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ZEAL OF THE CONVERT? COMPARING THE STRUCTURE OF ISLAMIC
RELIGIOUSNESS BETWEEN CONVERTS AND NON-CONVERTS MUSLIMS

by

DANIEL SNOOK

Under the direction of John G. Horgan, Ph.D.

ABSTRACT

In popular culture, converts to a new religion, especially Islam, are widely considered overly zealous. This is despite a lack of evidence for this view. But do converts to Islam have faith differently than their ‘born Muslim’ counterparts (non-converts)? Very little research has explored such differences. Consequently, this study compares Islamic religiousness, as measured by the Psychological Measure of Islamic Religiousness (Abu Raiya et al., 2008), between convert and non-convert US Muslims using a series of confirmatory and exploratory factor analyses. In our sample, Abu-Raiya et al.’s (2008) proposed factor structure showed poor model fit. Exploratory factor analyses provide evidence that Islamic religiousness of converts and non-converts differ in meaningful ways: converts have a simpler structure of religiousness than non-converts, and their beliefs are less directly aligned with their practices compared to non-converts. These findings suggest that converts and non-converts it seems they believe and practice Islam differently.

INDEX WORDS: Psychology of religion, Islam, Religious conversion, Religiousness, Factor analysis. Structural equation modeling

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DANIEL SNOOK

A Thesis/Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of

Master of Arts

in the College of Arts and Sciences

Georgia State University

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Daniel W. Snook
2019

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RELIGIOUSNESS BETWEEN CONVERTS AND NON-CONVERTS MUSLIMS

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1 INTRODUCTION

1.1 The “Zeal of the Convert”: Myth or Fact?

In both popular culture, as well as in the scientific community, people consistently make the claim that converts to new religious beliefs are more committed to their faith than those brought up in the religion (hereafter, non-converts; Pond & Smith, 2009). Thompson (1968: 201), in fact, insists that “there must be some objective basis” for the purported fanaticism of the convert. A common explanation for religious fundamentalist behavior is that “born-again” believers are willing to zealously represent their new religion in every way they can. Particularly in the context of Islam, outsiders sometimes view conversion as a harbinger of religious violence rather than a legitimate expression of a search for meaning and truth (Benjamin, 2007). Because US Muslims face added suspicion for fanaticism in the wake of repeated terror attacks from violent jihadist groups like Al-Qaeda and Islamic State, it is especially important to investigate such assumptions. Within Christianity, tentative findings show that converts tend to place higher importance on religion in their lives than non-converts (Pond & Smith, 2009). However, other research has found no differences in religious commitment when comparing Christian converts to non-converts (Barker & Currie, 1985). Further, there is currently no empirical evidence to suggest that the components of religiousness, in terms of beliefs, commitment, or practice, differ between converts and non-converts.

So far, psychologists have explored religious identity transformation processes by comparing people who convert to a new faith to people who do not convert. Such comparisons have shed light on why some people convert when others do not, even when the environment is comparable (Granqvist & Kirkpatrick, 2004). Other studies have focused on the power of environmental differences in determining whether a person converts (Heirich, 1977). Still others

seek to explain interactions between personal and environmental contributors to conversion (Lofland & Stark, 1965; Rambo, 1993). There is extensive research on this topic and consequently, numerous theories explain why and how individuals undergo conversion. However, little is known about the religious profiles of those who convert to a new religion compared to non-converts— that is, individuals who have been believers in the same religion to one degree or another their entire lives. In sum, there is a wealth of research on the *antecedents* to conversion, but a dearth of research comparing the subsequent religiousness of converts (i.e., the religious *outcomes* of conversion) to the religiousness of non-converts. But despite the lack of supporting evidence, both social scientists and the public-at-large continue to conflate religious conversion with high religious commitment and more intense religiousness (Barker & Currie, 1985).

The question of whether converts are truly more ‘zealous’ than non-converts raises a bigger question of whether religiousness as a psychological construct is different between converts and non-converts. To address this gap, the goal of this study is to accurately and comprehensively compare religiousness between convert and non-convert Muslims. This begins by assessing whether converts perceive, experience, and practice Islam in a structurally different way than non-converts. To this end, the study evaluates the religiousness of 356 US Muslims, half of whom have converted to Islam and half of whom were born into Muslim families or were raised in the Islamic faith. Using the items from Abu Raiya et al.’s Psychological Measure of Islamic Religiousness, or PMIR (2008), we evaluate to what extent the latent factor structure of Islamic religiousness is similar between converts and non-converts. If latent factors predict the manifest variables of religiousness (PMIR items) similarly for both converts and non-converts, then conclusions about religious differences between converts and non-converts may be drawn

by directly comparing scores for groups of items (e.g., total or subscale scores). If the structures are different (i.e., if configural invariance is not reached), then simple numerical comparisons are not warranted and we will explore the structural differences in Islamic religiousness between converts and non-converts, as well as the implications of those differences.

1.2 Religious Psychology and Conversion Studies

In examining the content of religion and explaining what it means to be a religious believer, psychologists have focused on studying the individual or group by observing behaviors and self-reported beliefs (Hood, Hill, & Spilka, 2009). In psychology, religion is defined as an objective (i.e., canonized and accepted truths) and structured system of beliefs and practices rooted in a particular tradition that allows people to experience and organize life through a relationship with the sacred (Hill & Pargament, 2003; Rambo, 1993; Zinnbauer & Pargament, 2005). Religion is a subset of the broader concept of spirituality, which is itself a subset of the human need for meaning. For psychologists, religion is best understood as a way to satisfy the human searches for cognitive meaning, truth, motivation, control, and relationships (Hood, Hill, & Spilka, 2009). Religious conversion, then, is the process by which an individual commits to the beliefs of a new religious tradition and shifts away from their previous beliefs (whether religious or a-religious; Stark & Finke, 2000).

Conversion manifests differently across individuals, groups, and societies, but at its core, it comprises a radical change in identity that occurs when the convert aligns their primary meaning system with the beliefs of a religion (Pargament, 1997; Paloutzian, Richardson, & Rambo, 1999; Zinnbauer & Pargament, 1998). Travisano (1970) and subsequent researchers (Glanz & Harrison, 1978; Pilarzyk, 1978; Rambo, 1993; Zehnder, 2011) have suggested that conversion is qualitatively different than other processes of religious identity creation and

transformation. Conversion specifically represents the creation of a new identity that is categorically different from one's previous belief system.

