HHS Public Access

Author manuscript

J Cancer Educ. Author manuscript; available in PMC 2015 March 01.

Published in final edited form as:

J Cancer Educ. 2014 March ; 29(1): 136–143. doi:10.1007/s13187-013-0560-3.

A Pilot Test of a Church-Based Intervention to Promote Multiple Cancer-Screening Behaviors among Latinas

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Abstract

We assessed the feasibility, acceptability, and initial impact of a church-based educational program to promote breast, cervical, and colorectal cancer screening among Latinas ages 18 and over. We used a one-group pre/post evaluation within a low-income, Latino Baptist church in Boston, MA. Participants completed interviewer-administered assessments at baseline and at the end of the six-month intervention. Under the guidance of a patient navigator (PN), women from the church (peer health advisors, or PHAs) were trained to deliver evidence-based screening interventions, including one-to-one outreach, small group education, client reminders, and reduction of structural barriers to screening. The PN and PHAs also implemented a health fair and the pastor integrated health information into regular sermons. At pre-intervention, nearly half of the sample did not meet screening guidelines. The majority (97%, $n = 35$) of those who completed the post-intervention assessment participated in intervention activities. Two-thirds (67%) reported talking with the PN or PHAs about health issues. Participation in small group education sessions was highest (72%), with health fairs (61%), and goal setting (50%) also being popular activities. Fourteen percent also reported receiving help from the PN to access screening tests. This study supports the feasibility and acceptability of churches as a setting to promote cancer screening among Latinas.

Keywords

Latinas; Hispanic; health; disparities; church; cancer screening; religion; spirituality

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INTRODUCTION

Although the incidence of many cancers is lower among Latinos as compared with non-Latino whites, Latinos are less likely to survive most cancers, even after accounting for age and stage [1]. Lower rates of survival likely reflect diminished access to early detection, diagnostic, and treatment services [1]. National prevalence data show that compared with non-Latina/o whites, Latina/o adults have lower levels of mammography use within the past year (46% vs. 51%), colorectal screening per recommended intervals (47% vs. 61%), and Papanicolaou (Pap) test use within the past 3 years (74% vs. 79%) [1]. Given these disparities, the development and dissemination of effective, evidenced-based interventions (EBIs) to reach this population is a national priority [2].

Delivery of cancer education programs through churches has been recommended as a way to reach underserved populations, such as Latinos [3]. Churches are natural partners for the delivery of EBIs, in that they play a prominent role in Latino community life, providing a trusted source for spiritual guidance, culturally responsive communication, social support, and networking [3, 4]. In fact, 90% of Latinos report membership in a religious group [4]. Churches also provide infrastructures and facilities for the delivery of health promotion activities and that can be conducive to institutionalizing programs. Also, many churches view health promotion as part of their mission, are interested in providing health programs, and place a high value on volunteerism—which can aid in program delivery [3]. To date, the majority of church-based interventions have been conducted in African-American churches [3]. Moreover, few church-based interventions have targeted cancer-screening behaviors, and of these, most have addressed only one screening type (e.g., mammography). Bundling EBIs to address multiple cancer screening behaviors could potentially maximize intervention impact, as cancer screening behaviors are highly correlated; moreover, there is growing evidence to suggest that integrated programs may have synergistic effects and can promote screening across a variety of behaviors [5, 6]. This pilot study was designed to assess the feasibility, acceptability, and an estimate of the potential impact of an educational intervention to promote adherence to breast, cervical, and colorectal cancer screening guidelines among church-going Latinas.

Conceptual Framework

Our study is based on a socio-ecological framework that draws its theoretical underpinnings from the Integrative Model of Behavioral Prediction [7]. Briefly, the model postulates that intention is the most potent predictor of behavior. Intentions are the result of attitudes about the behavior, social influences, and self-efficacy. Our interventions were primarily directed at: (1) improving attitudes by increasing perceived benefits and decreasing perceived barriers; (2) providing social support and influencing social norms about screening; and (3) building self-efficacy with regard to communicating with one’s primary health care provider about screening.

