Longitudinal analysis of domain-level breast cancer literacy among African-American women

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Abstract

Functional breast cancer literacy was assessed among African-American women and measured at the domain level over time. We used the Kin KeeperSM Cancer Prevention Intervention to educate 161 African-American women on three domains of breast cancer literacy: (i) cancer awareness, (ii) knowledge of breast cancer screening modalities and (iii) cancer prevention and control. A breast cancer literacy assessment was administered pre- and post-educational intervention at two time points followed by another assessment 12 months after the second intervention. Generalized estimating equations were specified to predict the probability of correctly answering questions in each domain over time. Domain-level literacy differentials exist; at baseline, women had higher test scores in the breast cancer prevention and control domain than the cancer awareness domain (odds ratio = 1.67, 95% confidence interval 1.19–2.34). After Kin KeeperSM Cancer Prevention Intervention, African-American women consistently improved their breast cancer literacy in all domains over the five time stages ($P < 0.001$) though at different rates for each domain. Differences in domain-level breast cancer literacy highlight the importance of assessing literacy at the domain level. Interventions to improve African-American women’s breast cancer literacy should focus on knowledge of breast cancer screening modalities and cancer awareness domains.

Introduction

Various factors have been identified as influencing African-American women’s likelihood to receive breast cancer screenings, including physician recommendation, access to health insurance, family history of cancer and exposure to public health interventions [1, 2]. One important factor that has sometimes been overlooked is breast cancer literacy; low breast cancer literacy significantly impedes breast cancer screening and early detection among African-American women [3–6]. As breast cancer disparities continue and more African-American women are diagnosed with breast cancer at later stages, resulting in lower survival rates [7], it is important to understand the dynamics of breast cancer literacy in the context of cancer prevention interventions and strategies of eliminating disparities [8–10].

To further the understanding of these complex phenomena, Williams et al. [11] enhanced the definition of health literacy [12, 13] to include breast and cervical cancer literacy: ‘Breast and cervical cancer literacy is a woman’s functional understanding of her personal and familial risk of the disease, including how to minimize her risk and the risk of her family through preventive early detection.'
screenings and lifestyle changes and understanding how to access the health system and engage providers to minimize her risk and the risk of her family” [11]. Furthermore, Williams et al. [14, 15] designed assessment tools to measure breast and cervical cancer literacy.

The primary aim of the current study was to examine the dynamics of African-American women’s breast cancer literacy over time in terms of the fundamental concepts of breast cancer literacy referred to as domains. This is important for improving the design of breast cancer educational interventions that encourage the use of breast cancer screening services and have the potential of reducing breast cancer disparities.

Methods

Traditionally, health literacy scores have been measured using aggregate literacy assessment scores [16, 17], enabling users to decide if a person is functionally health literate. This has been the case for breast cancer literacy as well [15]. While it has helped to inform communities of health and science about the status of overall breast cancer literacy, it has not illuminated specific areas of breast cancer illiteracy that African-American women might be struggling with. Domain-specific learning and progress over time have thus not been investigated. Given that African-American women indeed have different degrees of difficulty in understanding and increasing domain-level breast cancer literacy, longitudinal analysis of domain-level breast cancer literacy is useful to elucidate the stumbling blocks to a woman’s functional breast cancer literacy.

In this study, we extended the assessment of breast cancer literacy among African-American women by analyzing specific domains of breast cancer literacy: (i) cancer awareness, (ii) knowledge of breast cancer screening modalities and (iii) cancer prevention and control. Our choice to focus on these domains was guided by the need to illuminate specific areas of breast cancer literacy that women were struggling with as well as three related theoretical/conceptual frameworks: (i) the human ecological perspective (HEP), (ii) health belief model (HBM) and (iii) trans-theoretical model (TTM). The HEP maintains that concentric layers of physical, psychological, social and cultural environments influence individuals, which they in turn affect at different levels [18, 19]. Regarding women in this study, their health and development, that of their family and their community interact, and all are influenced in and across the different environments [15]. Following this conceptual framework, the literacy domains in this study were designed to consist of items that address a woman’s breast cancer literacy as it relates to her personal and familial breast health and influencing environments. Regarding a woman’s adherence to recommended breast cancer screening guidelines, the HBM posits that a woman’s readiness to participate in breast cancer screening in accordance with guidelines depends on her beliefs about her risk of getting breast cancer and beliefs about the benefits she will receive from getting screened. The TTM is an expansion of the HBM proposing that individuals, when changing their health behaviors to adhere to recommended screening guidelines, move through a series of stages of adoption over time (pre-contemplation, contemplation, action and maintenance) [20, 21]. Taking the HBM and TTM into consideration, the literacy domains in this study were designed to contain items associated with a woman’s perceived risk and benefits of screening as well as stages of changing health behavior to adhere to the recommended breast cancer screening guidelines. The longitudinal design of the study was also in consideration of the theory and this allowed for monitoring of changes in breast cancer literacy over time.