Conversion is only one type of religious change though, and religious identities are more commonly defined without the disruption of a previous identity or the adoption of new beliefs (Travisano, 1970; Barker & Currie, 1985). Believers in all faiths undergo changes in their religiousness— one's level of faith, specific beliefs, and how those beliefs impact cognitions, emotions, and behaviors are all likely to ebb and flow over time (Hood, Hill, & Spilka, 2009). 'Non-converts', or individuals who have been born or raised in a faith tradition, can and do undergo significant changes in their religious framework just as converts do, but for them these changes do not involve a major shift from one belief system to another. In this study, Rambo's concepts of "affiliation" and "tradition transition" are operationalized as conversion, whereas "intensification" and "institutional transition" are not (Rambo, 1993: 13).

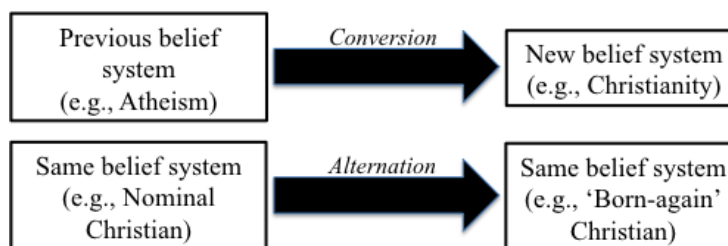


Figure 1: Some changes in religious identity, such as Travisano's (1970) 'Alternation', show change in the centrality of the religious belief system to one's reality. Here, conversion also includes a change in belief framework.

Accurately understanding and accurately measuring the process of conversion is the starting point for exploring purported differences in religiousness between converts and non-converts.

In initial studies of conversion, scholars maintained that conversion was a sudden event that took place as a result of powerful, supernatural, external forces, rather than the result of the

convert's search for meaning or a unified identity (Richardson, 1985). As scientific understanding of conversion grew, conversion came to be seen as a gradual process and converts came to be seen as active seekers of truth and meaning (see Richardson, 1985). Contemporary social scientists acknowledge that, like most human behaviors, conversion is a complex and highly variable process.

Eschewing mono-causal explanations of conversion, Lewis Rambo developed a holistic process framework of conversion (1989; 1993). This framework is multi-faceted, temporally flexible, and accounts for the influence of social, personality, cultural, and religious factors in the conversion process. Rambo's theory examines a wide range of issues and dimensions in conversion, yet has a clear order. As such, it is widely cited and trusted as the prevailing framework for religious conversion (Kleinmann, 2012). Rambo's framework describes a person's progression through a series of conversion stages, but the convert does not have to move through the stages of the model in a specific, linear order (see Figure 1 below). Rather, factors in Rambo's framework interact and accumulate to influence the process of conversion over time (Rambo, 1993). The stages of Rambo's model are as follows:

- *Context*– Although other pieces of this model tend to take place at specific junctures in the conversion process, context describes the general environment in which an individual converts. Context, which includes factors such as individual psychology, social relationships and structures, upbringing, cultural and societal norms, and economic circumstances, is influential throughout the entire process of conversion. All of these forces intertwine to either facilitate or hinder the process of conversion.
- *Crisis*– Among the most consistent empirical findings across more than a century of research on conversion is that conversion (as well as other radical identity changes) is typically

predicated by a state of psychological stress, tension, disequilibrium, or crisis (Heirich, 1977; Lofland & Stark, 1965; Rambo, 1989; 1993; Ullman, 1989). Experiencing a crisis, whether one of short duration and high intensity (i.e. a near-fatal car accident or attack) or of longer duration and lower intensity (i.e. a protracted struggle with generalized anxiety or alcoholism), can lead to a dissatisfaction with one's current belief system and its attached identity. Periods of psychological crisis can disrupt and delegitimize an individual's worldview and meaning system— this disillusionment and dissatisfaction with their current meaning system may lead them to search for new ones.

- *Quest*— The quest stage of conversion describes the process of seeking and finding, or constructing, a new meaning system in order to better understand one's world and purpose within it. Once open to finding a new meaning system, an individual might actively search for meaningful ways to understand their reality, passively accept meaning systems that others suggest, or land somewhere in between (Richardson, 1985; Rambo, 1993). The nature of one's quest is also determined by other dimensional constructs like motivational structures and emotional, religious, and intellectual availability (Rambo, 1993). Throughout the quest stage, the convert seeks to find new beliefs by which they may find meaning and rebuild their identity.
- *Encounter*—Encounter hinges on the personal social connections converts make with people who communicate about and advocate for religious systems of meaning. Rambo (1989; 1993) emphasizes the importance of religious group members in influencing how people convert. Conversion is facilitated when successful social connections are forged between religious group members and the convert.

- *Interaction*– In the interaction stage, the convert moves past the initial contact of their first encounter with a group member and begin to interact more deeply with the religion’s beliefs, practices, and community. The potential convert begins to experience life as part of the religious group as they cultivate relationships with group members, participate in symbolic and practical rituals, learn the group’s rhetoric, and take on roles within the group community. If the convert continues to find meaning, fulfillment, and coherence in the religion’s belief system, interaction will increase desire to commit to the new religion. If the convert becomes disillusioned with the group or its beliefs, however, interaction may lead them to withdraw from the conversion process and recede to previous stages of the model, such as crisis or quest (Rambo, 1989; 1993).
- *Commitment*– Commitment marks the point in the conversion process where the convert decides they are a part of a religious group and embrace its basic values and goals. At this stage of the model, the convert inwardly accepts the beliefs and tenets of the religious group, at least initially. Often, this stage is marked by feelings of surrender to a higher power and a means for the converts to overtly display their commitment (Rambo, 1989; 1993). It is common for newly committed converts to show their faith in a public ritual, such as testimonies, baptisms, or shahadas.
- *Consequences*– The final stage of conversion is made up of the changes in the convert’s identity, beliefs, and behaviors that result from their conversion. Consequences of a conversion can lead the convert, other group members, and outside observers, like social scientists, to believe that the conversion was authentic or inauthentic (Rambo, 1989; 1993). Effects of conversion range widely based on the religion to which one is converting, one’s previous belief system, social environment, and culture. The degree of permanence of

conversion's consequences also range widely; for some individuals, the results of conversion are relatively permanent, while for others they will have to be continually renewed. Other than the implied changes in one's belief structure and corresponding behavior, conversion is generally associated with positive mental health and psychological consequences (Hill & Pargament, 2003; Paloutzian, Richardson, & Rambo, 1999). These include greater feeling of life purpose (Paloutzian, 1981), greater productivity (Wilson, 1972), experience of newfound meaning (Levine & Salter, 1976), decreased distress (Wilson, 1972), decreased hopelessness, and decreased fear of death (Nicholi, 1974).

