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# No Ke Ola Pono o Nā Kāne: A Culturally Grounded Approach to Promote Health Improvement in Native Hawaiian Men

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**Abstract**

In Hawai'i, Native Hawaiian men (kāne) have the highest death rate from colon cancer among all ethnic groups. While screening can prevent 90% of these cancers, data show that >58% of kāne over age 50 have never been screened. Prior research has demonstrated that community-based social networks may help kāne adopt healthy behaviors such as cancer screening, however, few studies have activated such an approach. A cross-sectional study entitled No Ke Ola Pono o Nā Kāne (for the good health of men) was conducted statewide in Hawai'i from 2014 to 2018. The study strived to perpetuate the Native Hawaiian traditional practice of "hale mua" (men's house) to promote healthy behaviors among kāne including the adoption of colon cancer prevention strategies such as fecal immunochemical testing (FIT). The study applied a peer-led intervention model using kāne volunteers to deliver the program's educational components, including standardized materials to help the volunteers confidently conduct the sessions. Of the 378 kāne who were recruited into the study, 232 participated in the colorectal session of which 64% ($n$ = 149) were over age 50. Survey data from the 149 kāne indicated that 31% had not discussed colon health or screening with their doctors but 92% had improved their knowledge about colon health from the session. In addition, 76% ($n$ = 113) agreed to complete a FIT. Session evaluations indicated that >91% of kāne liked the hale mua approach and benefited from talking with other kāne about their health.

**Keywords**

culture, men's health interventions, cancer prevention, men of color, social support

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In Hawai'i, Native Hawaiians bear disproportionately higher rates of chronic illnesses including obesity, diabetes, cardiovascular diseases, and cancer compared to the overall state population (Look et al., 2013). Disparities in social and economic factors including isolation, lower income, lower rates of home ownership, and lower educational attainment may have increased high-risk health behaviors among Native Hawaiians (Blaisdell, 1989; Galinsky et al., 2017; Look et al., 2013). Behaviors such as tobacco use, excess fat and energy consumption, and low physical activity have resulted in elevated morbidity and mortality from chronic illnesses including cancers among Native Hawaiians when compared to other ethnic groups in Hawai'i (Hawaii Tumor Registry, 2016; Look

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et al., 2013). Exacerbating the situation, Native Hawaiians tend to underutilize Western health care and disease prevention services (Look et al., 2013) and many live in rural communities where health care and recreation services are meager, distant, or nonexistent (Blaisdell, 1989, 1993). Poor health outcomes are particularly more apparent in Native Hawaiian men (kāne) who are less likely than Native Hawaiian women to adopt preventive health services (Hughes, 2004).

Kāne have the highest death rates from colon cancer compared to men of other ethnicities in Hawai'i (Hawaii Tumor Registry, 2016) and the mortality-to-incidence ratio (MIR) for kāne (MIR = 0.44) is higher than any ethnic group in Hawai'i, including Japanese (MIR = 0.39), Filipino (MIR = 0.40), and White men (MIR = 0.39) (Hawaii Tumor Registry, 2016). This means that although kāne (37/100,000) are diagnosed less often than Japanese men, who have the highest cancer incidence rate (53/100,000), fewer kāne will survive the disease; this is presumably due to kāne being diagnosed at later stage of the disease when compared to other ethnic groups (Hawaii Tumor Registry, 2016). Early and regular screening for precancerous colon lesions can prevent nearly 90% of colon cancers (Lin et al., 2016). Kāne often have limited access to cancer screening and prevention services and, thus, are less likely than other ethnic groups to be screened. Indeed, data from the Hawai'i Department of Health's Behavioral Risk Factors Surveillance System (BRFSS) show that more than 58% ($n$ = 41,000) of kāne over age 50 have never been screened for colon cancer.

In 1989, Dr. Kekuni Blaisdell, a long-term advocate for Native Hawaiian health, emphasized the importance of creating culturally based health services along with disease and cancer prevention interventions for Native Hawaiians (Blaisdell, 1989). In 2002 the Native Hawaiian Cancer Committee of the American Cancer Society (ACS) launched the "Kāne Initiative" statewide in Hawai'i. The aims of the Initiative were to: (a) examine health-seeking behaviors and attitudes associated with kāne; (b) identify modifiable barriers preventing kāne from seeking health care; and (c) develop effective cancer-related programs geared toward kāne. To achieve these goals, the ACS's Cancer Committee surveyed behaviors associated with kāne and designed culturally grounded health promotion materials and programs.

