Increasing Breast and Cervical Cancer Screenings in Somali Women through Community Education

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Abstract

Despite best practice guidelines, Somali refugee women access breast and cervical cancer screenings at a significantly lower rate than other women in the United States. This doctoral nursing project evaluated the effectiveness of an evidence-based community education program to increase breast and cervical cancer screenings among Somali refugee women. This pilot quasi-experimental project incorporated culturally tailored education, community health workers, and facilitated screening access in a community setting with the goal of increasing adherence to current cancer screening guidelines in collaboration with a free community health clinic. Twenty Somali women aged 21-74 attended three educational sessions, and 11 attendees consented to provide demographic data, history of Pap testing and/or mammography screening, and intention to receive screening if under or never screened. Primary outcomes included receipt of mammography or Papanicolau testing, and a secondary outcome included intention to receive screening. There was no significant difference pre- and post-intervention for either screening uptake or intention to receive screening. Additionally, the student investigator trained three Somali community health workers to facilitate the education program and collected their written feedback following project completion. This project sought to improve breast and cervical cancer screening adherence and reduce cancer morbidity and mortality in a Somali refugee population in Kansas City, Missouri.

Key words: refugees, Somali, ethnic minority, community, education, outreach worker, peer mentor, breast cancer, cervical cancer, screening, increase, intervention, health promotion, health beliefs, and prevention

Increasing Breast and Cervical Cancer Screenings in Somali Women through Community Education

The American Cancer Society estimates that in 2017 there were 316,120 new female breast cancer diagnoses and 40,610 deaths due to female breast cancer in the United States (U.S.) (American Cancer Society, 2017). While 72.4% of U.S. women currently access appropriate breast cancer screening services, only 46.6% of refugee women who need a clinical breast exam or mammogram receive them (CDC, 2016). In particular, research indicates Somali refugee women have low rates of breast cancer screening. A data analysis of refugee patients' service uptake in a primary care setting in Minnesota found only 15% of eligible Somali women received mammography compared to 48% of non-Somali refugee women (Morrison, Wieland, Cha, Rahman, & Chaudhry, 2012).

In addition, approximately 13,240 cases of cervical cancer will be diagnosed, and 4,170 deaths from cervical cancer are expected in 2018 (American Cancer Society, 2018). Cervical cancer deaths have reduced considerably following Papanicolaou (Pap) screening (American Cancer Society, 2018). However, disparities in screening continue in ethnic minority and immigrant populations, especially Somali refugees (Francis, Griffith, & Leser, 2014; Harcourt et al., 2014; Morrison et al., 2012). In a data analysis of cancer screening uptake in Minnesota, Harcourt et al. (2014) found that 55% of Somali women surveyed had never received a Pap test. In contrast, the CDC (2016b) reports that only 31% of Caucasian women do not follow current guidelines for cervical cancer screening.

Healthy People 2020 objectives state that health care systems and providers should seek to increase the number of women receiving breast and cervical cancer screenings in adherence to the most recent guidelines for Pap testing and mammography (Office of Disease Prevention and

Health Promotion (ODPHP), 2018). The Healthy People 2020 objectives also acknowledge that ethnic minorities, including immigrants and refugees, experience disparities in obtaining preventive cancer screenings (ODPHP, 2018). Researchers theorize these disparities are due in part to unique barriers that refugee women face, such as language, cultural, financial, educational, and access barriers (Francis et al., 2014; Gondek et al., 2015).

The National Cancer Institute (National Cancer Institute, 2011) estimates that the economic burden of breast cancer will exceed $20 billion annually by 2020. In addition to increasing the 5-year survival rate from 15% to 90%, early breast cancer diagnosis reduces 11-15% of cancer costs, saving nearly $3 billion annually in the 2020 cost projections (Kakushadze, Raghubanshi, & Yu, 2017). The projected costs for cervical cancer are expected to decrease slightly by 2020, owing to the effectiveness of cervical cancer screening program initiatives and the development of the human papillomavirus (HPV) vaccine (National Cancer Institute, 2011).

Local Issue

In 2014, breast cancer diagnoses and deaths in Missouri slightly exceeded the national averages (CDC, 2014). The cervical cancer rate in Missouri is 7.8 cases per 100,000 (CDC, 2014). Across the U.S. and in Missouri, black women experience higher breast and cervical cancer mortality rates (CDC, 2014). According to a community assessment of Jackson County, Kansas City, cancer is the second leading cause of death after heart disease (Saint Luke's Hospital of Kansas City, 2015). Breast cancer comprised 15% of all cancer deaths, and cervical cancer comprised 1.4% of all cancer deaths (Saint Luke's Hospital of Kansas City, 2015). Research from the CDC and other states indicate that refugee women, and especially Somalis, do not receive adequate breast or cervical cancer screenings (CDC, 2016a; Morrison et al., 2012).

Kansas City serves as a site for refugee resettlement, hosting approximately 5,500 Somali refugees (Filippi et al., 2014).

Diversity Considerations

This project sought to improve health for an ethnic minority, refugee group in Kansas City, Missouri. Cultural values play an important role in whether women obtain preventive health screenings (Carroll et al., 2007; Francis et al., 2014). Important cultural considerations for this population include modesty, female providers, respect, religious values, and language barriers (Pottie et al., 2011). Ethnic minority women and refugees may also lack access to healthcare due to socioeconomic status, preventing their adherence to screening guidelines (Carroll et al., 2007).

Problem & Purpose

Despite cancer screening best practice guidelines, Somali refugee women remain significantly under screened for breast and cervical cancer due to educational, financial, access, and cultural barriers (Morrison et al., 2012). Humanitarian crises worldwide have led to an influx of nearly 3 million refugees to the U.S. since 1980 (Krogstad & Radford, 2017). The United Nations estimates nearly 150,000 Somalis currently reside in the U.S. (Connor & Krogstad, 2016). In order to promote health in this population, the healthcare system must adapt to meet Somali refugees' healthcare needs. This DNP project evaluated the effectiveness of an evidence-based community education project to increase breast and cervical cancer screenings among Somali refugee women in partnership with a community health clinic.

Facilitators & Barriers

Key facilitators for this project included support from the student investigator's preceptor, the collaborating clinic, and the clinic's medical director. The collaborating clinic is a

mobile community health clinic that provides free primary care to medically underserved populations in Kansas City. The student's preceptor is a volunteer physician with the clinic. Other facilitators included support from a regional Somali community association and a community mosque serving Somalis. Barriers to project implementation included participant recruitment, obtaining follow up data, and aligning schedules among the community health outreach workers, the student investigator's preceptor, and the student investigator. The University of Missouri – Kansas City (UMKC) Women's Council and the Lambda Phi chapter of Sigma Theta Tau provided funding for the project and dissemination (see Appendix B for Cost Table).

Inquiry

The question follows: In Somali refugee women aged 21-74, does culturally tailored education utilizing health outreach workers compared to no intervention increase breast and cervical cancer screening uptake over three months in a community setting?

Search Strategies

Databases searched include CINAHL, PubMed, Cochrane Database of Systematic Reviews, EBSCOhost, and Google Scholar search engine. Keywords utilized were refugees, Somali, ethnic minority, community, education, outreach worker, peer mentor, breast cancer, cervical cancer, screening, increase, intervention, health promotion, health beliefs, and prevention. Inclusion criteria included studies conducted from 2007-2018 with an exclusive focus on ethnic minorities, African women, or Somali refugees. Studies focused solely on Hispanic, Caucasian, or Asian populations and studies not published in English were excluded. Qualitative literature was restricted to research involving Somali women or African and Middle Eastern immigrants.

A standardized tool for evaluation and appraisal of the literature was developed and utilized for 22 studies (see Appendix C). Rating of the evidence (Melnyk & Overholt, 2015, adapted) identified five systematic reviews (Level I), two meta-analyses (Level I), four quasi-experimental studies (Level III), three cohort studies (Level IV), one cross-sectional study (Level V), and seven single qualitative studies (Level VI).

Synthesis of Evidence

Evidence Topics

During the review of literature, four topics of evidence related to the inquiry emerged. These topics represent intervention components that resulted in significant breast and/or cervical cancer screening or knowledge outcomes in ethnic minority women. Many studies produced multiple themes. Themes associated with improved cancer screening uptake in this population include the following: culturally tailored cancer screening education (14 studies), use of community health outreach workers (14 studies), enhancing access to screening (8 studies), and utilizing community settings (13 studies).

Culturally Tailored Education

A review of qualitative research focused on understanding Somali women's preventive health care experiences and beliefs identified that Somali women lack a framework to understand the importance of preventive care, hold fatalistic views regarding cancer, and fear shame and stigmatization associated with a cancer diagnosis (Francis et al., 2014; Raymond et al., 2014; Saadi et al., 2015). Among 34 Somali women, only 53% reported familiarity with the terms Pap test or pelvic exam, only 18% understood mammography, and 74% did not recognize the word cancer (Carroll et al., 2007). In a sample of 44 black women, African immigrants were least

likely to correctly identify cervical cancer causes, risk factors, and screening guidelines during focus groups, and none had heard of HPV (Brown et al., 2011).

Six single quantitative studies reported statistically significant outcomes after interventions providing culturally appropriate female cancer education among ethnic minority women (Dunn et al., 2017; Gondek et al., 2015; Lofters et al., 2017; Mbachu, Dim, & Ezeoke, 2017; Percac-Lima, Ashburner, Bond, Oo, & Atlas, 2013; Piwowarczyk et al., 2013). Piwowarczyk et al. (2013) (n=120) reported significant increases in both breast and cervical cancer screening knowledge ($p < 0.001$) and intent to obtain screening ($p < 0.001$) after conducting a pilot health promotion program for African immigrant women. Gondek et al. (2015) (n=348) developed a single session culturally tailored breast health education project that significantly improved both knowledge scores ($p < 0.001$) and mammography uptake, with 43% of African participants obtaining screening after the educational intervention. Four studies utilized peer mentors to deliver culturally tailored education in either individual or group settings, and all found statistically significant increases in both knowledge and screening outcomes (Dunn et al., 2017; Lofters et al., 2017; Mbachu et al., 2017; Percac-Lima et al., 2013). Three systematic reviews also added to the evidence that culturally-tailored education promotes screening uptake in ethnic minority women (Chan & So, 2015; Escribà-Agüir, Rodríguez-Gómez, & Ruiz-Pérez, 2016; Han et al., 2009). Chan and So (2015), Escribà-Agüir et al., (2016) and Han et al. (2009) found statistically significant increases in both screening uptake and knowledge in studies utilizing culturally-tailored education.

Community Health Outreach Workers

Four systematic reviews analyzing interventions to increase screening uptake among ethnic minorities found support for community health workers (CHWs) (Escribà-Agüir et al.,

2016; Genoff et al., 2016; Glick, Clarke, Blanchard, & Whitaker, 2012; Wells et al., 2011). A meta-analysis of 18 experimental research studies utilizing CHWs to improve mammography uptake among ethnic minorities revealed a statistically significant increase in screening with the use of CHWs (risk ratio = 1.06) (Wells et al., 2011). Genoff et al. (2016) found that interventions incorporating linguistically-matched patient navigators for patients with limited English proficiency increased breast cancer screenings anywhere from 17-25%, and up to 60% for Pap testing. Escribà-Agüir et al. (2016) found that six out of seven experimental studies involving peer educators reported statistically significant increases in screening uptake, breast and/or cervical cancer knowledge, and/or intention to screen. Glick et al. (2012) found that seven out of seven studies delivering multicomponent interventions with peer mentors improved Pap test uptake.

Four experimental quantitative studies also established support for CHWs. These interventions involved training women within the target culture to assist in delivering breast and/or cervical cancer education and provide patient navigation to under screened participants (Dunn et al., 2017; Lofters et al., 2017; Mbachu et al., 2017; Percac-Lima et al., 2013). All studies reported increases in screening in both never screened and under screened participants (Dunn et al., 2017; Lofters et al., 2017; Mbachu et al., 2017; Percac-Lima et al., 2013).