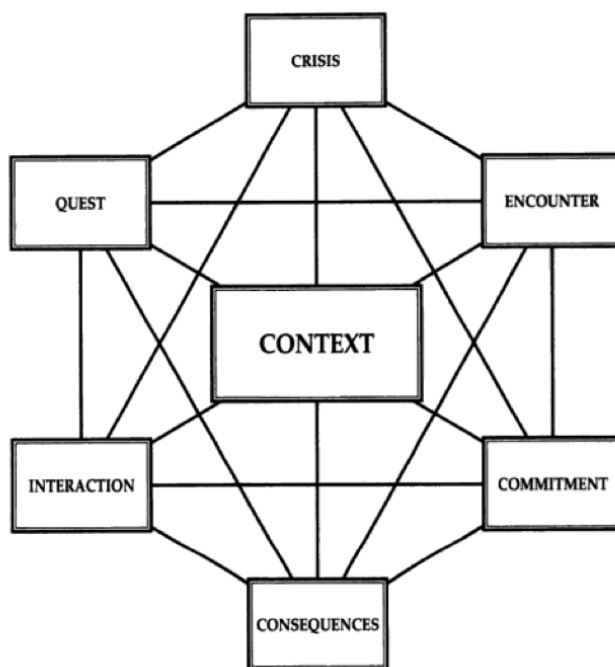


Figure 2: Rambo's Holistic Process Model as a "Systemic Stage Model" (Rambo, 1993, p.18) in which individuals may move freely from stage to stage and context is influencing the conversion process at all times.

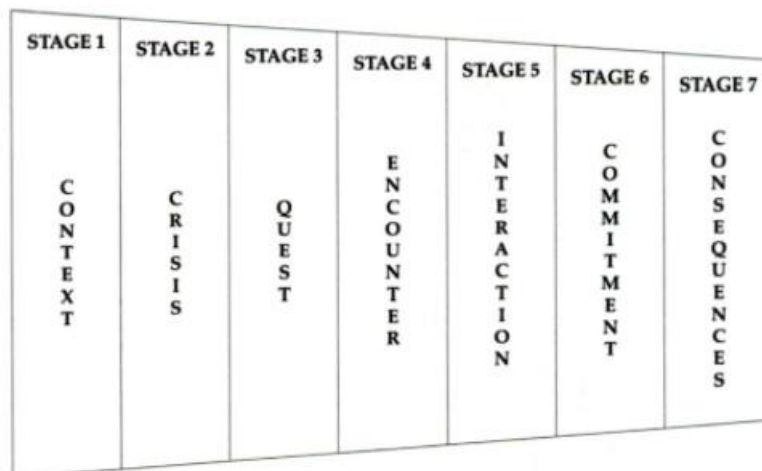


Figure 3: Rambo's Holistic Process Model as a "Sequential Stage Model" (Rambo, 1993, p.17) highlights the linear nature of Rambo's proposed conversion stages, although conversion may not take place in a linear order.

As previously discussed, religiousness is not easily defined or measured. To accurately compare religiousness among the individuals in our sample of Muslims, it is critical to comprehensively measure religious beliefs and practices that are contextualized to Islam specifically.

1.3 Measuring Islamic Religiousness

Over the past hundred years, religious scholars have delved deeply into the sociological, anthropological, and psychological bases for religious cognitions and religious behaviors. However, nearly all of this research has been conducted in the context of Western Judeo-Christianity (Abu-Raiya & Hill, 2014; Abu-Raiya, Pargament, Mahoney, & Stein, 2008; Abu-Raiya & Pargament, 2011; Gorsuch, 1984; Rambo, 1999). Although critical research in religious conversion models has also been conducted with New Religious Movements (Campbell, 1972; Zebiri, 2008), there has been little research conducted in the psychology of religion as it applies to other major world religions, such as Islam (Abu-Raiya, Pargament, Mahoney, & Stein, 2007; Abu-Raiya, et al., 2008; Zebiri, 2008). As the world's second-largest religion and the world's

fastest growing religion, there is a plain need to better understand the psychology of Islam and of conversion to Islam (Abu-Raiya & Hill, 2014; Abu-Raiya, et al., 2008; Abu-Raiya & Pargement, 2011; Zebiri, 2008).

Addressing this lack of research requires an accurate measurement of Islamic religiousness that goes beyond the “bird’s-eye approach” of evaluating religion through one catch-all item (i.e. “How religious are you?”) and the “derivative approach” of adapting scales formulated to study Christianity to fit Islam (Abu-Raiya & Pargement, 2011). There are several recent scales measuring elements of Islamic religiousness (Abu-Raiya & Hill, 2014), but properly exploring differences in faith profiles, calls for a multi-dimensional measure of Islam that takes the unique context of Islamic faith into account with acceptable levels of statistical reliability and validity. The Psychological Measure of Islamic Religiousness (PMIR; Abu-Raiya, et al., 2008) was developed to answer these challenges, and it provides a comprehensive means of measuring the dimensions of Islam in terms of respondents’ beliefs, practices, and experiences.

The PMIR is a 60-item scale, which was tested with an international sample of 340 Muslims. The scale’s items represent six latent factors: Islamic Beliefs; Islamic Ethical Principles & Universality; Islamic Religious Struggle; Islamic Religious Duty, Obligation, & Exclusivism; Islamic Positive Religious Coping & Identification; and Punishing Allah Reappraisal. One issue this paper will address is that Abu-Raiya, et al. (2008) used principal components analysis to group items to form these factors, which is problematic (see Results section). The PMIR also includes six items to measure Islamic Religious Conversion, as well as a single-item measure of overall Islamic Religiousness, but neither the Islamic Religious Conversion subscale nor the single-item measure of Islamic Religiousness were used in the

authors' principal component analysis. The reliability of each of the subscales and the PMIR as a whole are discussed in the Methods section of this paper. The subscales that Abu-Raiya, et al., (2008) identified in their analyses are summarized in Table 1 below; for all PMIR items see Abu-Raiya, et al. (2008).

