

# Engaging Immigrant and Refugee Women in Breast Health Education

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**Abstract** This project assessed the impact of a community-based educational program on breast cancer knowledge and screening among Buffalo (NY) immigrant and refugee females. Program participants completed language-matched pre- and post-test assessments during a single session educational program; breast cancer screening information was obtained from the mobile mammography unit to which participants were referred. Pre- and post-test knowledge scores were compared to assess changes in responses to each of the six individual knowledge items, as well as overall. Mammogram records were reviewed to identify Breast Imaging Reporting and Data System (BI-RADS) scores. The proportion of correct responses to each of the six knowledge items increased significantly on the post-program assessments; 33 % of women >40 years old completed mammograms. The findings suggest that a health education program for immigrant and refugee women, delivered in community-based settings and involving interpreters, can enhance breast cancer knowledge and lead to improvements in mammography completion.

**Keywords** Refugee · Immigrant · Breast cancer · Mammography · Outreach · Education

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## Introduction

During 2014, it is estimated that 232,670 women in the USA will be newly diagnosed with breast cancer and that 40,000 women will die from this disease [1]; moreover, racial and ethnic disparities remain problematic. Although screening can facilitate disease detection at an earlier stage with lowered mortality, refugee women have lower breast cancer screening rates compared to white women in the USA [2]. Additionally, many immigrants and refugees have unique challenges with regards to the US health care system, including language barriers and accessing preventive care and cancer screening services [3, 4].

Refugees and immigrants often come from countries where access to health care is limited, and priority is not given to preventive medicine or early detection [5–8]. As a result, cancer screenings for many of these women occur only after entering the USA [9]. Unfortunately, once immigrants and refugees arrive in the USA, various barriers still exist including challenges navigating a complex health care system, cultural beliefs, fear of diagnosis, modesty, and religious concerns [5–8, 10].

Studies among immigrant and refugee populations have shown that community-based and cultural-sensitive educational programs are effective at increasing screening services for Haitian Latino and other mixed refugee/immigrant populations [11–13]. Also, culturally tailored patient navigation delivered to Somali, Arabic, and Serbo-Croatian patients seeking care at a primary care office outside Boston, MA, was able to connect these patients to cancer screening [14]. A qualitative study of twenty Iraqi refugees assessed their perspectives toward preventive care and found that many of them viewed illness as a symptomatic event, and not much value was given to the concept of “preventive care” [9]. Participants also noted psychosocial barriers such as the fear of receiving a cancer diagnosis and acknowledged that the history of warfare in Iraq

may have resulted in increased exposure to chemical and biological agents. A medical chart review from a primary care medical office reported that Somali refugees demonstrated lower use of preventive services compared to non-Somali patients and found that certain behaviors, such as a greater number of primary care office visits and use of an interpreter at these visits, were associated with higher levels of preventive care completion [14].

Based upon a desire to promote breast health education and improve breast cancer screening, we report on results from a community-based program to enhance breast cancer knowledge and screening among immigrant and refugee females residing in Buffalo, NY.

## Materials and Methods

### Educational Sessions

The Immigrant and Refugee Health Education Program is a culturally competent, evidence-informed, single-session breast health education program designed to educate, raise awareness, and promote mammography completion among medically underserved women in the City of Buffalo (NY). The program represented a collaborative outreach effort involving a local resettlement agency, a comprehensive cancer center, and a department of family medicine. The program was adapted from an evidence-based African American model used in the Witness Project (<http://rtips.cancer.gov/rtips/index.do>) and was culturally tailored to the target populations [15]. The Immigrant and Refugee Health Education Program utilized the Social Cognitive Theory as the framework of this program which includes personal factors, environmental factors, and human behavior and how these components influence each other [16]. The program incorporated a local breast cancer survivor at each educational session in order to speak about their personal experiences with cancer and the importance of early detection.

The study project coordinator worked with six local primary resettlement agencies that are responsible for the resettlement of refugees. Educational sessions were scheduled during English as Second Language (ESL) classes at the various resettlement agency locations. Advertisement flyers were also posted at the resettlement site where the ESL classes were held, and additional participants were reached through community canvassing in the local community. The local resettlement agency established community contacts and scheduled all educational programs. In addition, agency staff contacted program participants following the educational session to help them navigate into breast cancer screening services.

