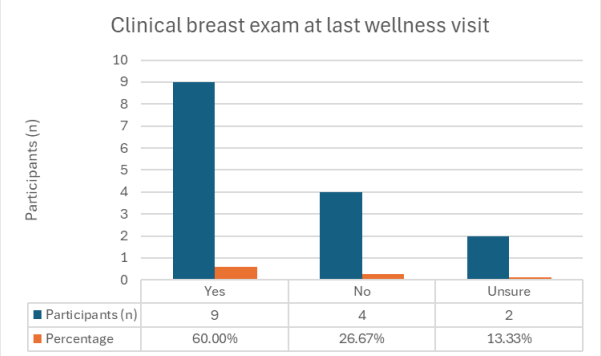
Question: Is your primary care provider of MENA American background?



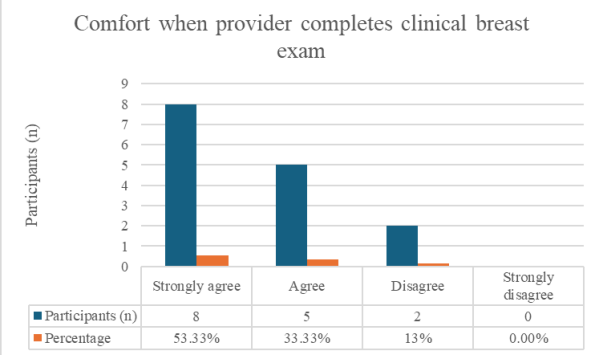
Question: What is the gender of your primary care provider?



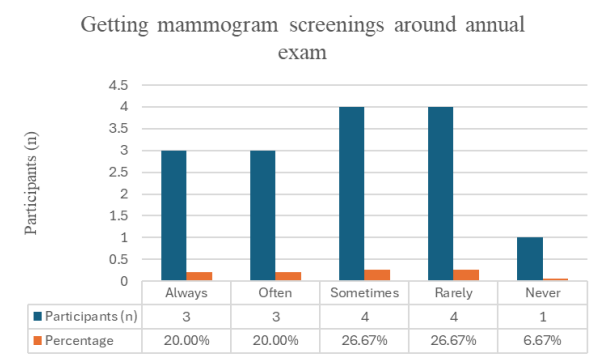
Question: My last annual wellness exam included a breast exam performed by my primary care provider.



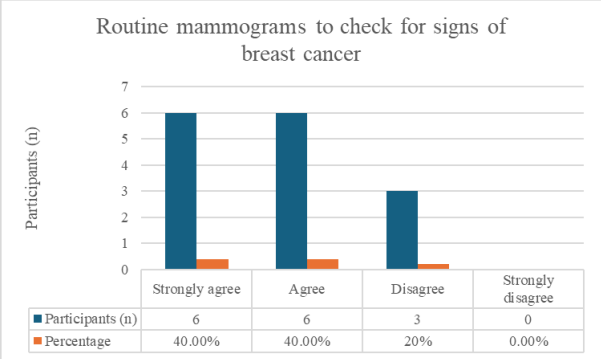
Question: I am comfortable when my health care provider does a breast exam during my annual wellness exam.



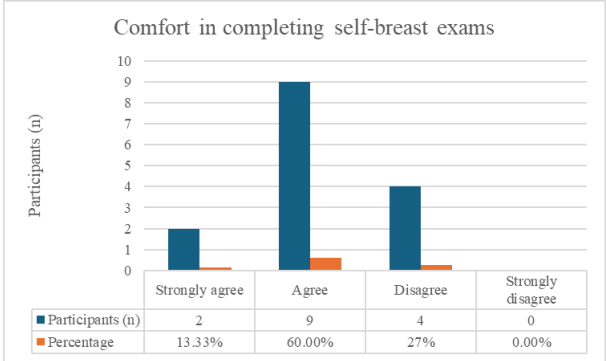
Question: I get a screening mammogram every year around the time of my annual wellness exam.



