A Religiously Tailored Intervention to Enhance Mammography Uptake among American Muslims- Design Elements, Feasibility & Outcomes

Aasim Padela MD MSc[1,2,3], Sana Malik MSW MPH DrPH[1, 4], Shaheen Nageeb MD[1], Fatema Mirza MBA[5]
Stephen Hall MPH[1], Monica E. Peek MD MPH MSc[2], Michael T. Quinn PhD[2]

[1]The Initiative on Islam & Medicine, [2]Department of Medicine, [3]Comprehensive Cancer Center
The University of Chicago, [4] Stony Brook University, [5] Worry Free Community

Background

- Breast cancer is the second leading cause of cancer death among American women, and screening mammography is a proven method to reduce mortality from this cancer
- In 2015 while 65.3% of U.S. women above 40 had a mammogram, lower rates were observed among racial and ethnic minorities
- Muslim women have low rates of mammography. For example, community surveys reveal:
  - 37% of women (n=254) in the Chicago area had not obtained a mammogram in the last 2 years
  - 42% of Arab women (n=365) from Detroit reported not having a mammogram every 1-2 years,
- Access-related barriers, cultural & religiously mediated beliefs, and interpersonal factors appear to underlie these low rates
- To date, there are few effective theoretical models for addressing religion-related barrier beliefs through religious tailoring; and no experience with religious-tailoring interventions for a racially and ethnically diverse group of American Muslims.

Objective & Organization Description

- Objective: To describe the design of, and participant-level outcomes related to, a religiously-tailored peer-led group education program that addressed mammography-related barrier beliefs of American Muslims.
- Organization Description: This project was a collaboration between the Initiative on Islam and Medicine at the University of Chicago and several Muslim community organizations and mosques.

Program Summary

Intervention:

- CBPR methods were used including convening a multi-disciplinary community advisory board to inform project design and implementation.
- Phase 1 - Community survey (n=240) to identify religion-related factors influencing mammography rates across ethnic/racial lines
- Phase 2 - Mosque based FG's (n=50) with women to identify salient behavioral, normative and control beliefs impacting mammography intention, and how religion informs those beliefs.
- Phase 3 – Key informant interviews with women from mosques to elicit ideas about intervention design.
- Phase 4 – Mosque based intervention design and deployment
  - Led by religiously and ethnically concordant peer educators in 2 mosques (SA and Arab)
  - The classes involved facilitated discussions and guest-led didactics covering three topics: (i) relationships between religion and health, (ii) the importance of mammography, (iii) health care access

Measures:

- Survey data collected pre-intervention, post-intervention, 6 months post-intervention, and one-year post intervention
- Survey instruments recorded changes in mammography intention, likelihood, and confidence, breast cancer screening knowledge and resonance with barrier and facilitator beliefs

Theory –3R Model:

- The structural elements and messages of the classes tackled barrier beliefs in at least one of 3 ways:
- *Reframing* the belief within a religious worldview such that it is consistent with the health behavior desired
- *Reprioritizing* by introducing another religious belief that has greater resonance with participants such that the barrier belief is marginalized,
- *Reforming* the belief by using a religious scholar to reveal theological flaws in the belief and provide "correct" interpretations of doctrine

Program Evaluation

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

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. Changed mammography likelihood pre-to post-intervention (N = 40)

Baseline Predictor	Odds Ratio	p-Value
Barrier Beliefs	0.80	0.03
Married	37.69	0.02
Income	1.47	0.31

Table 4. Change in Likelihood Pre-to Post Intervention (N=48)

Predictor	Odds Ratio	p-value
Δ in Barrier Beliefs	1.14	0.08
Δ in Facilitator Beliefs	1.09	0.29
Married	22.16	0.02
Modesty	1.05	0.52
Fatalism	0.91	0.32

Figure 1. 3R Model

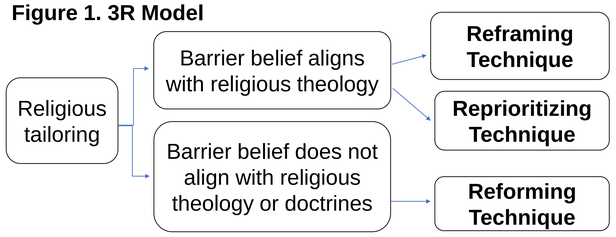
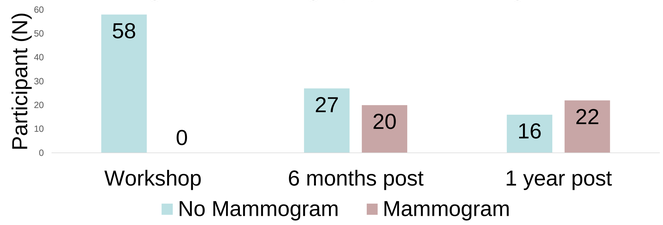


Figure 2. Mammography Status Change



Program Impact

- Of the 58 participants in this intervention, 29/58 participants never had a mammogram and 27/58 participants had not had one in the past 2 years. Our intervention was effective in that 22 participants (38%) had received a mammogram within one year of the classes.
- With respect to our primary outcome of changed intention/likelihood/confidence for mammograms pre-post there was a statistically significant increase in mean perception of likelihood to obtain a mammogram (0.29, P = 0.01).
  - This change was potentially paradoxically driven by an increase in barrier beliefs from pre to post intervention (OR=1.14, p=0.08) but this could be due to a response shift bias. However, it was not driven by a change in facilitator beliefs.
  - Participants with greater barrier beliefs at baseline had less perceived likelihood of getting a mammogram (OR=0.80, p=0.03).
  - Participants who were married women had a greater perceived likelihood of getting a mammogram (OR=37.69, p=0.02),
- Our theoretical model (3R) for religiously-tailoring messages and its implemented proved effective in enhancing the likelihood and receipt of mammograms among Muslim women. The program evidenced great opportunity for addressing religion-related barriers to preventive health in a theologically consonant way.

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