METHOD

Setting & Sample

We employed a one-group pre/post evaluation design. Through our prior work [8], we developed a strong working partnership with a small-sized (N = 155 adults), predominantly Latino Baptist church in Boston, MA. From this church, a membership list was used to identify potentially eligible participants for pre- and post-intervention assessments. Female church members eligible for participation were age 18 or over, self-identified as Hispanic or Latina, and English or Spanish speaking. Although men were also eligible, there were too few eligible male church members over the age of 50 among whom we could assess age-appropriate cancer-screening behaviors (n < 10). As a result, we chose to include only women in these analyses. Church members were not required to participate in pre/post assessments in order to take part in intervention activities, and vice versa.

As a first step in recruitment for pre-intervention assessments, the pastor made announcements during worship services for three consecutive weeks. Informational flyers were also distributed after Sunday services and during established weekly meetings (e.g., prayer groups). Eligible church members also received an individualized letter from the Principal Investigators, describing study objectives and procedures, a statement regarding the voluntary and confidential nature of data collection, and an invitation to attend an interview session to complete assessments.

Those eligible and interested in study participation met privately with a bilingual research assistant, who provided verbal and written informed consent information. Once consent was granted, the research assistant interviewed the participant in their preferred language (English or Spanish) using a questionnaire that assessed: knowledge, attitudes, beliefs about cancer-screening tests, screening history, and socio-demographic characteristics. Interviews took approximately 30 minutes. Pre-intervention assessments took place between November and December 2009; post-intervention assessments were completed between July and August 2010. For completion of the assessment at each time period, we provided a $20 grocery gift card. The study protocol was approved by the Institutional Review Boards at the Harvard School of Public Health and the University of Massachusetts, Boston.

Intervention Development

Evidence-based strategies were selected based on recommendations provided by the Community Preventive Services Task Force [9] in order to create a comprehensive intervention program to address breast, cervical, *and* colorectal cancer screening. Strategies included client reminders, one-to-one outreach, group education, and reduction of structural barriers to screening (i.e., assistance with obtaining health insurance or provider referral). Intervention materials were gathered from public sources, mainly Research Tested Intervention Programs (RTIPS) [10] and Cancer Control P.L.A.N.E.T. (Plan, Link, Act, Network with Evidence-based Tools) [11].

Study investigators and staff assessed available materials for cultural appropriateness, literacy level, and acceptability for delivery in a church setting. For example, we sought educational materials that featured Latino role models with the goal of increasing relevance,

credibility and relate-ability. However, we found few materials appropriate for the population and setting. Many materials required linguistic and cultural translation. As a result, we undertook a standardized process for adapting existing materials for our audience and the community context [10]. Consistent with principles of community-based participatory research, this process was overseen by investigators working with a Community Advisory Board (CAB), which was comprised of community representatives from churches, faith-based networks, local health and social service organizations, and Latino advocacy groups. The adaptation process was also guided by formative research findings from focus groups that we conducted with Latino church-going men ($k = 4$, $n = 35$), women ($k = 3$, $n = 31$), and clergy ($k = 1$, $n = 7$) at the outset of the study. Focus group participants and CAB members stressed the importance of increasing knowledge and correcting misinformation regarding cancer risk factors, symptoms, and screening recommendations. They also confirmed the importance of addressing structural barriers to care, such as inadequate insurance coverage and lack of a health care provider.

To address the community context of the intervention, focus group participants and the CAB stressed the importance of integrating religious themes and messages into the intervention. For example, one focus group participant, whose husband was a minister, said, “The Bible says that we are the temple of the Holy Spirit… that means [that] we have to take care of our bodies too, whether it’s check-ups, what we eat, getting exercise, and things like that.” Religious themes and messages gathered through this formative research were integrated into the intervention’s health promotion messages. We achieved this through multiple strategies. First, our intervention was implemented by Peer Health Advisors (PHAs) who themselves were long-time church members. Well-versed in both their religion and trained in the importance of cancer screening, they were able to culturally adapt health messages so that they were spiritually relevant (e.g. “Your health is a gift from God”; “Your body is a temple that you are responsible for maintaining”). Second, the pastor discussed health themes and cancer education content in his sermon at least once per month. The sermons were developed by the pastor and enriched with religious and spiritual content (e.g. “God helps those who help themselves”; “Do your part and God will do his”; “The Holy Spirit lives within you”) that reinforced the importance of maintaining one’s health and supporting each other in achieving a healthy lifestyle through fellowship of the church. Sermons usually started with a reading of a Bible passage, followed by the pastor’s interpretation and “take away” points. Third, relevant Biblical scriptures and passages that promoted health behaviors or self care were posted on large banners in the church hall, integrated into educational materials, and discussed in the small group *charlas*. In our health education print materials, scriptures were often placed on the top or front of pages in bolded, italicized, or multicolored font for increased visibility and relevance. For example, the scriptural message of one’s body as the temple of the Holy Spirit (1 Corinthians 6:19–20) and a verse regarding general well-being (3 John 1:2) were integrated into the community resource guide. Messages about taking care of the heart (Proverbs 4:23), healthy eating (Proverbs 23:2, Daniel 1:2, Romans 14:22) and glorifying God by taking care of the body (1 Corinthians 6:19–20) were displayed on banners at the church health fair. Lastly, participants engaged in group prayer before and after all health activities and educational sessions; prayers lasted between 2 and 5 minutes and were led by church members. As highlighted by the pastor,