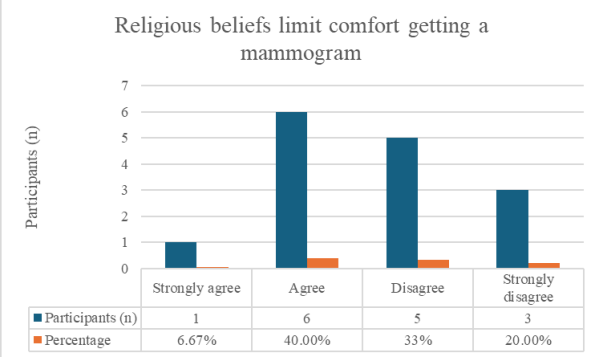
Question: I believe it is important to get routine mammograms that check for signs of breast cancer.



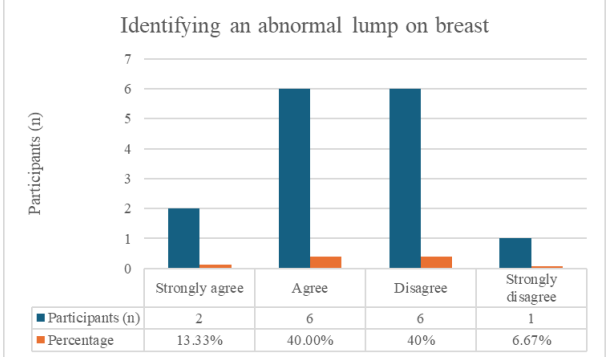
Question: I am comfortable doing self-breast exams.



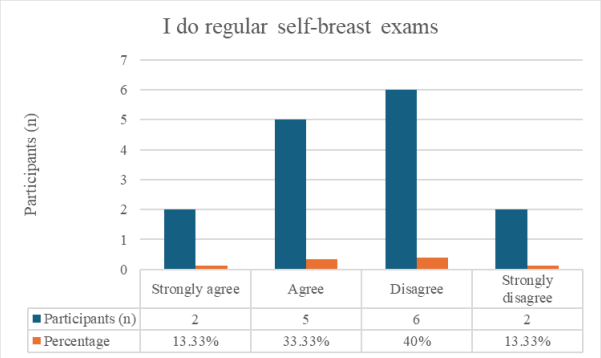
Question: My religious beliefs limit my comfort with getting a mammogram.



Question: I know how an abnormal lump feels in the breast.

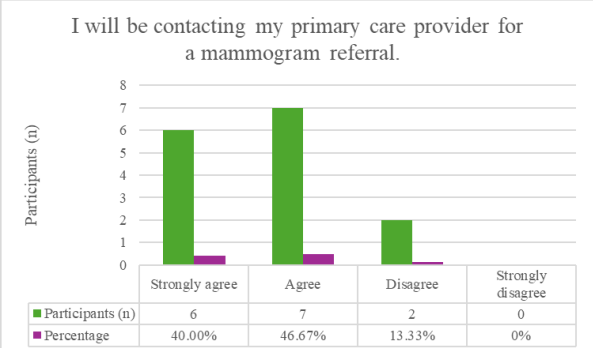


Question: I do regular self-breast exams.

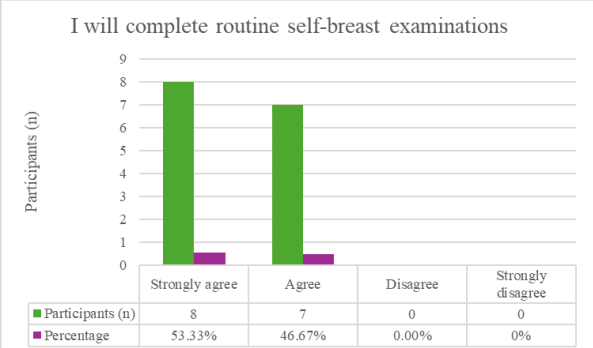


Postsurvey Results

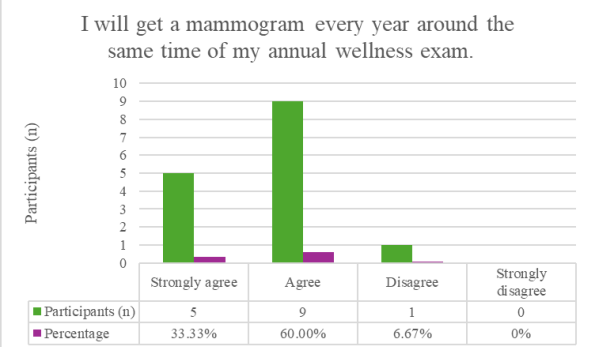
I will be contacting my primary care provider for a mammogram referral.



