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Asma Jana-Masri^a & Paul E. Priester^a

^a University of Wisconsin-Milwaukee, Milwaukee, Wisconsin, USA

^b Cardinal Stritch University, Milwaukee, Wisconsin, USA

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Original Research

The Development and Validation of a Qur'an-Based Instrument to Assess Islamic Religiosity: The Religiosity of Islam Scale

ASMA JANA-MASRI

University of Wisconsin-Milwaukee, Milwaukee, Wisconsin, USA

PAUL E. PRIESTER

Cardinal Stritch University, Milwaukee, Wisconsin, USA

Previous efforts to develop instruments to measure Islamic religiosity have been relatively unsuccessful. These instruments have extended a Christian instrument or Western concepts to study Muslims, and have failed to report acceptable psychometric properties or have included items that are more political in nature. We present a new instrument, the Religiosity of Islam Scale (RoIS), that attempts to remedy these flaws. The RoIS is a 19-item instrument with two subscales: Islamic Beliefs and Islamic Behavioral Practices. Supportive reliability and validity data are reported. A brief discussion of current sociopolitical considerations for conducting research with Muslims in the United States is offered.

Keywords *Islam, measurement, religiosity*

INTRODUCTION

Followers of Islam are a diverse group of individuals. Because of this within-group heterogeneity, there is little value in viewing Muslims from a monolithic lens (Gregorian, 2004). One source of within-group variability that warrants investigation is the relative degree of religiosity among Muslims. There have been numerous attempts to develop scales to measure Islamic religiosity with varying degrees of success.

Each author contributed equally in the preparation of this manuscript and authorship was determined randomly.

Address correspondence to Paul E. Priester, College of Education and Leadership, Cardinal Stritch University, 6801 N. Yates Road, Milwaukee, WI 53217. E-mail: pepriester@stritch.edu

Previous Attempts to Develop Instruments to Measure Islamic Religiosity

Some researchers have used a Christian-based instrument with a Muslim population, making no attempt to modify the original instrument (Long & Elghanemi, 1987; Mahabeer & Bhana, 1984). Others have imposed Western constructs like extrinsic religiosity (Piedmont & Leach, 2002) or spirituality (Watson et al., 2002) on Muslims.

Many other instruments have embedded themselves in a Muslim worldview, but failed to meet adequate psychometric standards. For example, Tessler and Nachtwey (1998) relied on a three-item instrument based solely on behavior. Suhail and Akram (2002) used an informally created instrument that is not used in any other related research in their study and presented no statistics in support of its psychometric reliability or validity. Meyer, Rizzo, and Ali (1998) reported an instrument created from an Islamic perspective that offered acceptable reliability estimates on one subscale, but failed to offer the same information for the second subscale or for the overall instrument. Ali et al.'s instrument also contains some items that do not seem to relate to Qur'an-based concepts and are political in nature (e.g., "People should choose political candidates for their political experience not their religious sect" and "All Muslims must work together to face the Western challenge against Islam"). Abu-Ali and Reisen (1999) presented an Islamic-based instrument, but provided only a reliability estimate and no support for construct validity.

Some of the instruments have fallen below acceptable psychometric standards. Al-Sabwah and Abdel-Khalek (2006) used a one-item scale, asking each subject to rate the importance of religion in his or her life. Huntington, Fronk, and Chadwick (2001) included two Likert-type items ("How religious are you?" and "How frequently do you attend religious services?") followed by four categorical responses of Yes or No to behavioral questions (e.g., "Do you celebrate Eid al-Adha?"). Instruments consisting of few items or only items with categorical Yes or No responses severely limits the variability of potential responses (DeVellis, 2003).

Two studies used the Muslim Attitudes Towards Religion Scale (Ghorbani, Watson, Ghramaleki, Morris, & Hood, 2002; Wilde & Joseph, 1997). This instrument appears to have been developed from within an Islamic worldview and have acceptable psychometric properties, but it has been created from within a Shiite perspective and validated solely with Shiite research participants. The question of whether this scale is generalizable to other Muslims is unanswered.

In summary, although there have been attempts to develop an adequate measure of Islamic religiosity, we believe that these attempts have fallen short. Weaknesses in those instruments include the following: extending a Christian instrument or Western concepts to study Muslims; failing to report

acceptable psychometric properties; including items that are more political in nature, rather than being based on the Qur'an; or failing to include psychometrically derived items designed to present optimal variability in the responses.