PHAs, and focus groups, it was important for all activities to be conducted in the name of God: “Whatever you do, advice you give, you put Jesus’s name first.”

In addition to linguistic, cultural, and religious adaptations, we also adapted interventions so that they simultaneously addressed breast, cervical, *and* colorectal cancer screening. For example, we adapted colorectal cancer-screening group education protocols from the *Open Doors to Health* [12] program so that they also addressed breast and cervical cancer screening. We adapted single-cancer screening client reminder telephone scripts and direct mailing materials from RTIPS to address multiple cancer screening behaviors.

Intervention Implementation

The intervention program consisted of five main components conducted over a six-month period: (1) one-to-one education; (2) group education “charlas” (informal discussions) and “bingo” games that addressed relevant content; (3) dissemination of health messages via small media and pastor sermons; (4) behavioral goal-setting; and (5) reducing structural barriers via provider referral, mobile health vans, and assistance with applications for state-based insurance.

Two months prior to the start of the intervention, we recruited and trained three church members to serve as PHAs. PHA candidates were selected by the pastor based on their leadership, communication, and interpersonal skills. PHAs completed two full days of training that covered cancer risk factors and prevention, screening guidelines, and techniques for conducting community outreach and education. PHAs were charged with planning, promoting, and implementing interventions with assistance from a Patient Navigator (PN), who had formal training in health education. For their involvement delivering the intervention, PHAs received a small stipend. The PN was charged with assisting with logistical planning and coordination of activities, problem solving, as well as providing direct referral to community resources when needed. These approaches were incorporated within church programs and were designed to respond to women's concerns about cancer screening, raise awareness about specific screening tests, establish behavioral goals, advise women about how and where to access services, and offer practical assistance that would facilitate the women's access to screening services.

Measures

Intervention feasibility was assessed by judging the success and effort associated with implementation of the five intervention components, as well as our ability to recruit, train, and retain three community leaders in the church to serve as PHAs. *Intervention acceptability* was assessed by describing the proportion of intervention participants who were “Satisfied” or “Very Satisfied” in response to the question: “How satisfied are you with your experience in the Latino Health Program?” *Intervention reach* was assessed by calculating the proportion of eligible individuals who participated in the intervention.

Adherence to screening guidelines was assessed with items from Spanish-language national surveys [13]. Definitions of adherence were based on American Cancer Society recommendations current at the time of data collection [14]. Socio-demographic

characteristics, including age, ethnicity, education, income, and marital status were measured using standard items from the Spanish-language versions of the U.S. Census and the Behavioral Risk Factor Surveillance System (BRFSS) questionnaires [15]. Development and cognitive testing of the survey is described elsewhere [8].

Analysis

Descriptive statistics were used to describe socio-demographic characteristics of the sample, participation and satisfaction with intervention activities, and adherence to cancer screening guidelines. Changes in the proportion of those in adherence with screening guidelines were compared between the two time points (pre- and post-intervention). First, we examined adherence for each individual cancer-screening test. Next, we assessed compliance with *all screening tests* for which one was age-eligible. Using the Pearson chi-square test and Fisher's Exact Test, we also assessed the relationship between individual socio-demographic characteristics and participant completion of the post-intervention assessment, given considerable attrition.

RESULTS

Sample characteristics

At baseline, 79% of eligible women participated in interviews ($n = 77$). Between pre- and post-intervention, there was substantial attrition; only 36 (47%) of those who completed the pre-intervention assessment also completed the post-intervention assessment. The vast majority of those lost to attrition ($n = 41$) had moved out of the area. A trend suggested that those lost to attrition were generally less likely to speak English proficiently ($p < .06$). There was no significant difference in length of time living in the U.S. (mean = 13 years among both groups). Participants who completed follow-up assessments were more likely to be from Central or South America, be married, have low incomes, and have health insurance. Comparison of those who completed follow-up assessments versus those lost to follow-up is provided in Table 1.

