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## Testing the Feasibility of a Culturally Tailored Breast Cancer Screening Intervention with Native Hawaiian Women in Rural Churches

**Lana Sue I. Ka'opua, PhD, DCSW, LSW[Associate Professor],**

Myron B. Thompson School of Social Work and the Cancer Research Center of HI, University of Hawai'i, 46-303 Ahui Nani Place, Kane'ohe, HI 96744-4055, Tel: (808) 286-1586 Fax: (808) 956-5964 lskapua@hawaii.edu

**Soon H. Park, MA[Graduate Research Assistant],**

Cancer Research Center of HI, University of Hawai'i

**Margaret E. Ward, MA Candidate[Graduate Research Assistant], and**

Cancer Research Center of HI, University of Hawai'i

**Kathryn L. Braun, DrPH, CHES[Professor]**

Public Health Studies and Myron B. Thompson School of Social Work, University of Hawai'i

### Abstract

Native Hawaiian women are burdened by disproportionately high mortality from breast cancer, which is attributed to low participation in routine mammography. Mammography is proven to be an effective means for detecting disease at its earliest stages when treatments are most likely to be successful. Culturally-tailored screening programs may increase participation and Hawaiian initiatives call for screening innovations that integrate Hawaiian cultural strengths, including those related to spirituality and the extended family system. Before full-scale testing of tailored interventions, it is important to conduct feasibility studies that gauge community receptiveness to the proposed intervention and research methods. We report on the feasibility of delivering a church-based, breast cancer screening intervention tailored on the cultural strengths of rural-dwelling Hawaiians. Results establish the attractiveness and potential effectiveness of the intervention. Recruitment exceeded targets and retention rates were comparable to those of other randomized behavioral trials, confirming the value of reaching rural Hawaiian women through churches. Women appreciated the integrative approach of Hawaiian and faith-based values and positive outcomes are suggested. This article may be relevant to social workers interested in culturally-responsive, community-based interventions, as well to researchers conducting pilot studies and controlled trials of interventions adapted from evidence-based programs.

### Keywords

breast cancer; churches; culture; disparities; feasibility study; indigenous population; mammography; Native Hawaiians

## BACKGROUND

Breast cancer is the most commonly detected neoplasm among women in the United States (US) and accounts for about 15.2 percent of the nation's female cancer deaths (Healthy People 2010, n.d.). The need to reduce breast cancer mortality is a recognized national priority and an objective of Healthy People 2010, the nation's blueprint for promoting health and eliminating health disparities. Participation of older women ( $\geq 40$  years of age) in mammography is viewed as crucial to accomplishing this objective. Clinical trials of routine mammography demonstrate that this method effectively detects tumors at an early stage when treatments are most likely to be successful in extending survival and enhancing quality of life (Kerlikowske, Grady, Rubin, Sandrock, & Emster, 1995). Among women in age groups of 40–49 and 50–74 years, mammography reduced death by 17 and 20–39 percent, respectively. Survival rates decline with delayed diagnosis; about 97% of women treated for early-stage breast disease survive five or more years while only about 78% of women diagnosed with regional breast cancer (i.e., disease has spread to pectoral muscles and lymph nodes) and about 23% of those with distant breast cancer (i.e., disease metastasized to brain, bone, other organs) survive beyond five years of initial diagnosis (Yu, 2009.)

Although mammography is efficacious in early detection, the benefits of its routine use have not been realized by all women in the US. Of significant concern are women of color who tend to experience poorer breast cancer outcomes than Caucasian women (Karlinger & Kerlikowske, 2007; Miller, Chu, Hankey, & Ries, 2008; Yu, 2009). Disparate mortality and survival outcomes are observed among ethnic minority and indigenous women, especially as race/ethnicity intersects with low socioeconomic status, residency in medically under-resourced and/or rural communities, and culturally grounded beliefs that may disable participation in conventional, mainstream mammography programs. The current study resides in this larger context of social determinants of breast cancer disparities and focuses on promoting breast health with Native Hawaiian women, an indigenous group burdened by late diagnosis and poor survival outcomes.

