Outcomes from a Religiously Tailored Intervention to Enhance Mammography Uptake among American Muslims

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Background

- Breast cancer is the second leading cause of cancer death among American women, and screening mammography is a proven method to reduce its mortality.
- Muslim women in the US have lower mammography rates than national averages (72.4%):
  - In 2014 we found that 37% of women (n=254) in the Chicago area had not obtained a mammogram in the last 2 years.
  - In a 2013 study, almost 34% of first-generation immigrant Muslim Afghan women ≥40 years in California reported never having had a mammogram.
- Access-related barriers, cultural & religiously mediated beliefs, and interpersonal factors appear to inform lower screening rates.
- Research suggests that religiously-tailored messages may improve cancer-related facilitator and barrier beliefs, and thereby screening behaviors.
- However, there has been no study evaluating whether the use of religiously-tailored messages modifies breast cancer screening-related barrier and facilitator beliefs among US Muslims.

Objective

- To describe outcomes of a religiously-tailored, peer-led, group educational intervention addressing mammography-related barrier beliefs among American Muslims.

Methods

Intervention:

- Using Theory of Planned Behavior (TPB) and prior qualitative data, salient mammography-related beliefs (defined as ones discussed during 3 or more focus groups) and religion-related beliefs (defined as ideas mentioned in reference to God, religious texts, or religious teachings) were identified.
- Beliefs were grouped into facilitator and barrier beliefs based on whether they positively or negatively impacted intention for mammography.
- Barriers to mammography were addressed using the ***3R** Model for Religious Tailoring* which involved:
  - **R**eframing the belief within a religious worldview such that it is consistent with the health behavior desired
  - **R**eprioritizing by introducing another religious belief that has greater resonance with participants such that the barrier belief is marginalized,
  - **R**eforming the belief by uncovering its logical flaws or doctrinal misinterpretations
- Peer-led, mosque-based, group education classes were held over 2 sessions and involved:
  - Guest-led didactics and peer-led discussions covering:
    - Relationships between religion and health
    - The importance of mammography
    - Health care access

Measures:

- Survey data was collected pre-intervention, post-intervention, and one-year post intervention
- Outcome variables included:
  - Perceived mammography intention, likelihood, and confidence
  - Breast Cancer and Mammography Knowledge
  - Levels of agreement with barrier and facilitator beliefs
  - Receipt of mammograms

Results

Table 1. Sociodemographic characteristics of study participants (N = 58)

Age (n = 44)	**%**
Less than 50	45.5
50 or older	54.6
Race/Ethnicity (n = 52)	**%**
South Asian	55.8
Arab/Arab American	34.6
Marital Status (n = 55)	**%**
Married	89.1
Widowed	3.6
Divorced/Separated	7.3
Country of Origin (n = 54)	**%**
South Asian	55.6
Arab World	25.9
United States	9.3
Education (n = 56)	**%**
Less than High School	12.5
High school diploma/GED	19.6
Associates Degree	19.6
Bachelor's level or equivalent	33.9
Advanced degree	14.3
Annual Income (n = 46)	**%**
Less than $20,000	40.0
$20,000 - $49,999	37.0
$50,000 - $74,999	13.0
$75,000 or more	13.0
Health Insurance (n = 51)	**%**
Yes	72.6

Table 2. Changed mammography intention and other proxies

Measure	Mean Δ (P-Value)	
	Pre to Post	Pre to 6-month
Intention	0.19 (0.15)	0.04 (0.74)
Likelihood	0.29 (0.01)	0.20 (0.15)
Confidence	0.18 (0.25)	0.32 (0.08)

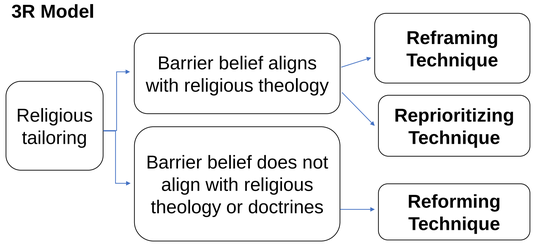
Table 3. Mean change in mammography knowledge and aggregate belief score post-intervention, N = 58

Measure (Δ Scores)	Mean Δ (p-value)
Agreement with Facilitator Beliefs	0.92 (0.08)
Agreement with Barrier Beliefs	0.05 (0.94)
Mammography Knowledge	0.53 (0.0002)

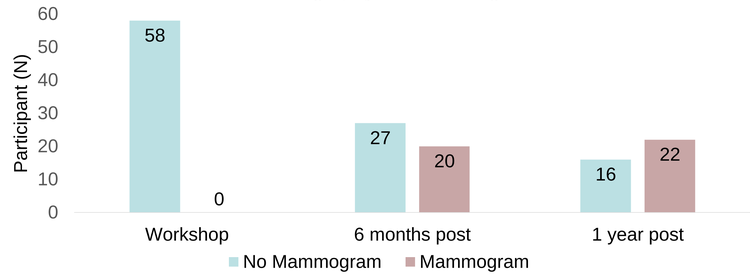
Table 4. Targeted barrier beliefs with mean change in agreement, pre- to post-intervention

Barrier Beliefs	Pre-intervention Agreement Level	Post-intervention Agreement Level	Change	p-value
Mammograms are painful (n = 51)	2.87	2.94	0.07	0.67
My fear of a positive result prevents me from getting a mammogram (n = 51)	2.39	2.46	0.07	0.62
My family's needs and priorities are more important than my own (n = 52)	2.72	2.46	-0.26	0.14
Insurance policies make getting a mammogram difficult (n = 51)	2.53	2.64	0.11	0.47
Breast cancer screening is not important because God decides who will get cancer (n = 50)	1.90	1.50	-0.40	0.03*
I have not gotten a mammogram in the past two years because I worry about being services by a male technician (n = 51)	2.20	2.53	0.33	0.08

3R Model



Mammography Status Change



Discussion Points

- Of the 58 participants in this intervention, 29 (50%) reported never having had a mammogram and 27 (47%) reported not having one in the past 2 years. Our intervention was effective in that 22 participants (38%) received a mammogram within one year of the classes.
- There was a significant increase in perceived likelihood (0.29, p = 0.01) from pre- to post-intervention. The observation that perceived likelihood improved but intention and confidence did not, suggests that the constructs do not fully overlap. Regardless, our religiously-tailored intervention was effective in improving overall perceived likelihood for, and receipt of, mammograms, and greater research is needed to clarify relationships between intention, confidence, and likelihood.
- Although there was a trend towards increased aggregate level of agreement with mammography-related facilitator beliefs, there was no significant change in aggregate levels of agreement with barrier beliefs. However, among barrier beliefs, there was a significant decline from pre- to post-intervention in participant agreement with the belief that breast cancer screening is unimportant because God controls who gets cancer. It is possible that our messages effected other unmeasured beliefs and thus the true effect of the intervention upon belief structures is not fully known.
- Future research, in larger samples, should examine the individual and cumulative effectiveness of each of the 3R techniques in addressing barrier beliefs.

Acknowledgements:
The project was funded, in part, by an American Cancer Society Mentored Research Scholar Grant in Applied and Clinical Research (MRSG-14-032-01-CPPB).
We thank our mentors, numerous research interns, assistants, community liaisons, and advisory board members.