Lastly, an analysis of six qualitative research articles regarding Somali or immigrant women's beliefs and attitudes toward preventive health care and cancer screening and one mixed methods study supported the use of culturally-matched CHWs (Brown et al., 2011; Filippi et al., 2014; Francis et al., 2014; Pavlish, Noor, & Brandt, 2010; Raymond et al., 2014; Saadi et al., 2015). Cross-sectional surveys, focus groups, and personal interviews with a large immigrant population in urban Ontario found that under screened individuals reported the influence of

friends and family as a facilitator to obtaining cancer screening (Gesink et al., 2016). Qualitative research revealed Somali women face many barriers to accessing preventive health care services, such as difficulty navigating health care systems, language and cultural barriers to obtaining screening, and fear or mistrust of healthcare providers (Brown et al., 2011; Filippi et al., 2014; Francis et al., 2014; Pavlish et al., 2010; Raymond et al., 2014; Saadi et al., 2015). CHWs help to overcome these barriers by improving trust between the healthcare system and Somali women through peer mentorship and reducing system and language barriers through patient navigation (Brown et al., 2011; Filippi et al., 2014; Francis et al., 2014; Pavlish et al., 2010; Raymond et al., 2014; Saadi et al., 2015).

Enhancing Access to Screening

Two systematic reviews and two meta-analyses provide support for access enhancing strategies (Escribà-Agüir et al., 2016; Glick et al., 2012; Han et al., 2011, 2009). Han et al. (2009) found increasing participant access to reduced cost screenings, mobile mammography vans, and/or appointment facilitation resulted in the largest effect size ($d = 0.155$) when compared to other intervention components to increase breast cancer screening (Han et al., 2009). Similarly, Han et al. (2011) found that cervical cancer screening among ethnic minority women had the greatest increase with interventions that reduced cost or access barriers ($d = 0.253$). Glick et al (2012) and Escribà-Agüir et al., (2016) both noted statistically significant improvements in female cancer screenings after interventions that enhanced access to screening services.

Two quantitative (Dunn et al., 2017; Harcourt et al., 2014) and two qualitative (Francis et al., 2014; Saadi et al., 2015) research studies also provided evidence for the effectiveness of enhancing access to screening. Dunn et al. (2017) found that removing financial and logistical

barriers to screening resulted in 26% of eligible women participating in Pap testing and 36% of eligible women obtaining mammography, compared to 9% and 14% in the control group. Harcourt et al. (2014) found that unemployment status ($p < 0.001$) and difficulty paying health insurance premiums ($p < 0.010$) significantly correlated with decreased likelihood of Pap testing. Francis et al. (2014) and Saadi et al. (2015) revealed through qualitative analysis that refugee women identified lack of transportation, work and childcare responsibilities, and financial costs as significant barriers to obtaining preventive health care services, including cancer screenings.

Utilizing Community Settings

Qualitative literature that explored Somali women's attitudes and health beliefs regarding preventive health care and cancer screening revealed three salient themes that support utilizing community settings for female cancer screening health promotion. These themes include lack of awareness of the need for preventive health services, holistic views of health, and difficulty navigating health care systems (Brown et al., 2011; Francis et al., 2014; Pavlish et al., 2010; Saadi et al., 2015). While American women receive cancer screening prompts from their health care providers, Somali women may not access health care services for wellness purposes and thereby miss these cues to action (Brown et al., 2011; Pavlish et al., 2010; Saadi et al., 2015). Similarly, Somali women report difficulty navigating the health care system and state community interventions are vital to reaching the Somali population (Filippi et al., 2014; Francis et al., 2014; Saadi et al., 2015).

The majority of experimental studies analyzed by three systematic reviews took place in community settings (Chan & So, 2015; Escribà-Agüir et al., 2016; Han et al., 2011). After enhancing access to cancer screening, Han et al.'s (2011) meta-analysis found that community education had the second largest effect size on cervical cancer screening outcomes among

minority women (d = 0.167). Similarly, Escribà-Agüir et al. (2016) and Chan and So (2015) reported community based efforts and small group education sessions were associated with an increase in screening uptake and knowledge outcomes.

Five single quantitative studies conducted cancer screening initiatives among immigrant, refugee, or minority women in community settings (Dunn et al., 2017; Gondek et al., 2015; Lofters et al., 2017; Mbachu et al., 2017; Piwowarczyk et al., 2013). Although study interventions differed, each provided small group education at community sites. Lofters et al. (2017) and Piwowarczyk et al. (2013) reported statistically significant increases in participants' intent to obtain screening, while Gondek et al. (2015), Dunn et al. (2017), and Mbachu et al. (2017) reported statistically significant increases in both cancer knowledge and screening uptake after the interventions.

Summary of Findings

Synthesis of evidence suggests that enhancing access to screening along with culturally tailored education with CHWs in a community setting is effective in increasing breast and cervical cancer screening in ethnic minority women. This evidence directly addresses the inquiry by supporting the concepts and variables inherent in the research question. Therefore, a project utilizing these themes to increase breast and cervical cancer screenings in a Somali population in Kansas City would be evidence-based and supported by CDC Healthy People 2020 guidelines (ODPHP, 2018).

Theory

Social Cognitive Theory (SCT) was applied to the EBP project (see Appendix D). SCT provides a theoretical basis for initiating and maintaining health seeking behavior (Bandura, 1998). In order to increase participants' receipt of breast and cervical cancer screenings, the EBP

project must address behavioral, personal, and environmental factors that either encourage or discourage health seeking behavior (Bandura, 1998). Two concepts critical to understanding SCT include self-efficacy and outcome expectations (Bandura, 1998). The student investigator theorized that education and peer support would increase self-efficacy and outcome expectations, leading to health-seeking behaviors (mammography and Pap test uptake). Lastly, conducting the intervention within a community setting acknowledged the role of social structures in determining health behaviors, with the goal of improving the study population's social norms towards breast and cervical cancer screening (Bandura, 1998).

SCT is a borrowed theory that has been tested and used to guide public health and health promotion research interventions (Bandura, 1998). Three systematic reviews reported SCT as a theory commonly utilized in cancer screening initiatives among ethnic minorities (Chan & So, 2015; Han et al., 2011, 2009). Gondek et al. (2015) utilized SCT to develop the Immigrant and Refugee Health Education Program to increase mammography in a refugee population in Buffalo, New York. This EBP project closely aligns with this example.

Methods

IRB Approval and Ethical Considerations

This project required IRB approval from UMKC. The medical director of the collaborating clinic agreed to accept the UMKC IRB. This project met criteria for human subjects research according to the UMKC IRB and was filed under expedited review category seven (University of Missouri - Kansas City, 2018). The student investigator received initial approval from the IRB on October 10, 2018. Three subsequent IRB amendments were also filed and approved as adaptations were made to the intervention protocol. Ethical considerations taken into account included presenting the education in a culturally sensitive manner. Women's health

topics can be considered stigmatizing or taboo among women of East African culture (Ghebre et al., 2015). To address this concern, the student investigator collaborated with the Somali CHWs and with content experts to ensure delivery was culturally competent. Additionally, by providing one-on-one peer mentorship and appointment facilitation following the education session, the student investigator and the CHWs were able to provide support to participants who consented to follow up. Privacy was a concern in this project, as surveys were used to collect data. Phone numbers were collected from participants who consented for follow up. Only the student investigator had access to the stored private information. Data and personal information collected were held doubly secure in a locked box in a locked closet. The data was entered into RedCaps and destroyed after the three month follow up period. The student investigator has no research conflicts to report.

Funding

The student investigator received funding from the UMKC Women's Council Graduate Assistance Fund and the Lambda Phi chapter of Sigma Theta Tau. Funding covered costs for printed educational material and consent forms to be translated into Somali, compensation for CHW training time, printing and materials costs, light snacks for the educational sessions, and the student investigator's dissemination efforts at a national conference.

Setting & Participants

The first education session was held at a community meeting room open to non-profits in Kansas City. The second and third education sessions were held at a community Somali mosque and community center. Approval was given from the mosque's executive director and approved by the UMKC IRB. Eligible participants identified Somalia as their country of origin. All participants were females aged 21– 74. Eligible participants spoke English or Somali.

Convenience and snowball sampling were used to recruit participants at the mosque. The student investigator expected 15 Somali women to participate in the EBP pilot project.

EBP Intervention

The EBP intervention integrated the four themes identified from the synthesis of evidence: (1) culturally-tailored education, (2) community health workers, (3) enhancing access to screenings, and (4) utilizing community settings. The student investigator developed a 1.5 hour educational program consisting of informational videos, interactive discussions with Somali community health workers, and an educational PowerPoint. Materials development took place from June to July, 2018. IRB application approval process took place from August to October 2018. The student investigator recruited and trained three Somali CHWs from October to November 2018. Materials translation from English to Somali language occurred from October to November 2018. Recruitment of the CHWs took place through communication with the president of the regional Somali community association to identify appropriate Somali women to be trained as CHWs. Requirement for the CHWs included English and Somali proficiency, healthcare background or experience, and an interest in providing community health education. Training consisted of CITI training, breast and cervical cancer screening information, effective peer mentorship techniques, the role of the CHW, ethical considerations, expectations for the project, and appointment facilitation opportunities. Recruitment took place at the mosque. The student investigator and the CHWs recruited eligible Somali women who attended the mosque for Friday prayer services or who brought their children to Saturday morning Quran classes. Recruitment took place in the form of flyers and word of mouth of mouth advertising for the "Somali Women's Health Class" presented by the collaborating clinic (see Appendix E for the recruitment flyer).

The educational workshops took place on December 8, February 23, and March 2 (see Appendix F for Project Timeline Flow Graphic, Appendix G for Intervention Flow Diagram, and Appendix H for Logic Model). The CHWs verbally presented the informed consent document (see Appendix I for IRB approval letter, see Appendix J for informed consent document). Participants were allowed to exit the workshop or ask questions before the educational session began. Then the CHWs assisted participants in completing demographic information, history of Pap testing and/or mammography, and intention to screen questionnaires. The participants watched two educational video clips in Somali freely available from the Office for Refugee Resettlement, a federal subset of the Department of Health and Human Services. The CHWs then presented an educational PowerPoint created by the student investigator, which included information on breast and cervical cancer statistics, risk factors, specific cultural and/or religious myths Somali women may have concerning cancer, signs and symptoms of cancer, and cancer screening guidelines. Information for this PowerPoint came from the CDC and cancer screening guidelines from the U.S. Preventive Services Task Force, as well as the previously conducted qualitative literature synthesis. In addition to the educational videos, participants received the opportunity for discussion and to ask questions regarding the material. The student investigator, the CHWs, and the student's preceptor answered these questions (see Appendix K for Intervention Materials).

Participants were asked to consent to a two month follow up after the workshop in order to allow the CHWs and the student investigator to continue to facilitate access to screenings. Following the education, the CHWs and the student investigator provided one-on-one appointment facilitation via phone call for participants, including educating participants about community resources for free or reduced cost screenings. Participants were contacted by a CHW

and the student investigator by phone at two weeks, one month, and two months to determine appointment facilitation needs and collect outcome data.

Change Process & EBP Model

The Transtheoretical Model of Health Behavior Change supported the implementation of this breast and cervical cancer screening initiative in a Somali refugee population. This model purports that individuals exist along a continuum of readiness to enact behavior change (Spencer, Pagell, & Adams, 2005). Spencer et al. (2005) performed a comprehensive literature review to validate the constructs within this model when applied to cancer screenings, and researchers found sufficient evidence to support the applicability of this change model to mammography interventions. The Stetler Model of Evidence-based Practice was used to guide the integration of this project into a community organization and community health clinic. Public health programs often utilize the Stetler Model as it provides a meaningful guide for researchers to integrate EBP into an organization from research findings to project implementation and evaluation (National Collaborating Centre for Methods and Tools, 2011).