Intervention feasibility

During the six-month intervention, the PHAs and PN team implemented all components of the intervention program. They conducted 127 hours of one-to-one telephone and in-person outreach, seven small group sessions ("charlas"), two cancer education Bingo Nights, a three-week behavioral goal setting campaign, one health fair, and one "Mammography Van Day." In addition, they distributed numerous educational materials throughout the intervention.

Intervention acceptability and reach

Eighty-six percent of women reported that they were "Satisfied" or "Very Satisfied" with the program. Moreover, 61% of women reported that it was "somewhat" or "very" helpful to talk to a PHA about health issues. Process tracking showed that 97% ($n = 35$) of the follow-up sample participated in intervention activities of some kind. Two-thirds (67%) reported talking with a PN or PHA about health issues, particularly about breast cancer screening (83%) and health insurance (83%). Participation rates were highest for the small group

education sessions (“charlas”) (72%), health fairs (61%), and the goal-setting campaign (50%). Fourteen percent also reported receiving help from the PN in finding a primary health care provider. See Table 2.

Change in cancer screening

Changes in self-reported compliance with screening guidelines between pre- and post-intervention among those women who completed the follow-up assessment are shown in Table 3. Although the intervention resulted in a 24% increase in adherence with breast cancer screening recommendations and an 8% increase in adherence to all recommended screening tests for one’s age, these changes were not statistically significant.

DISCUSSION

The goal of the pilot study was to assess the feasibility, acceptability, and initial impact of an intervention to promote adherence to breast, cervical, and colorectal cancer screening among church-going Latinas. Educational strategies were evidence-based and peer-delivered, with concerted efforts to ensure linguistic appropriateness, cultural relevance, and religious salience. Our findings indicate that Latina church members were willing to participate in cancer education and were satisfied with intervention programs.

Although challenges associated with recruiting Latinos into research trials are well documented [16], we were able to recruit, train, and retain three community leaders in the church to serve as PHAs. These women came with leadership skills acquired from volunteer roles in the church, and possessed superior cultural and religious knowledge that was imperative for the successful delivery of the intervention. They implemented a diverse set of intervention strategies and disseminated information through their social networks. PHAs often engaged in group discussions and spontaneous educational sessions before or after services or meetings, as demonstrated by the number of hours spent conducting outreach.

We broadly attribute high participation to three strategies, which we believe created increased awareness of and credibility for the program. First, congruent with a community-based participatory research approach [17], we received strong support and collaboration from the pastor, other church leaders, and our CAB. Second, we adapted educational materials and activities for linguistic, cultural, and religious appropriateness for the intended audience. Third, as others have done, we employed community members as PHAs to plan, promote, and deliver the intervention [18, 19, 20]. Collectively, we believe these strategies enhanced the acceptability of the intervention. Moreover, four months after the study was completed, the PHAs were continuing to offer charlas and bingo games first implemented during the intervention period.

Although many churches view health as integral to their mission, a national survey of U.S. religious congregations finds that just 10% of congregations sponsor some form of health-related program [21].Most churches lack the organizational capacity, and with it the skills and resources to implement health promotion activities. Few researchers have explored characteristics associated with the sponsorship of health programs among U.S. religious congregations. The few existing studies reveal that clergy members play a key role [22].

Available resources also play an integral role. For example, congregations with more specialized staff, greater numbers of volunteers, and higher engagement in other (non-health-related) programs are more likely to provide health programs [21, 22].

Initiatives to build community capacity for health education programs suggest that technical assistance, skills training, and coaching are likely to increase program adoption [23]. Yet, these strategies remain largely untested in church settings [3]. Results of the current study will be helpful in designing interventions to promote community capacity to implement and institutionalize EBIs for cancer control, which is currently in the planning stages. By engaging church members and working with them to build the requisite skills, infrastructure, and resources to deliver programs, it is our hope that the impact of our efforts will extend beyond the period of grant funding and will set the stage for future initiatives to address health disparities. Moreover, enhanced community capacity will enable Latino churches to expand their initiatives beyond our initial focus on cancer screening, potentially becoming more fully engaged in cancer advocacy and clinical trials. Such a model for community capacity-building could easily be adapted for other community settings, health and social issues, and populations [17].