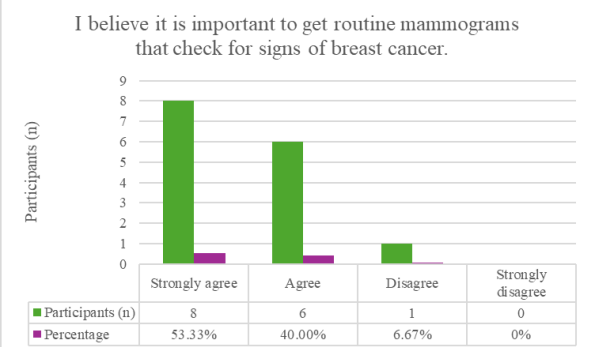
I will complete routine self-breast examinations.



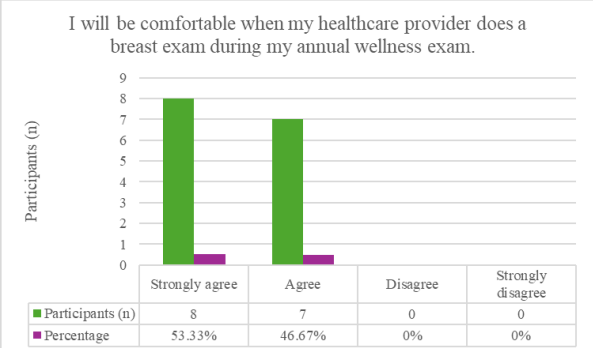
I will get a mammogram every year around the same time of my annual wellness exam.



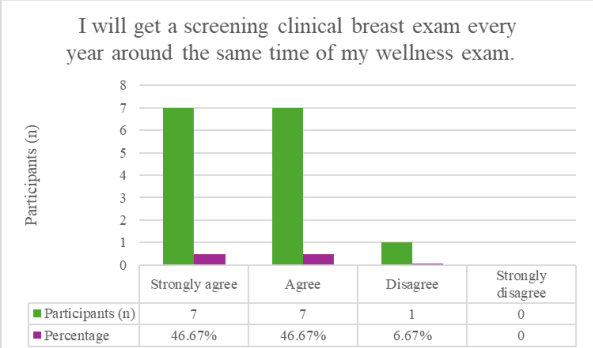
I believe it is important to get routine mammograms that check for signs of breast cancer.



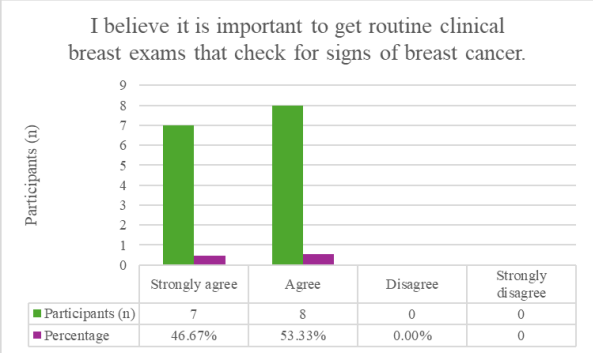
I will be comfortable when my healthcare provider does a breast exam during my annual wellness exam.



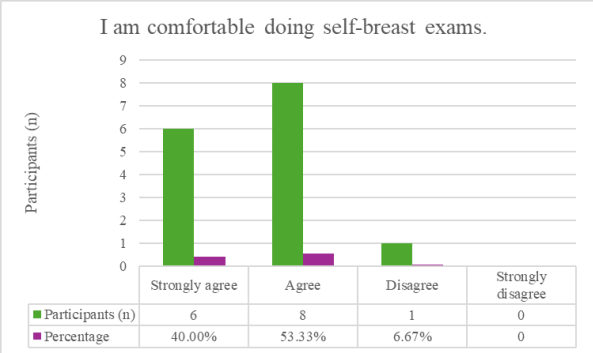
I will get a screening clinical breast exam every year around the same time of my wellness `exam.