Current Study

This article presents a Qur'an-based instrument to measure Islamic religiosity, the Religiosity of Islam Scale (RoIS) that was developed from within the Islamic worldview and uses normative instrument development procedures to ensure acceptable psychometric standards. The instrument is theoretically based on the distinction made between religious beliefs and behaviors in the Qur'an.

METHODS

Item Development

A distinction is made between beliefs and practices both in the Qur'an and in Prophet Muhammad's *sunnahs* (his behavioral practices that translated the Qur'an into everyday life) and *hadiths* (his oral statements that brought a fuller understanding of the Qur'an). It is not sufficient to merely believe in the principles set forth in the Qur'an; one must also align one's behavior with these beliefs. Neither of these is sufficient without the other (Ali, 2001). Faith and righteous deeds must go hand in hand in order to enter paradise in the afterlife. This is in contrast to a general truth about Christianity which holds that salvation is obtained by grace alone. In Islamic doctrine, eternal salvation is based on the individual's works and on God's mercy (Chafer, 2004). Based on these concepts, the authors developed a list of 19 potential items related to Islamic beliefs and 19 potential items related to Islamic behavioral practices. In creating these items, a strict reliance on their origin in the Qur'an was observed. Items that reflect cultural influences or political beliefs were avoided.

Content Validity of Items

In order to establish that the items in the set were representative of potential items from the universe of possible relevant items, the authors asked several theological experts to review the potential items. An imam and several other individuals who are knowledgeable about Islam reviewed the items and, after some minor alterations, found them acceptable. This process was completed to assure that the items have an acceptable level of content validity. Given the unanimity of the expert reviewers' endorsement of the items, we can state that these items have an acceptable level of content validity.

Recruitment of Participants

A multifaceted approach to participant recruitment was employed. First, packets containing the instrument and a demographic information sheet were given to leaders of two mosques in a major midwestern city. The leaders were instructed to recruit for volunteers who were attending meetings at the mosques. After the volunteers completed the packets, these leaders returned them to the authors. Earlier studies have relied on recruiting almost solely from mosques and this presents a potential confounding variable because this convenience sample may represent limited variability in responses and skew toward the higher end of religiosity scales.

Given this concern, the authors also solicited participants from several other sources. A request was sent to the Muslim Mental Health Internet Discussion Group. In addition, a snowball sampling technique was used in which Muslim community and religious leaders known by the authors were sent a digital version of the instrument and demographic form (Heckathorn, 1997). These Muslim leaders were asked to recruit volunteers to fill out the instrument, after which the leaders returned the completed instruments via e-mail.

Demographics of Participants

A total of 71 participants completed the survey for the purposes of this study. The sample was 56% female and 44% male. The mean age was 36. Educational levels for the sample were as follows: less than 12 years of education, 14%; 12–16 years of education, 49%; 17–19 years of education, 18%; and more than 19 years of education, 18%. The ethnic composition of the sample was 20% European American, 7% African American, 26% Asian, 46% Middle Eastern, and 1% Latino. The language that was spoken at home for the sample was: Arabic, 49%; English, 28%; Urdu, 16%; African, 6%; and Spanish, 1%. The composition of the sample's sect identity was 90% Sunni and 10% Shiite. Fifty-six percent of the sample was recruited at mosques, 14% through the snowball procedure, and 30% from the Muslim Mental Health Discussion Group.

RESULTS

Item Analysis

A correlation matrix was created for both the Islamic Beliefs and Islamic Behavioral Practices subscales to examine the Pearson's correlation coefficient between each individual item and the total subscale score. Any individual items that did not correlate at a .05 alpha level of statistical significance were deleted from the item list (DeVellis, 2003). Principal component analysis techniques were also used to weed out weak items. Items with a factor loading below .40 were excluded from the final subscales, because they

Table 1 Items Deleted from the Islamic Beliefs Subscale

Item
I believe Allah has 100 Names, and we know only 99 Names
I believe that a woman can travel alone by herself
I believe that Muhammad was the last messenger of Allah
I believe that associating any deity or personality with Allah is a deadly sin, which Allah will never forgive
I believe that Muslim men can marry non-Muslim women
I believe in Divine Predestination
I believe that the Qur'an reminds us of the falsity of all alleged gods
I believe in the six faith pillars of Islam (to believe in Allah, His angels, His Books, His Messengers, and to believe in the Last Day, and Qadr, both good and bad)
I believe that a man's share of inheritance should be bigger than a woman's
I believe in the night of Qadr
I believe that the Sunnah is the second source of Islamic jurisprudence

contributed minimal variation in response (Pett, Lackey, & Sullivan, 2003). For example, if all of the Muslims in the sample fasted during Ramadan, then there would be no variability in responses to an item asking whether Muslims fast during Ramadan; it would be considered a “bad” item to include because variability of responses is a desired characteristic of psychometrically strong instruments.