To maximize sustainability, the student investigator provided all educational materials used during the project to the CHWs and the collaborating clinic for further use. This education may be applied directly to another Somali-targeted program or may be edited for use with other refugee groups. CHWs have been encouraged to remain as resources to the project site.

Study Design

The pilot study was intended as a quasi-experimental, single group design with pre- and post-intervention outcome measures. Post-intervention data was compared to pre-intervention data and national benchmark data to assess for statistically significant outcomes (Dunn et al., 2017; Gondek et al., 2015; Piwowarczyk et al., 2013). CHW training included aspects of ethical

research (CITI training), breast and cervical cancer information, and training on the role of the CHW and expectations for the project. In addition, the student investigator asked two of the CHWs to provide written answers to questions regarding their experience during the project. CHWs provided informed consent for their written interviews to be collected as data. This data will be used to inform future interventions through feedback about the project from the CHWs.

Validity

Project internal validity was promoted through clear conceptualization of outcome measures and standardization of intervention components. The primary outcome measure of screening guideline adherence directly related to the project's purpose, and therefore accurately determines whether the project's methods achieved the desired outcome. All participants received the same education, which minimizes differences in intervention quality. Furthermore, community health workers received training prior to the intervention to minimize differences in knowledge and skills.

The student investigator sought to enhance external validity by including non-English speaking participants. Because new immigrants may have limited English proficiency, it is important to be able to transfer evaluations from the project to a limited English proficiency population. However, because this project focused exclusively on Somali refugee women and educational materials were culturally tailored, generalizability to other ethnic groups is limited. The educational materials will be made available for future workshops, as well as materials utilized in training the CHWs.

Outcomes

The primary outcomes of this project included receipt of mammography and Pap testing as indicated per the U.S. Preventive Services Task Force recommendations. Additionally, all

participants' intention to receive screening was assessed prior to and immediately following the education. Intent to receive screening has been utilized frequently in cancer screening initiatives to evaluate education programs (Alexander et al., 2014; Chan & So, 2015; Lofters et al., 2017; Piwowarczyk et al., 2013); however, self-report surveys do represent potential bias in this project. Qualitative information was also collected from the CHWs following completion of the project to gain insight into their experience during the process.

Measurement Instruments

The primary outcome measurement took place through participants' self-report of screening status. Participants were contacted via telephone to determine screening status post-intervention. Participants were asked whether they had received a Pap test and/or mammogram, depending on their recommendation per the U.S. Preventive Services Task Force recommendation (U.S. Preventive Services Task Force, 2012, 2016).

As a secondary outcome measure, participants were given a survey before and after the program asking them to rate their intention to receive a Pap test or a mammogram in the future if they are not currently up to date. The student investigator hypothesized that if the education program is effective, intention to screen scores will increase after the education.

Written data was requested from the CHWs using a written instrument created by the student investigator. The document included questions regarding the CHW's experience during the project, lessons learned, and feedback regarding project processes and community engagement (see Appendix L for Measurement Tools).

Data Quality

Due to the limited sample size, no power analysis was conducted. Pre- and post-education screening adherence and pre- and post-education intention to screen scores were

compared to determine the intervention impact (see Appendix M for the Data Collection Template). Data collected from this project was compared to benchmark published data (Dunn et al., 2017; Piwowarczyk et al., 2013). Threats to data quality included self-report measures and literacy barriers. While self-report measures often overestimate significant effects, obtaining health record data is not possible for all participants and poses threats to participant privacy. Literacy barriers made it difficult for some participants to complete the written demographic survey and intention to screen questionnaire. Some participants requested the surveys in Somali written language while others requested English surveys. It is possible that data quality was compromised in the surveys due to language and literacy barriers. The student investigator sought to minimize these threats by utilizing oral communication when possible and providing translation services through the CHWs during the intervention to assist participants with limited literacy skills.

Analysis

The dependent variables in this study, adherence to screening guidelines for breast and/or cervical cancer and intention to screen, are dichotomous variables, and the outcome measure was tested within the same group before and after the intervention. Therefore, McNemar tests were used to determine statistical significance (see Appendix N for the Statistical Analysis Table). Demographic data was collected and analyzed using descriptive statistics to assess characteristics that may be linked to screening adherence and patterns within the sample. Due to the limited sample size, inferences regarding the data gathered are limited.

Results

The intervention took place from December 2018 to March 2019. Data was collected from December 2018 to May 2019. Data was entered into REDCap for secure storage and SPSS was utilized for statistical analysis.

Settings & Participants

The conception of the project was finalized from June to August 2018. Intervention components took place from August 2018 to May 2019. The three educational sessions took place in two locations. The first session took place in a community meeting site used by non-profit institutions. The second and third educational sessions took place at the Somali mosque. Three Somali women were trained to participate in the project at CHWs. Twenty Somali women attended the educational sessions, and 11 of these attendees consented to provide demographic information and history of screening, complete the intention to receive screening questionnaire, and be contacted for follow up.

Intervention Course

During July 2018, the student investigator collaborated with the clinic physicians to finalize intervention materials. The student investigator and preceptor then met with the president of the regional Somali community association to gain community support for the project and ask for assistance in recruiting community health workers. With assistance from the regional Somali community association, the student investigator approached three Somali health care professionals to explain the project and request their involvement in the project as CHWs. Project-specific training took place at the UMKC Health Sciences Library at a one, three-hour training meeting. CHWs then completed CITI training and American Cancer Society community initiative training independently. Participant recruitment for the educational sessions took place on Fridays and Saturdays during December, February, and March at the Somali mosque after

obtaining consent from the Executive Director. Recruitment targeted Somali women coming to times of prayer or bringing their children to attend Quran classes, and took place in the form of verbal communication and written flyers.

The first class took place on December 8, 2018. Two Somali women attended and participated in the session. Both provided demographic information and self-reported current adherence to screening recommendations for their age range. Although three additional educational sessions were planned during January and February, the student investigator was forced to cancel these three sessions as the mosque closed due to inclement weather. The second class took place on February 23, 2019. Five women attended the educational session, but only two women consented to provide participant data. Both participants were identified as under screened for breast and/or cervical cancer, and underwent follow up with the CHWs and the student investigator. The third educational session took place on March 2, 2019. Thirteen women attended the educational session, but only seven women provided participant data. Of these, four participants were identified as under screened or unknown screening status and underwent follow up. From March 11 to May 2, the under screened or unsure participants received follow up phone calls to verify need for screening, assist in recognizing an appropriate screening site, remind participants' regarding appointments, educate regarding available community resources, and collect post-intervention screening uptake data.

Outcome Data

Demographic data. Eleven participants provided demographic data. Some participants did not fully complete all questions on the survey. The mean age of participants (N = 9) was 36.4 years of age. The mean length of residence in the United States (N=10) was 12.8 years. The mode for highest education status (N = 8) was secondary school with 37.5% of participants

indicating they had some secondary schooling (n = 3). Fifty-percent of the 11 respondents indicated they were unemployed (n = 5). Of clinical significance, 77.8% of respondents (7/9) reported they were uninsured, while 22% (2/9) indicated they were enrolled in Medicaid.

Pre-intervention screening status. Only one participant was over 49 years of age, meeting criteria for mammography according to the U.S. Preventive Services Task Force. The participant indicated "Unsure" for her previous mammography status. Out of 11 participants, 55.5% (n = 6) self-identified as adherent to Pap testing screening guidelines (previous screening 0-36 months ago). One participant identified as under screened with previous Pap test > 36 months ago, and one participant identified as never screened with no previous Pap testing. Twenty-two percent of respondents (n = 3) were unsure of their prior history of Pap testing.

Post-intervention screening status. Seven participants were followed up via phone call as indicated by their pre-intervention survey data. Two of the seven participants contacted their providers and found they were up-to-date on their screening status and no longer required follow up. Following the final phone call follow up at two to three months, one eligible participant reported receiving her recommended screening at a well woman examination. Two participants reported appointments had been made with the intention of receiving recommended screenings in the next two months. One participant reported inability to receive screening due to loss of Medicaid and ineligibility for entrance into the local safety net clinic's preventive services. One participant never screened for Pap testing stated unwillingness to undergo screening at this time and denied desire for further follow up. There was a 25% increase in screening uptake (one in four participants),

Intention to receive screening. Prior to the educational session, four participants self-identified as under or never screened for Pap testing. Three of these participants completed the

intention to screen questionnaire. Two of the three participants stated they intended to receive Pap testing in the next 12 months, one participant stated they were unsure whether or not they intended to receive Pap testing in the next 12 months. After the educational session, these three participants answered identically to their pre-intervention questionnaire. Prior to the educational session, the one participant eligible for mammography indicated intention to screen in the 12 months. The participant again answered affirmatively that she intended to receive screening on the post survey.

Discussion

Successes

Seven participants were followed up after the educational session, and four participants were assisted in making appointments to receive a Pap test and/or mammogram. One participant eligible for Pap testing received her recommended screening. The project team provided culturally-tailored education in a community setting regarding breast and cervical cancer, screenings, and preventive health care to 20 Somali refugee women. Three Somali health care professionals underwent training to participate in current and future community health education projects in partnership with the collaborating clinic. Community partnerships were formed between the clinic, the regional Somali association, and the Somali mosque.

Study Strengths

The EBP project and intervention closely aligned with the interventions found during the synthesis of evidence. The methodology of the EBP project protected the internal and external validity of the project. Support from the clinic providers was instrumental in connecting with the Somali community in Kansas City, and allowed the student investigator to form relationships with influential community partners. The three Somali CHWs excelled in their role due to their

medical knowledge, close connection to the Somali community at the mosque, and linguistic proficiency. This project could not have been completed without their commitment and dedication to the project. The student investigator received financial resources to provide compensation for the CHWs training time, translation of educational materials from English to Somali, and dissemination of the project at a national healthcare conference.

The EBP project proved complex to implement due to the high number of intervention components. The EBP project required extensive planning hours and coordination between the student investigator, the CHWs, and the project preceptor. The CHWs provided feedback that the educational materials were well-suited to the participants, culturally engaging, and linguistically appropriate. Although 20 women attended and engaged in the educational sessions, only 11 consented to provide data for the project. This limited the success of implementing the intervention. The student investigator hypothesizes that privacy concerns and limited literacy levels may have prevented the other nine women from sharing their information.

Results Compared to Evidence in the Literature

Approximately half of the participants, five of eleven, who submitted data were under screened for breast and/or cervical cancer. This is comparable to the literature on Somali refugee women in other studies and health centers that indicated more than 50% of Somali women are under screened for breast and/or cervical cancer (Harcourt et al., 2014; Morrison et al., 2012). One out of four participants eligible for Pap testing reported receiving a Pap test post-intervention. This represents a 25% increase in screening uptake following the educational session. Two other participants indicated they would be receiving a screening within the next two months; however, this could not be confirmed as the appointment dates were outside of the follow up timeframe. Although this is lower than the literature findings of 25-60% increases in

screening uptake post-intervention , a longer follow up period may have increased the post-intervention screening rate (Dunn et al., 2017; Genoff et al., 2016; Glick et al., 2012; Gondek et al., 2015). Additionally, 75% of the participants did not have health insurance which was consistent with the qualitative literature stating Somali women often lack access to healthcare and have financial concerns regarding healthcare (Carroll et al., 2007; Francis et al., 2014; Saadi et al., 2015).

Limitations

The student investigator has identified several limitations to the EBP project. These limitations affect internal validity, external validity, and sustainability of the intervention. Efforts to minimize these limitations are discussed.

Internal Validity Effects

Selection bias may have been introduced into the study as convenience sampling was utilized, and nine of the 20 Somali women present for the class declined to provide data for the EBP project. It is likely that the participants who consented to provide data were more motivated to receive screening than the attendees who did not provide data. This increases the likelihood that the intervention was not responsible for the increase in screening uptake among some participants. Secondly, error and/or bias may have been introduced into the study during collection of written data through the demographic surveys and intention to screen questionnaires. These surveys required at least a 5th grade reading level, and several participants struggled to complete the questionnaire without assistance from the CHWs and student investigator. It is possible that incorrect answers were given during completion of the written surveys. Furthermore, this EBP project relied upon self-report for outcome measurement, and self-report is known to introduce potential bias into research studies.