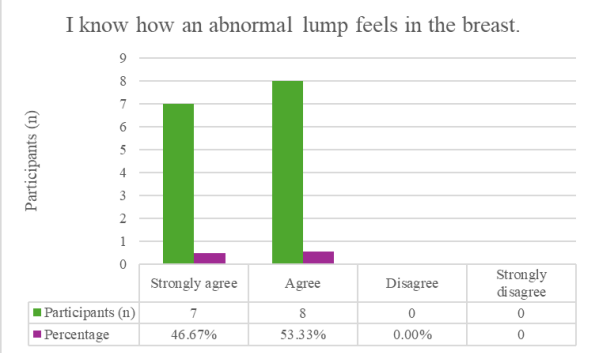
I believe it is important to get routine clinical breast exams that check for signs of breast cancer.



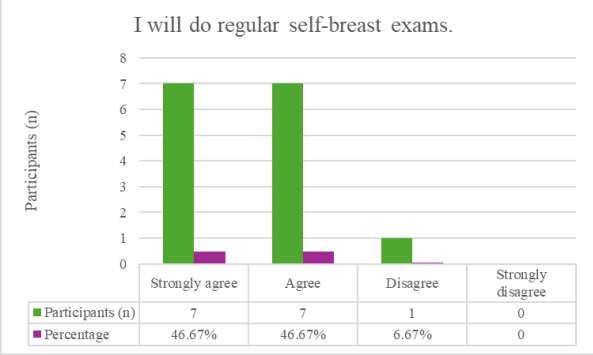
I am comfortable doing self-breast exams.



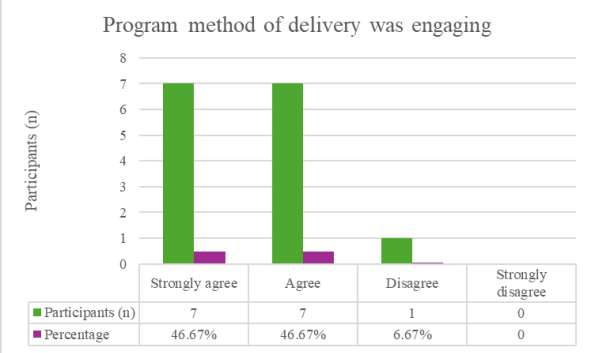
I know how an abnormal lump feels in the breast.



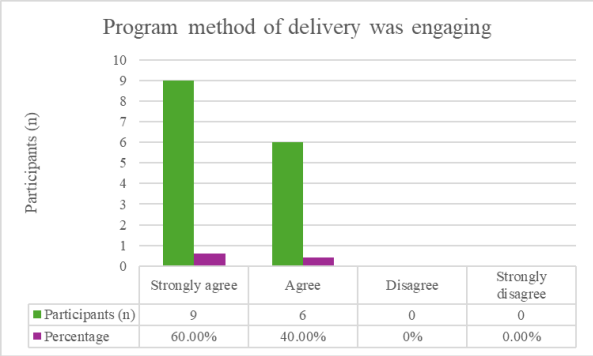
I will do regular self-breast exams.



I found this educational session beneficial.



The method of delivery of the session was engaging.



Appendix K: Breast Cancer Screening Education Follow-Up Template

Good (morning or afternoon),
My name is Noor Khalil, and I am calling to follow up with you regarding the breast cancer screening education. I will ask you a few questions and appreciate you answering them. The information collected will remain confidential and is aimed at better develop a breast cancer education screening program at Hype Athletics.

1. The educational program increased my knowledge about routine breast cancer screening.

Strongly agree	Agree	Disagree	Strongly disagree

2. The program increased my willingness to get breast cancer screening with clinical breast exams and mammograms.

Strongly agree	Agree	Disagree	Strongly disagree

3. I have scheduled an appointment to have a clinical breast exam with my primary care provider since attending the education session.