The educational sessions lasted 60–90 min and addressed topics including breast cancer statistics, risk factors, myths surrounding breast cancer, signs and symptoms of breast

cancer, and methods of breast cancer early detection (e.g., breast self-examinations, clinical breast exams [CBEs], and mammograms). The educational sessions were led by a project director and/or health educator experienced in conducting community-based programs with immigrant and refugee populations. These presentations were delivered in multiple languages using interpreters so that participants were not limited by language barriers. There were also interactive breast models so the participants could feel the difference between a healthy breast and a breast with benign and malignant tumors. Each event, restricted to only female attendees, included a breast cancer survivor as a speaker, and a female physician was also present to answer questions.

### Population

A total of 14 community-based breast health educational sessions were conducted for various immigrant and refugee groups in Buffalo, NY, between April 2012 and March 2014. These programs included women from Burma, Thailand, Nepal, Yemen, Somalia, Angola, Congo, Ethiopia, Eritrea, Spain, the Dominican Republic, Puerto Rico, Panama, Brazil, Iraq, Iran, Afghanistan, Lebanon, and other Middle Eastern nations. Spanish/Hispanic women reported in Table 1 also include Puerto Rican women that are US citizens; however, this group has also experienced similar access and acculturation barriers [17]. Participants, who were recruited to attend breast health education sessions were identified through existing community-based venues conducting English as Second Language (ESL) classes, each completed a brief registration assisted by a trained staff member of the breast health awareness project.

### Data Collection

Participants completed the program registration and received an audience response system (ARS) keypad to track their responses to demographic items and questions regarding their current breast screening practices (e.g., mammogram and CBE). The ARS questions appeared in a PowerPoint format and were presented in languages to match the participants' native language (e.g., English, Arabic, Somali, Burmese, Karen, Nepali, and Chin). Questions and answer options were presented on PowerPoint slides and read by program leaders and translated aloud into native languages. Interpreters were available during both the ARS assessments and the educational sessions. By using the ARS, we were able to anonymously link the pre-test and post-test items to assess changes in individual scores. During three of the group events ( $n=80$  participants), the ARS system was unavailable and paper surveys were used instead. The paper surveys assessed the same items covered by the ARS system and were available in the same languages as the PowerPoint presentation. All

**Table 1** Selected demographic characteristics of program participants, by program year

	2012–13 (n=125)		2013–14 (n=223)		Total (n=348)		p value
	n	%	n	%	n	%	
Age (in years)							0.828
Under 40 years	58	48.7	107	49.5	165	49.3	
40–49	31	26.1	59	27.3	90	26.9	
50–59	20	16.8	27	12.5	47	14.0	
60–64	4	3.4	10	4.6	14	4.2	
65 or older	6	5.0	13	6.0	19	5.7	
Not reported	6		7		13		
Ethnicity/country of origin							<0.001
Middle Eastern <sup>a</sup>	26	21.0	74	34.4	100	29.5	
Nepali	38	30.6	30	14.0	68	20.1	
Burmese or Thai	27	21.8	31	14.4	58	17.1	
African <sup>b</sup>	24	19.4	33	15.3	57	16.8	
Spanish/Hispanic	2	1.6	42	19.5	44	13.0	
Other	7	5.6	5	2.3	12	3.5	
Not reported	1		8		9		
Years of formal education							0.304
≤6 years	57	57.0	95	44.0	152	48.1	
7–9	13	13.0	33	15.3	46	14.6	
10–12	19	19.0	53	24.5	72	22.8	
Some college or trade school	4	4.0	13	6.0	17	5.4	
College graduate	7	7.0	22	10.2	29	9.2	
Not reported	25		7		32		
Years living in the USA							0.001
≤1 year	52	51.5	57	25.9	109	34.0	
1–4	27	26.7	88	40.0	115	35.8	
5–9	8	7.9	38	17.3	46	14.3	
10–14	4	4.0	13	5.9	17	5.3	
15–19	2	2.0	8	3.6	10	3.1	
20 or more	8	7.9	16	7.3	24	7.5	
Not reported	24		3		27		

<sup>a</sup>Middle Eastern includes Iraq, Iran, Afghanistan, Lebanon, and Yemen as countries of origin

<sup>b</sup>African nations include Somalia, Angola, Congo, Ethiopia, and Eritrea as countries of origin

participants were asked to complete a registration/assessment at the beginning of the educational session. Women aged >40 years who indicated on their registration/assessment forms that they had not received a mammogram or clinical breast examination (CBE) in the past 12 months were contacted for further follow-up if they provide permission. Additionally, women indicating a need for future navigation also had an opportunity to grant permission to be contacted for follow-up.

A pre-education assessment evaluated participants’ baseline knowledge of breast health using six items. At the end of the session, a post-education assessment was administered using the same six questions to measure changes in

knowledge as a result of the educational session. Similar methodology has been used in previous studies [13].