From the Kāne Initiative emerged a statewide project in 2008 entitled No Ke Ola Pono o Nā Kāne (for the good health of men), which was composed of community kāne volunteers with heightened concerns about Native Hawaiian health disparities. These kāne volunteers facilitated kūkākūkā, or discussion groups, among other interested kāne statewide and offered opportunities for kāne to become alaka'i (peer leaders), who would be involved in culturally grounded health promotion and cancer prevention efforts. The discussion groups focused on educating kāne about chronic illnesses, increasing well-being, and preventing health risks while employing the Native Hawaiian traditional practice of "hale mua" (men's house) which, historically, provided opportunities for daily dialogue among kāne to discuss methods on providing sustenance for their families and transmitting knowledge to the younger generation regarding the responsibilities of manhood (Handy & Handy, 1940a, 1972b; Hughes, 2004).

## Research Design

This pilot study expanded the No Ke Ola Pono o Nā Kāne project to address health disparities among kāne in Hawai'i. The aims of our current study were to: (a) continue the use of the hale mua to provide a vehicle for regular dialogue about health and well-being among kāne statewide in Hawai'i; and (b) explore the ability of the hale mua to incorporate cancer prevention interventions for kāne, including colon cancer screening using fecal immunochemical testing (FIT). This mixed methods study used qualitative research methods to examine the dialogue among participating men. The qualitative analysis was intended to inform the development of new topics for future hale mua. Quantitative methods examined knowledge, attitudes, and behaviors regarding colon cancer screening including use of the FIT in kāne over age 50. It was expected that the culturally grounded features of the hale mua including the health promotion education, collective capacity building, and group social support could encourage the adoption of cancer prevention strategies in Native Hawaiian men including FIT in kāne over age 50.

The study was conducted statewide in Hawai'i from April 2014 to April 2018 and was approved by the Western Institutional Review Board (WIRB Work Order Number: 20141522) and the University of Hawai'i Cancer Center's Protocol Review and Monitoring Committee. Written informed consent was obtained from each participant prior to study commencement.

## Methods

### *Train-the-Trainer Approach*

Study staff adapted the peer-led model from the earlier 2008 project by recruiting community kāne volunteers to deliver the hale mua-based colon cancer prevention intervention using a "train-the-trainer" approach. For this approach, the trainers were ACS Kāne Committee members from the 2008 project, who were trained by the current study staff to deliver new discussion and educational sessions on health, well-being, and colon cancer prevention. Additionally, the study staff recruited Native

Hawaiian physicians (kauka) from communities statewide to increase the cadre of qualified regional facilitators.

Using a community-engaged approach (Minkler & Wallerstein, 2008), the hale mua group discussion and educational sessions were held at community-based venues (schools, parks, etc.) facilitated by a team of three kāne volunteers: an alaka'i (peer leader), a kōkua (scribe/support person), and a kauka (physician). The hale mua sessions were delivered using standardized materials created specifically for kāne and included information on: (a) No Ke Ola Pono o Nā Kāne project overview and (b) colorectal (na'au) health. The sessions were delivered using a large tabletop printed 18 in. × 24 in. flip chart, similar to a slideshow presentation, and ideal for low-resource settings. The flip chart content followed a standardized structure which included: (a) facilitator notes and instructions; (b) a mo'olelo (Hawaiian proverb/story), and culturally appropriate resonant images to frame the topic; (c) key colon cancer facts; (d) colon cancer and other health-related discussion questions; and (e) wrap-up and evaluation. This standardized structure helped the kāne volunteers confidently conduct the educational sessions and minimized the need for rigorous training.

## *Curricula Development*

The training curricula for the hale mua sessions including project overview and the colon cancer educational sessions were developed to be culturally grounded by focusing on concepts and values relevant to Native Hawaiians. The input from several kauka who were ACS Kāne Committee members and an expert consultant on Hawaiian culture crafted the discussion and educational sessions.

The consultant provided key resources and strategies about the use of Hawaiian language, Hawaiian proverbs, Hawaiian mythology, and other relevant cultural features embedded in the project. The kauka provided the medical expertise required to competently develop the colon cancer prevention and health promotion curricula for the study. The curricula were modified in an iterative fashion by using additional input from the Kāne Committee members, discussion group facilitators, and study participants to refine the format and features of the sessions.

## *Sampling Methods, Recruitment, and Incentives*

Although our study focused on kāne, all men over age 18 with Hawai'i residency, a phone number, and English literacy were eligible to participate. The Native Hawaiian Health Care System (NHHCS) of each major island statewide was engaged to participate in and support the program (Papa Ola Lokahi, 2019). NHHCS outreach staff recruited kāne from the community to participate in local discussion groups, which were scheduled to convene at community-based venues when 9–10 men confirmed attendance. These venues provided privacy and were not affiliated with any health-care organization, which supported the participation of kāne avoidant of medical providers and facilities (Hughes, 2004).