Native Hawaiians (Hawaiians) are the descendents of Polynesian voyagers who settled the Hawaiian Archipelago. They comprise the largest Pacific Islander population living in the US, as well as in Hawai'i (US Census Bureau, n.d.). Across major ethnic groups in Hawai'i, the breast cancer mortality rate for Hawaiian women is 1.2 times greater than for Caucasian women and 2+ times greater than for Japanese women. Data from 1995–2000 suggest that greater proportions of Hawaiian women are diagnosed with regional and distant disease (35% Hawaiians vs. 29% Caucasians and 22% Japanese), and 2005 data suggest that fewer Hawaiian women age 40 and older have mammograms every 2 years (65% Hawaiians vs. 77% Caucasians and 84% Japanese) (Miller et al., 2008). Hawai'i data suggests that cultural issues may be at play and may inhibit acceptance of available screening services by Hawaiian women, particularly older and/or more traditionally-oriented ones (Hawai'i State Department of Health, 2000). The need for research on culturally responsive screening promotions is recognized in *The Cancer Awareness Strategic Plan for Native Hawaiian Communities* as developed by a consortium of Hawaiian organizations (Santos et al., 2001). The plan calls for programs that integrate salient Hawaiian cultural values and practices which notably, include attention to spirituality and the extended family system. Further, the National Association of Social Workers (n.d.) recognizes that members of our profession have long been engaged in efforts to address health inequities and has issued the call for social welfare research specific to eliminating health disparities. Proceeding from these recommendations and informed by our grounding in the strengths-based and bio-psychosocial/spiritual perspectives of social work practice in health (NASW, 2005), we piloted a breast cancer screening intervention tailored on the holistic health traditions and cultural strengths of rural-dwelling Hawaiian women in churches.

This article describes results from a feasibility testing of our intervention designed to increase women's intent to participate in routine mammography. Typically, a feasibility study of an intervention focuses on methods, procedures, and processes. Researchers conduct feasibility studies before they conduct a full-scale intervention trial because it is important to determine if an innovation and the proposed research methods are acceptable to the intended community. If not, it is unlikely that a full-scale trial will proceed well. Thus, findings from feasibility studies help researchers design large-scale studies that will have a high likelihood of success (Thabane, et al., 2010). Also, an increasing number of investigators working with underserved groups are using Community-Based Participatory Research (CBPR) approaches, through which communities are engaged as research partners (Minkler & Wallerstein, 2003). Well-designed feasibility studies can help build community support for research while informing the intervention development and research design. Feasibility testing of our intervention with Hawaiians was deemed essential for several reasons. First, Hawaiian communities have consistently expressed resistance to health promotions that disregard the indigenous cultural norms which may be involved in the enactment of behavior change (Wegner, 1989). Thus, the first aim of our feasibility study was to assess the cultural relevance of our intervention, which was designed using CBPR approaches (Ka'opua, 2008; Ka'opua, Mitschke, & Kloezeman, 2008). Second, Hawaiian communities have consistently expressed distrust about the benefits and harms associated with research participation; such distrust has resulted in their low participation in studies. Communities have raised concerns about research design (e.g., use of no-treatment control groups), consenting procedures (e.g., not told about risks of participation), processes (e.g., research is not integrated with established social systems within communities, participants perceive few, if any, benefits) (Fong, Braun, & Tsark, 2003; Ka'opua, Mitschke, & Lono, 2004). Thus, the second and third aims of our study were to assess our randomization, recruitment and retention, and data collection strategies, as well as the potential benefits of the intervention. In the current study, the primary research question was: is the breast health intervention feasible for use with rural-dwelling Hawaiian women in churches? Aims were to: (1) document women's response to a church-based breast cancer screening education program that integrates Hawaiian and Judeo-Christian values and practices, (2) describe successes and challenges in our recruitment, randomization, retention, and data collection protocols; and (3) elicit participants' experiences of KLM and assess if positive effects of the intervention were suggested in women's knowledge, attitudes, and intent to seek routine mammography.