The Kin KeeperSM Cancer Prevention Model

Data were collected using a community-based participatory research method through the Kin KeeperSM Cancer Prevention model, which follows the HEP [11, 12]. The Kin KeeperSM Cancer Prevention model is a health service model designed to educate and empower medically underserved women to adhere to breast cancer screening guidelines [11]. The model is implemented through the Kin KeeperSM Cancer Prevention Intervention which entails two
home visits by a community health worker (CHW) with a group of female family members that have consented to assemble at one of the female relative’s home for the intervention. Both visits are scheduled for evenings or weekends, with the second visit occurring 1–3 weeks after the first one. Each visit lasts ~1.5 hours. During each home visit, a preintervention breast cancer literacy assessment is administered followed by the training on breast cancer and screening using the Kin KeeperSM Curriculum and Workbook©. Thereafter a post-intervention breast cancer literacy assessment is administered to assess changes in breast cancer literacy. Because some women have low reading literacy levels, the intervention is administered orally by the CHW. The women learn about recommended screening guidelines, how to perform a breast self-examination, what to expect when obtaining clinical breast examinations and mammograms and the resources that are available in their community for breast health. Breast models are used to physically and visually educate the women about detecting breast changes when performing self-breast exams as well as about clinical breast examinations and mammograms. The women also learn how to access breast health resources available in their community. After 12 months, a follow-up assessment is individually administered to each family member by the CHW to assess retention in breast cancer literacy.

In this study, we engaged CHWs employed by our partner community health agencies in Detroit and Grand Rapids, Michigan, to recruit women from their regular caseloads to become ‘kin keepers’. The recruited women were called kin keepers because they recruited their female family members to join them in the study and receive education on breast cancer screening, prevention and control [22]. Both kin keepers and their female family members provided written informed consent prior to participation and all participants had the option of dropping out of the study at any point in time. This study was approved by Michigan State University’s Institutional Review Board for the study of human subjects.

To be eligible for participation in the study, one had to be an African-American woman age ≥18 years. The women who participated in the study were classified into three mutually exclusive groups: (i) CHWs, (ii) kin keepers and (iii) female family members.

Community health workers
Nine CHWs (four in Detroit and five in Grand Rapids, Michigan) helped recruit the study sample and were selected by their respective supervisors in the community health departments that employed them. Selection was based on willingness to recruit participants for this study, previous experience and effectiveness with clients, as determined by the supervisors. Each CHW had >8 years of experience of working as a CHW and was a seasoned recruiter of her clients for various health department and university-based research projects. All nine CHWs provided written informed consent at the beginning of the study prior to completing 16 hours of Kin KeeperSM Cancer Prevention Intervention training, which covered topics on breast and cervical cancer prevention and early detection and how to implement the Kin KeeperSM model. From her caseload of ~30 women, each CHW had the responsibility of recruiting a minimum of five African-American women to serve as kin keepers. This entailed coordinating two home visits with family members (the kin keeper included), performing two follow-ups with individual female family members (i.e. mailing a postcard reminder after 6 months from initial contact and conducting a 12-month face-to-face follow-up interview), making appropriate referrals and completing follow-up documents.