Table 1 Names and descriptions of PMIR subscale measures

Measure Name	Description	Note
	Measures the extent to which a Muslim...	Higher scores represent greater...
<i>Islamic Beliefs (IB; 5 items)</i>	... believes the basic tenets of Islam	... levels of belief in Islamic tenets
<i>Islamic Religious Struggle (IRS; 6 items)</i>	... a Muslim doubts the basic tenets of Islam and/or doubts Islam as a faith	... doubt in Islam and struggles with basic Islamic tenets
<i>Punishing Allah Reappraisal (PAR; 3 items)</i>	... frames negative circumstances as punishment from Allah	... perception of Allah as a punishing figure
<i>Islamic Positive Religious Coping and Identification (IPRCI; 14 items)</i>	... relies on Islam to cope during difficult circumstances; internalizes Islamic duties as opportunities for growth	... reliance on Islam in positive coping; integration of Islam in personal identity
<i>Islamic Ethical Principles and Universality (IEPU; 14 items)</i>	... attributes ethical behaviors to Islam; considers all Muslims brothers and sisters	... higher attribution of ethical behaviors to Islam; greater universality amongst Muslims
<i>Islamic Religious Duty, Obligation, and Exclusivism (IRDOE; 12 items)</i>	... carries out religious duties; internalizes Islamic duties as obligations; maintain Islam is only correct belief system	... participation in Islamic religious duties; integration of Islam as external mandate; agreement Islam is exclusively true

With a suitable measurement tool for Islamic religiousness in hand, it should be possible to compare religiousness between Muslim converts and non-converts. But should we expect to

find differences in religiousness between converts and non-converts? Previous research in this area is scarce, but some empirical research has compared religiousness between converts and non-converts.

1.4 Conversion and Subsequent Religiousness

In the only study of its kind, Barker and Currie (1985) compared the level of religious commitment of born-again Evangelical Christian converts and non-converts. Commitment was measured by asking participants to report the following: the extent to which religion was important in their lives, church attendance and involvement, devotional commitment, and several other measures heavily contextualized to Evangelical Christianity. The authors found that levels of religious commitment were no different between converts and non-converts. Barker and Currie (1985) go on to suggest that religious commitment is likely not moderated by extremity of identity change within one's religious journey— but by the extent to which an individual's life and identity is embedded in interaction with other believers. Barker and Currie (1985) echo the sentiments of religious conversion researchers (Balch, 1980; Lofland & Stark, 1965; Rambo, 1993) who suggest that strong religious commitment is formed partly as a result of intensive interaction with other believers and with the beliefs of the faith. That is to say, the process of religious change, whether via conversion to a new belief system or via change within a previously held belief system, may not inherently impact one's religiousness in the same way that other, more immediate, factors do.

Following the lead of Barker and Currie (1985), more direct comparisons of converts and non-converts within the context of specific religious groups are needed to determine how converts might be similar or different in their religiousness overall. This study, then, does not necessarily seek to compare the *magnitude* of the various components of religiousness (e.g.,

strength of belief) between converts and non-converts, but rather to compare the *nature* of the various components of religiousness (e.g., the psychological content of belief). In other words, we are testing whether Islamic religiousness has the same components for converts as it does for non-converts and whether the configurations of those components (i.e., how those components relate to each other) are similar for both converts and non-converts.

Converts and non-converts may differ substantially in how their beliefs, practices, and experiences of Islam are organized into their overall concept of religiousness. On the other hand, it is also plausible that converts and non-converts may not differ in the nature and organization of the dimensions of their religious life. After all, converts seek to become a part of an already existing religion by assimilating into a group of believers, whose beliefs and behaviors they model. People among any group of believers, whether converts or non-converts, are likely to vary widely in how they apply their religion to their lives. As Barker and Currie's (1985) results suggest, the differences *between* converts and non-converts may be small in relation to differences *within* converts and non-converts separately.

Because conversion necessarily involves a change in an individual's fundamental beliefs, it is a more radical form of religious change than the religious changes typical among non-converts (Travisano, 1970). However, this does not mean that scholars should *necessarily* assume that converts' resulting religiousness is different than non-converts (Barker & Currie, 1985). It cannot be assumed that converts will believe, practice, and experience their post-conversion religion differently from non-converts. Of course, that outcome is possible, but currently there is insufficient scientific evidence to safely assume that the religion of the convert systematically differs from the non-convert.

1.5 Study Aims and Hypotheses

The overall goal of the current study is to assess if and how converts express their Islamic religiousness differently than non-convert Muslims. By assessing the patterns of scores that converts and non-converts self-report across PMIR items, we can explore whether the latent factors that compose Islamic religiousness are systemically different between converts and non-converts, or whether they are relatively similar. This addresses the question of whether converts' Islamic religiousness is structurally different from that of non-convert Muslims. Using a combination of confirmatory and exploratory factor analyses, we determine whether converts and non-converts' responses yield configural invariance (Meredith, 1993; Vandenberg & Lance, 2000), that is, whether they have basically the same structure of latent factors composing Islamic religiousness. Although there is little precedent to work with, we hypothesize that there will be configural invariance between our two groups— converts and non-converts. If there is evidence that configural invariance has failed, then we will examine and describe the differences in Islamic religiousness between converts and non-converts based on their factor structure. The approach for the current study is to first, fit confirmatory models of prior structure to the items in both groups (converts and non-converts) by a) testing prior factor structure across all items and b) testing factors individually, and second, fit exploratory factor analyses separately by group in order to find possible alternative factor structures.

2 METHODS

2.1 Procedure

2.1.1 Participant Screening and Recruitment

This study required a large sample of US Muslims, including a large sample of US Muslim converts. Recruiting US converts to Islam for study participation is a difficult prospect

however, considering their relative scarcity in the US population. Currently, the United States is home to approximately 3.3 million Muslims—only about 1% of the US population (Mohamed, 2016). Of that small proportion, about 20% of Muslims in the US are converts to Islam (Pew Research, 2011). Although this percentage is much higher than other Western countries (Sabaghi & Cimino, 2014; Schuurman, Grol, & Flower, 2016), this still means that only about 0.2% of the US population were eligible to be part of a core group in this study. Further, attempting to recruit such a sample by using local snowball or convenience sampling may have biased the sample and could have considerably reduced the generalizability of findings. Because of these difficulties, we employed Qualtrics, a company that provides an online survey administration platform as well as national recruitment services, to recruit participants for this study.¹

Qualtrics identified potential participants using a random selection process within a database of Muslims residing in the US. Qualtrics has access to numerous pools of applicants of varying demographic qualities, including US Muslims and US Muslim converts. We instructed Qualtrics to recruit participants, both converts and non-converts, such that the sample would be representative of recent US census results in terms of demographics. One exception to this strategy is in regards to race for converts. Although little is known about US Muslim converts, there is evidence that the majority of converts to Islam in the US (59%) are African American (Pew Research, 2011). Therefore, in order to ensure our sample is representative of the US convert population, Qualtrics did not recruit converts according to US census results for race. To

¹ Georgia State University's Institutional Review Board approved this study on June 15, 2016; IRB number: H15619, Reference number: 339012. This data collection was supported by the Minerva Research Initiative under the auspices of the Office of Naval Research under Grant N00014-16-1-2-19. The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the official policies, either expressed or implied, of the Department of Defense, the Office of Naval Research, or the U.S. Government.

compensate participants for their time taking the survey, Qualtrics provided non-monetary incentives (e.g. air miles, gift certificates) to participants who took this study's survey.