External Validity Effects

Participants represented a moderately homogeneous sample which limits the generalizability of this project. All participants identified as Somali, most were uninsured, and most were between the ages of 30-45. All educational materials were designed to directly target Somali refugee women who have immigrated to the U.S. Cultural considerations informed project intervention elements. Therefore, project materials, intervention design, and outcome analysis would be difficult to generalize to a non-Somali population. However, this EBP project adds to the body of knowledge suggesting that culturally and linguistically tailored education delivered by CHWs in a community setting may be helpful in increasing cancer screenings among limited-English proficiency participants.

Sustainability of Effects and Plans to Maintain Effects

The sustainability of this project depends upon the desire and willingness of the clinic and the CHWs, who have stated their interest in continuing the project. The student investigator will continue to be a resource to the clinic and encourage the CHWs to continue the educational sessions (see Appendix O for CHW feedback responses). All educational materials have been provided to the clinic for further use.

Efforts to Minimize the Study Limitations

In order to minimize the limitations, the student investigator and the CHWs attempted to assist participants in filling out the written surveys to minimize literacy barriers. Additionally, by advertising for and holding three separate educational sessions, the student investigator hoped to expand the participant characteristics and minimize convenience sampling bias. Developing the materials at the lowest reading level possible and translating all materials into Somali language also constituted attempts to minimize language and literacy barriers.

Due to the limitations, this study should not be used to infer causation between the intervention and the outcomes. This study's usefulness lies in reporting the feasibility and reproducibility of a community health project for Somali refugee women. Further efforts to advance breast and cervical cancer screenings in this population could benefit from these findings.

Interpretation

Interpretation of the project outcomes is limited by the sample size of the pilot project. However, evaluation of the project provides helpful insight into future efforts, intervention revision, and effective intervention methods.

Expected and Actual Outcomes

The student investigator anticipated 15 Somali women would participate in the EBP project. Although 20 Somali women attended the classes, only 11 provided participant data. Secondly, the student investigator anticipated that intention to receive screening would increase following the intervention. Finally, some follow up phone calls resulted in no answer, limiting the ability of the CHWs to provide peer mentoring and appointment facilitation.

Qualitative data included in the synthesis of evidence identified that Somali refugee women may mistrust healthcare providers (Francis et al., 2014; Raymond et al., 2014). This may account for the low rate of participation in providing data for the EBP project. Refugees come from trauma informed backgrounds, which may cause hesitation for participation in a research study. Self-report bias may explain the high intention to receive screening results pre-intervention, or may be a result of selection bias.

Intervention Effectiveness Inferences

While it is difficult to infer causal relationships in the study data due to limited sample size, the student investigator believes the study's effectiveness is due mainly to the CHWs' contributions to the study efforts. Due to their cultural and linguistic congruence with the study sample, the participants may have felt comfortable to engage in the project and provide contact information for follow up. Without assistance from the CHWs, this project would not have been possible. Additionally, community partnerships formed with the regional Somali community association and the Somali mosque proved vital in connecting the student investigator to the Somali community. Intervention components that aligned closely with effective studies identified in the synthesis of evidence included culturally adapted educational information, oral presentation of information, Somali translated education, the use of CHWs, and the use of familiar, community settings. The student investigator infers that these intervention components represent components of the intervention that assisted with the intervention's effectiveness. Family practice settings and community settings alike may utilize this intervention protocol for projects to increase breast and cervical cancer screenings among Somali women. The intervention is low-cost, feasible, and easily replicated in these settings.

Intervention Revision

Several revisions were made to the intervention protocol during project implementation after feedback from the CHWs and the preceptor. The first revision involved the method of receiving follow up screening uptake data. The CHWs expressed concern that asking participants to mail in a survey was cumbersome; thus, the student investigator amended the protocol to include post-intervention screening uptake data collection during the follow-up phone calls. The second revision involved the site of the educational sessions. The initial education session had only two individuals in attendance despite positive feedback during recruitment efforts at the

Somali mosque prior to the session. Therefore, the student investigator, in collaboration with the CHWs and the student's preceptor, sought approval from the mosque to hold the educational sessions in the mosque. This proved more successful in recruiting participants due to the familiarity and convenience of the setting.

Further interventions that would be helpful in future efforts would be to expand the educational sessions to other sites around the city to reach larger numbers of Somali women. The CHWs suggested that future interventions also offer one-on-one education, as the CHWs theorized that the low rate of survey completion may have been due to privacy concerns of completing a health-related survey in a public setting. Finally, collaborating with a health clinic or system able to provide the breast and cervical cancer screenings would provide an easier linkage to care system through the project. This was not available for the project.

Expected and Actual Impact to Health System, Costs, and Policy

The EBP intervention impacted the collaborating clinic by creating new avenues for delivery of community health education to a vulnerable, underserved population. This project has allowed the collaborating clinic to form partnerships with community agencies in order to strengthen their outreach efforts to the community. No costs were incurred to the health system, and no cost savings were identified. The estimated costs for this study were $1,219, and the actual cost was $1,222.24. The majority of these costs were one-time costs, so ongoing economic sustainability is favorable for the project. A screening fund to assist uninsured individuals would constitute the main monetary need in future projects. This study received funding from the UMKC Women's Council and the Lambda Phi chapter of Sigma Theta Tau international.

Other Opportunities

The student investigator has been approached by a physician and researcher for the American Academy of Family Physicians who would like to continue and expand the project efforts. The student investigator plans to meet with the physician, the student's preceptor, and Somali community partners to discuss this opportunity.

Conclusion

The EBP intervention addressed a health disparity recognized by national and local data. This project sought to empower Somali refugee women to obtain preventive female cancer screenings, a public health practice that has the potential to reduce cancer morbidity and mortality. The EBP intervention is low-budget and easily repeatable, as the student investigator will make all educational materials available for further use. The educational materials created and compiled for this community project could continue to be utilized to improve processes of care during the collaborating clinic's ongoing community outreach programs, in family medicine settings, or in other community settings. Long-term follow up data would be useful in discovering the impact of the project's effects at the six month and one-year mark.

The student investigator disseminated findings through a poster presentation at the Institute for International Medicine's 2019 Humanitarian Conference in April. The project was presented to a variety of attendees, including medical and nursing students, physicians, and APRNs. The student received the award for best poster in the Professional Research and Innovations category at the conference.

Somali women experience significant health disparities related to breast and cervical cancer screenings, which may lead to adverse health outcomes. Synthesis of evidence suggests that enhancing access to screening along with culturally tailored education delivered by CHWs in a community setting is effective in increasing breast and cervical cancer screening in ethnic

minority women. This project incorporated these topics into a feasible and evidence-based intervention protocol.

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Appendix A

Definition of Terms

Refugee: someone who has involuntarily left his or her country due to oppression, threat to personal safety, or war (The UN Refugee Agency, 2018).

Community health worker: a community member and/or peer mentor who works as a partner between the participant population and the medical community (American Public Health Association, n.d.).

Papanicolau (Pap) test: an analysis of cervical cells to detect cancer or dysplastic cells (National Cancer Institute, n.d.).

Mammogram: x-ray of the breast to detect cancer or other lesions (National Cancer Institute, n.d.).

Human papillomavirus: the virus identified in the majority of cervical cancer cases (National Cancer Institute, n.d.).

Self-efficacy: one of the key concepts of Social Cognitive Theory (Bandura, 1998). Self-efficacy relates to an individual's confidence and willingness to perform a given action (Bandura, 1998).

Outcome expectations: one of the key concepts of Social Cognitive Theory (Bandura, 1998). Outcome expectations refers to an individual's perception, either positive or negative, of the result of a given action (Bandura, 1998).

Appendix B

Cost Table for Project

Item	**Item description**	**Quantity**	**Cost per unit**	**Actual cost**
Cancer screening fund	Fund to assist in paying costs for Pap tests and mammograms for uninsured participants	15 participants	$25	$0
Document translation	Translation of educational materials into Somali	2,789 words	$0.22 per word	$631
Community health workers	Compensation for training time and project time	3 workers	$100	$300
Snacks	Food and water provided during education time	N/A	N/A	$10
Educational materials	Manilla envelopes to hold participant documents, printed education materials	25 folders, 25 follow up cards	N/A	$16.24
Project Dissemination	Printed poster, INMED Humanitarian Health Conference fee	1 poster 1 conference admission	Poster: $65 Conference: $200	$265
Total				$1,222.24

Appendix C

Synthesis of Evidence Table

In Somali refugee women aged 21-74, does culturally tailored education utilizing health outreach workers compared to no intervention increase breast and cervical cancer screening uptake over six months in a community health clinic?						
• **Author** • **Level of evidence** • **Abbreviated title**	• **Research design** • **Independent variable(s)** • **Dependent variable(s)**	**Sample** • **Subjects** • **Sampling method** • **Racial Ethnicity**	**Intervention** • **Content** • **Setting** • **Theory**	• **Outcome Measures** • **Reliability**	• **Results** • **Analysis Used**	• **Usefulness** • **Limitations**
Evidence Topic: Culturally tailored education[1]						
• (Escribà Agüir, Rodríguez-Gómez, & Ruiz-Pérez, 2016) • Level 1 • "Patient interventions to promote cancer screening among minorities"	• Systematic review • Client-targeted intervention • Cancer screening uptake, knowledge, health beliefs	• 14 RCTs; 3 QE** studies • Medline, Ovid, CINAHL, Embase • African Americans, Latinos, Asians	• Education, patient navigation, peer mentors, small groups, one-on-one, free/low cost screenings, patient reminders • Community and primary care settings • Not identified	• Primary outcomes: Breast and/or cervical cancer screenings; knowledge/attitudes/intent to screen • Quality Assessment Tool	• 3/3 significant Pap increase ($p<.001$-$p<.008$) • ¾ significant increase in mammography uptake ($p<.0001$-$p<.01$) • Both: 2/3 effective ($p=.029$-$<.05$) • PRISMA guidelines for SR	• Strong support for Culturally-tailored education[1], small group setting[4], peer mentors[2], & reducing barriers[3]; • No meta-analysis; interventions and settings varied widely among studies; not specific to Somalis or African immigrants
• (Gesink et al., 2016)	• Descriptive data analysis	• Women aged 30-49 (Pap),	• Cross-sectional survey, focus	• Facilitators and barriers to	• Barriers: no cue to action from PCP,	• Support for Education[1] that

• Level V • Cancer screening barriers and facilitators for underscreened populations: A mixed methods study"	study utilizing both quantitative and qualitative data • Geographical location; focus groups/interviews • Cancer screening rates; barriers, facilitators to screening	Women aged 50-74 (mammogram); • Cancer screening and population data to create screening rate map • Immigrants	groups/interviews • Community health settings, surveys distributed to community centers throughout Ontario • Atheoretical	screening • Focus groups conducted for 11 months. Confirmation of data saturation when researchers did not identify new themes.	history of abuse, fear of the test • Facilitators: PCP offering screening, influence of friends/family, • Descriptive Statistics, analytical model to demonstrate barriers, facilitators	addresses need for screening, alleviates fear related to the test; emotional support from peers[2] • Population did not specify ethnic background. May not be generalizable to Somali women.
• (Chan & So, 2015) • Level 1 • "Systematic review examining the effectiveness of breast and cervical cancer screening interventions for ethnic minority women"	• Systematic review of RCTs • Breast and/or cervical cancer screening programs • Cancer/screening knowledge and beliefs, screening intentions, uptake	• 10 RCTs • Ovid, CINAHL, Scopus, PsychINFO, Pubmed • African Americans (n=2), Latinas (n=4), Asians (n=4)	• Culturally-tailored education (n=8), lay health instructors (n=4), access-enhancing strategies (n=8) • Community setting (n=8) • HBM (n=8), SCT (n=2)	• Cancer/screening knowledge and beliefs (n=5), screening intentions (n=3), uptake (n=8) • Reliability & validity reported in 7/10 tools measuring knowledge; uptake outcomes self-reported	• 4/5 showed significant increase in screening knowledge ($p < 0.05$), 3/3 significant increase in intentions ($p<.001$-$.05$), 6/8 significant increase in screening uptake ($p=.01$-$.05$) • Study quality assessed using tools from Joanna Briggs Institute	• Strong support for education, community setting[4], and culturally tailored education[1] • Statistical analysis not delineated • Interventions varied significantly among studies • Not specific to Somali refugees