Yes	No

4. I have obtained a mammography referral and/or appointment since attending the education session.

Yes	No

5. The provided written materials increased my understanding about breast cancer risks and screening.

Strongly agree	Agree	Disagree	Strongly disagree

6. A Facebook page is a valuable resource about breast cancer risks and screening.

Strongly agree	Agree	Disagree	Strongly disagree

7. The information presented in the class was easy to understand.

Strongly agree	Agree	Disagree	Strongly disagree

8. I was comfortable with discussing the information with a female health provider.

Strongly agree	Agree	Disagree	Strongly disagree

9. I am comfortable doing self-examinations at home.

Strongly agree	Agree	Disagree	Strongly disagree

10. I am completing routine breast cancer screening self-examinations at home.

Strongly agree	Agree	Disagree	Strongly disagree

11. What was something you enjoyed or was a strength about this program session?

12. What was something that could be improved on for future program sessions?

13. Is this something you would recommend to others including friends and family?

14. Do you need any assistance with obtaining a PCP appointment or mammogram?

Closing remarks: Thank you for participating in the program and for completing this evaluation survey. It is deeply appreciated. Have a wonderful day.

Appendix L: Breast Cancer Screening Education Follow-Up Results

12 out of 15 participants responded to the follow up at four, six, and eight weeks. 9 participants responded at four weeks, 4 responded at weeks (with one follow-up from week four), and no other participants responded at eight weeks.

1. The educational program increased my knowledge about routine breast cancer screening.

	Number of participants	Percentage of participants
Strongly agree	7	58.3%
Agree	5	41.6%
Disagree	0	0%
Strongly disagree	0	0%

2. The program increased my willingness to get breast cancer screening with clinical breast exams and mammograms.

	Number of participants	Percentage of participants
Strongly agree	7	58.3%
Agree	4	33.3%
Disagree	1	8.33%
Strongly disagree	0	0%

3. I have scheduled an appointment to have a clinical breast exam with my primary care provider since attending the education session.

	Number of participants	Percentage of participants
Yes	10	83.3%
No	2	16.67%

4. I have obtained a mammography referral and/or appointment since attending the education session.

	Number of participants	Percentage of participants
Yes	9	75%
No	3	25%

5. The provided written materials increased my understanding about breast cancer risks and screening.

	Number of participants	Percentage of participants
Strongly agree	5	41.6%
Agree	6	50%
Disagree	1	8.33%
Strongly disagree	0	0%

6. A Facebook page is a valuable resource about breast cancer risks and screening.

	Number of participants	Percentage of participants
Strongly agree	3	25%
Agree	6	50%

Disagree	2	16.6%
Strongly disagree	0	

7. The information presented in the class was easy to understand.

	Number of participants	Percentage of participants
Strongly agree	9	75%
Agree	3	25%
Disagree	0	0%
Strongly disagree	0	0%

8. I was comfortable with discussing the information with a female health provider.

	Number of participants	Percentage of participants
Strongly agree	12	100%
Agree	0	0%
Disagree	0	0%
Strongly disagree	0	0%

9. I am comfortable doing self-examinations at home.

	Number of participants	Percentage of participants
Strongly agree	10	83.3%
Agree	2	16.67%
Disagree	0	0%
Strongly disagree	0	0%

10. I am completing routine breast cancer screening self-examinations at home.

	Number of participants	Percentage of participants
Strongly agree	10	83.3%
Agree	2	16.67%
Disagree	0	0%
Strongly disagree	0	0%

11. What was something you enjoyed or was a strength about this program session?
    a. The class being all women
    b. privacy and ability to talk about sensitive topics
    c. The presenter's personality and the way the information was presented.
    d. Hearing stories from other women younger and older than me with breast cancer scares or diagnoses.
12. What was something that could be improved on for future program sessions?
    a. Arrange for a breast cancer dedicated event.
    b. Have women's health providers available
    c. The QR codes were confusing, and my kids needed to help me with them
13. Is this something you would recommend to others including friends and family?