2.1.2 Materials

Participants were asked to respond to a battery of items from several scales, including the PMIR (Abu-Raiya, et al., 2008) to measure their Islamic Religiousness. The PMIR consists of 60 items that form six subscales, all of which use ordinal rating scales (i.e., Likert scale) ranging from 3 to 8 response options. Each of the subscales yielded satisfactory reliability (Cronbach's $\alpha < .80$), with the exceptions of the Islamic Religious Duty, Obligation, and Exclusivism and Punishing Allah Reappraisal subscales (Cronbach's $\alpha = .77$). The authors found a number of significant relationships between the PMIR subscales and relevant mental health and other variables that gave evidence of convergent validity, (e.g. significant correlations with religious well-being), discriminant validity (e.g. non-significant correlations with social desirability), and predictive validity (e.g. significant correlations with purpose in life). See Abu-Raiya, et al. (2008) for further details.

2.1.3 Data Collection Procedure

Data collection took place over a period of several months. Through Qualtrics' online survey system, each participant was able to log-in and respond to the items in the Qualtrics survey in the comfort of their own home and within their own time frame. Participants were not allowed to take more than 3 hours to complete the survey and were required to complete the survey in one session, meaning that they could not leave the survey inactive for longer than 30 minutes or their session would end. As such, participants could take their time in completing the survey, but had to complete the survey in one sitting for the sake of reliability of measurement.

Participants were required to meet the following criteria in order to participate: they had to be 18 years old or older, be Muslim, be a United States resident, and agree to informed consent. Qualtrics was instructed to only accept participants that met these criteria and all responses that did not meet all of these criteria were excluded. Once data was collected, it was assessed for errors, such as time errors, data omission errors, and attention errors. Participants whose data contained errors were not included in data analysis (83 participants in total). We excluded some participants due to time errors; survey times that were below 7 minutes, 30 second (approximately 3 seconds per item) were considered to be not enough time to complete the survey accurately, and were excluded from analysis. We also excluded participants due to data omission errors. Such errors included if participants skipped sections of the survey or put the same answer to many consecutive questions (sometimes called “straight-lining”, i.e., selecting the same answer option for 10 items in a row). Finally, we excluded participants due to attention errors if they failed attention check questions designed to ensure they were engaged in the survey (i.e., providing a response for an item that reads “Please leave this item blank”).

For this study, which includes factor analyses and other complex statistical procedures, a large sample size was required. Therefore, we instructed Qualtrics to collect data from at least 150 participants who are converts to Islam and at least 150 participants who are non-convert Muslims.

2.2 Analyses

Converts and non-converts may experience, practice, and believe in Islam in fundamentally different ways, and testing this notion requires a comparison of measurement models across these two groups. In order to test the factor structure of Islamic religiousness as measured by PMIR items, and to assess whether the Islamic religiousness is essentially the same

for converts and non-converts, we used several stages of factor analyses. The first step in this process was to directly test the factor structure from the PMIR as proposed by Abu-Raiya, et al. (2008) within our sample. For this step, we conducted several confirmatory factor analyses (CFA) using the factor structure suggested in Abu Raya et al.'s PMIR (2008) in order to assess its model fit for our sample as a whole, as well as for converts and non-converts separately. A confirmatory factor analysis measures the extent to which a theorized model is a good fit for explaining relations among variables; here, we use it to assess Abu Raiya et al.'s (2008) hypothesized factor structure. Because global model fit is not always indicative of how each individual latent variable represents the manifest variables it is hypothesized to represent, we also used CFAs to assess the fit of individual factors of the PMIR's model.

To further explore differences between convert and non-convert Islamic religiousness, we conducted several exploratory factor analyses (EFAs). Unlike a CFA, an EFA does not leverage any *a priori* assumptions about how variables will form factors. Using EFAs to assess factor structure for Islamic religiousness for both converts and non-converts enables us to explore possible differences in the configuration of factors between these groups (Kline, 2005; Vandenberg & Lance, 2000).

According to Vandenberg and Lance (2000), it is critical to assess whether measurement invariance (sometimes called factorial invariance or measurement equivalence) is present between groups. Measurement invariance occurs when a set of indicators measure a construct in the same way across different groups or samples. In this study, measurement invariance would occur if we find the same structure of latent variables represents correlations between items of the PMIR (the manifest variables that are directly measuring Islamic religiousness) for both converts and non-converts. Without measurement invariance, there is

construct bias, which occurs when a set of indicators measures a construct differently in one group or sample than another (Kline, 2005). In the context of this study, evidence of construct bias would mean that Islamic religiousness is really a different construct (or set of constructs) between converts and non-converts. Kline notes that if construct bias is present, then “group membership moderates the relation between the indicators [here, PMIR items] and factors [here, latent variables of Islamic religiousness] specified in the measurement model” (2005, p. 295).

The first step in establishing measurement invariance is by confirming there is configural invariance, which refers to factor structure being the same across groups (Steenkamp & Baumgartner, 1998). Without configural invariance, the same set of manifest variables are represented by different latent variables from one group or sample to another.

Because we have a large number of items (60) per group, we also used EFA to explore the possibility that structure could differ in complex ways across groups. Comparing EFAs for converts and non-converts allowed us to assess whether configural invariance might fail between converts and non-converts due to unforeseen complexities in each group’s religiousness. Fitting a model for each group using multiple EFAs is an effective way to explore differences in factor configuration because these models are unrestricted in how latent factors represent the correlations between manifest variables (Widaman, Ferrer, & Conger, 2010). Therefore, this series of analyses enabled us to determine if the latent variables representing the religiousness of converts to Islam differed from our a priori models in complex, or unplanned ways from that of non-convert Muslims, and if so, how they differed.