There is evidence to suggest that integrated programs that target multiple behaviors may have synergistic effects [17]. It is possible that “bundling” screening interventions for tests that are more commonly utilized (e.g., mammography) with those that are less commonly utilized (e.g., colorectal cancer) may be an effective strategy to maximize screening participation. If there is a ‘spillover effect’ from promoting one type of screening to another, such programs may be more cost-effective than those targeting single cancer screening behaviors [24]. The efficacy of interventions that address multiple cancer *prevention* behaviors has been demonstrated [25] and provides support for a similar approach to cancer screening. Our pilot study showed that low-income, Spanish-speaking Latinas were highly receptive to a church-based intervention targeting multiple cancer screening. Larger scale studies are needed to demonstrate the effects of such community-based interventions.

Our study has important limitations. We recruited a purposive sample from one church in a single geographic area, limiting the generalizability of the findings. In addition, screening behaviors were self-reported, leaving our findings subject to recall bias and social desirability. There was considerable attrition, which severely limited our ability to conduct planned analyses. According to the pastor and PHAs, many participants moved out of the region, traveled back and forth to their country of origin, or joined a new church. This is a potential drawback with working among churches that have a highly mobile immigrant population. Developing strategies to reduce attrition (e.g., maintaining more frequent contact with participants) or considering alternate study designs (e.g., two independent cross-sectional surveys, multiple-site studies) are likely necessary to assure adequate statistical power to detect intervention effects.

Randomized controlled trials are needed to evaluate the efficacy of lay-delivered and bundled screening interventions in Latino churches. In addition, studies among other Latino subgroups and immigrant groups are warranted, given the heterogeneity of the Latino population. In the US, more than two-thirds of Latinos (68%) identify themselves as Roman

Catholics, with the next largest category, at 15%, made up of born-again or evangelical Protestants [4]. These differences in religious identification among Latinos likely have important implications for faith-based interventions, as certain religious stakeholders (e.g., the Catholic Church) may differ in their interest, existing infrastructure, and capacity for health promotion. Thus, there is also a need for feasibility studies to be conducted with other religious denominations. More research that focuses on the interaction between PHAs and community members would also provide a better understanding about mechanisms and processes underlying interpersonal approaches to behavior change. Lastly, a more rigorous evaluation of intervention effects on psychosocial determinants of behavior (e.g., knowledge, attitudes, and beliefs) would be valuable, as well as cost-effectiveness analyses for future dissemination and impact.

Acknowledgements

This study was supported by grants from the National Cancer Institute (U56 CA118641 and U54CA156732) with supplemental funding support from the American Recovery and Reinvestment Act of 2009 (3U56CA118635-05S2). It was also supported by Cooperative Agreement Number U48DP001946 from the Centers for Disease Control and Prevention. The findings and conclusions in this presentation are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention. We gratefully acknowledge the leadership and support of Drs. Karen Emmons and Adán Colón-Carmona. We also thank the following for their participation and support: Milagros Abreu, Erick Alcantata, Esteban Barreto, Lois Biener, Karen Burns White, Katia Canenguez, Magnolia Contreras, Ana Galeas, Maria De Jesus, Ericka Gonzalez, Elizabeth Gonzalez Suarez, David Hurtado, Thelma Juarez, Yolanda Martins, Yudy Muneton, Maria Nieves Sesma, Leyla Pérez-Gualdrón, Max Stewart, and Jamielle Walker.

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Table 1

Socio-demographic characteristics of females who completed the follow-up assessment (n = 36) and those lost to follow-up (n = 41)