## *Session Procedures*

Following Hawaiian custom, all hale mua sessions opened with a pule (blessing), followed by introductions where participants were encouraged to provide their Hawaiian ancestry, family background and lineage, island of origin, ahupua'a (land subdivision), and current residence. Discussions were guided by a volunteer alaka'i and kōkua and all medically relevant questions were fielded by a volunteer kauka. Before ending each session, attendees were asked to complete a seven-item session evaluation, containing four Likert scale questions (evaluated on a four-point scale [strongly agree/agree/disagree/strongly disagree]) and three open-ended questions. The evaluation questions were derived from a National Cancer Institute Training Resource (U.S. Department of Health and Human Services, 2005). The Likert scale questions included: (1) It was helpful for me to discuss my na'au health with other men, (2) The discussion leader made me feel comfortable, (3) During the session I learned more about na'au health, and (4) I would attend another kāne session like this one. The open-ended questions provided an opportunity for participants to make statements about the sessions and included: (5) What I liked most about the sessions is _____, (6) How could the session be improved _____, and (7) Other comments _____.

For participants who attended the na'au (colon) session, a $10 gift card was provided to those who completed the 10-item brief questionnaire. The questionnaire queried participant's knowledge, attitudes, and intended behaviors toward colon cancer risk and screening, with two items (Questions 5 and 7) derived from the Health Information National Trends Survey (HINTS) and two items (Questions 2 and 9) derived from the BRFSS (U.S. Department of Health and Human Services, 2018, Centers for Disease Control and Prevention, 2014a, b). Questions included: (1) During the last week, how many days did you eat five servings of vegetables and fruit? (Response options 1–7); (2) Do you usually participate in physical activity of exercise such as running, walking, surfing, or gardening? (Yes, No, Unsure); (3) Colon cancer is a common cancer in Native Hawaiian men. (True, False, Unsure); (4) Colon cancer strikes men under 50 more frequently. (True, False, Unsure); (5) A family history of cancer puts you at greater risk for developing colon

cancer. (Yes, No, Unsure); (6) Which screening test can help prevent colon cancer? (Fecal occult blood test, FIT, Sigmoidoscopy, Virtual colonoscopy, Colonoscopy, Double contrast barium enema with X-rays, None of the above, All of the above); (7) Colon cancer can develop with no symptoms. (True, False, Unsure); (8) Has a doctor or nurse told you to have a test for colon cancer? (Yes, No, Unsure); (9) In the past 2 years have you ever had a test to check for colon cancer? (Yes, No, Unsure); (10) Has anyone in your family been diagnosed with colon cancer? (Yes, No, Unsure).

*Session 1: No Ke Ola Pono o Nā Kāne Overview.* This hale mua session featured a video presentation from a ACS committee member, beloved Native Hawaiian physician the late Dr. Kekuni Blaisdell, and provided the context for upcoming sessions while promoting attendance for subsequent meetings. In the video, Dr. Blaisdell described recent health concerns specific to kāne and the cultural resources available to address these challenges. The video presentation was followed by a discussion among the kāne regarding the personal relevance of Dr. Blaisdell's message. All discussions were audio-recorded to assist with further development of the project's curricula and to promote the delivery of health services to kāne. Attendees were also asked to provide a written commitment to improving a health behavior in the coming year using a standardized "Kāne Commitment" form. Kāne who opted-in were asked to provide their contact information to facilitate project follow-up by kauka to support achieving their health behavior-change goal.

*Session 2: Na'au (Colon) Health.* This hale mua session presented a mo'olelo to frame discussions about diet and digestive health, with a focus on kalo (taro), the quintessential cultural resource for Native Hawaiians. The role and use of kalo is fundamental both to the Hawaiian diet, where it is served whole or in its mashed form "poi," and to the Hawaiian culture, in which it embodies the Hawaiian god Kāne, who represents the primordial man, the ancestor of all Native Hawaiians (Malo, 1903). Group discussion focused on the risks, common causes, and prevention of colorectal cancer using a motivational interviewing (MI) approach. MI is a goal-oriented approach used to elicit behavior change by helping people explore and resolve ambivalence (S. Rollnick, 2008; Stephen Rollnick & Miller, 1995). For this session, the kauka demonstrated stool sample collection methods for the FIT using colored modeling clay as a proxy for stool. Kāne over age 50 who opted-in to completing a FIT were provided with a specially designed FIT collection kit containing detailed instructions using printed visual aids, gloves for the stool collections, and a pre-addressed stamped return mailer. Kāne without a personal physician were offered the services of the volunteer kauka to review the screening results and provide follow-up care if needed.