The kin keepers
A total of 54 kin keepers were recruited by the CHWs, thus the sample constituted 54 families. Because the kin keepers had pre-established relationships of trust with their CHWs, they were already receiving health care services through the community-based health care programs in their areas of residence. Women from Grand Rapids were receiving maternal support in the Maternal and Infant Support Services program while women from Detroit were in the Village Health Worker Program, which
educates and mobilizes high-risk groups to receive screening for diabetes and cardiovascular disease. Thus, the women in this study were accustomed to learning about health-related risks and the benefits of accessing health screening services other than for breast cancer. Therefore, they were better prepared to improve their breast cancer literacy and learn about recommended screening guidelines. Each kin keeper was responsible for gathering her female family members in her home for a home visit by the CHW and then for a second home visit 1–3 weeks after the first one. The kin keeper also helped the CHW to locate her female family members for the individual 12-month follow-up visits after the second home visit in cases where the CHW had difficulty contacting each individual family member.

**Female family members**

In total, 107 female family members were recruited by the kin keepers resulting in a final sample of 161 women (107 female family members + 54 kin keepers). Each female family member was a first or second degree relative of the kin keeper (i.e. a mother, daughter, sister, grandmother or aunt). During the first home visit, all participants (kin keeper and family) completed a 16-item breast cancer literacy assessment at the baseline prior to any educational intervention, Time stage 1 and then immediately after the intervention, Time stage 2. Thus, these represented the first and second time stages in this study. One to three weeks after the second time stage, the CHWs revisited the kin keepers and female family members and administered the same 16-item breast cancer literacy assessment, which was Time stage 3. Again, the CHW delivered the intervention and the post-assessment, Time stage 4. One year after the first home visit, the participants took the same breast cancer literacy assessment to assess functional breast cancer literacy retention.

**Breast cancer literacy assessment instrument**

The breast cancer literacy assessment that was used is a 16-item scale previously developed to measure a woman’s functional understanding of breast cancer [14]. This assessment is administered in a pre- and post-test design with a format that combines multiple-choice and true/false responses. It consists of the three domains: (i) cancer awareness (three items) (Cronbach’s alpha = 0.53), (ii) knowledge of breast cancer screening modalities (five items) (Cronbach’s alpha = 0.78) and (iii) cancer prevention and control (Cronbach’s alpha = 0.64) (eight items). The instrument has good reliability (Cronbach’s alpha = 0.85) and formative study of the instrument has been reported previously [14]. During administration of the assessment, the CHW reads each question aloud to the group of women in the same family, thus enabling each woman to independently complete the assessment irrespective of her reading ability. Protocol restricts the women from communicating their individual responses or influencing those of others during the assessment. This is to ensure that the recorded responses are from an individual and not biased by fellow female family members’ views. It takes ~10 min for a woman to complete the assessment. In addition to the assessment, women complete a socio-demographic questionnaire during the same session.

**Statistical analysis**

The socio-demographic characteristics of the sample were analyzed using the univariate procedure of SAS [23]. In addition, chi-square tests for independence were performed to assess associations among categorical variables. Frequencies and chi-square tests for item-test scores were also computed by time stage and by domain. This allowed for comparison of univariate and bivariate sample statistics within each domain and over the five time stages. We plotted the empirical percentages of correct scores for each domain over the five time stages. Following these univariate and bivariate analyses, we proceeded with multivariate models to adjust for possible confounders and effects modifiers.

We modeled the domain-level test scores achieved by African-American women who took a series of breast cancer literacy assessments before and after two educational intervention sessions (see Fig. 1 that illustrates the sequence of assessments and educational interventions). Because the breast cancer literacy assessments were administered to the
same women clustered within families over time, responses were correlated. Women within the same family were likely to be contemporaneously correlated because two individuals in the same family will tend to have more similar responses than two individuals from different families. Therefore, to obtain valid statistical inferences on literacy improvement and progress made by each woman for each domain, we accounted for the association by using the generalized estimating equations (GEE)-based method [24–27] for binomial response variables, with the family level as the clustering variable. We assumed compound symmetry as the exchangeable working correlation structure [24].