• (Francis, Griffith, & Leser, 2014) • Level VI • "An investigation of Somali women's beliefs and attitudes about cancer prevention."	• Qualitative (descriptive) • 12 interviews with Somali women in Columbus, OH • Health beliefs, barriers and facilitators to accessing health care	• N=12 Somali women • Convenience • Somali	• One on one personal interviews with 12 Somali women aged 22-65. • Community setting • Health Behavior Theory model	• Themes developed through coding data mined through interview process • Three research team members identified and analyzed themes	• Holistic view of health. Culture and religion (fatalism, modesty, sovereignty of God). Lack of trust in healthcare providers. Emphasis on acute care vs. preventive care. Concerned about cancer. • Descriptive coding	• Somali women highlight the importance of peer educators[2], community buy-in, culturally sensitive providers[1], low cost access to screening[3]. • Small sample size. May not be representative of all Somali women.
• (Glick, Clarke, Blanchard, & Whitaker, 2012) • Level 1 • "Cervical Cancer Screening and Treatment Interventions for Racial and Ethnic Minorities"	• Systematic review of RCTs and QE studies • Patient-targeted intervention aimed at increasing cervical cancer screening • Pap test uptake	• N=25 studies • Medline on OVID, , CINAHL, PsycINFO, Cochrane Systematic Reviews • Hispanic, AA Asian, Native peoples	• Education sessions, patient navigation, increasing access to screening • Individual, primary care, and community settings • No theories identified	• Pap test receipt post-intervention • Studies assessed for quality and graded as good, fair, and poor	• 7/7 studies delivering multicomponent interventions (ex education[4] + peer mentors[2] + reducing barriers[3]); significant improvements in Pap test uptake ($p<.001$-.08) • No meta-analysis	• Strong evidence for multi-faceted interventions over single arm interventions • Heterogeneity of studies significantly limits generalizability of conclusion.

• (Brown, Wilson, Boothe, & Harris, 2011) • Level VI • "Cervical cancer screening among black women: knowledge, attitudes, beliefs, and practices."	• Qualitative (descriptive) • Focus groups • Knowledge of cervical cancer, screening practices, facilitators/barriers to screenings	• N=44 women • Convenience • Haitian descent (n=8); African immigrants (n=5); black Caribbean (n=12); AAs (n=19)	• Focus groups of 10-14 women • Community health centers • Health belief model	• Demographic data, thematic coding by ethnic background • Number of analysts not stated; utilized coding schemes and software to analyze demographic data	• African immigrants least knowledgeable regarding causes, risk factors for cervical cancer. Barriers: cost, fear, lack of knowledge • Thematic concept analysis	• Culturally tailored Education[1] including health providers present (debunking cultural myths, alleviating fears), Participants suggested using culturally matched CHWs[2] as facilitators to care. • Majority not Somali..
• (Carroll et al., 2007) • Level VI • "Knowledge and beliefs about health promotion and preventive health care among Somali women in the U.S."	• Qualitative (descriptive) • In-depth interviews • Somali women's knowledge/attitudes toward cancer screening	• N=34 • Convenience, snowball • Somali women aged 18-53. Duration of residence 2 months – 9 years.	• Interviews with two professional and two lay interpreters for non-English speaking • Locations chosen by individual participants • Grounded theory	• Thematic coding • 3 coders; codes compared for reliability; focus group to validate research findings.	• Only 53% recognized terms "Pap test", "GYN check up", or "pelvic exam." Mammography was recognized by 18% of women. 74% did not recognize the word "cancer" • Thematic coding	• Culturally tailored Education[1]: few understood significance of female cancer screenings. Cultural barriers to openness about personal health.
Subheading: Community Health Workers[2]						

• (Lofters et al., 2017) • Level III • "Ko-Pamoja: lay health educator-led breast and cervical cancer screening program"	• QE study with pre and post measures • Peer education program for breast and cervical cancer screening • Percieved cancer susceptibility, awareness of screening guidelines	• N=30 • Convenience sampling through community sites, word of mouth • Black (n=29), Caucasian (n=1)	• Pilot peer education program utilizing African cultural values to inform the educational approach. • Community • Transtheoretical Model	• Knowledge of screening guidelines and cancer risk factors, and self-efficacy • Unknown tool validation. Small sample size.	• 32.1% increase breast cancer screening knowledge, 58.8% increase in cervical cancer screening awareness. 100% of women eligible to receive Pap testing and 80% for mammography reported intent to screen. • Paired t-tests	• Support that peer Mentors[2] and culturally tailored[1] education increase participant's willingness to screen • Primary outcomes were knowledge/health belief based rather than screening based.
• (Mbachu, Dim, & Ezeoke, 2017) • Level III • "Effects of peer health education on screening for cervical cancer among urban women in Nigeria"	• QE study (pre- and post design) • Peer health education sessions • Perception of risk, perceived benefits, willingness to screen, knowledge, and screening uptake	• N=300 • Multistage convenience sampling • Nigerian women	• Peer health educators conducted twice monthly meetings over 3 months in community parishes. • Community setting • Diffusion of Innovation Behavioral Theory:	• Pre and post test questionnaire. Cervical cancer screening baseline compared to post intervention. • Questionnaire not validated. Self-report.	• Statistically significant increases in perceived risk and severity, perceived benefits of screening. Screening rates rose approximately 7% after the intervention (p=.02). • Chi square test	• Strong support for community education[4] led by peer educators[2] in African women. • These women are in their home country, not refugees. They do not face language barriers

• (Genoff et al., 2016) • Level 1 • "SR of patient navigators' impact on cancer screening"	• Systematic review of RCTs and QE studies • patient navigators, health educators • Breast, cervical, and colorectal cancer screening uptake	• N=15 RCTs • PubMed, PsycINFO, Web of Science, Scopus, Cochrane, EMBASE • Multiethnic	• Language assistance, patient navigation (appointment facilitation) • Community centers, hospital settings, primary care settings • Atheoretical	• Receipt of mammogram or Pap test • Article quality assessed using Downs and Black Scale	• Breast cancer screening increased 17-25%, Pap testing increased as much as 60% in some studies • P-values, Chi squared tests	Peer mentors[2] can be utilized to provide social and language support for limited, reducing language barriers[3]. • Some studies did not include health outreach workers, only interpreters
• (Filippi et al., 2014) • Level VI • "Health Priorities of Somalis living in Kansas City"	• Qualitative (descriptive) • Personal interviews • Identify self-reported health priorities of Somalis in Kansas City	• N=11 • Convenience • Somali refugees (5 male, 6 female; aged 22-71)	• Personal one on one interviews • Conducted • Community based participatory research	• Inductive coding • Only one coder (trained anthropologist with 12 yrs experience)	• Health concerns: lack of knowledge, cost barriers. Participants requested CHWs[2] • Thematic coding; standard text analysis used to identify themes	• CHWs.[2] Information specific to Kansas City Somalis. • Small sample size. Did not focus on cancer screening. Included male persons.
• (Raymond et al., 2014) • Level VI • "Culturally informed views on cancer screening: a qualitative study of Somali immigrant	• Qualitative (descriptive) • Semi-structured focus groups • Breast and cervical cancer knowledge, attitudes toward screening,	• N=29 women • Convenience • Somali immigrant women aged 20-65	• Focus groups • Somali run community organization • Community assets-based approach	• Thematic coding • Two bilingual community health educators conducted focus groups	• Barriers: Lack of preventive health framework in native country (older women); CA assoc. w/ shame, stigma, fear, certain death; fatalism Facilitators: women within the Somali	• Peer mentors[2] Education[1]: dispel myths and provide culturally tailored education • Convenience sample; small sample

women"	barriers/facilitators				community. • Thematic coding	
• (Percac-Lima, Ashburner, Bond, Oo, & Atlas, 2013) • Level IV • "Decreasing disparities in breast cancer screening in refugee women"	• Retrospective cohort study • PN program • Mammogram uptake	• Intervention group: N=188 refugee women. • Sample Of primary care patients from community health center • Somali, Arabic, Serbo-Croatian	• CHWs trained to provide one-on-one education and patient navigation • CHWs contacted patients in their homes. Screening took place in an urban community health center. • Atheoretical	• Mammogram uptake over 2 years • Outcome data Obtained from electronic medical record and insurance billing data (high reliability)	• After one year, intervention, screening rates increased to 77.3%. Increased to 84.7% after two years. • Two-sample t-tests, Chi-square tests	• Strong support for CHWs[2] and culturally tailored education[4] • This program was conducted in a one-on-one environment and with patients already connected to a health system.
• (Wells et al., 2011) • Level 1 • "Do community health worker (CHW) interventions improve mammography screening rates"	• Systematic review of RCTs, QE studies • Interventions utilizing community health outreach workers • Mammogram screening	• N=18 RCTs, QE studies included in meta-analysis • CINAHL, Medline, PsycINFO, Web of Science • Multiethnic	• CHWs, group Education, patient navigation, access enhancing strategies • community settings. • Theories not identified	• Receipt of mammography • 2 reviewers performed data extraction using a standardized tool. Kappa coefficients indicated agreement.	• Meta-analysis of 18 pooled studies revealed statistically significant increase in screening with the use of CHWs (Risk ratio=1.06) • Pre- and post-intervention data used to calculate risk ratios	• Strong support for community education[4] utilizing CHWs[2]. Studies that combined at least 3 intervention strategies were more effective. Heterogeneity of training and oversight for CHWs
Subheading: Reducing barriers[3]						

• (Dunn et al., 2017) • Level IV • "Cervical and breast cancer screening after CARES: A community program for immigrant and marginalized women"	• Matched cohort study • Multifaceted community education program • Pap and mammography screening uptake	• Intervention group: 537 Control group: 1,572 (approx.. 1:3 ratio) • Convenience sampling through community outreach • Multiethnic	• language-specific, peer leaders[2] facilitate groups and conduct follow up • community sites • Ecologic Model framework	• Pap test (participants aged 21-69), mammogram (participants aged 50-74) • Utilized health system data for results (increased reliability compared to self-report)	• 26% of participants eligible for Pap test (under or never screened) completed screening within 8 months. 36% eligible for mammography completed screening. • ORs, hazard ratios, 95% CI	• Addressed facilitators/barriers[3] specific to immigrant women. Culturally tailored education[1]. Large sample size. • Took place in Canada (universal health care, fewer financial barriers)
• (Harcourt et al., 2014) • Level IV • "Factors associated with breast and cervical cancer screening behavior among African Immigrant Women"	• Secondary data analysis from a cross sectional survey • Survey questionnaire • Predisposing factors, perception of need, enabling factors	• African immigrant women • Convenience • Breast cancer cohort: Somali 50%; Cervical cancer cohort: Somali 43%	• Content • Surveys conducted in person at participants' home in the participant's preferred language • Andersen revised model for health care access and utilization	• Mammography and Pap test baseline screening behaviors • No mention of questionnaire validity/reliability	• 55% of Somali women had never received Pap test; 32% never had mammogram. • P values used to determine significance of relationship.	• Interventions to increase screening among Somali women should decrease cost barriers[3] to obtaining screening
• (Pavlish, Noor, & Brandt, 2010) • Level VI • "Somali immigrant women and the	• Qualitative (descriptive) • Focus groups + individual interviews with key informants • Health beliefs,	• N=57 women participating in focus groups; 13 women selected for in-depth interviews • Convenience	• Standardized interview template at each focus group • Community settings • Social ecology theory and social	• Themes developed through inductive coding • Standardized interview tool to ensure consistent	• Holistic view of health vs. biomedical model. Spiritual component of health. Emphasis on lifestyle stress leading to illness.	• Support for peer Mentors[2] and reducing barriers[3] by providing education and screening in a community center • Limited data