## INTERVENTION

The intervention was *Ka Lei Mana'olana* (KLM), which is Hawaiian for "The Lei of Hope." The project was named by a respected elder (*kupuna*), as is the Hawaiian custom. The metaphor of the *lei* (i.e. garland woven of individual blossoms) was chosen to affirm the coming together of individuals and organizations (including survivors and leaders from Hawaiian churches, social workers and other providers from the island-based Native Hawaiian Health Care Systems (NHCCS), and social welfare and public health researchers from the state university) in piloting this intervention. KLM was informed by two evidence-based interventions that increased women's intent to seek mammography---the Wai'anae Cancer Study (WCS) which worked through women's extended family networks to increase mammography use in the community of Wai'anae, Hawai'i and the National Witness Project (NWP) which worked with African Americans to raise mammography use among women in churches (Gotay et al., 2000; Erwin et al., 2003). Both studies were designed with community input, engaged women in their social networks, and tailored education on the cultural values and practices of women for whom the intervention was intended. As in the WCS and NWP, our intervention was manualized (i.e., set sequence of activities), used culturally-tailored, linguistically-appropriate materials, engaged women in their natural

social networks, and adhered to Community-Based Participatory Research approaches (Minkler & Wallerstein, 2003). Like the WCS, we sought to remain sensitive and true to the Hawaiian culture and thus, included values and practices from the indigenous tradition. As with the NWP, we sought to remain sensitive to the faith-based orientation of the population and included the reinforcement of screening messages by the spiritual leadership of designated communities and involved breast cancer survivors in the delivery of testimonials on the positive value of early detection screening.

Women in the treatment condition received one 90-minute educational session held during the regular Sunday worship service, culturally-tailored print materials, and periodic screening reminders. The intervention was manualized. Congregant liaisons welcomed at the door all attending the session and distributed worship bulletins and KLM print materials on breast cancer, early detection screening, and screening resources. The minister (*kahu*) provided an introduction to KLM and the special worship service focused on providing breast health education. Volunteers from the church read a call to worship (*ka wehe 'ana i ka pule*) and opening prayer (*pule wehe*). Breast cancer survivor(s) and family members of survivors from the local community delivered testimonials (*ho'ike*) that highlighted their personal experiences with breast cancer, emphasized the value of routine mammography and clinical breast examinations, and encouraged families and church members to support women in early detection screening and treatment, if needed. Next, educators used PowerPoint slides and flip charts to present information on early detection screening and encouraged discussion. Breast cancer patient navigators from community health centers shared information on screening resources. Volunteers from the church read Scriptures (*heluhelu haipule*) relevant to health stewardship. The minister delivered a short sermon (*ka mana'o*) with relevant scriptures, and reinforced KLM messages (e.g., health stewardship, use of early detection screening, importance of family and church support). The congregation was invited to sing the closing hymn (*himeni ho'oku'u*), also relevant to health stewardship. Finally, the minister offered a benediction (*ka pule ho'oku'u*) relevant to breast health stewardship, holistic wellness, and/or caring for each other (*malama kekahi i kekahi*). Immediately following the service, women and men were invited to visit KLM resource tables where healthcare workers linked congregant to services and where educators answered questions and facilitated interactive activities (e.g., stringing beads that represented the size of tumors detected by mammogram vs. self-exam into a necklace). The intervention also included follow-up contact; KLM staff mailed screening reminders (*ho'omana'o*) and liaisons posted similar reminders in church bulletins, at intervals of about five and eight months. Women in the control group received print materials on breast cancer and screening resources. KLM contact was restricted to collection of survey data at baseline and at 6 and 12-months follow-up. Women were able to receive the culturally-tailored intervention after participants in both conditions had completed the 12-month follow-up survey.

Because KLM engaged a number of individuals in its implementation, we conducted a pre-intervention training for all survivor and family survivor role models, health services providers, congregant liaisons, and volunteers. The goal of the six-hour training was to increase knowledge of the research protocol and KLM's education curriculum. Included in the training were skill-building sessions in which survivors and family members learned to write and deliver testimonials on screening, providers practiced use of KLM curriculum and materials, and liaisons learned strategies for promoting participation in their local church, as well as procedures for assisting researches in data collection.

## METHOD

KLM used a randomized two group pre-post control group comparison or a classical experimental design with churches randomized to condition and data collected from women in churches. Study aims were to: (1) document women's response to KLM as an intervention, (2) describe successes and challenges in our recruitment, randomization, retention, and data collection protocols; and (3) elicit women's experiences of KLM participation and assess if positive effects of the intervention were suggested in women's knowledge, attitudes, and intent to seek routine mammography.