We defined by $y_{fidjt}$ the test-item score (a binary outcome variable of getting the correct answer: 1 or incorrect answer: 0) for question $j$ of domain $d$ at time stage $t$ for an individual woman $i$ in family $f$ ($i = 1, \ldots, 161; f = 1, \ldots, 54; t = 1, \ldots, 5$ and $j = 1, \ldots, J_{fkd}$, with $d = 1, 2, 3$). The quantity $J_{fkd}$ represented the number of questions in domain $d$ that individual woman $i$ in family $f$ actually answered at time $t$. For example, even though there were five possible responses for the five questions in Domain 2 at any given time stage $t$, it was possible for a woman not to answer all the questions ($J_{2it} < 5$) leading to missingness in the data. The standard logistic regression model for $E(y_{fidjt}) = P(y_{fidjt} = 1)$ is given by

$$\log \left\{ \frac{E(y_{fidjt})}{1 - E(y_{fidjt})} \right\} = \beta_{fdjt},$$

where the term $\beta_{fdjt}$ represents the log odds of providing a correct answer to question $j$ of domain $d$ at time stage $t$. This regression model represents the most unstructured model for the probability $P(y_{fidjt} = 1)$ and requires $16 \times 5 = 80$ parameters. This (over-parameterized) model can be simplified to obtain a more parsimonious specification by assuming that question items within the same domain have the same effects, i.e. $\beta_{fdjt} = \gamma_{dt}$, where $\gamma_{dt}$ is the domain-level mean effect. This would considerably reduce the number of regression parameters to $3 \times 5 = 15$; however, it is a rather strong modeling assumption and can be assessed by using the Wald chi-squared test approach [28].

An alternative is to summarize the scores at the domain level and model these as the outcome variable. This has several advantages in that it specifically models the data at the level of the research questions of interest—the domain level. In addition to the parsimony of the model, the modeling assumption that the domain-level scores have a common intercept mean are more plausible in this case. While all the different analytic approaches were performed, we report results based on the latter specification given that the different methods yielded similar results. We define the quantity $Q_{fkd} = \sum_j y_{fidjt}$ to be the sum of correctly answered questions by each woman at each time stage in domain $d$. The modified logistic regression model then became

$$\log \left\{ \frac{E(Q_{fkd})}{1 - E(Q_{fkd})} \right\} = \gamma_{dt}.$$

This class of models was fitted using the SAS GENMOD procedure software, version 9.1 [23]. CONTRAST statements were specified to compare
progress in learning within each domain over time. Similarly, CONTRAST statements were specified to compare domains at each time stage. In each case, odds ratios (ORs) were computed based on the parameter estimates of the GEE model using the EXP option in SAS.

**Results**

Descriptive statistics of the sample socio-demographics are displayed in Table I and are also described elsewhere [11]. The African-American women who participated in the study had an average age of 41.7 years (SD = 13.5 years) with 44.4% having some college education or higher and 60.9% having an income level below $20,000. Most women (52.4%) were single/never married and 46.9% were formally employed either full time or part time.

Fig. 2 shows a graphic–visual representation of the empirical percentage of correct scores over time per domain. At the baseline, questions in the cancer awareness domain and knowledge of breast cancer screening practices domain were correctly answered 79.4% (SD = 26.4%) and 79.5% (SD = 23.2%) of the time, respectively. This is compared with 86.6% (SD = 14.2%) of the time in the cancer prevention and control domain. GEE-based results support this finding and show that the likelihoods of correctly answering a question in Domain 1 (cancer awareness) or Domain 2 (knowledge of breast cancer screening practices) at the baseline were not significantly different. However, the likelihood of correctly answering a question in Domain 3 (cancer prevention and control) was significantly higher than that of correctly answering a question in Domain 1 with an OR of 1.67 and 95% confidence interval (CI) of 1.19–2.34. This suggests that at the baseline, women were relatively less literate on issues pertaining to general cancer awareness and breast cancer screening practices, yet they were more literate about cancer prevention and control issues.