American health system"	health care expectations	• Somali women	determinants of health model	themes; Somali interpreter	Sovereignty of God. • Inductive thematic Coding	specifically on cancer screening
• (Han et al., 2009) • Level 1 • "Meta-Analysis of intervention to promote mammography among ethnic minority women"	• Meta-analysis of RCTs and QE studies • Interventions to increase breast cancer screening • Mammogram uptake	• N=23 • Medline, CINAHL, PsychINFO, Web of Science • AAs (n=6), Hispanics (n=2), Asians (n=5), combined (n=10)	• Education, health outreach workers, reducing barriers to screening • Settings not identified • HBM, Transtheoretical Model of Change, Social Learning theory	• Mammogram receipt • More studies utilized self-report than data extraction to confirm outcomes. Study quality and outcomes assessed by two independent reviewers.	• Enhancing access yielded the largest increases in mammography uptake ($p<.001$). CHWs[2] increased effectiveness of the intervention ($p=.261$) • Effect size calculated for overall effectiveness and various subgroups.	• Increasing access to screening[3] resulted in 15.5% increase in mammography.The project should combine theory, culturally-tailored education[1], and access-enhancing strategies for strongest results. • Community setting not significant
Subheading: Community setting[4]						

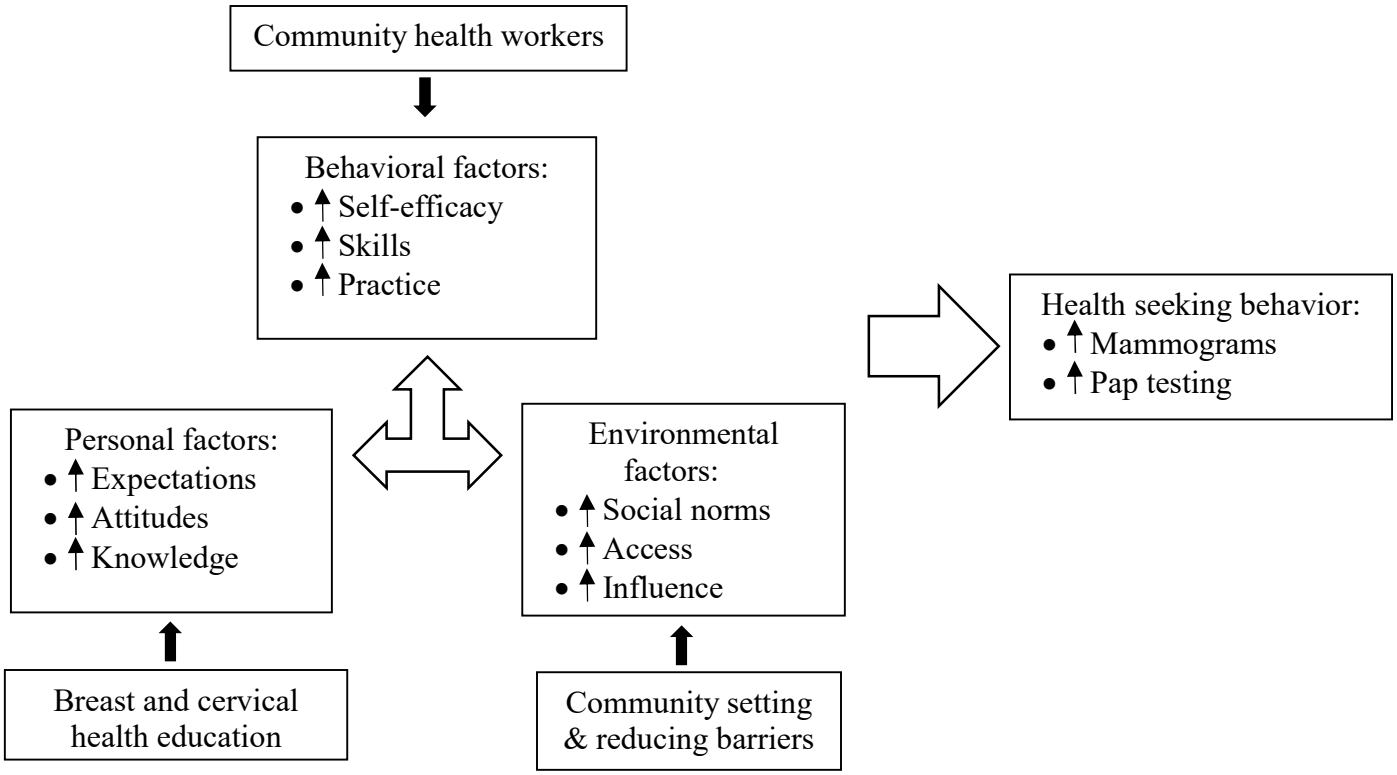
• (Gondek et al., 2015) • Level III (QE) • "Engaging immigrant and refugee women in breast health education"	• QE with pre- and post-test data • Single session culturally & linguistically tailored breast health education offering + patient navigation • Mammogram, breast cancer knowledge	• N=348 • Convenience sampling • Middle Eastern (29.5%), Nepali (20.1%), Burmese/Thai (17/1%), African (16.8%)	• Culturally tailored single session breast health education with patient navigation. Interactive breast model, survivor speaker, female physician. • Community setting • SCT	• Breast health knowledge, mammography receipt • Validity/reliability of pre- and posttest not identified.	• Significant improvement in six knowledge items ($p<.0001$). 35% of eligible study participants received a mammogram • Paired t-tests for knowledge outcome	• Strong support for community setting[4], culturally tailored education[1] • Specific to refugees, including Somalis. • 49% of participants were < 40 y.o. and only assessed knowledge outcome.
• Jones et al (2014) • Level VII • "Interv-entions to reach underscreened populations: a narrative review"	• Narrative review • Interventions to promote cancer screening • Attitudes, awareness, knowledge, behavior, screening uptake	• 48 records included (quant., qual., and SR) • MEDLINE, CINAHL, EMBASE, and PsycINFO • Underscreened populations including ethnic minorities	• 3 strategies found in the literature: (1) community-based interventions, (2) health outreach workers, (3) culturally tailored interventions • Community based (majority) • Atheoretical	• Attitudes, awareness, knowledge, behavior, screening uptake • Studies were assessed for quality and assigned grades 1-4.	• Peer interventions most effective, followed by community-based interventions and culturally tailored interventions. • No meta-analysis. Narrative review only.	• Strong support for health outreach workers[2] and culturally tailored education[1] in a community setting[4]. • Not included in synthesis of evidence

• (Piwowarczyk et al., 2013) • Level III (QE) • "Pilot Health Promotion Program for African Refugee Women: The UJAMBO Program"	• QE with pre- and posttest survey data • Small group education in community • Breast and cervical cancer screening knowledge, intention to obtain screening	• N = 120 • Convenience sampling • Somali women (n = 61); Congolese women (n = 59)	• Culturally and linguistically tailored[1] workshop • Community settings in greater Boston area • Atheoretical	• Pre-post surveys: Pap smear and mammogram knowledge; intent to screen • CDC's Behavioral Risk Factor Surveillance System	• Significant increase in screening knowledge ($p<.001$) and intent to obtain appropriate screenings ($p<.001$) • McNemar tests, paired t-tests	• Supports the use of community-based education[4] for Somali women • No control group; intervention not clearly delineated; screening uptake not primary outcome
• (Saadi, Bond, & Percac-Lima, 2015) • Level VI • "Refugee women speak: health beliefs on preventive health and breast cancer screening"	• Qualitative (descriptive) • Personal interviews • Beliefs regarding preventive care, cancer screening	• N=57 women • Convenience + snowball sampling • Somali (n=17), Bosnian (n=20), Iraqi (n=20)	• Semistructured interview guide (previously developed); one on one interviews • Health care centers/homes • Grounded theory	• Thematic coding • Percentage agreement performed on two independent researchers' codes after categories established	• (1)Psychosocial and personal barriers: fear of pain/diagnosis, modesty work/childcare commitments, fatalism; (2) facilitators to care: interpreters/PNs/CHWs, transportation. • Thematic coding	• Peer mentors[2]: Women gained confidence in obtaining mammography. Authors state culturally tailored education[1] in a community setting[4] reduce barriers. • [2]Potential selection bias
• (Han et al., 2011) • Level 1 • "Inter-ventions that increase Pap	• Meta-analysis of RCTs and QE studies • Interventions to increase cervical cancer	• N=18 RCTs or non randomized QE studies • Medline, CINAHL, Web of Science,	• (1) individual education, (2) reducing barriers/increasing access (3) use of peer navigators/lay	• Pap test receipt • Research and Quality Scoring Method by Sackett and	• Overall effectiveness (d=0.158. Most effective: access-enhancing strategies (d=0.253) and	• Very thorough meta-analysis, effect size analysis limits bias and provides validity to community

tests among ethnic minority women: A meta-analysis"	screening • Pap test uptake	PsychINFO • Asian (n=8), AA (n=5) and/or Hispanic women (n=4)	health workers, (4) community education • 13/18 Community setting • HBM	Haynes; interrater reliability 0.812 (Cohen's K)	community education (d=0.167) • Effect size	education[4] and reducing barriers.[3] • None identified

Appendix D

Application of SCT to EBP Project



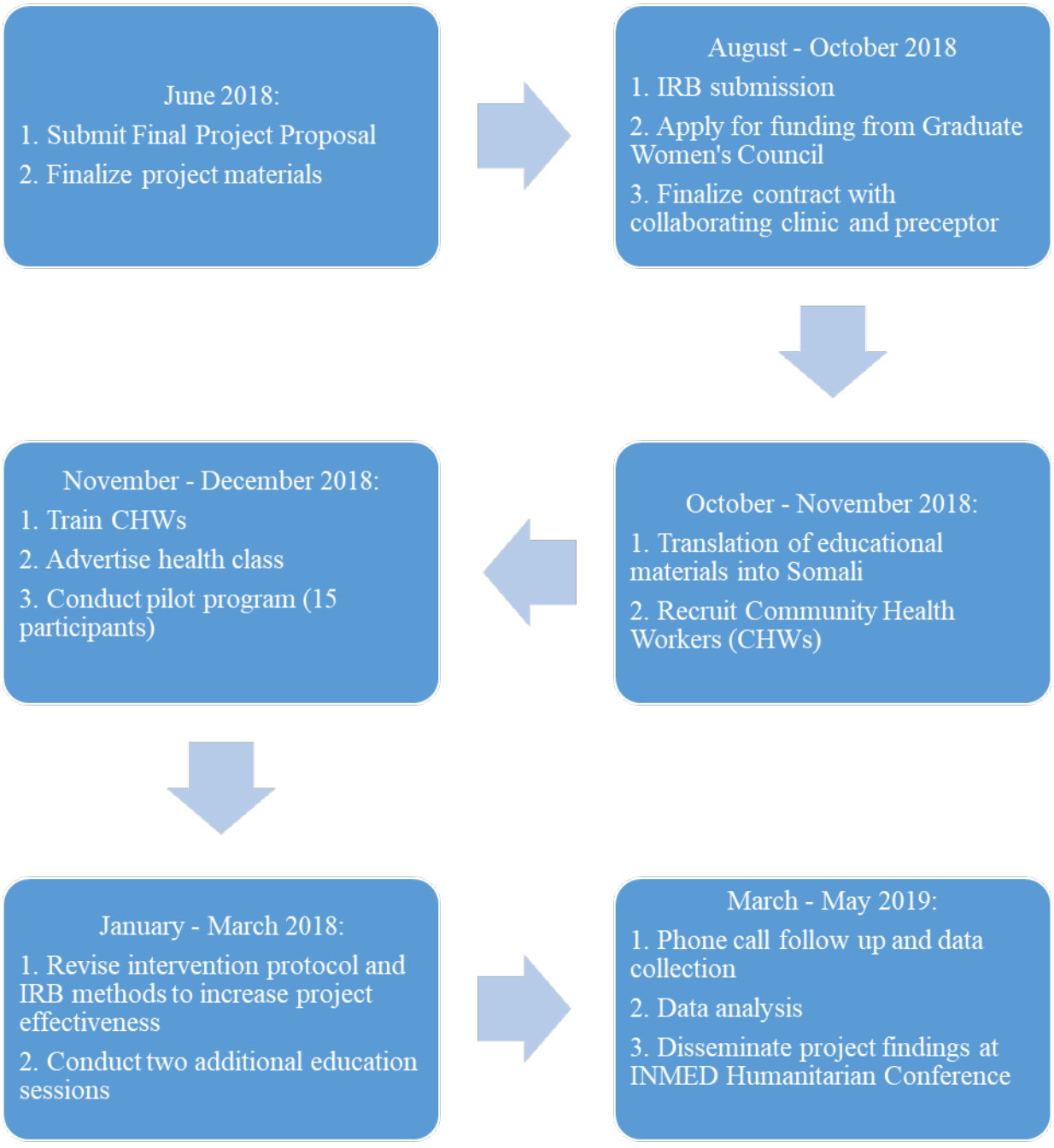
Note: Adapted from the diagram of Bandura's triadic reciprocal determinism (Redmond & Slagenhoup, 2016).