For the final version of the Islamic Beliefs subscale, 9 items met the required criteria and 11 were excluded (see Table 1). For the Islamic Behavioral Practices subscale, 8 items failed to meet the criteria and were excluded from the final iteration of the subscale (see Table 2), resulting in a subscale of 10 items. The final version of the RoIS is presented in the Appendix.

Reliability

Cronbach's alpha was used as an estimate of reliability for the two subscales. For the Islamic Beliefs subscale, overall alpha was .66. For the Islamic Behavioral Practices subscale, overall alpha was .81.

Table 2 Items Deleted from Behavioral Practices Subscale

Item
I engage in gossip*
If I can, I will go to Makkah for hajj
I celebrate Muslim holidays only (Eid al-Fiter and Eid al-Adha)
I cheat*
I eat the meat of animals that are not slaughtered by the name of Allah (Halal)*
I treat my parents with respect
I fast during Ramadan every year
I treat all Muslim people equally

Note. Reverse-scored items are marked with an asterisk.

Validity

FACTORIAL VALIDITY AS EVIDENCE SUPPORTING CONSTRUCT VALIDITY

Confirmatory factor analyses with an oblique rotation (because the subscales are correlated) supported the use of the two subscales of this instrument. A scree plot analysis provided support as well as an eigen value analysis, in which both of the subscales had eigen values over 1.0 (Pett et al., 2003).

CONCURRENT VALIDITY AS EVIDENCE SUPPORTING CONSTRUCT VALIDITY

Concurrent validity offers support for the construct validity of an instrument by comparing the contemporaneous scoring of an instrument that measures the same construct. In this study, an item in the demographic information sheet asked participants to respond to the same item used by Al-Sabwah and Abdel-Khalek (2006). This item asks the participants to rate the importance of religion in their lives on a 5-point Likert-type scale. The Islamic Beliefs subscale of the RoIS had a strong positive relationship with this instrument ($r = .42, p < .0001$). The Islamic Behavioral Practices subscale also had a strong positive relationship ($r = .47, p < .00001$).

Comparison of Subscale Scores Across Ethnicity

Analyses were completed examining potential between-group differences in ethnic identity. For the Islamic Beliefs subscale, $F(1, 63) = 6.168, p = .016$, and for the Islamic Behavioral Practices subscale, $F(1, 60) = 10.835, p = .002$, participants who identified themselves as Middle Eastern scored higher than the other groups combined.

DISCUSSION

This article presents an attempt at developing an instrument to measure Islamic religiosity that was derived from a Qur'anic perspective and demonstrates somewhat acceptable psychometric properties. The reliability estimates for the Islamic Behavioral Practices subscale were strong. For the Islamic Beliefs subscale, the reliability estimates were questionable. Factor analysis supported the use of the two subscales as correlated, but separate, dimensions of the construct of Islamic religiosity. Concurrent validity as evidence for the construct validity was shown in the fact that both subscales had a strong correlation with an instrument used to measure Islamic religiosity in other research. It is interesting to note that many of the items that were excluded from the final version of the RoIS were routinely used in the other research related to the study of Islamic religiosity. This is

an excellent example of the importance of using psychometric principles to guide item selection for final inclusion because items that seem *prima facie* important (e.g., “Do you fast during Ramadan?”) may lack any variability in response and therefore can be excluded.

Hill (2005) established four criteria by which to judge the psychometric acceptability of an instrument that measures religious constructs: theoretical basis, sample representativeness/generalization, reliability, and validity (p. 49). A study can be categorized as exemplary, good, acceptable, or minimal for each of these areas. The results of this study will be presented in light of this rubric. Theoretical basis of an instrument concerns how well the instrument is connected to broader psychological theories. The RoIS is based on the tenets of Islam; while it succeeds as being grounded in this perspective, the proposed instrument is lacking in that it has not been connected to other broader psychological theories. As such, Hill would grade its success in meeting this criterion as “minimal.”

Sample representativeness/generalization refers to the characteristics of the participants. A strength, and paradoxically a potential weakness, of this study is that the participants represented the two major sectarian demographics of the larger Muslim community. Thus, according to Hill's (2005) rubric, this instrument would be “good” for this category. The larger research question is whether it is reasonable to develop a measure of Islamic religiosity that is capable of being used with these two diverse populations and whether such a measure would be generalizable to other Muslim groups such as Sufis.

