

Development and Validation of a Modesty Measure for Diverse Muslim Populations



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Background

- Why is a Modesty Measure needed?
- When the religious or cultural needs of patients are not understood, acknowledged, or accommodated, there are significant challenges for both patients and providers that ultimately translate into increased burden on the healthcare system- stakeholders agreed on modesty being one of those challenges (Hasnain, Connell, and Menon, 2011).
- Our previous results from a survey distributed to Muslim women attending mosque and community events in Chicago indicated that participants with a higher level of modesty had greater odds of delaying care (Vu, Azmat, and Padela, 2016).
- Our previous study reported gender-concordant care as the most commonly requested health care accommodation by Muslim Americans, in part due to concerns of maintaining modesty in clinical encounters (Padela, Gunter, Killawi, and Heisler, 2012).
- There is no Modesty measure for Muslims in the literature.

Aim

- The present study uses focus groups and surveys, with psychometric analyses, to develop a reliable and valid modesty measure for use in health research among Muslim populations.

Methods

- **Phase 1:**
 - Thirteen focus groups (FG) were conducted with 102 Muslim men & women on how religion influences health behaviors.
 - Preliminary set of 8 statements were created to capture behaviors and attitudes regarding modesty.
 - Community-engaged design: We collaborated with the Council of Islamic Organizations of Greater Chicago, Muslim Women Resource Center, & Arab American Family Services to form a Community Advisory Board (CAB) that assisted with study design, participant recruitment & dissemination of results.
- **Phase 2:**
 - Six FG with 50 Muslim women were conducted to assess whether these potential items captured normative understandings of Islamic modesty.
 - An additional 5 items adapted from an existing Jewish Modesty Measure were also similarly pre-tested.
 - Analyses of the FG discussions focused on whether the group felt items consonant with Islamic worldviews and whether the phraseology was clear.
 - Based on these data, items were further refined for precision.
- **Phase 3:**
 - The final measure comprised of 11 items and was tested via survey among a sample of 58 Muslim women.
 - Cronbach’s alpha statistics were used to measure internal reliability consistency.
 - Exploratory and confirmatory factor analyses were used to determine dimensionality.
 - Discriminant validity was tested through assessing correlations with several religiosity measures including the Duke University Religion Index (DUREL) and the Psychological Measure of Islamic Religiousness (PMIR) subscales.
 - Predictive validity was assessed through predictive regression analyses with the following two outcomes:
 1. “I have not gotten a mammogram in the past 2 years because I worry about getting a male technician.”
 2. “I worry about going to the emergency department because I might not be able to get a female doctor.”

Psychometric Analyses

Modesty Measure		
Item	Statements	Origin
Q1	When I am in a mixed gender gathering or outside of the home, I cover my entire body, except my hands and face.	Phase 1
Q2	When I have guests at my home, men and women sit separately.	Phase 1
Q3	I always look for a female doctor for myself.	Phase 1
Q4	I have delayed seeking medical care when no woman doctor is available to see me.	Phase 1
Q5	An unmarried man and unmarried woman should not be alone together.	Phase 1
Q6	Hospital gowns are not modest.	Phase 1
Q7	My clothing demonstrated a commitment to Islamic modesty.	Phase 1
Q8	Modesty affects a woman’s physical contact with men other than her husband.	Phase 2
Q9	Being flirtatious is immodest.	Phase 2
Q10	Modesty requires a separation between the sexes in public gatherings.	Phase 2
Q11	Modesty is the essence of who we are as Muslims.	Phase 2

Item-Test and Item-Rest Correlations						
Item	Obs	Sign	Item-test correlation	Item-rest correlation	Average inter-item covariance	Alpha
Q1	54	+	0.562	0.444	0.179	0.772
Q2	57	+	0.639	0.543	0.177	0.770
Q3	58	+	0.579	0.484	0.185	0.774
Q4	58	+	0.667	0.545	0.167	0.771
Q5	56	+	0.651	0.532	0.174	0.775
Q6	58	+	0.608	0.504	0.184	0.776
Q7	57	+	0.385	0.311	0.209	0.794
Q8	52	+	0.632	0.504	0.179	0.782
Q9	51	-	0.274	0.079	0.217	0.826
Q10	52	+	0.595	0.449	0.178	0.784
Q11	52	+	0.476	0.396	0.200	0.788
Test scale					0.186	0.799

Correlation by Measures							
	Modesty (11-item)	Modesty (10-item)	DUREL	PMIR-positive religious coping	PMIR-Punishing Allah Reappraisal	Q43	Q83
Modesty (11-item)	1	0.925	0.162	0.391	0.573	0.619	0.389
p-values		<.0001	0.164	0.008	0.003		
Modesty (10-item)		1	0.201	0.391	0.622	0.564	0.351
p-values			0.086	0.005	0.001		
DUREL			1	0.126	0.055	-0.044	0.052
PMIR-positive religious coping				1	0.191	0.367	0.082
PMIR-Punishing Allah Reappraisal					1	0.362	0.363
Q43						1	0.491
Q83							1

Logistic Regression			
	Odds Ratio	95% Confidence Interval	P value
I have not gotten a mammogram in the past 2 years because I worry about getting a male technician			
11-item Modesty measure	1.224	1.066-1.457	<0.01
10-item Modesty measure	1.208	1.052-1.436	0.015
I worry about going to the emergency department because I might not be able to get a female doctor			
11-item Modesty measure	1.091	0.964-1.261	0.193
10-item Modesty measure	1.072	0.946-1.238	0.301

Results

- A 10-item scale was found to have a Cronbach’s alpha of 0.826 (Q9 was discarded due to poor correlation with overall scale). Exploratory and confirmatory factor analysis failed to yield interpretable results regarding dimensionality. The Bayesian Information Criterion (BIC) favored the one factor model while the Akaike Information Criterion (AIC) favored the two factor model.
- Spearman correlation coefficients demonstrated that the relationship between the Modesty Measure and DUREL trended towards significance (p=.086) with a weak correlation (rs=.201). The measure was significantly correlated to the PMIR-Positive Religious Coping and Identification subscale (p=.005) with a weak coefficient value (rs=.391), and to the PMIR-Punishing Allah Reappraisal subscale (p=.001) with a strong coefficient value (rs=.622).
- In ordered logistic regression models, the measure was significantly associated with the statement “I have not gotten a mammogram in the past 2 years because I worry about getting a male technician” (OR=1.208, p=.015), but not with “I worry about going to the emergency department because I might not be able to get a female doctor” (OR=1.072, p=.301).

Discussion

- The 10 items form a reliable modesty scale (Cronbach’s alpha=.83), with one underlying construct that is associated with but different from measuring religiosity and also has predictive power to assess for healthcare-seeking behaviors. Further psychometric work with this scale should consider reversing some of the items, so that the possible effect of acquiescence bias can be evaluated.

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