## Physician Follow-up Calls

During the discussion and education sessions, having a kauka present to respond immediately to medically relevant health questions was critical to the success of the study. It was equally essential to have these kauka make follow-up calls about 6 months later to assess each participant's progress toward achieving the goals identified on their Kāne Commitment forms or obtaining a colon cancer screening using FIT. Follow-up calls were made during the evening when the kāne would most likely be at home and originated from a Native Hawaiian community health clinic to support awareness of this resource. The kauka were drawn from the cadre who volunteered at the discussion and health education sessions and were known to the kāne participants.

## Data Analysis

*Quantitative.* Industrial Business Machine's Statistical Package for the Social Sciences, Statistics for Windows (IBM SPSS), Version 22.0 (Armonk, NY, IBM Corporation) was used for data analysis. To analyze the 10-item colon cancer knowledge and screening survey data, frequencies and percentages were calculated for each item including categorical and demographic variables. Chi-square tests were used to compare differences in categorical data. Analysis of the four-item Likert scale session evaluation data included the calculation of frequencies and percentages for each item. Tables were created to represent response frequencies and percentages across items for all survey data.

*Qualitative.* The audiotaped discussions from introductory and colon cancer sessions were transcribed. All transcriptions were uploaded to a qualitative data analysis software package (NVivo 11, QSR International). This qualitative data analysis software was used to support and complement the subsequent data analysis. The use of this software allowed for easy access to the data extracted from a variety of discussion group sources. The initial review of all transcribed discussions was conducted by the Kāne Committee team members. This analysis followed Grounded Theory methods and included a detailed examination of the transcription in a line-by-line fashion allowing for the creation of a descriptive summation of the participants' responses, or codes (Charmaz, 2006).

The second step of the qualitative data analysis was to apply a focused coding process (Charmaz, 2006). Patterns found in the initially coded data were combined and

organized into concepts or themes that captured the essence of the discussions. This creation of thematic constructs provided theoretical insights leading to a memo writing process that was used to describe the data as a whole. Independent reviewers from the Kāne Committee were also recruited to code a subset of four sets of randomly selected transcripts. These independent reviews were compared to assess interrater reliability. There was a 90% concordance between themes identified by the assessment of paired discussion groups reviews by independent Kāne Committee members. All research findings were reviewed with Kāne Committee members who served as discussion facilitators to ensure the accuracy of these findings and to provide additional insights using a member-checking process.

## Results

### *Session 1: No Ke Ola Pono o Nā Kāne Overview*

During the first two years of the study (2014 and 2015), the first session was developed and conducted independently as an introduction to the project, which included the background of No Ke Ola Pono o Nā Kāne project and a discussion session on the importance of kāne health. A total of nine introductory sessions (2015) were held statewide with a total of 150 attendees. During these sessions, 65% ($n = 98$) of the men provided a written commitment to improving their health over the upcoming year. Examples of such commitments included "walk briskly five times each week," "eat healthily," and "quit smoking." During years three, four, and five (2016–2018), this introductory session was combined with Session 2: na'au health, to streamline the study and to increase the opportunity for more participants to complete a FIT.

### *Session 2: Na'au Health, Combined Overview and Na'au Health*

A total of 21 statewide sessions on na'au health were held, of which seven were na'au health only (six sessions in 2015 and one in 2016). Fourteen sessions were held as a combined overview and na'au health session with two sessions in 2016, ten sessions in 2017, and two sessions in 2018. Men who attended both Sessions 1 and 2 between 2014 and 2016 were tracked by participant identification numbers with 30 men attending both sessions. A total of 30 sessions were held statewide with 378 men (Table 1).

There were 232 kāne who attended one of the 21 na'au health sessions of which 149 (64%) were over age 50 (Table 2). Among these 149 kāne, 31% ($n = 46$) had not discussed colon health or cancer screening with a doctor albeit 27% ($n = 40$) having a family history of colon cancer. During this session, 76% ($n = 113$) of the kāne over age 50 agreed to take the FIT while the remaining 24% ($n = 36$) declined. Of those who took FIT screening kits 48% ($n = 54$) did not submit screening samples and 52% ($n = 59$) kāne tested negative for colon cancer while 2% ($n = 2$) tested positive and were subsequently referred for colonoscopy and follow-up care. Analyses ($\chi^2$ test, $p < .322$) revealed that the participant's self-reported family history of colon cancer was not a significant predictor of their willingness to take a FIT. Participants who were eligible and took kits but who did not submit samples were contacted by volunteer kuaka. Final screening results indicated that 79% ($n = 117$) of the kāne over age 50 participating in the na'au health sessions reported being up-to-date with completing their annual colon cancer screening including data from the kauka follow-up contacts.