### Mammography

Age-appropriate (age 40 years or older) women who were not current with breast cancer screening were contacted by phone after the program and offered one-on-one navigation assistance in completing breast cancer screening. This navigation included determining the specific type of assistance needed, including assessing eligibility for the Department of Health Cancer Services Program that provides financial assistance with CBEs and mammograms. Women were asked what

screening facility they would prefer or have used in the past, or, if they had no preference or had not had a previous mammogram, they were invited to use a mobile mammography unit. Some women chose to go on their own to a mammography center. Use of the mobile unit allowed us to arrange mammograms for women who lacked transportation. On-site interpreters at the mobile van were provided to aid the patient in understanding the procedure and obtaining informed consent. The results of the mammograms were reported by Breast Imaging Reporting and Data System (BI-RADS) score [18].

#### Data Analysis

ARS responses for pre-post questions were downloaded into Excel and SPSS (Version 21.0, IBM SPSS Statistics) in order to facilitate descriptive analyses. Scores from the pre- and post-knowledge assessments were computed as the average percent of correct responses to each question. Comparisons of pre- and post-test scores were made using paired samples *t* tests. Chi-square was used to assess differences across categorical values, and the Kruskal-Wallis test was used to compare the median number of correct responses on the pre-versus post-tests. This project was approved by the Institutional Review Board at the cancer center.

#### Results

Demographic characteristics for the 348 participants in the 14 programs are summarized in Table 1. About 51 % of the women were over age 40 years; however, few were over the age 60 years. Ethnicity/country of origin among participants commonly included Middle Eastern (29.5 %), Nepali (20.1 %), Burmese and Thai (17.1 %), and African (16.8 %). Just over 85 % reported less than a high school education, including 48 % who stated  $\leq 6$  years of formal education. Participants generally reported having been in the USA for  $< 1$  year (34.0 %) or 1–4 years (35.8 %). The distribution of ethnicity/country of origin and length of time in the USA differed by program year.

As presented in Table 2, significant improvements were seen for each of the six knowledge items based on a pre-versus post-program assessment. Overall, participants identified a median of two correct responses at baseline and a median of four correct responses on the post test ( $p < 0.001$ ).

Table 3 presents time of last mammogram and last CBE among woman aged  $> 40$  years stratified by length of time in the USA. The women who have spent more time in the USA were more likely to not only have been screened in the past but are also more likely to be up-to-date with screening.

A total of 60 of 170 program participants (35 %) aged  $> 40$  years completed a mammography during the follow-up

interval; 36 (60 %) of the mammograms were completed on the mobile mammography unit. Mammography outcomes for these 36 women included 65.7 % ( $n = 23$ ) with a BIRADS 1 or 2 (e.g., benign findings) with additional assessments pending for another 11 women. About 65 % ( $n = 19$ ) of the eligible Burmese/Thai women and 43 % ( $n = 12$ ) of the eligible African women completed screening which was significantly above the rate for all eligible participants. The 60 women completing mammograms after the program included 20 women who never had a mammogram previously, including 70 % with  $\leq 6$  years of formal education and 90 % aged 40–59 years. The resettlement agency along with the cancer center worked together to inform participants of results of mammogram.

#### Discussion

This study demonstrates that flexible, language-appropriate educational programs delivered in community settings are able to reach targeted populations resulting in increased breast cancer knowledge among a diverse mix of immigrant and refugee women who appeared at baseline to have limited awareness of breast health and experience with mammography. We observed significant improvements across all six knowledge items based on post-program assessments. The Burmese/Thai not only represent the largest increase in knowledge (baseline  $< 20$  % correct) but also demonstrated the highest percentage of women completing mammograms after the sessions. In Thailand and Burma, families and villages are linked through matriarchal ties and include traditional practices such as men moving into their wife's parents' households until the couple is economically independent [19]. This provides positive aspects for women's status and possibly explains the health behaviors seen in this study.

The Burmese/Thai experience contrasts with women from Middle Eastern countries (e.g., Yemen, Iraq, Iran, Afghanistan, and Lebanon) who were less likely to obtain mammograms following the educational program. This low screening response may be reflective of a patriarchal family structure among Muslim and Middle Eastern cultures in which women rely on their husbands or male relatives for decision-making regarding medical care and/or women subordinating their individual health needs to family needs [2]. This suggests that additional educational tailoring or program design revisions may be important for addressing the needs, understanding, and cultural values of women emigrating from the Middle East.