At Time stage 2, questions in Domains 1 and 2 registered a significant increase with the questions being answered correctly 87.2% of the time in Domain 1 and 86.1% of the time in Domain 2. In contrast, questions in Domain 3 were correctly answered 89.0% of the time at Time stage 2, thus not registering as large an increase. Table II shows ORs for the three domains at each time stage. In Time stage 1 (baseline), the probability of a woman correctly answering a question in Domain 3 was significantly greater than that of correctly answering a question in Domain 1 and a similar finding was made for Time stage 3 (OR: 1.84, CI: 1.23–2.76). The probabilities of correctly answering questions in different domains were not significantly different for Time stages 2, 4 and 5 even though the probabilities of correctly answering a question in Domain 3 were greater in magnitude for all time stages.

Table III presents results from the contrasts made within each domain but over time and shows the P-values of the two-tailed chi-square test of equality of ORs. This depicts the women’s literacy accumulation path over time for each domain. In all domains, there were increases in the probability of correctly answering a question between Time stages 1 and 2 (Domains 1 and 2 P-values < 0.01 and Domain 3 P-value = 0.09). This suggests that the educational intervention, which was implemented between the first and second time stages, enabled women to learn about breast cancer and improve their breast cancer literacy in all domains. However, somewhat different literacy accumulation paths are traced out for each domain over time. For example, in Domain 3, there was a statistically significant increase in the probability of correctly answering a question between Time stages 1 and 2 (P-value < 0.01) and between Time stages 4 and 5 (P-value = 0.0389), while for Domains 1 and 2, the increases were not statistically significant between these time stages. Instead, the significant increase in probability of correctly answering a question in Domains 1 and 2 was recorded between Time stages 3 and 4 (P = 0.03 for Domain 1 and P < 0.01 for Domain 2). For Domain 3, the contrast between Time stages 3 and 4 scores was not statistically significant (P-value = 0.55). Overall, joint contrasts between Time stages 1–5 showed significant increases in breast cancer literacy across all domains. Literacy scores in the cancer prevention and control
domain remained highest throughout the time stages from beginning to end, while those for the knowledge of breast cancer screening domain remained lowest most of the time stages except at the baseline.

**Discussion**

This study extends our understanding of health literacy specifically breast cancer literacy. It meticulously examines three domains of functional breast
A cancer literacy among African-American women rather than reporting the sum of scores. Using the GEE approach for binary response variables, this study elicits domain-level breast cancer literacy and progress in learning about breast cancer. Results showed that African-American women improved their levels of domain-specific and overall breast cancer literacy after the Kin KeeperSM educational intervention. However, as we anticipated, improvement occurs at different rates for different domains.

![Graph showing percentage of correct answers in each domain over time.](image)

**Fig. 2.** Percentage of correct answers in each domain over time.

**Table II.** Comparison of domain-level literacy within the same time stages

<table>
<thead>
<tr>
<th>Time stage</th>
<th>OR (95% CI)</th>
<th>Kin keepers (n = 54)</th>
<th>Family members (n = 107)</th>
<th>Total sample (N = 161)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time stage 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domain 1</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Domain 2</td>
<td>1.19 (0.75–1.88)</td>
<td>0.88 (0.63–1.24)</td>
<td>1.01 (0.76–1.32)</td>
<td></td>
</tr>
<tr>
<td>Domain 3</td>
<td>1.97 (1.11–3.49)</td>
<td>1.48 (1.02–2.13)</td>
<td>1.67 (1.19–2.34)</td>
<td></td>
</tr>
<tr>
<td>Time stage 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domain 1</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Domain 2</td>
<td>0.84 (0.48–1.47)</td>
<td>0.95 (0.62–1.47)</td>
<td>0.91 (0.66–1.24)</td>
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<tr>
<td>Domain 3</td>
<td>1.38 (0.73–2.60)</td>
<td>1.16 (0.74–1.83)</td>
<td>1.23 (0.83–1.81)</td>
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</tr>
<tr>
<td>Time stage 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Domain 1</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Domain 2</td>
<td>0.81 (0.47–1.41)</td>
<td>1.00 (0.68–1.47)</td>
<td>0.89 (0.64–1.25)</td>
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<tr>
<td>Domain 3</td>
<td>1.75 (1.02–3.31)</td>
<td>1.94 (1.27–2.97)</td>
<td>1.84 (1.23–2.76)</td>
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<tr>
<td>Time stage 4</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Domain 1</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Domain 2</td>
<td>1.35 (0.51–3.57)</td>
<td>0.94 (0.54–1.64)</td>
<td>0.92 (0.53–1.60)</td>
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<tr>
<td>Domain 3</td>
<td>1.13 (0.39–3.31)</td>
<td>1.38 (0.75–2.53)</td>
<td>1.14 (0.59–2.20)</td>
<td></td>
</tr>
<tr>
<td>Time stage 5</td>
<td></td>
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<td></td>
<td></td>
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<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td></td>
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<tr>
<td>Domain 2</td>
<td>0.67 (0.26–1.74)</td>
<td>0.77 (0.38–1.56)</td>
<td>0.77 (0.42–1.42)</td>
<td></td>
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<tr>
<td>Domain 3</td>
<td>1.07 (0.38–2.99)</td>
<td>1.59 (0.75–3.36)</td>
<td>1.34 (0.74–2.42)</td>
<td></td>
</tr>
</tbody>
</table>