Characteristic	Completed Follow-up *n* (%)*	Lost to Follow-up *n* (%)	*P*
Age (*Mean, range*)	*43.2, 18–79*	*44.6, 18–71*	*.67*
<40	15 (42)	15 (37)	.63
40–49	9 (25)	8 (20)	
50 and older	12 (33)	18 (44)	
Annual Household			
<$10,000-$29,999	15 (42)	22 (54)	.28
$30,000 -$49,999	8 (22)	11 (27)	
More than $50,000	4 (11)	0	
Don't know	8 (22)	7 (17)	
Refused/missing	1 (3)	1 (2)	
Employment Status			
Employed	23 (64)	27 (66)	.96
Unemployed	12 (33)	13 (32)	
Refused/missing	1 (3)	1 (2)	
Insurance Status			
Insured	23 (64)	26 (63)	.57
Not insured	11 (31)	11 (27)	
Don't know/missing	2 (6)	4 (10)	
Educational Level			
<High school diploma	12 (33)	16 (39)	.79
High school or GED	13 (36)	14 (34)	
Some college or technical school	8 (22)	8 (20)	
College graduate or higher	3 (8)	3 (7)	
Ability to Speak English			
Very well, well	18 (50)	12 (29)	**.06****
Not very well, not at all	18 (50)	29 (71)	
Region of Origin			
Caribbean	3 (8)	1 (2)	.14
Mexico	0 (0)	3 (7)	
Central America	21 (58)	16 (39)	
South America	11 (31)	19 (46)	
Other	1 (3)	2 (5)	
Length of Time Living in US, in years (*Mean, SD*)	*13.2, 9.7*	*13.4, 8.3*	*.91*
Missing	1 (3)	0	

Characteristic	**Completed Follow-up *n* (%)***	**Lost to Follow-up *n* (%)**	***P***
Marital Status			
Married/Living as married	20 (56)	23 (56)	.41
Other	16 (44)	18 (44)	

* Columns may not sum to 100% due to rounding.

** Pearson chi-square *p* value is .06, but Fisher's Exact Test *p* value is .05.

J Cancer Educ. Author manuscript; available in PMC 2015 March 01.

Table 2

Changes in self-reported compliance with screening guidelines between baseline and follow-up (n = 36)

Screening type	**Baseline**		**Follow-up**	
	n	**(%)***	***n***	**(%)**
***Colorectal Cancer Screening* (age 50+)**	12		12	
Compliant with recommendations [a]	9	(75)	9	(75)
% non-compliant at baseline Δ compliant at final			**0**	
Breast Cancer Screening (age 40+)	21		21	
Compliant with recommendations [b]	13	(62)	18	(86)
% non-compliant at baseline Δ compliant at final			**5**	
***Cervical Cancer Screening* (age 18+)** [c]	27		26¥	
Compliant with recommendations [c]	24	(89)	20	(58)
% non-compliant at baseline Δ compliant at final			**1**	
Compliant with all tests recommended for age [d]	36		36	
Compliant with recommendations	24	(67)	27	(75)
% non-compliant at baseline Δ compliant at final			**3**	

*Columns may not sum to 100% due to rounding.

[a]Compliant with colorectal cancer screening: Annual FOBT or sigmoidoscopy within 5 years or colonoscopy within 10 years.

[b]Compliant with mammography (women 40–49): Mammogram within prior 2 years; (women 50+): Mammogram within prior year. Compliant with breast cancer screening: Mammography-compliant for age.

[c]Compliant with cervical screening (women 18+): Pap smear within prior 3 years.

[d]Compliant with all screening tests for age:

18–39 – Pap smear within prior 3 years.

40–49 - Pap smear within prior 3 years and mammogram within prior 2 years.

50+ - Pap smear within prior 3 years, colorectal cancer screening compliant, mammogram within prior year.

¥For cervical cancer screening, 9 cases in the baseline data and 10 in the follow-up data are missing due to reported hysterectomy or discrepant answers. For those cases, not having the cervical cancer screening was not considered non-compliance in calculating compliance with all screening tests.

Table 3

Exposure to and participation in the intervention (n = 36)

Variable	***n*, % Yes**
Exposure	
Heard any information at church about cancer screening	29 (81)
Aware of a case manager program at church	33 (92)
Use	
Talked with a case manager about any health issue	24 (67)
… talked about breast cancer screening	20 (83)
… talked about cervical cancer screening	17 (71)
… talked about colorectal cancer screening	13 (54)
… talked about health insurance	20 (83)
… talked about other health topic	2 (8)
Participated in:	
…Health fair	22 (61)
…Bingo night(s)	13 (36)
…Charla(s)	26 (72)
…Mammography Van Day	13 (36)
…Tree of Life goal setting campaign	18 (50)
Received:	
…a phone call from a case manager	28 (78)
…a letter about the program in the mail	15 (42)
…a letter about the program at the church	24 (67)
…education materials in the mail or in person	20 (56)
…help getting a primary care provider	5 (14)
Attended a service where the Pastor preached about health	29 (81)
Participated in any intervention activity	35 (97)