Of the kāne who completed the 10-item questionnaire during the na'au session ($n = 216$), 60% ($n = 130$) were able to correctly identify colon cancer risk factors, 59% ($n = 128$) could correctly identify colon cancer symptoms, and 93% ($n = 201$) knew about the appropriate screening tests for colon cancer. Additionally, 79% ($n = 171$) reported physical activity to be a part of their daily routine while only 34% ($n = 73$) reported eating five or more servings of fruits and vegetables every day (data not reported).

Results from the evaluation survey indicated nearly 92% ($n = 137$) of kāne over age 50 attending this session reported learning something new about colon health, 91% ($n = 136$) reported liking the idea of discussing colon health with other kāne during the sessions, and 91% ($n = 136$) indicated they would like to attend another session.

### *Qualitative*

*Overview of Kāne Discussion Themes.* Several emergent themes were extracted from narratives of the 30 discussion sessions. The major themes included overarching areas such as: (a) healthy traditional Hawaiian lifestyle; (b) the role of kāne in the Hawaiian family; (c) the importance of protecting the 'āina (land); and (d) the importance of kalo for Hawaiians. In addition, discussions focused on knowledge, attitudes, and behaviors surrounding each session's health promotion topic including (e) emergent risk for illness among kāne; and (f) colon cancer risks and screening;

*Healthy Traditional Hawaiian Lifestyle.* More than 16 distinct narrative references elicited during the discussions addressed the healthfulness of the traditional Hawaiian lifestyle. These narratives discussed specific activities such as meal preparation and healthy foods that served to

build the robust physiques of Hawaiians in former times. Also, the importance of a balance between physical, mental, and spiritual health was part of traditional Hawaiian culture. As one participant stated in a discussion group in Honolulu:

> The fine physiques and sound teeth and bones of our ancestors are a testimony to the health benefits and protection of [derived from] kalo. Take sovereignty of your body, of your mind, yeah. Starts there, right, to be healthy, and then you move out to your family and your nation, yeah? But you gotta make sure you right inside here. [pointing to his body]

Another participant from Kona, Hawai'i island, stated:

> Just like me, my lifestyle [is] different because I'm 74 years, and these guys, they're all young. My lifestyle was [being] brought up the old way. You know, we eat healthy food; we eat fish; we don't eat canned stuff. . .We catch our own meal from the ocean; we get all of the stuff (food) from the mountain; and we get all the stuff (food) from the taro patch, like lū'au leaf. That's how I was brought up. So, this generation, they eat too much "junks." Our ancestors lived, "mālama 'āina": They ate foods from the 'āina and moana (ocean) which are fresher and healthier.

A final participant quote relates the traditional concept of healthy balance with the environment saying:

> Whereas before, what is now [and] in the future. . . And, that's the other thing, principle to the practice, what you call the lōkahi (harmony, balance) triad, yeah. The top is Ke Akua (God), and the other sides is 'āina (land) and kanaka (human beings). So, you get in that, stay working that together, stay lōkahi, stay balanced. So, kanaka (Hawaiians) who are always in the āina, so, they were always lōkahi.

*The Role of Kāne.* The theme regarding the role of kāne was mentioned more than 75 times across sessions. The participants described the sessions as vehicles to promote their health and leadership skills. The cultural awareness, knowledge, and social support obtained from each other served to empower the kāne to become leaders in their families and communities. A participant stated:

> I still think of myself as a son rather than a father because I think of my kūpuna (ancestors), my father, my grandparents, as the source of strength and wisdom. I don't see myself in that way, in terms of how my children and now, my grandchildren see me, but I will learn.

Another participant described his approach to providing leadership to his family through his own exemplary behaviors. He stated:

> Well if you want to use me, an example. I've got my daughter and my wife. When I changed my diet, I just told them, I'm changing my diet. You guys do whatever you want. Well, fortunately, they allowed me to do it. So, I did my own cooking; I did my own, I prepared my own meals. Fortunately, they saw the difference after I took on as vegan and then semi-vegan diets. They saw how much weight I lost and how much health I gained. They eventually started eating my stuff. So, I end up now, I'm doing most of the cooking except, when they want to eat their special foods, they cook their own. So, it doesn't have to be confrontational. You can lead. . .by example. So, you can take on the role of caring by being the example.

*Importance of the 'Āina.* Another theme that resonated with the participants was the need to respect and protect the 'āina. The discussion centered on the Hawaiian values of "mālama 'āina" (to love and respect the land) and to claim stewardship. The kāne expressed a need to care for and nurture the land so that it can provide for future generations. Loss of land stewardship was viewed as a result of Western influences, specifically the overthrow of the Hawaiian Kingdom, which prevented Native Hawaiians from growing culturally important crops such as kalo, their dietary staple. One participant clarified these concepts with the statement:

> We can have the papa (field), or we can have the aku (tuna). But, we no more (don't own) the 'āina, we no more (don't have) the kalo. So, that's the biggest thing we gotta (must) look at. Where we can put back our kalo? They took all our rivers; they went dry 'em (dried them) up. We sending all our water someplace else. Golf courses? Where (are) we goin' (going to) put da kine (that item)? Where we goin' (going to) put the kalo? We no more (have no) 'āina.