When applying Hill's (2005) evaluative criteria for reliability, the rating would be “minimal.” If the subscales were viewed separately, the Islamic Behavioral Practices subscale would be graded “acceptable” and the Islamic Beliefs subscale as “minimal.” This low level of reliability estimates for the Islamic Beliefs subscale is cause for concern. Finally, the evaluation for validity would be “acceptable.” This study offers two types of validity data from one sample: factorial and concurrent.

Differences in Scores Across Ethnic Identification

As noted in the results, participants who identified themselves as being Middle Eastern had statistically significant higher scores on both the Islamic Beliefs and the Islamic Behavioral Practices subscales. In a way this is good because we were seeking to gather a diverse range of responses reflecting the broader diverse Muslim population. Other researchers may want to note that samples relying solely on Muslims who identify as being Middle Eastern may have higher levels of religiosity when compared to Muslims from other parts of the world. This finding is tempered by the relatively small sample size and the fact that this is one study.

Sociopolitical Considerations

An interesting insight gained from this research process concerned some of the attitudinal barriers that the researchers faced in gathering the data. Significant resistance was encountered initially when attempting to gather data at the mosques. In discussions, it became clear that some of the resistance was due to Muslims' experiences shortly after the September 11, 2001, attacks on the World Trade Center. Individuals displayed mistrust and explained that, shortly after September 11, FBI agents had repeatedly visited the mosques asking some of the very same questions. Evidently, FBI agents viewed high levels of religiosity as being correlated with terrorist motives. Several participants remarked that some of the items on the RoIS were identical to some of the questions asked by FBI agents.

This is similar to some of the barriers than non-African American researchers may face in carrying out research with African American participants. In that context, a history of oppression has resulted in an adaptive attitudinal stance that African American individuals hold called cultural mistrust. Cultural mistrust is adaptive in that African American participants cannot assume that the European American researchers have their best interest in mind (Priester & Eluvathingal, in press; Whaley, 2001). In the same light, it would seem that some Muslims in the United States have adapted an attitude of wariness toward researchers (even when the researchers are fellow Muslims) who do research on the topic of Islamic religiosity. It can be seen as adaptive as well in that Muslim Americans cannot assume the researchers have the best interests of the Muslim *umma* (community) in mind. The onus is on the researcher to establish credibility and be willing to demonstrate that he or she will not use the research to harm Muslims.

Another issue related to the development of measures of Islamic religiosity in the current sociopolitical context is that of potential consequences from the misuse of the instruments. Messick (1989) has suggested that potential negative social consequences of the use of an instrument must be considered. It is critical that researchers do not unwittingly assist officials in pathologizing individuals with strong religious beliefs.

Limitations of the Instrument

When developing this instrument, the authors consulted several experts in test construction and development. One expert convinced us to use separately scaled items for behaviors (5-point Likert response) than for beliefs (traditional 7-point Likert response). In retrospect, although acceptable psychometric data were obtained, we would prefer using a uniform 7-point Likert scale for all items.

Another potential criticism is in the generalizability of the findings of this study. Although we received variability in the responses, it is possible that using a convenience sample, rather than a random sample of Muslims, may have biased the responses. This sample also represented relatively high educational levels among participants and it is unclear how this may have limited the generalization to the larger Muslim population.

As stated earlier, the low level of reliability for the Islamic Beliefs subscale is problematic. Despite our efforts to create a psychometrically sound, Qur'an-based measure of Islamic religiosity, this low level of reliability in the subscale weakens its acceptability. Ways to improve reliability estimates can be explored in future samples.

A final limitation is that the sample size was relatively small for the development of a psychological instrument. Factor analysis typically requires 5 to 10 participants per item. Our instrument has 19 items and was validated with a sample size of 71.

Suggestions for Future Research

The authors attempted to create an Islamic religiosity scale that could be used universally with both Shiite and Sunni Muslims. The demographics of the sample matched the global percentages of the Muslim population: 85% Sunni and 15% Shiite (Esposito, Fasching, & Lewis 2001). The question of whether this instrument has utility with Shiite Muslims is largely left unanswered. A replication of the preliminary validation of this instrument with solely a Shiite population would strengthen the argument that the instrument can be used universally across the sectarian division.

It is possible that there was some bias present in the sampling procedures of the participants in this study. A replication of this data with another sample of participants would strengthen the argument that this instrument is psychometrically sound.