### Measures

Three measures were used to evaluate KLM feasibility. First, the Project Log was used across the research trajectory to systematically document KLM protocols, procedures, and processes, as well as participants' comments and researchers' observations. All material documented in the log was discussed at weekly KLM meetings, with final observations arrived at through consensus agreement among research team members. Second, the Participant Tracking Log was used to document recruitment, retention, and women's reasons for discontinuing study participation. This log was continuously updated and routinely reviewed at weekly KLM meetings. Also included in the tracking log were attempts researchers made to contact women who failed to complete a survey, contacts made to congregant liaison who might attempt to directly contact women, and reasons women gave for discontinuing their participation. Third, we used the Participant Evaluation, a qualitative measure, to assess women's experience with study participation. The evaluation was included as part of the 12-month, post-intervention survey and included three open-ended items: (1) Name one thing that might improve KLM; (2) Name one thing you liked best about KLM; and (3) Other things you'd like us to know about your experience with KLM.

A fourth measure, a knowledge, attitudes, and practice (KAP) survey was used to collect outcome data (not reported in this article). For the purpose of our feasibility assessment, we wanted to determine if the KAP could be completed with relative ease and if KAP items reliably captured information on women's knowledge, attitudes, and mammography practice. Of particular interest were items that were confusing or too sensitive for participants to answer and which might require revision if used in future studies. The survey had a total of 33 items: 9 items on socio-demographic/clinical characteristics, 8 items specific to breast cancer knowledge and practices, 8 items on spiritually-based coping, and 8 items on barriers and facilitating factors to screening and intent to seek screening. Items on participant characteristics, breast cancer knowledge and practices were drawn from the breast health survey used in the Wai'anae Cancer Study (Ka Lei o 'Ike, Gotay et al., 2000). Spirituality items were adapted from the spirituality sub-scale of the Family Crisis Oriented Personal Evaluation Scales (F-COPES, McCubbin, Larsen, & Olsen, 1982). Items on screening intent were drawn from the perceived barriers and supports sub-scales of the Adherence Determinants Questionnaire (ADQ, DiMatteo, 1993). The F-COPES and ADQ have been used with and found to have good reliability in Hawaiian and cancer patient populations, respectively.

### Sample

Our goal was to enroll: (1) at least six rural, historically Hawaiian churches willing to be randomized into intervention and control (delayed treatment) groups; and (2) at least 120 older Hawaiian women in these churches as participants in data collection. Historically Hawaiian churches are those chartered by Calvinist (*Kalawina*) missionaries during the 19<sup>th</sup> century in thriving Hawaiian communities; today, many of these communities are socioeconomically disadvantaged (United Church of Christ, 1996). Historically Hawaiian

churches are associated with the United Church of Christ and belong to the Association of Hawaiian Evangelical Churches, an association dedicated to perpetuating the Judeo-Christian faith through the expression of Hawaiian language and indigenous Hawaiian cultural forms. These churches are attended by Hawaiians and non-Hawaiians with an estimated that 60–75% being older ( $\geq 40$  years of age) women of Hawaiian ethnicity.

### Recruitment

We wanted to determine the willingness of churches to participate in a randomized two group pre-post control group comparison or classic experimental design. We tested a delayed intervention design, in which the experimental churches received the intervention first, and the control churches received the intervention about 1–2 years later. To recruit churches, we used social network approaches (Hawe & Ghali, 2008) and promoted the study in five intersecting church networks: (1) state and county associations of Hawaiian churches; (2) leaders within associations who expressed an interest in cancer control and/or community health; (3) local church leadership; (4) members of women's ministries and other committees within a local church; and (5) women in congregations. Intercept sampling was used (Backstrom & Hursch-Cesar, 1981) with information about KLM shared at naturally occurring events such as church meetings. Upon enrollment, churches were stratified by island to control for variability in access to screening, public transportation, and other instrumental resources. Randomization to condition followed.

Also, we wanted to determine the willingness of women to participate in the study, which involved learning about the study, signing a consent form, and participating in three rounds of data collection. To recruit women, KLM staff provided an informational session lasting from 45–60 minutes, as arranged by a congregant liaison to the study. The Principal Investigator of KLM provided information on study purpose, potential benefits and risks of participation, assignment of churches to either the treatment or control (delayed intervention) condition, requirements for data collection, and confidentiality, and incentives. Women were encouraged to raise questions and concerns. Consenting women provided KLM with contact information and completed the baseline KAP survey. Using an algorithm provided by KLM, participants constructed a personal identifying code which ensured confidentiality in survey responses. After churches were randomized, women in intervention churches received the 90-minute KLM church service on breast health (described above) and culturally-tailored educational materials on breast screening; women in control churches received the printed education materials. Women in the control group only interacted with KLM for data collection at 6- and 12- months, post-baseline follow-up.