Another participant stated:

> Our ancestors lived mālama 'āina. Haole (foreigner), a lot of times, their motto is, subdue and conquer; thou shall take over the world. But in our culture, of course, we had the triangle of faith. So, the triangle kept its balance because the kanaka (human beings) cared for the 'āina. They worshipped God, and the 'āina took care of them. You know it's amazing, 800,000+ Hawaiians were here when Cook first visited the Islands in 1778. . .800,000. That's almost the population of Hawai'i at present. And yet, we didn't have any condos, and we didn't have any pollution. The kapu system was really, really, fierce and we lived in a pristine environment, taking care of 'āina. Because of that, we had no big diseases. You gotta learn from your kumus (teacher, tutor). So, you can be (are) able for pass (lessons) on to your keiki (children) and so on. That's how the thing (mālama 'āina) works. Designed for us, from our kumus to us, to our keikis. That's the triangle right there.

*Importance of Kalo.* Kalo and poi was one of the most discussed health topics among participants, with more than 50 narratives identified from the statewide discussions. Discussions from the urban groups included "limited access to" taro and poi, whereas "building opportunities to expand kalo cultivation and use" were paramount from the rural groups in the neighboring islands. In all sessions, participants understood and appreciated the nutritional value of this plant in the tradition Hawaiian diet and its overarching role in physical, mental, and spiritual health. One participant clarified the reverence:

> In any case, only kāne could touch and handle the uncooked kalo plant, kāne planted, tended, harvested, and cooked kalo. Kalo was revered, I would say, because of what it does, it made life, right? At the Hawaiian table (pākaukau or papa kaukau), Kāne (Hawaiian god) is present when the open bowl of poi is placed on the table. Thus, behavior and conversation must be appropriate to the presence of a god. No arguing, plotting war, or other malice is allowed when you sit and eat poi at the table. Only cordial and happy conversation was allowed, so even those days, the Hawaiians realized that presence (of God) makes a big difference in (behavior). And, when you concentrate on something, nobody else can come in and ruin it.

Another participant addressed the dietary aspect of the plant, he stated:

> That's going to be part of your life. Important qualities of kalo. I would say, we all know what, we just talked about it. Returning back to the ancestral roots. Say's here, [reading from a reference document], science confirms that the iron in kalo builds blood and its calcium makes strong bones and teeth. Poi's easy to digest for babies and kūpuna (elders). The poi and kalo protect tooth enamel from erosion and decay. Reducing, chewing kalo, leaves a high alkaline, non-acid balance in the mouth, protecting from enamel loss and decay. That's another thing I didn't realize. Of course they say the entire kalo plant is edible, not just the root. They eat the plant, they eat everything.

*Emergent Risk for Illness Among Kāne.* During Session 1, the historical emergence of chronic diseases among kāne was presented. This provided an opportunity for robust discussion among the kāne about the role of socioeconomic determinants of health and the need to support change within their communities. One participant stated:

> (It's) Like when we had sham (mock, not real) battles, like with the war; but with the mock spears, etc. So, guys practice, like in the pā (Hawaiian martial art grounds), in the lua practice. They are fighting against one another. We gotta fight against cancer and all the stuff that, you know. . .and for all the men experiencing. . .yeah, incarceration, suicide, alcohol, drugs, yeah, so now we got a different kind of fight as warriors, yeah.

The discussion on changes in Hawaiian health served to motivate participants and support the continued opportunities for learning and dissemination of the health promotional aspects of the study. Another participant at Session 1 commented this way:

> When the Westerners came, the White man came, and he showed (introduced), like [about] 90% of Hawaiians to disease and killed 'em like instantly. And, [that] hurt a lot of the Hawaiians, like us. But I learned in [this] life, we gotta take care of our life. And, the only way we gonna get ahead is; we gotta educate our brains so that we can become better. Instead of using the muscle, and get lock up [going to jail], know what I mean?

*Colon Cancer Risks and Screening.* During Session 2, the kāne actively discussed their colon health concerns and the fear of early detection of a disease they believed to be life-threatening. One man stated:

> So, then, and then. . .[it's] kinda typical, yeah? Only, because they are scared of finding something. That's why they don't want to look. Well, like (man's name. . .) was saying, at least check [do the FIT], because if they ain't going to check. . . and, they could've prevented something. . . But, it's already in the mindset of people. . .being afraid of finding something.