*aStatistically significant at 5% alpha level.
This emphasizes the importance of our approach to measure breast cancer literacy at the domain level over time rather than simply measuring aggregate assessment test scores. In the case of the cancer prevention and control domain, we found that women started off with relatively high literacy scores, correctly answering questions 86.6% of the time. The GEE results supported this finding, with questions in this domain having a 67% higher likelihood of being answered correctly compared with questions in the cancer awareness domain (CI: 1.19–2.34). This result points to merits of recent medical and health department campaigns that broadly educated women about breast cancer prevention and control. The importance of continued support for breast cancer education is underscored as such programs are likely to further increase and sustain high levels of literacy, which would translate to improved breast cancer screening behaviors and early breast cancer detection among African-American women.

However, examination of the other domains of breast cancer literacy among African-American women showed that knowledge of breast cancer screening modalities is somewhat a stumbling block. Only 79.4% of the questions in this domain were correctly answered at baseline. Similar findings pertaining to the cancer awareness domain indicate that even though progress has been made in educating African-American women about breast cancer and cancer in general, these specific domains still need attention. In this regard, the utility of the Kin Keeper℠ intervention is displayed by the finding that between Time stages 1 and 2, African-American women significantly increased their literacy scores in the cancer awareness and knowledge of breast cancer screening modalities domains; the very same domains that appeared as stumbling blocks at baseline prior to intervention. That is, African-American women were shown to correctly answer questions in these domains 87.2% and 86.1% of the time, respectively, after receiving the Kin Keeper℠ educational intervention, and contrasts between the two time stages were significant ($P < 0.01$). Moreover, contrasts within these two domains between Time stages 3 and 4 show that literacy scores further improved over time ($P = 0.03$ and $P < 0.01$, respectively). Thus, while general public educational programs are important in enabling African-American women to have relatively high levels of overall breast cancer literacy at the baseline, the Kin Keeper℠ intervention appears to have the ability to improve African-American women’s domain-specific literacy levels. This potentially translates to helping them better adhere to recommended breast cancer screening guidelines. For instance, at baseline, women could not distinguish between two screening modalities, clinical breast exams and mammograms in regard to who performed them. This means that when instructing women about the types of screening modalities, particular attention should be focused on who performs them. This subtle misunderstanding has serious implications on some African-American women’s understanding of their own adherence to mammography screening guidelines.

**Study limitations**

A limitation of this study is that it did not test for intervention effect or efficacy of the Kin Keeper℠ Cancer Prevention Intervention. The study neither assessed women’s breast cancer screening behaviors nor adherence to screening guidelines as they relate to breast cancer literacy. Nevertheless, the strength...
of this study is that it meticulously analyzed breast cancer literacy among African-American women at the domain level and over time. While the use of CHWs for recruiting and disseminating the intervention could be perceived as having potential bias, there is a growing body of literature that underscores their value in reducing major barriers that contribute to health disparities for medically underserved and hard to reach populations [29–31]. Despite lacking information on familial relationships and screening, the study used the GEE method to account for family-level correlations and arrived at valid statistical inferences. This approach is suitable for illuminating specific domains that African-American women have low literacy levels on and for pointing educational interventions to specific areas that need attention.

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**Conflict of interest statement**

None declared.

**References**


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