	Number of participants	Percentage of participants

Yes	12	100%
No	0	0%

14. Do you need any assistance with obtaining a PCP appointment or mammogram?

	Number of participants	Percentage of participants
Yes	0	0%
No	12	100%

Appendix M: Enhanced Breast Cancer Screening Education Sample Plan

I. Executive summary

This document is an outline for a breast cancer screening and prevention program to be implemented at Hype Athletics. The pilot program included a SWOT analysis, needs assessment, pilot program, and evaluation of the program. This pilot program was completed as a Doctor of Nursing practice project. Noor Khalil, a Doctor of Nursing practice student, developed, implemented, and evaluated the breast cancer screening program at the University of Detroit Mercy.

The purpose of this program development and evaluation project was to improve breast cancer screening practices among MENA American women. The aim of the program development and evaluation project was to provide MENA American women with culturally sensitive breast cancer screening education pilot program and to determine the effectiveness of the breast cancer screening education. This program development and evaluation project and pilot program would include a needs assessment, the pilot session, and an evaluation of the program with recommendations for continuation for the organization. Addressing these concerns may increase MENA American women's understanding and intent in obtaining preventative breast cancer screenings. Therefore, improved patient outcomes and quality of care long term. Goals for this program development and evaluation project were (1) improved compliance with breast self-examinations, (2) improved compliance with breast cancer screenings (self-reported) and (2) improved knowledge pertaining to the importance of breast cancer screening. The objectives included the following: (1) 75% of participants will indicate that they will go to their primary care provider for a mammography referral by the end of the educational session, (2) 75% of participants will improve knowledge pertaining to mammography guidelines by the end of the educational session, and (3) 75% of participants will increase perceived motivation of behavior change by the end of the educational session.

Purpose	Aim	Objectives	Goals
• To improve breast cancer screening practices among MENA American women.	• To provide breast cancer screening services to MENA American women in the Detroit Metropolitan.	• Increase knowledge on risk factors and breast cancer prevention. • Demonstrate knowledge on self-breast exams. • Collaborate with community members and leaders on breast cancer education and prevention. • Provide group support and discussion on the importance of screening and breast cancer prevention.	• 75% of participants will identify the risk factors related to breast cancer by the end of the program session. • 75% of participants will identify steps of how to perform a self-breast exam by the end of the program session. • 75% of participants will report mammography screening after the end of the program session.

II. **Results of Pilot Program**

a. An increase in knowledge and willingness of breast cancer screening.

b. Participants reported feeling comfortable with the female, APRN provider offering the educational session

c. 83.33% scheduled an appointment to have a clinical breast exam.

d. 75% of participants reported obtaining a mammogram referral by 8-week follow-up.

e. The materials provided beneficial and increasing their understanding of breast cancer.

f. 80% of participants reported being comfortable completing self-breast cancer examinations and completing them at home.

g. This document will provide a template of a breast cancer screening program to be held at Hype Athletics. The purpose, aim, objectives, and goals are listed in the table below.

III. Implementation:

a. Implementation of this program aims to be offered once a month and will be repeated monthly. The resources needed to implement this program include staff, office space, and office related resources. The staff will include a medical doctor (who will also serve as a medical director), nurse practitioner or physician's assistant, a nurse practitioner volunteer (Noor Khalil), medical assistant, and secretary. Office related resources and supplies

include and are limited to desks, chairs, paper, pens, computers, printer, chairs, patient beds, curtains, patient gowns, cleaning supplies, and hand sanitizers.

b. Monthly sessions and topics (tentative and subject to change) – to be finalized and structured after completion of needs assessment, pilot program and evaluation.
    i. Patient education risk factors,
    ii. Self-breast examination education and session. Medical educational models should be used to allow participants to identify abnormal findings.

IV. Evaluation techniques

a. Verbal feedback from attendees during and after each session.

b. Text message polls regarding satisfaction of the session.

c. This is to be completed after every session through a short text message survey.

Appendix N: Social Media Page

This a Facebook page aimed to provide education on breast cancer screening and prevention. This group has been made private to provide a safe environment for members to share and discuss potentially culturally sensitive topics.

Facebook group page name: Breast Cancer Awareness among Arab American women
Link to Facebook group page: https://www.facebook.com/groups/1130973241542476/