### Retention

In testing feasibility, we wanted to assess our ability to retain women in the study. A woman was determined successfully retained if she completed all three rounds of KAP data collection. We were especially curious if we could equally retain women in intervention and control churches, as women in control churches may have perceived fewer benefits to participation. Women's completion of baseline and follow-up surveys was tracked continuously using the Participant Tracking Log, as managed in Microsoft Office Excel 2003. Participants who did not complete a follow-up survey received a telephone reminder from KLM staff. The staff attempted at least three telephone reminders. Congregant liaisons were available to assist when staff could not make contact with women.

### Data Collection

We wanted to determine if our proposed data collection protocols were acceptable and yielded quality data. KAP baseline data were collected during the pre-randomization informational sessions by the KLM team. Six- and 12-month follow-up KAP data were

gathered from participants in special sessions held after the Sunday worship service. At the 12-month follow-up, women completed the Participant Evaluation, with data managed in Microsoft Office Excel 2003.

At each data collection point, KLM research assistants trained and supervised in survey administration by the Principal Investigator, were available to women with disabilities who needed help in survey completion. For those unable to attend the group administration, research assistants scheduled a telephone administration. When this was not an option, surveys were mailed directly to the participant or to the church's liaison to KLM who delivered surveys to women. Staff observation of data collection procedures were recorded in the Project Log and discussed at weekly meetings of the research team.

## Data Analysis

Content analysis (Krippendorff, 1980) was used to code the qualitative data collected in the Participant Evaluation tool, the Project Log, and the Participant Tracking Log. For each category of document, two members of the research team independently reviewed responses/observations and took note of all themes relevant to cultural relevance, research protocols, recruitment, retention, the educational intervention, measures and survey administration, and perceived benefits of participation. Also noted were relevant quotations from participants. A final coding system was developed through discussion and consensus of research team members. When indicated, the Pearson's chi square test was used to compare responses of women by condition and ethnicity.

## RESULTS

### Acceptability

Evaluation responses of women in the treatment group confirmed that KLM's culturally tailored intervention was successful in integrating elements of Hawaiian culture at its nexus with faith-based traditions. Approximately 22.7% stated that they appreciated most the cultural elements of the intervention. Participants liked the testimonies (*ho'ike*) or personal stories (*na mo'olelo*) of survivors and their family members, the screening education which highlighted the effects of breast cancer on the family (*'ohana*), and the use of the church as an educational venue. Sample comments included "the educational program was like an 'ohana worship [family devotional]", "program shows importance of women being proactive", "the program made clear how the church can be involved," the educators showed "warmth and caring that connected with my faith," and "the program and materials acknowledged the value of using spiritually-based coping resources in times of health crises."

When asked to name a way to improve KLM, 64.4% wrote that no improvement was needed. When improvements were suggested, they varied by study condition. Women in the control arm suggested inclusions of face-to-face educational sessions, stories from breast cancer survivors, and assistance in accessing screening resources (all key components of the educational program provided to women in the treatment arm, and received later by women in the control arm). Some women in the treatment arm recommended adding information about on-line resources, breast cancer conferences, and coping with cancer. A few suggested offering clinical breast exams and intensive help for women needing mammograms. About 45.4% stated that KLM should continue in providing education to their church and extend the program to other churches and organizations.

Women also commented on the cultural relevance of the recruitment, retention, and data collection protocols. In response to the open-ended item "name one thing you liked best about KLM," about 14.3% of participants stated an appreciation for face-to-face (*alo alo*)

meetings with the researchers. Participants indicated that in-person contact allowed them to get answers to detailed questions about breast cancer screening and treatment, while giving them a chance to get “a sense of the researchers” (“their *aloha*,” “their sense of caring about us,” “their willingness to come to where we’re at”). For these participants; such contact reflected the traditional value of *aloha*---the sharing of the breath of life (*ha*) life that comes with extension of self when people meet face-to-face (*alo alo*).