Appendix E

Sample Recruitment Flyer

Appendix F

Project Timeline Flow Graphic



Appendix G

Intervention Flow Diagram

Step 1: Create Educational Program (June-August 2018)

- Create culturally tailored breast and cervical cancer screening educational materials [student investigator (SI)]
- Translate into Somali (translator)

Step 2: Recruit and Train CHWs (October - November 2018)

- Educate on breast and cervical health (SI)
- Train on peer mentorship and appointment facilitation (SI)
- CITI training, American Cancer Society training (CHWs)

Step 3: Advertise Somali Women's Health Day (December 2018)

- Fliers, word of mouth (SI, CHWs)
- Participant recruitment via convenience and snowball sampling (SI, CHWs)

Step 4: Conduct Education Classes (December - March 2018)

- Informed consent (SI, CHWs)
- Baseline demographic information, intent to obtain screening (SI, CHWs)
- Present educational materials (SI, CHWs)
- Q & A (SI, CHWs, Preceptor)
- Post-intervention intention to screen survey (SI, CHWs)

Step 5: Appointment Facilitation (March - May 2018)

- One-on-one facilitation following educational program (SI, CHWs)
- Link to community resources for free/low cost screenings
- Contact participants at two weeks, one month, and two months post intervention as needed to provide reminders and facilitate screening (CHWs, SI)

Step 6: Data Analysis and Dissemination (April - May 2019)

- Conduct data analysis (SI)
- Disseminate project findings at INMED Humanitarian Conference (SI)

Step 7: CHW Written Feedback (May 2019)

- CHW feedback and debriefing (SI, CHWs)
- Provide project materials to preceptor, clinic, and CHWs (SI)

Appendix H

Logic Model

<table>
<tr><th colspan="6">Logic Model for DNP Project</th></tr>
<tr><td colspan="6">Student: Katie Huhmann</td></tr>
<tr><td colspan="6">Inquiry, PICOTS: In Somali refugee women aged 21-74 (P), does culturally tailored education utilizing health outreach workers (I) compared to no intervention (C) increase breast and cervical cancer screening uptake (O) over six months (T) in a community health center (S)?</td></tr>
<tr><td rowspan="2">Inputs</td><td colspan="2">Intervention(s)
Activities</td><td colspan="3">Outputs
Participation</td></tr>
<tr><td colspan="2">Outcomes -- Impact</td><td>Short</td><td>Medium</td><td>Long</td></tr>
<tr><td>Evidence, sub-topics
1. Culturally tailored education
2. Community health workers (CHWs)
3. Enhancing screening access
4. Utilizing community settings

Major Facilitators or Contributors
1. Guidelines from the U.S. Preventive Services Task Force
2. Collaboration with organizational leaders
3. Educational materials produced by American Cancer</td><td colspan="2">• Small group community education on breast and cervical cancer screenings
• Patient navigation and appointment facilitation by CHWs
• Free/low cost screening options

Major steps of the intervention (brief phrases)
1. Create and translate educational materials.
2. Identify and train</td><td>The participants
• Somali refugee women aged 21-74
• N = 15 for pilot workshop
• 3 CHWs

Site
• The collaborating clinic, the Somali mosque

Time Frame
• June 2018 – May 2019

Consent or assent Needed
• UMKC IRB approval, clinic site approval,</td><td>(Completed during DNP Project)

Outcome(s) to be measured
Primary:
Mammogram and Pap test uptake at 1-3 months

Secondary:
Intention to receive screening within 12 months

Measurement tool(s)
1. Demographics
2. Pre- and post-</td><td>(after student DNP)

Outcomes to be measured
Primary:
Mammogram and Pap test uptake at 1 year</td><td>(after student DNP)

Outcomes that are potentials
Breast and/or cervical cancer stage at first diagnosis.

Breast and/or cervical cancer morbidity and mortality</td></tr>
</table>

Society and the Office for Refugee Resettlement readily available **Major Barriers or Challenges** 1. Identifying and training community health workers 2. Participant recruitment and retention 3. Need for project funding	CHWs. 3. Flyers, word of mouth participant recruitment. 4. Carry out educational program. 5. Assist in screening facilitation. 6. Follow up to obtain outcome statistics. 7. Data analysis, evaluation of program effectiveness, dissemination of findings.	Somali mosque site approval •Participants' verbal consent to program participation, follow up **Other person(s) collecting data** Yes – CHWs (with SI) **Others directly involved in consent or data collection** Yes – CHWs (with SI)	intervention screening guideline adherence 3. Intent to obtain screening 4. CHW interview questions **Statistical analysis to be used** 1. Descriptive statistics (participant demographics)		

Appendix I

IRB Approval Letter

UMKC
Office of Research Services

UMKC
5319 Rockhill Road
Kansas City, MO 64110
TEL: (816) 235-5927
FAX: (816) 235-5602

NOTICE OF NEW APPROVAL

Principal Investigator: Dr. Lyla Lindholm
UMKC Health Sciences Building
Kansas City, MO 64108

Protocol Number: 18-205
Protocol Title: Increasing Breast and Cervical Cancer Screenings in Somali Women through Community Education
Type of Review: Designated Review
Expedited Category #: 6, 7

Date of Approval: 10/10/2018
Date of Expiration: 10/09/2019

Dear Dr. Lindholm,

The above referenced study, and your participation as a principal investigator, was reviewed and approved, under the applicable IRB regulations at 21 CFR 50 and 56 (FDA) or 45 CFR 46 (OHRP), by the UMKC IRB. You are granted permission to conduct your study as described in your application.

- Education Session Participant Consent Version Date_09.18.18
- Your protocol was approved under Expedited Review Regulatory Criteria at 45 CFR 46.110 or 21 CFT 56.110 under Category #6 as follows: Collection of data from voice, video, digital, or image recordings made for research purposes.

- Your protocol was approved under Expedited Review Regulatory Criteria at 45 CFR 46.110 or 21 CFT 56.110 under Category #7 as follows: Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

- Your protocol was approved for a waiver of documentation of consent under regulatory criteria at 45 CFR 46.117(c) having met either of the following criteria:
1. That the only record linking the subject and the research would be the consent document and the principal risk would be potential harm resulting from a breach of confidentiality. Each subject will be asked whether the subject wants documentation linking the subject with the research, and the subject's wishes will govern; or
2. That the research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context.

In cases in which the documentation requirement is waived, you may be required to provide subjects with a written statement regarding the research.

This approval includes the following documents:

Attachments
Recruitment Flyer

Appendix J

IRB Approved Informed Consent Document (English Version)

CONSENT FORM FOR PARTICIPATION IN A RESEARCH STUDY

Somali Women's Health Study
[presented orally for oral consent]

Introduction

You are being asked to volunteer for a research study. This study is being conducted in partnership with [the collaborating clinic].

The researcher in charge of this study is Katie Huhmann, RN. While the study will be run by her, other qualified persons who work with her may act for her.

The study team is asking you to take part in this research study because you are a Somali woman aged 21-74. Research studies only include people who choose to take part. Please listen to this consent form carefully and take your time making your decision. The study nurse or staff will go over this consent form with you privately if you wish. Ask her to explain anything that you do not understand. This consent form explains what to expect: the risks, discomforts, and benefits, if any, if you consent to be in the study.

Background

Somali women are often not aware about preventive women's health care in the U.S., especially breast and cervical cancer screenings.

Purpose

The purpose of this research study is to educate Somali women about preventive women's health care screenings. Many research studies have shown that holding community education classes have been beneficial in helping Somali women be more aware of women's health topics and have led to more Somali women getting screened for breast and/or cervical cancer.

You will be one of about 15 subjects in the study.

Study Procedures and Treatments

If you agree to take part in this study, you can be involved in this study for up to three months, or you can choose to only take part today in the health class if you want to. Today we will be talking about when to go to the doctor for a women's health check up, what to expect at the check up, and why it is important. We will talk about breast cancer and cervical cancer, and what we do to prevent these cancers. If you want, we will help you find a place to get screened for breast cancer and/or cervical cancer. We would like to call you up to four times over the next

three months to check on you and help you get your health check up scheduled and help you get to your appointment.

We would like to ask you some questions about yourself, including how long you have lived here, how you get your health insurance, if you have ever been screened for cancer before, and if you would like to get a screening.

If are okay with us contacting you after today, please leave your phone number.

The following study visits and procedures will occur:

Today we will have the health class.
In two weeks, we will call you to see if you need any help scheduling your screening.
We will do the same thing at one month, two months, and three months after today to help you schedule your screening. We will also ask you if you have had your recommended screening or not.

Possible Risks or Side Effects of Taking Part in this Study

Talking about women's health and cancer can sometimes make people afraid or uncomfortable. If you feel uncomfortable or want to leave the class at any time, you can do so.

It is possible that the information we get about you could be seen by someone else. We will do our best to keep your information locked so that no one can see it except the researchers. It is important that anything that is shared during the class time that is personal not be shared with anyone else. Please do not tell anyone else that you saw other people here, and please only use your first name so that everyone has privacy.

Possible Benefits for Taking Part in this Study

We hope that this study helps you know more about your body and the health care we have in the U.S. Doctors agree that getting a health check up every year is a good way to stay healthy. Doctors also agree that getting a mammogram or Pap smear is one of the best ways to keep you healthy.

Costs for Taking Part in this Study
There are no costs for taking part in this study. If you have health insurance and decide to get a screening, it will be paid for by your insurance. If you do not have insurance, we can help you find a cheap option for a Pap test or mammogram and help you pay for it.

Alternatives to Study Participation

The alternative is to not take part in the study**.**
If you would like to stay for the class, but do not want us to follow up with you, that is fine. If you do not want us to follow up with you, you will not need to leave your phone number below.

Confidentiality and Access to your Records

The results of this research may be published or presented for scientific purposes. You will not be named in any reports of the results. Your study records that have your identity in them may be shown to the UMKC Institutional Review Board (IRB) (a committee that reviews and approves research studies). This is to prove which study procedures you completed and to check the data reported about you. The study team will keep all information about you confidential as provided by law, but complete confidentiality cannot be guaranteed.

If you leave the study or are removed from the study, the study data collected before you left may still be used along with other data collected as part of the study. For purposes of follow-up studies and if any unexpected events happen, subject identification will be filed at UMKC under appropriate security and with access limited to medical research personnel only.

The University of Missouri-Kansas City appreciates people who help it gain knowledge by being in research studies. It is not the University's policy to pay for or provide medical treatment for persons who participate in studies. If you think you have been harmed because you were in this study, please call the researcher, Katie Huhmann at 979-229-9543.