3 RESULTS

3.1 Sample Demographics

The demographics for our sample yielded a few initial insights into differences between convert and non-convert Muslims in the US (see Table 2 below). First, the convert sample had higher proportions of both whites and blacks than the non-convert sample. Additionally, in terms of gender distribution, the convert sample has fairly equal proportions of males and females, whereas the non-convert sample has more females than males. Finally, there are some educational differences between converts and non-converts, such that converts were more likely than non-converts to attend, but not necessarily finish college, and converts were less likely than non-converts to have a higher education degree such as an M.D. or J.D.

Table 2: Demographic information for converts and non-converts: Race

Race	<i>White or Caucasian</i>	<i>Black or African American</i>	<i>Native American or Alaskan Native</i>	<i>Asian American or Pacific Islander</i>	<i>Hispanic or Latinx</i>	<i>Other</i>	Race, specified	<i>Only White</i>	<i>At least one non- White category</i>
Convert Sample (N=177)	55%	30%	5%	5%	10%	2%	Convert Sample (N=177)	62%	38%
Non- Convert Sample (n=179)	41%	11%	3%	9%	10%	11%	Non- Convert Sample (n=179)	49%	49%

Table 3: Demographic information for converts and non-converts: Gender

Gender	<i>Male</i>	<i>Female</i>	<i>Transgender, Other, or Prefer not to answer</i>
Convert Sample (N=177)	51.97%	48.03%	0.00%
Non-Convert Sample (n=179)	40.22%	59.78%	0.00%

Table 4: Demographic information for converts and non-converts: Education level

Education	<i>Never graduated high school</i>	<i>High school diploma or equivalent (GED)</i>	<i>Some college, but no degree</i>	<i>2-year or associate's degree</i>	<i>4-year college degree</i>	<i>Higher education degree (e.g., MD, JD, PhD)</i>
Convert Sample (N=177)	2%	11%	28%	15%	31%	14%
Non-Convert Sample (n=179)	1%	17%	13%	10%	35%	24%

3.2 Confirmatory Factor Analyses

3.2.1 PMIR Factor Structure

We used confirmatory factor analysis (CFA) to assess whether the factor structure described by Abu Raiya, et al. (2008) was accurate in organizing key elements of Islamic religiousness. The first CFA that we fit tested if the PMIR model of Islamic religiousness showed good fit with the data we had collected. This first CFA (Model 1) included all items from all participants, that is, both converts and non-converts (N= 356). The model showed poor fit (see Table 3). Part of why Abu Raiya's factor structure is not a more accurate measurement of Islamic religiousness could be that they derived their factors from principal components analysis (PCA). This is problematic because, among other reasons (see Widaman, 2007), PCA treats items as though they are linear and continuous, when the items in the PMIR are in fact categorical (ordinal). Using MPlus (Muthen & Muthen, 2011), we were able to adjust our factor analyses for categorical data, which improved the accuracy of our models.

In order to observe any differences from Abu Raiya, et al.'s (2008) proposed factor structure between converts and non-converts, we fit two additional CFAs with converts (Model

2; n=177) and non-converts (Model 3; n=179) separately. The results indicated that Abu Raiya et al.'s (2008) proposed model had poor global fit for both converts and non-converts (see Table 3). The results also indicated that Abu Raiya et al.'s (2008) proposed factor structure showed similar values for local and global fit in samples of both converts and non-converts (see Table 3), demonstrating that their model was not a poor fit for one group and a good fit for the other.

*Table 5: CFA results: Model fit statistics for Models 1-21**

Model Number	Model Descriptor	χ^2	χ^2, p -value	Degrees of Freedom	CFI	TLI	RMSEA	WRMR
1	Muslims Overall	4700.39	<.001	1362	0.850	0.843	0.083	2.28
2	Non-Converts	3116.66	<.001	1362	0.862	0.855	0.085	1.92
3	Converts	2750.82	<.001	1362	0.883	0.877	0.076	1.68
4	IB	12.04	0.034	5	0.992	0.984	0.063	0.48
5	IB Converts	5.71	0.335	5	0.999	0.997	0.028	0.36
6	IB Non-Converts	7.36	0.195	5	0.994	0.988	0.051	0.32
7	IEPU	979.85	<.001	77	0.916	0.900	0.181	2.40
8	IEPU Converts	511.29	<.001	77	0.917	0.902	0.179	1.86
9	IEPU Non-Converts	561.24	<.001	77	0.929	0.916	0.187	1.84
10	IPRCI	1086.06	<.001	77	0.833	0.802	0.192	2.81
11	IPRCI Converts	356.80	<.001	77	0.894	0.874	0.143	1.50
12	IPRCI Non-Converts	897.97	<.001	77	0.828	0.796	0.244	2.67
16	IRS	54.75	<.001	9	0.993	0.989	0.119	0.65
17	IRS Converts	34.09	<.001	9	0.996	0.994	0.125	0.53
18	IRS Non-Converts	31.14	<.001	9	0.990	0.983	0.117	0.57
19	IRDOE	1249.69	<.001	54	0.798	0.753	0.249	3.60
20	IRDOE Converts	730.61	<.001	54	0.780	0.731	0.266	2.56
21	IRDOE Non-Converts	641.12	<.001	54	0.822	0.783	0.246	2.67

*Note: The PAR subscale (Models 13-15) had only three items and was just-identified (i.e., saturated, $df=0$), so it is not reported here.

3.2.2 Fit of Individual PMIR Factors

The results of these CFAs (Models 1-3) also indicated that some proposed factors had better local fit than others, namely, that the PMIR factors IPRCI and IRDOE show poor local fit and might need to be altered. Consequently, we fit a series of CFAs (Models 4-21) testing the quality of each individual PMIR factor as described by Abu Raiya, et al. for both groups together, converts alone, and non-converts alone. The results of these analyses confirmed that,

while some factors are appropriate measures of facets of Islamic religiousness, others may not be. As expected, the models for the PMIR factors IPRCI and IRDOE showed poor fit statistics for both groups together, converts alone, and non-converts alone (see Table 3). The models for the PMIR's PAR factor (Models 13-15) could not be estimated due to the low number of items representing this factor (three items yielding a just-identified model with zero degrees of freedom).