Acculturation, based on time in the USA, has been associated with increased rates of preventive care and screening [20]. We observed this as well as program participants who reported having been in the USA for  $> 5$  years were more

**Table 2** Correct responses to knowledge items based on pre-test and post-test assessments

		% correct		<i>p</i> value <sup>a</sup>
		Pre-	Post-	
1.	What is a mammogram? (multiple choice)	42.7 %	81.4 %	0.001
2.	A woman without a history of breast cancer should get her first mammogram at or around age 40 (true)	40.2 %	81.6 %	0.002
3.	When you find a mass or lump in the breast, it is usually a sign of cancer (false)	29.8 %	64.2 %	<0.001
4.	A bruise or hit to your breast can cause cancer (false)	32.3 %	83.9 %	<0.001
5.	If you have cancer, it will lead to death no matter when it is found or how it is treated (false)	46.3 %	70.1 %	<0.001
6.	Can men be diagnosed with breast cancer? (true)	26.5 %	67.9 %	<0.001
	Median # of items correct <sup>b</sup>	2	4	<0.001

<sup>a</sup> Paired *t* test

<sup>b</sup> Kruskal-Wallis test

likely to be up-to-date with mammograms and CBE than women in the USA for shorter times.

Access to the mobile mammography unit appeared to increase accessibility to breast screening services and was used by 60 % of women who reported completing mammograms. Moreover, the program appeared to be successful in motivating 20 of 58 women who were never previously screened to complete this screening. Because we were unable to track down results for women who completed mammograms at locations other than the mobile mammography unit, it is possible that the number of women who completed mammography is higher.

Our findings demonstrate that a single-session, focused education program, along with navigation services, results in

measurable improvements in knowledge and behavior changes. A future consideration might be to incorporate this similar educational messaging and navigation as part of a more comprehensive health education curriculum presented to incoming immigrants in community settings.

While the numbers of women by ethnicity/country of origin are limited, our data suggest that different groups may have been more receptive to the program. Future research, beginning with formative research such as focus groups, is needed to understand how various cultural, religious, and/or social factors may have differentially influenced receptivity. Additional educational tailoring or program design revisions may be needed to address the needs and cultural values of women from specific regions.

**Table 3** Breast cancer early detection behaviors by time spent in the USA

	<1 year ( <i>n</i> =44)		1–4 years ( <i>n</i> =54)		>5 years ( <i>n</i> =56)		Not reported ( <i>n</i> =16)	Total ( <i>n</i> =170)		<i>p</i> value
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%		<i>N</i>	<i>n</i>	
Last mammogram										
Within past year	13	32.5	29	54.7	30	57.7	2	74	47.7	<0.001
2–3 years ago	3	7.5	3	5.7	9	17.3	0	15	9.7	
>3 years ago	0	0.0	4	7.5	4	7.7	0	8	5.2	
Never	24	60.0	17	32.1	10	19.2	7	58	37.4	
Not reported	4		1		3		7	15		
Last CBE										
Within past year	17	43.6	27	51.9	32	61.5	2	78	51.3	<0.001
2–3 years ago	4	10.3	11	21.2	8	15.4	0	23	15.1	
>3 years ago	1	2.6	3	5.8	5	9.6	0	9	5.9	
Never	17	43.6	11	21.2	7	13.5	7	42	27.6	
Not reported	5		2		4		7	18		

Limited to women aged >40 years

## Limitations/Strengths

This program was able to access diverse immigrant and refugee populations who have not been previously studied. These educational sessions were incorporated as part of a more comprehensive program conducted by community organizations at each site. This represents both a strength and limitation as this partnership with the local refugee center and community-based organizations assured access to the target populations but may have limited the time available for this health education topic due to competing priorities. Also, our assessment is limited to 2 years of program data which reduced our ability to adequately explore subgroup differences.

ARS has been shown to be an effective research tool in low-literacy or English as a second language populations, such as is often found in immigrant and refugee populations [21]. Finally, the provision of navigational assistance is often constrained by available resources. Program participants were only contacted once for follow-up, which may have limited the number of women navigated for screening. In addition, it was difficult to track women who completed mammograms at locations other than the mobile mammography unit, and our estimate maybe an underestimate of all mammograms completed.

The primary goal of the program was to increase awareness and knowledge of breast health among immigrant and refugee women. Our findings suggest that a health education program delivered in community-based settings and involving interpreters can enhance breast cancer knowledge. In addition to changes in knowledge, we also noted improvements in the completion of mammography. We are encouraged to further understand potential differences among various subgroups and their uptake and response to this program.

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**Ethical Standards** The study was approved by the Institutional Review Board at the cancer center and has therefore been performed in accordance with the ethical standards set forth in the 1964 Declaration of Helsinki and its later amendments.

**Conflict of Interest** The authors declare that they have no conflict of interest.

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