Contacts for Questions about the Study

You should contact the IRB Administrator of UMKC's Institutional Review Board at 816-235-5927 if you have any questions, concerns or complaints about your rights as a research subject. You may call the researcher Katie Huhmann at 979-229-9543 if you have any questions about this study. You may also call her if any problems come up.

Voluntary Participation

Taking part in this research study is voluntary. If you choose to be in the study, you are free to stop participating at any time and for any reason. If you choose not to be in the study or decide to stop participating, your decision will not affect any care or benefits you are entitled to. The researchers or doctors may stop the study or take you out of the study at any time

- if they decide that it is in your best interest to do so,
- if you experience a study-related injury,
- if you need additional or different medication/treatment,
- if you no longer meet the study criteria, or
- if you do not comply with the study plan.

They may also remove you from the study for other administrative or medical reasons. You will be told of any important findings developed during the course of this research.

You have read this Consent Form or it has been read to you. You have been told why this research is being done and what will happen if you take part in the study, including the risks and benefits. You have had the chance to ask questions, and you may ask questions at any time in the future by calling Katie Huhmann at 979-229-9543. By taking part in the class today and filling out the survey given to you, you volunteer and consent to take part in this research study.

[Give participants the opportunity to leave if they do not wish to volunteer for the study].

Consent for follow up

We would also like to call you up to four times in the next three months to ask you if you have been screened or need help getting screened. You can still participate in the class today even if you do not want us to call you after today. If you are okay with us calling you, we will give you a contact form to fill out.

Appendix K

Intervention Material

Community health worker training will consist of the following:

1. 30 minute breast health informational video from the American Cancer Society (2018): https://volunteerlearning.cancer.org/pluginfile.php/7957/mod_scorm/content/2/ACS_Breast_Cancer_2016_v1.htm

2. 40 minute video on motivational interview techniques designed specifically for community health workers from the American Cancer Society (2018): https://volunteerlearning.cancer.org/pluginfile.php/7855/mod_scorm/content/1/Motivational%20Interviewing%20-%20How%20to%20Help%20People%20Make%20Healthy%20Changes.htm

3. A cervical cancer informational PowerPoint developed by the student investigator based off of information from the CDC (2018)

4. CITI online training.

Participant educational materials will include the following:

1. Two video clips from the Office of Refugee Resettlement, a department of Health and Human Services on health living, female anatomy, breast cancer screening, and cervical cancer screening (Office of Refugee Resettlement, n.d.).

Clip 1: https://www.youtube.com/watch?v=sfnRBn5p5Xg&list=PLypiJrod4Deglt0o5xvAx9Ik4GrdloyHU&index=1 (beginning to 7:21)

Clip 2: https://www.youtube.com/watch?v=MKNElDPuN8&index=2&list=PLypiJrod4Deglt0o5xvAx9Ik4GrdloyHU (11:02 to end)

2. Interactive round table discussion on personal ways to stay healthy, guided by the community health workers.

3. PowerPoint addressing facts and myths about cancer, cancer screening guidelines, and how to schedule a Pap test or mammogram.

4. Interactive round table discussion on personal barriers to accessing screening and ways to overcome these barriers.

5. After the education, CHWs and the student investigator will be available to direct the participants to the best place for their screening, help participants make appointments and plan to attend those appointments.

Appendix L

Measurement Tools

Tool 1: Intention to Screen Questionnaire

1. If it has been 3 or more years since your last Pap test, do you plan to get one?
    A. Yes, within the next 12 months.
    B. I am not sure.
    C. No, not within the next 12 months.

2. If it has been 2 or more years since your last mammogram, do you plan to get one?
    A. Yes, within the next 12 months.
    B. I am not sure.
    C. No, not within the next 12 months.

Tool 2: CHW Written Feedback Interview Questions

May include any of the following:

Why did you decide to be a part of this program as a community health worker?

What impacted you the most through this project?

How do you feel the Somali community responded overall to the project?

How has your understanding of women's health changed?

What was the most difficult part of this program?

What was the best part of this program?

What would you do differently looking back?

What did you learn about your community through this program?

What did you learn about yourself through this program?

Is this program worth continuing in the future?

What other health topics would you like to see Somali people educated about?

Appendix M

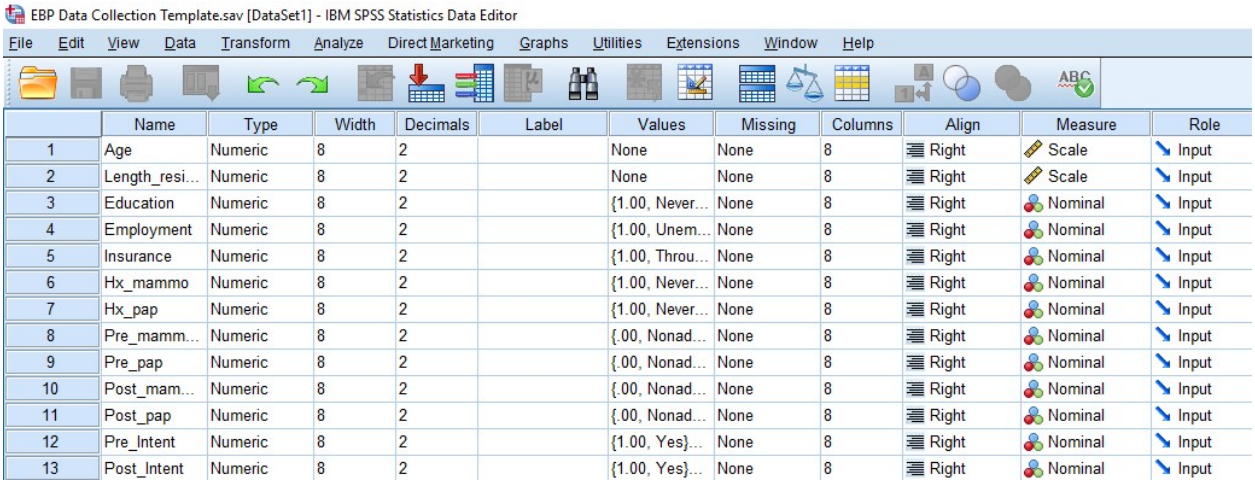
Data Collection Template

1. Participant Demographics

Participant Demographics	
Age (years)	
Mean	
21-29	
30-39	
40-49	
60-69	
70-74	
Length of residence in U.S.	
Mean	
0-5 years	
5-10 years	
> 10 years	
Highest education	
Never attended school	
Primary school	
Secondary school	
College or university	
Graduate school	
Employment status	
Unemployed	
Working full-time	
Working part-time	
Retired	
Student	
Health insurance	
Employment-based	
Health Insurance Marketplace	
Medicaid	
Medicare	
Uninsured	
Pap screening pre-education	
0-36 months (adherent)	
> 36 months	

(under screened)	
Never screened	
Unsure	
Mammography screening pre-education	
0-24 months (adherent)	
> 24 months (under screened)	
Never screened	
Unsure	

Table 2. SPSS Data Collection Template



	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	Age	Numeric	8	2		None	None	8	Right	Scale	Input
2	Length_resi...	Numeric	8	2		None	None	8	Right	Scale	Input
3	Education	Numeric	8	2		{1.00, Never...	None	8	Right	Nominal	Input
4	Employment	Numeric	8	2		{1.00, Unem...	None	8	Right	Nominal	Input
5	Insurance	Numeric	8	2		{1.00, Throu...	None	8	Right	Nominal	Input
6	Hx_mammo	Numeric	8	2		{1.00, Never...	None	8	Right	Nominal	Input
7	Hx_pap	Numeric	8	2		{1.00, Never...	None	8	Right	Nominal	Input
8	Pre_mamm...	Numeric	8	2		{.00, Nonad...	None	8	Right	Nominal	Input
9	Pre_pap	Numeric	8	2		{.00, Nonad...	None	8	Right	Nominal	Input
10	Post_mam...	Numeric	8	2		{.00, Nonad...	None	8	Right	Nominal	Input
11	Post_pap	Numeric	8	2		{.00, Nonad...	None	8	Right	Nominal	Input
12	Pre_Intent	Numeric	8	2		{1.00, Yes}...	None	8	Right	Nominal	Input
13	Post_Intent	Numeric	8	2		{1.00, Yes}...	None	8	Right	Nominal	Input

Appendix N

Statistical Analysis Tables

Table 1. Post education screening rates among non-adherent participants

Baseline screening status	Received screening by 3 month follow up	Percent increase
Not adherent to USPSTF Pap test guidelines **(N=4)**	1	25%
Not adherent to USPSTF mammography guidelines **(N=1)**	0	0%

Table 2. Pre- and post-education intent to screen scores among non-adherent participants

Pre-education intent to screen	Post-education intent to screen
Yes: 2 No: 0 Unsure: 1	Yes: 2 No: 0 Unsure: 1

Table 3. Participant Demographics

Participant Demographics	
Age (years)	**N = 9**
Mean	36.4
21-29	0% (n = 0)
30-39	66% (n = 6)
40-49	22% (n = 2)
60-69	11% (n = 1)
70-74	0% (n = 0)
Length of residence in U.S.	**N = 10**
Mean	12.8
0-5 years	10% (n = 1)
5-10 years	30% (n = 3)
> 10 years	60% (n = 6)
Highest education	**N = 8**

Never attended school	0% (n = 0)
Primary school	25% (n = 2)
Secondary school	37.5% (n = 3)
College or university	25% (n = 2)
Graduate school	12.5% (n = 1)
Employment status	**N = 10**
Unemployed	50% (n = 5)
Working full-time	10% (n = 1)
Working part-time	10% (n = 1)
Retired	0% (n = 0)
Student	40% (n = 4)
Health insurance	**N = 9**
Employment-based	0% (n = 0)
Health Insurance Marketplace	0% (n = 0)
Medicaid	22% (n = 2)
Medicare	0% (n = 0)
Uninsured	77.8% (n = 7)
Pap screening pre-education	**N = 11**
0-36 months (adherent)	55.5% (n = 6)
> 36 months (under screened)	11% (n = 1)
Never screened	11% (n = 1)
Unsure	22% (n = 3)
Mammography screening pre-education	**N = 1**
0-24 months (adherent)	0% (n = 0)
> 24 months (under screened)	0% (n = 0)
Never screened	0% (n = 0)
Unsure	100% (n = 1)

Appendix O

CHW Written Feedback Responses

CHW # 1

Why did you decide to be a part of this program as a community health worker?

"I am an RN working in a hospital, I have seen so many patients discharged out into the community with limited resources. As a community health worker, I wanted to be able to provide information and education to community members and improve the health care disparity that exist in the Somali community."

What impacted you the most through this project?

"Seeing the Somali women taking charge of their health, by making an appointment for preventative care is rewarding. I have also realized how much I can be helpful in providing resources and education to the community."

CHW # 2

Why you decided to be part of this program as a community health worker?

"The project seemed interesting and I found the information to be valuable educational material and to help disseminate important information. And my availability for the project was also a factor in my participation."

What was the most difficult part of this program?

"It was the weather really, each time a class was scheduled it was canceled due to weather related event."

What other health topics would you like to see Somali people educated about?

"Diabetes, hypertension, nutrition, and palliative care, and help getting health care coverage."

What did you learn about yourself through this project?

“Put aside my preconceived notion about subject matter and people in the community’s basic knowledge. I need more patience because changing health habits is a process and takes time.”

University of Missouri – Kansas City School of Nursing and Health Sciences

Project Proposal Approval Letter

August 9, 2018

UMKC IRB
Primary Project Site IRB
UMKC DNP Student

UMKC or Primary Project Site IRB, and DNP Student

This letter serves to provide documentation regarding Katie Huhmann's Doctor of Nursing Practice (DNP) Project proposal. Ms. Huhmann obtained approval for her project proposal, *Increasing Breast and Cervical Cancer Screenings in Somali Women through Community Education*, from the School of Nursing and Health Studies DNP faculty on August 9, 2018.

If we can provide further information, please feel free to contact us.

Sincerely,

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