3.3 Exploratory Factor Analyses

3.3.1 *Non-Convert vs. Convert Religiousness: Similar Structures, Differing Complexity*

Because the results of the CFAs indicated that some items and factors of the PMIR had poor local fit, and that the overall global fit of the model was also fairly poor, we fit a series of exploratory factor analyses (EFAs; Models 22 and 23) to determine if other factor structures may have better fit. We fit EFAs using models with five, six, and seven factors for both converts and non-converts. For both converts and non-converts, a 7-factor model had the best global fit (see Table 4, note in particular the decrease in χ^2 scores when using nested model tests). To see the factor loadings for the 7-factor model for converts and non-converts, please contact the author. To see the factor correlations for the 7-factor model for converts and non-converts, please contact the author.

Table 6: Fit statistics for 5-, 6-, and 7-factor EFA with converts and non-converts

Model Group	Number of Factors	χ^2	$\chi^2, p\text{-value}$	Degrees of Freedom	CFI	TLI	RMSEA
Non-Converts	5	1936.46	<.001	1171	0.940	0.926	0.060
Non-Converts	6	1674.17	<.001	1122	0.956	0.944	0.052
Non-Converts	7	1468.52	<.001	1074	0.969	0.959	0.045
Converts	5	1865.73	<.001	1171	0.941	0.928	0.058
Converts	6	1641.71	<.001	1122	0.956	0.944	0.051
Converts	7	1478.67	<.001	1074	0.966	0.954	0.046

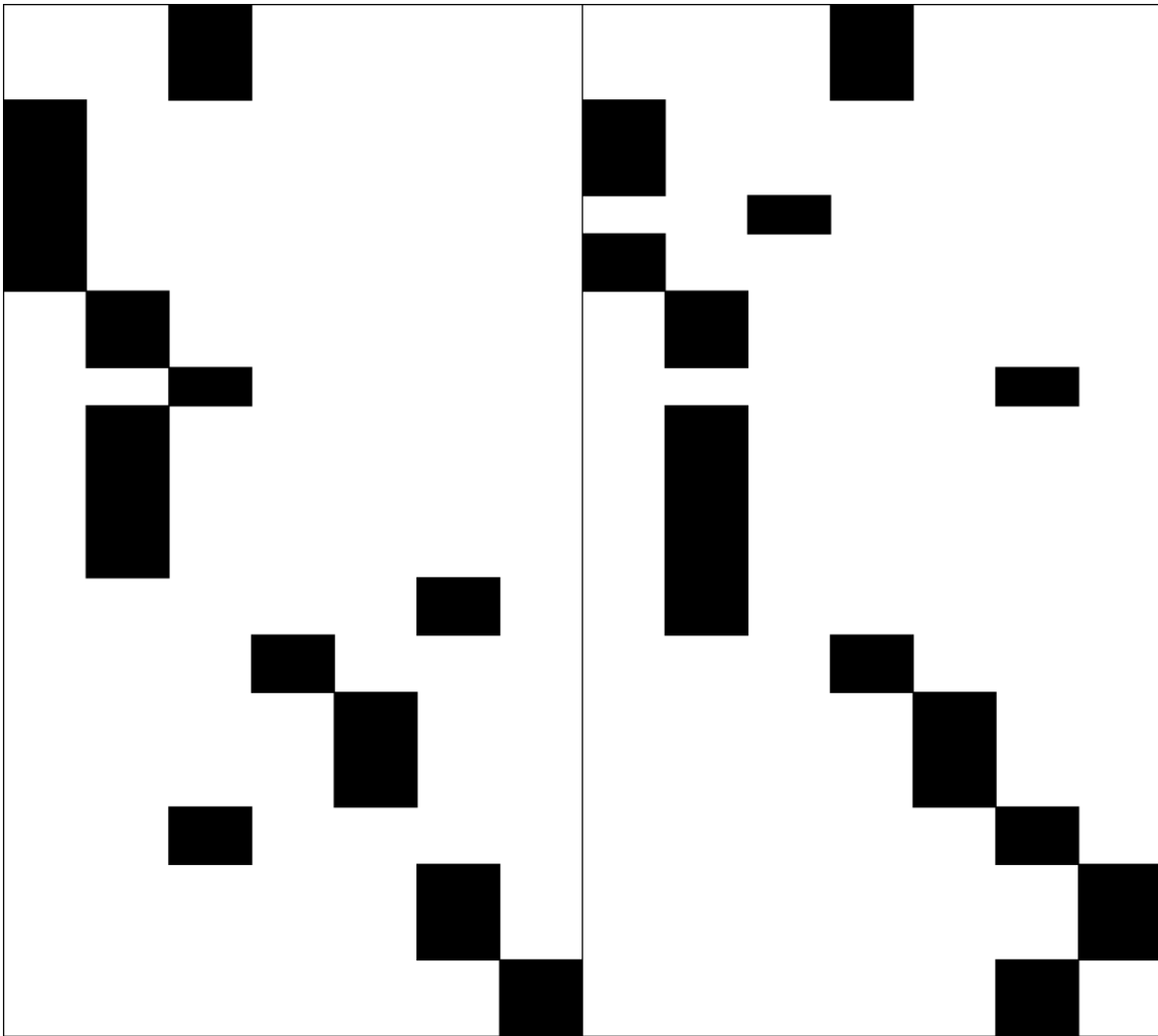


Figure 4: “Barcode” visualization for EFA results, showing non-convert Muslims’ religiousness on the left and convert Muslims’ religiousness on the right. As indicated, the overall structure of latent factors that are represented by PMIR items is similar overall. Although the results indicate that overall factor structure is relatively similar for both

converts and non-converts, there are some notable differences that indicate configural invariance between groups failed (see Figure 4 above). That is, although the overall factor structure for religiousness is similar in many ways, Islamic religiousness differs structurally between non-converts and converts in essential ways that should not be overlooked. To begin, the distribution of factor loadings was more complex for non-converts than it was for converts, as shown in Figure 5. Figure 5 displays the distributions of items with factor loadings of .40 or greater over

the seven factors that represent Islamic religiousness for non-converts and converts respectively (.40 is arbitrarily chosen to provide visual contrast). As shown, far more items load above .40 for multiple factors for non-converts (21 items cross-loaded) than for converts (6 items cross-loaded). This indicates that some constructs of Islamic religiousness are *more complex* for non-converts than for converts and that some constructs of Islamic religiousness may hold multiple levels of meaning for non-converts, but not for converts. For example, the item IPRCI5 reads, “When I have a problem in life, I seek Allah’s love and care”, with 4 response options ranging from “I do not do this at all” to “I do this a lot”. For converts, this item is strongly loaded on one factor only (.790), while for non-converts it is loaded fairly equally between two factors (.593 and .530). Figure 5 depicts the relative strength of factor loadings across factors for non-converts (left) and non-converts (right), further demonstrating the greater level of complexity in non-convert religiousness.

factors. Some latent factors are represented by manifest variables of Islamic religiousness in very similar ways for both non-converts and converts. However, there are some differences between non-converts and converts in how latent factors are represented by manifest variables. These similarities and differences are described below, and will be elaborated upon in the discussion section.