Finally, this study presents preliminary psychometric data. It is recommended that further evidence of validity be gathered in the form of placing this instrument in a nomological net by comparing its results with other psychological instruments to establish convergent and discriminant validity (Campbell & Fiske, 1959).

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APPENDIX: RELIGIOSITY OF ISLAM SCALE

Below are statements concerning your religious life. Please indicate your reaction to each statement by circling the answer that best fits you. There are no wrong or right answers. Your answers will remain completely confidential. We are interested only in getting your point of view.

-
1. I wear the hijab as a woman (for women). My wife wears the hijab (for men)
- | | | | | |
|--------|---------|-----------|--------|-------|
| 1 | 2 | 3 | 4 | 5 |
| Always | Usually | Sometimes | Rarely | Never |
2. I go to the mosque on Friday
- | | | | | |
|--------|---------|-----------|--------|-------|
| 1 | 2 | 3 | 4 | 5 |
| Always | Usually | Sometimes | Rarely | Never |
3. I give Zakah
- | | | | | |
|--------|---------|-----------|--------|-------|
| 1 | 2 | 3 | 4 | 5 |
| Always | Usually | Sometimes | Rarely | Never |
4. I believe that the final and complete religion is Islam
- | | | | | | | |
|-------------------|-----------------|-------------------|----------------------------------|----------------------|--------------------|----------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Strongly
Agree | Mostly
Agree | Somewhat
Agree | Neither
Agree nor
Disagree | Somewhat
Disagree | Mostly
Disagree | Strongly
Disagree |
5. I pray five times a day
- | | | | | |
|--------|---------|-----------|--------|-------|
| 1 | 2 | 3 | 4 | 5 |
| Always | Usually | Sometimes | Rarely | Never |
- *6. I believe that a woman can wear perfume when she goes out¹
- | | | | | | | |
|-------------------|-----------------|-------------------|----------------------------------|----------------------|--------------------|----------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Strongly
Agree | Mostly
Agree | Somewhat
Agree | Neither
Agree nor
Disagree | Somewhat
Disagree | Mostly
Disagree | Strongly
Disagree |
7. I read the Qur'an more than two times a week
- | | | | | |
|--------|---------|-----------|--------|-------|
| 1 | 2 | 3 | 4 | 5 |
| Always | Usually | Sometimes | Rarely | Never |
- *8. I believe that men can shake hands with women
- | | | | | | | |
|-------------------|-----------------|-------------------|----------------------------------|----------------------|--------------------|----------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Strongly
Agree | Mostly
Agree | Somewhat
Agree | Neither
Agree nor
Disagree | Somewhat
Disagree | Mostly
Disagree | Strongly
Disagree |
9. I believe Jinn exist
- | | | | | | | |
|-------------------|-----------------|-------------------|----------------------------------|----------------------|--------------------|----------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Strongly
Agree | Mostly
Agree | Somewhat
Agree | Neither
Agree nor
Disagree | Somewhat
Disagree | Mostly
Disagree | Strongly
Disagree |

(Continued)

*10. I gamble

1	2	3	4	5
Always	Usually	Sometimes	Rarely	Never

11. I believe that the Qur'an is the final word of Allah

1	2	3	4	5	6	7
Strongly Agree	Mostly Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Mostly Disagree	Strongly Disagree

12. I seek knowledge because it is a Muslim religious duty

1	2	3	4	5	6	7
Strongly Agree	Mostly Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Mostly Disagree	Strongly Disagree

13. I believe Allah created angels from light in order that they worship Him, obey Him and carry out His commands

1	2	3	4	5	6	7
Strongly Agree	Mostly Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Mostly Disagree	Strongly Disagree

*14. I drink alcohol

1	2	3	4	5
Always	Usually	Sometimes	Rarely	Never

15. When I go to social gathering, I sit with my own gender separate from the other gender

1	2	3	4	5
Always	Usually	Sometimes	Rarely	Never

16. I believe that a man can marry up to four wives

1	2	3	4	5	6	7
Strongly Agree	Mostly Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Mostly Disagree	Strongly Disagree

*17. I smoke cigarettes

1	2	3	4	5
Always	Usually	Sometimes	Rarely	Never

18. I believe that Hajj is obligatory only once during the lifetime of a Muslim

1	2	3	4	5	6	7
Strongly Agree	Mostly Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Mostly Disagree	Strongly Disagree

19. I perform ablution (wash face, hands, arms, head, and feet with water) before I pray

1	2	3	4	5
Always	Usually	Sometimes	Rarely	Never

Note. ¹Items marked with an asterisk are reverse scored (items 6, 8, 10, 14).