### Recruitment

Our use of social network approaches was effective in recruiting churches to the study. Of the 14 churches approached, 12 agreed to participation and promoted the study in their congregation. Two churches declined due to a “busy church calendar.” The leaders of participating churches were more than willing to tell congregants about KLM at the Sunday worship services, and they talked about the study from the pulpit. As a result, 198 women enrolled in the study (93 in intervention and 105 in control churches). Of these, 138 were Hawaiian women (60 in treatment churches and 78 in control churches). Thus, our accrual goal of 120 older, Hawaiian women was exceeded. Women in the two study arms were comparable on all major socio-demographic variables. The mean age of participants was about 60 years (s.d. = 14.8), and about 94% had completed high school and/or some post-high school training. About 9% of older women ( $\geq 40$  years) reported never having a mammogram in their life, and 23% had not had one within the last 12 months.

### Randomization

Randomization of churches to the treatment and control conditions was well accepted by churches and study participants, which is attributed to the fact that control churches would eventually receive the intervention. As noted, Hawaiians have complained about studies with a no-treatment control condition, which gave the impression that they were merely “research subjects” and led to participant attrition. However, the delayed treatment condition in this study successfully reflected the Hawaiian cultural value of *aloha kekahi i kekahi* (loving each other, with inclusivity inferred). Participant evaluations indicated appreciation of KLM’s *aloha*, as demonstrated by researchers valuing “us as more than research subjects” and “coming all the way to our remote church so that we might receive this important message.” Also, as noted above, the use of stratified randomization in conjunction with churches’ promotional efforts yielded a baseline sample in which treatment and control arms were comparable on all major socio-demographic variables.

### Retention

Our retention rates were comparable to other randomized controlled trials. All 12 churches agreeing to participation were retained throughout the study. Of the 198 participants at baseline, 161 women (81.3%) completed data collection, including 108 (78.3%) of the Hawaiian women. Nor did retention rates differ by study arms; 82.8% of women in churches assigned to the treatment arm and 80% of those in the control arm completed the study. Major reasons for attrition included: relocation with participant failing to provide new contact information (37.8%), disabling condition or death (13.5%), and too busy to take surveys (10.8%).

### Data Collection

Participants were positive about research protocols. When asked on evaluations to name ‘what’ they liked best about KLM, 42.4% of respondents complimented KLM researchers on ‘how’ the study was conducted. They specifically appreciated the outreach to women in rural churches, pre-enrollment informational sessions, flexibility in data collection (at church and by phone), follow-up for missing and incomplete surveys, and the researchers’



“professionalism” and “consistency” (i.e., “they follow-through with what they say they are going to do.”)

The KAP survey was positively received by most women. For example, when asked to name the thing they liked best about KLM, 21.2% noted the survey itself. These respondents explained that the survey was easy to understand, did not take much time, and served as a reminder of the importance in getting a yearly mammogram and clinical breast exam. However, several difficulties with data collection tools and protocols were revealed through this feasibility study. For example, some women were concerned about the use of the partial social security number in the personal identifying code or algorithm. Some were confused by the double-negative phrasing of a few KAP items adapted from standardized scales and insufficient response options for the item about future screening plans. We noticed some confusion over the multiple waves of survey administration, with some women completing two 6- or 12-month surveys. Most importantly, we learned that our outcome variables were problematic. Data yielded inconsistent reports on the timing of the last mammogram (e.g., a woman may have checked that she had a mammogram in the past year, but provided a “date of last mammogram” that was 2 years in the past).

### Suggested Effects of KLM

Despite difficulties with some of our measures, findings from the Participant Evaluations data suggest that women receiving the intervention made greater improvements in awareness ( $\chi^2 = 6.82, p < .01$ ), and indicated greater intent to seek yearly mammograms ( $\chi^2 = 6.52, p < .05$ ). Open-ended responses from evaluations provided examples of perceived changes, including: “surveys reminded me that it’d been awhile since my last mammogram”, “because of you, my cancer was found early”, “I got my first mammogram because of you”, “my niece and sister got screened for the first time”, “good to be reminded of how breast cancer can affect our lives--sometimes we need to hear a few times so we get it”.