However, the group discussions often proved empowering by allowing the kāne to draw upon their own experiences and to help encourage each other go forward with the FIT. Another participant stated it in this manner:

> What I've learned on being in this program . . .it's preventable, if you catch 'em ahead of time. Know what I mean? 'Cause what you don't know probably will hurt you. What you know, probably, can try to maintain it, so that's when—being with this group has really helped, help my life, so you know we're just here to help everybody.

*Physician's Role in Kāne Health.* A significant study finding was the emphasis of locating and having access to a kauka who understood Hawaiian values. One participant stated:

> A case in point. . . gotta have confidence in your doctor. However, as an individual, you can still do the due diligence like he does. You check the doctor, (who) is he. . . look up his name, he got any credits or what? To make a long story short, one of my problems was that at one time I was supposed to have bypass, triple bypass. So, I did some research on our doctor and I'm so grateful did. I realized,

**Table 1.** Kāne Participant Demographics.

| $N = 378$ (100%) | | |
|---|---|---|
| Age | $n = 378$ | % of total |
| Mean (51.9 years) | | |
| 18–19 years | 7 | 1.8% |
| 20–29 years | 23 | 6.0% |
| 30–39 years | 31 | 8.3% |
| 40–49 years | 56 | 14.8% |
| 50–59 years | 159 | 42.0% |
| 60–69 years | 73 | 19.3% |
| 70–79 years | 23 | 6.0% |
| 80–89 years | 5 | 1.3% |
| 90–99 years | 1 | 0.3% |
| Marital status | $n = 197$ | |
| Married | 93 | 47.1% |
| Single | 60 | 30.4% |
| Widowed | 14 | 7.1% |
| Divorced | 30 | 15.3% |
| Education | $n = 141$ | |
| Less than high school | 13 | 9.2% |
| High school graduate | 64 | 45.4% |
| College or grad. school | 64 | 45.4% |
| Employment | $n = 217$ | |
| Employed | 88 | 40.6% |
| Unemployed | 35 | 16.1% |
| Retired | 53 | 24.4% |
| Disabled | 22 | 10.1% |
| Other/student | 19 | 8.8% |
| Insurance | $n = 208$ | |
| Yes | 194 | 92.9% |
| No | 14 | 7.1% |

> that for me, to have a doctor who understands the Hawaiian community was essential. Someone who understood the cultural influences, the physical influences.

The participants appreciated having a kauka present at every session and a majority of the time kāne enthusiastically engaged kauka with specific health questions.

## Discussion

This pilot cross-sectional study sought to expand peer-led, health-activated, support groups using the Hawaiian traditional practice of the hale mua to address health disparities among kāne. It was expected that the culturally grounded features of the hale mua would deliver specific health improvement activities including health education, collective capacity building, and social support to increase adoption of cancer prevention strategies including FIT in kāne over age 50.

Although this study's approach to address health behavior change in kāne was grounded within the hale mua, the core components of the intervention were also supported by several theoretical approaches to health behavior modification (Glanz et al., 2015). These approaches contain constructs from social network analysis and social network theory, including the role of social support as a resource within social networks to improve health behaviors (Sales et al., 2010). The specific concepts forwarded in the application of the hale mua can be characterized as the establishment of a virtual social network environment using gender homophily (exclusivity) to create a health promotion vehicle for kāne.

Homophily is derived from two key social network processes (selection and influence) that appeared to be factors in motivating behavior change among kāne participants (Christakis & Fowler, 2007). Selection refers to the concept that individuals will change their social network affiliations to those more compatible with their own behaviors or values. For example, mere attendance at the sessions brought together like-minded kāne who were in seeking ways to better integrate Hawaiian values into their daily lives. Kāne participants were able to collectively address the concepts of manhood and health in a culturally grounded manner within the context of modern Hawaiian society. This type of collective learning is consistent with the traditional purpose of the hale mua. Equally important was the study's recruitment strategy using the outreach staff from the Native Hawaiian Healthcare Systems, who were known for their vocational influence to promote health in the context of Hawaiian values and who understood the unique demands that recruited kāne faced daily in their communities.

Influence refers to the idea that individuals will change their behaviors to be more congruent with other members of a network (Christakis & Fowler, 2007). For example, kāne facilitators were used to establish the hale mua as social network environment that valued and supported good health in the context of Hawaiian culture while a mo'olelo framed discussions among kāne and anchored the focus of the hale mua. The concept of influence was further enhanced by the presence of a kauka at each session, who helped the kāne focus on Hawaiian health and address common misconceptions, misunderstanding, or misgivings. The role of the kauka was critical to the hale mua as they were able to provide direct, highly credible, informational, and tangible support for the kāne. Participants appreciated the opportunity to speak informally with a physician while garnering the support of the group.