## DISCUSSION

Our research questions were answered as follows: 1) KLM intervention was culturally acceptable to older Hawaiian women in churches; (2) Strategies used to recruit and retain study participants were feasible and allowed us to obtain a sample size sufficient to examine study variables; (3) Randomization strategies were acceptable to participants and resulted in treatment and control groups that were comparable on major socio-demographic and clinical characteristics; and (4) Positive effects of the intervention are suggested, with women in the treatment condition reporting higher levels of awareness, knowledge, and intent to seek a routine mammogram. The feasibility of the pilot on these domains indicates that the screening intervention be considered for efficacy testing in a larger behavioral trial with Hawaiian women in churches.

Methodological issues inherent to our study limit generalization of findings to other populations. First, the intervention was tailored on the cultural preferences of Hawaiian women in churches; thus, findings may not be relevant to non-Hawaiian women in churches or to Hawaiian women not associated with churches. Second, women in our study participated of their own volition; thus, results may be biased in the direction of more participatory women who might be more inclined towards participation in routine mammography. Third, the “intent to seek routine mammography” variable is problematic; adherence research indicates that positive intent is instrumental to behavioral enactment but that intent in and of itself may be insufficient to enact or sustain a behavior such as mammography use (DiMatteo, 1993; Gotay, et al., 2000). Further, the intent to seek mammography was based on self-report and thereby, influenced by social desirability bias. Fourth, multiple administrations of the KAP introduce a potential confound and may have

functioned, *de facto* as a screening reminder. Fifth, measures used to assess feasibility (e.g., project log, participant evaluation) neither predict nor explain behavioral change. Future research is needed to measure screening outcomes using methods that verify women's self-report. Sixth, behavior change must be observed over a more extended period than the one year observational period of this study as intervention gains may be difficult to sustain over time (Shediac-Rizkallah & Bone, 1998).

## IMPLICATIONS

Limitations notwithstanding, this pilot has several strengths and may provide helpful considerations for social work practitioners and researchers interested in developing and testing health interventions with culturally diverse and medically underserved communities. The use of social network approaches and Community-Based Participatory Research principles were crucial to gaining the participation of churches and women to this study. Recruitment of churches and women proceeded through the systematic approach of multiple, intersecting social networks and gatekeepers. Participant accrual at baseline exceeded targeted enrollment goals. This is noteworthy given past difficulties of recruiting Hawaiians to research studies (Ka'opua et al., 2004; Mokuau, Braun, Wong, Higuchi, & Gotay, 2008). Network approaches also were useful in sustaining study participation. KLM retention rates (78.2% of Hawaiian participants and 81.3% overall) were comparable to those of other randomized behavioral trials which range from 67–98% (Coday et al., 2005). Retention of individual participants was facilitated through collaboration with congregant liaisons, or women in the church who were familiar with local social networks and who could make contact with women when the latter were lost to follow-up by KLM (e.g., identified someone in the church network who knew the whereabouts of a participant). Finally, a family of qualitative measures were used to assess KLM feasibility; taken together, these measures produced rich data and provided a number of important insights from participants and researchers. Transparency in study-related communications and adherence to protocols are core to research ethics and fundamental to achieving treatment fidelity across study sites (Ewrin et al., 2003; Ka'opua, 2003). As indicated by this pilot, communication on 'what' participation involves, willingness to dialogue about concerns of churches and women, and follow-through (i.e., researchers do what they say they are going to do) reflect a different sort of fidelity; namely, a relational fidelity demonstrated by being true to one's word. Hawaiians and other minority groups have voiced negative perceptions about research studies that have left them feeling as though they were "guinea pigs" and that researchers are more concerned with furthering their careers than about participant well-being (Fong et al., 2003). Attention to nurturing relationships of fidelity yielded positive feedback from KLM participants, regardless of condition. Nearly one-half of participant evaluations called for continuing KLM beyond the pilot. We believe that attention to relational fidelity contributed at least in part, to their desire for extending the intervention beyond the pilot phase, with additional outreach to other churches and Hawaiian organizations.

## CONCLUSION

The importance of social work involvement in efforts to eliminate cancer and other health disparities is emphasized in "(Not So Gently) Down the Stream: Choosing Targets to Ameliorate Health Disparities", an editorial written by Gehlert and colleagues (2008). In this call to action, social welfare researchers and social work practitioners are encouraged to collaborate with community stakeholders in the design and testing of interventions that address upstream targets or systemic factors in order to achieve downstream benefits at the individual and community levels. KLM is an example of this kind of collaboration. Ka Lei Mana'olana means "The Lei of Hope" and this name reflects the project's emphasis on

community participation and infers indigenous values of *kakou* (us, we, the collective), *kuleana* (responsibility), and *aloha kekahi i kekahi* (loving each other) (Ka'opua, 2008; Ka'opua, Mitschke, & Kloezeman, 2008). From this indigenous paradigm, partnership organizations and individuals within organizations took on different roles and responsibilities (e.g., congregant liaisons assisted in coordination of project activities, health workers helped to broker resources), yet all entities worked as a single collective exercising care for each other in efforts to promote breast health and reduce breast cancer mortality. In this partnership comprised of diverse members from many occupations, social workers played a number of key roles. Social work involvement in KLM suggests the ways in which members of our profession might contribute to efforts aimed at promoting health equity. First, the project was conceived by social welfare researchers grounded in the ecological, strengths based, and bio-psychosocial/spiritual perspectives core to social work. As community-based researchers, we forged a research context that was action-oriented with attention to research as a *praxis* of empowerment and proactive agency. Second, social workers in their role as health organization executives and supervisors of case management services facilitated organizational support for KLM. These social workers contributed to building partnerships with local churches and played a key role in sustaining productive relations within the KLM organizational partnership of university, health-social service agencies, and churches in communities. Third, we worked actively with social workers who were members of participating churches. Motivated by their commitment to distributive justice, these practitioners volunteered in KLM and served as part of our cadre of survivor role models, family survivor role models, and liaisons. In these roles, they used their social work knowledge and skill sets to organize activities, engage congregants, provide health education, and assure culturally competent practice. Ultimately, these efforts elevated awareness and intent to seek routine mammography. As one social worker stated, "Cancer isn't about me. It's about us. Families and communities are affected, too. What allows me to go beyond the cusp is the *kakou*. KLM is a call to the collective--- to act as one body, working together to take action."

Indeed, it is through such collaboration that social welfare researchers and social work practitioners together with other providers, as well as individuals and families in churches and community-based organizations, might invest in developing culturally-responsive solutions that ultimately, advance the prospect of health equity. Results from our feasibility study establish the attractiveness and potential effectiveness of this church-based intervention and the acceptability of our randomization and data collection protocols. This paper provides social workers and social welfare researchers with an example of how to conduct a feasibility study before engaging in full-scale testing of an intervention aimed at addressing disparities.

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**Table 1**

## Sociodemographic Information by Study Arm at Baseline

	<b>Treatment Arm (n = 93)</b>	<b>Control Arm (n = 105)</b>	<b>Combined (n = 198)</b>
<b>Age Range</b>	19–92	30–89	19–92
<b>Mean Age</b>	60 (sd = 14.6)	60 (sd = 15)	60 (sd = 14.8)
<b>Age ≥ 39</b>	90	101	191
<b>% of Native Hawaiian Ethnicity</b>	60 (64.5%)	78 (74.3%)	138/198 (69.7%)
<b>Education</b>			
<b>&lt; High School (HS)</b>	4 (4.3%)	9 (8.6%)	13 (6.5%)
<b>≥ HS</b>	92 (95.8%)	94 (91.3%)	186 (93.5%)
<b>Adequate medical insurance</b>	83 (89.2%)	92 (87.6%)	175 (88.4%)
<b>Ever Had Mammogram</b>	82 (90%)	96 (92%)	178/195 (91.3%)

**Table 2**

## Recruitment and Retention by Ethnicity and Condition

<b>Ethnicity</b>	<b>Recruitment/Retention</b>	<b>Women in Treatment Arm</b>	<b>Women in Control Arm</b>	<b>Total</b>
<b>Native Hawaiian</b>	Enrolled	60	78	138 (70%)
	Completed W3	48	60	108 (78.2%)
<b>Non-NH</b>	Enrolled	33	27	60 (30%)
	Completed W3	29	24	53 (88.3%)
<b>Total Sample</b>	Enrolled	93	105	198 (100%)
	Completed W3	77 (82.8%)	84 (80.0%)	161 (81.3%)