The importance of kauka was especially evident during the modeling of FIT collection procedures. In Hawaiian culture, direct handling of stool is considered kapu

**Table 2.** Colorectal (Na'au) Health Session Survey and Evaluation.

| Survey | |
|---|---|
| *N* = 216 | |
| 1. During the last week, how many days did you eat five servings of vegetables and fruit? | 66% ≤ 5 days |
| 2. Do you usually participate in any physical activity for exercise such as running, surfing, gardening, or walking? | 79% = Yes |
| 3. Cancer of the colon or rectum is a common cancer in Native Hawaiian men. | 45% = Yes (correct) |
| 4. Colorectal cancer strikes younger adults under 50 more frequently. | 38% = No (correct) |
| 5. A family history of cancer puts you in greater risk for developing colorectal cancer. | 71% = Yes (correct) |
| 6. Which screening test can help prevent colon cancer? | 93% = All (correct) |
| 7. Colorectal cancer can develop with few or no symptoms. | 59% = Yes (correct) |
| 8. Has a doctor ever told you to have a test for colon cancer? | 50% = Yes (correct) |
| 9. In the past 2 years have you ever had a test to check for colon cancer? | 42% = Yes |
| 10. Has anyone in your family been diagnosed with colon cancer? | 19% = Yes |
| Evaluation | |
| 1. It was helpful for me to discuss my colorectal health with other men. | 91% = Yes |
| 2. The discussion leader made me feel comfortable. | 90% = Yes |
| 3. During this session, I learned more about colorectal health. | 92% = Yes |
| 4. I would attend another kāne session like this one. | 91% = Yes |

(forbidden) and linked to social norms regarding cleanliness and personal hygiene (Jelliffe & Jelliffe, 1964). Waste is to be buried deeply and far from inhabited areas, with subsequent handwashing required before returning to the collective. There is both a spiritual and somatic or "ma'i kino" significance to disease and the disposal of feces is seen as a preventative measure against malevolent spiritual attack (Jelliffe & Jelliffe, 1964). For these reasons, teaching and obtaining commitment from kāne to complete the FIT was an ongoing challenge. One effective resolution was forwarded by a kauka who presented kāne with a nonstandard, but culturally and medically acceptable method for stool collection, congruent with their normal toileting activities. Introducing this method increased the number of kāne completing FIT in subsequent sessions. The study's use of callbacks by kauka served to lend to the continuity of the educational sessions. Kāne appreciated the direct and personal support demonstrated by callbacks from project kauka and, as a result, were more likely to attend more than one session.

Finally, this project supported the notion that kāne are willing to take responsibility for their health as a means to support the family and the community. This ideology is the cultural foundation of the hale mua, which historically served to provide a setting for kāne to gather daily to discuss and share important issues. Health and fitness was a major component of the hale mua, and in the past, encompassed methods to improve nutrition and physical activity, while often incorporating the Hawaiian martial art of lua. The project has repurposed the hale mua to address similar issues regarding health and well-being the kāne are facing today. The long-term goal is to reestablish a community-based hale mua to provide opportunities for kāne to gather, socialize, and share knowledge.

The study had several limitations. First, direct measures of social networks or social support as a mechanism for the intended behavior changes was not evaluated in this study. Next, the purported improved health behaviors by kāne in their Kāne Commitment forms were not validated, other than for colorectal cancer screenings using the FIT. Due to pilot nature of this study the long-term adherence to the FIT was not measured. Any specific cultural barriers to FIT or colorectal cancer testing were not assessed. Questionnaire items and measures used in the study were not psychometrically validated. Finally, the study did not isolate the key components of the intervention that affected health behavior change in the kāne from an array of candidate factors (cultural focus, social support, physicians, etc.). However, despite these limitations this pilot study has demonstrated that the use of traditional institutions found in Hawaiian culture can be adapted to promote health and well-being. A larger study is being planned to address these limitations and to better assess the integration of health promotion within a unique culture institution.

## Conclusions

This cross-sectional study expanded the use of hale mua to address cancer-related health disparities including colon cancer screening among kāne statewide in Hawai'i.

Three hundred seventy-eight kāne were successfully recruited, including 113 over age 50 to be screened for colon cancer using the FIT. Kāne participants reported liking the hale mua approach to health promotion and benefited from talking with other kāne about their health concerns. Future studies will explore continued use of the hale mua approach and extend group discussion topics to address additional health issues relevant for kāne, including social determinants. These future studies will include designs to measure social networks and the levels of social support afforded by these groups.

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