Non-Convert Factors

1. *Islamic Ethics*: For non-converts, the first factor included items that were a part of the PMIR's Islamic Ethical Principles and Universality (IEPU) factor. For our model, however, only the first ten of these items loaded highly with Factor 1. These items correspond to Islamic ethical principles relating to both approach behaviors and attitudes (e.g., "Islam is the major reason why I help the needy and the orphans") and avoidance behaviors and attitudes (e.g., "Being Muslim is the major reason why I do not drink alcohol"). Unlike the structure Abu Raiya, et al. found via PCA, this factor is statistically distinct from items measuring Islamic universality. We call this factor Islamic Ethics.

2. *Islamic Connectedness*: The second factor included items from the PMIR's IEPU factor and the PMIR's Islamic Positive Religious Coping and Identification (IPRCI) factor. For our model, the last four items of the IEPU loaded highly for factor 2 and IPRCI items 3-11 loaded highly for factor 2. These items capture variance in the constructs of Islamic Universality (e.g., "I consider every Muslim in the world as my brother or sister") and Islamic Positive Religious Coping (e.g., "When I face a problem in life, I seek Allah's love and care") respectively. Items that measure Islamic Universality capture the bonds between Muslims and other Muslims through their shared beliefs and spiritual connection to Allah. Likewise, items measuring Islamic Religious Coping capture variance in Muslims' connections to Allah as a way to transcend and

overcome difficult earthly circumstances. Because both constructs emphasize two different outcomes of a deep spiritual connection with Allah, we call this factor Islamic Connectedness.

3. *Islamic Devotion:* Factor 3 included items from the PMIR's Islamic Beliefs (IB) factor, the PMIR's IPRCI factor, and the PMIR's Islamic Religious Duty, Obligation, and Exclusivism (IRDOE) factor. Each of the five items of Islamic Beliefs loaded highly for factor 3, as did the first two items of the IPRCI, and the first three items of the IRDOE. These items capture variance in Muslims' level of belief in central Islamic tenets (e.g., "I believe in the existence of paradise and hell") and variance in frequency of performing religious duties (e.g., "Except in prayers, how often do you read or listen to the Holy Qura'n"; "How often do you go to the masjid?²") respectively. Although the Islamic Beliefs items measure level of belief while the religious duty items measure level of practice, both sets of items measure the extent to which a Muslim is aligned with the laws of Islam as set by Allah. Therefore, we call this factor Islamic Devotion.

4. *Punishing Allah Reappraisal:* Factor 4 is made up of the items from the PMIR's Punishing Allah Reappraisal (PAR) factor. Although for non-converts there are other items cross-loaded on factor 4, their loadings are relatively weak compared to the high loadings for PAR items for factor 4 (see Figure). These items capture the extent to which Muslims attribute negative life events to punishment from Allah (e.g., "When I face a problem in life, I believe I am being punished by Allah for bad actions I did"). This construct has historically been included as a component of negative religious coping (Pargament, Smith, Koenig, & Perez, 1998), but since this factor does not address any other components of negative religious coping, we retain the name Punishing Allah Reappraisal for this factor.

² *Masjid* is the original Arabic word for mosque; mosque is an Anglicization of *masjid*.

5. *Islamic Religious Struggle:* Factor 5 is composed of the six items in the PMIR's Islamic Religious Struggle factor. These items capture the extent to which Muslims struggle to believe in some of the core tenets of Islam and that it is beneficial to believe in Islam (e.g., "I doubt that the Holy Qura'n is the exact word of Allah"). Because this factor corresponds directly with the factor for Islamic Religious Struggle as described by Abu Raiya, et al. in the PMIR, we also use the name Islamic Religious Struggle for this factor.

6. *Islamic Internalization:* The sixth factor included some items from the PMIR's IPRCI factor and the PMIR's IRDOE factor. The IPRCI items that had high loadings for this factor (items 12-14) measure variance in the Islamic religious identification (e.g., "I read the Holy Qura'n because I find it satisfying") and the IRDOE items that had high loadings for this factor (items 4-8) measure variance in Islamic religious introjection, which Abu Raiya, et al. refer to as obligation (e.g., "I go to the masjid because others would disapprove of me if I did not"). The constructs of religious identification and religious introjection are both forms of religious internalizations. In identification, a person is intrinsically motivated to internalize their religious beliefs, which they choose to value, whereas in introjection a person extrinsically motivated to internalize the religious beliefs for which they receive approval (Ryan, Rigby, & King, 1993). This factor includes items that capture variance in both identification as well as introjection; because the two means of religious identification are included, we call this factor Islamic Internalization.

7. *Islamic Exclusivism:* Factor 7 included four items from the PMIR's IRDOE factor. All four of these items that had high loadings for this seventh factor (items 9-12) pertained to the construct that Abu Raiya, et al. call Islamic Exclusivism. These items capture variance in the extent to which Muslims feel that Islam is the 'true' faith, or that Islam must be entirely followed

(e.g., “Islam is the best way to worship Allah, and should never be compromised”). As a result, we call this final factor Islamic Exclusivism.

Converts

1. *Islamic Ethics*: For converts, the first factor included items that were a part of the PMIR’s Islamic Ethical Principles and Universality (IEPU) factor. Unlike converts though, only IEPU items 1 through 5 and items 8 through 10 (eight items total) loaded highly for this factor. These items correspond to Islamic ethical principles relating to both approach behaviors and attitudes (e.g., “Islam is the major reason why I help the needy and the orphans”) and avoidance behaviors and attitudes (e.g., “Islam is the major reason why I do not consider committing suicide”). However, for converts, IEPU items 6 and 7 did not have high loadings for this factor (see factor 3 below). Unlike the structure Abu Raiya, et al. found via PCA, this factor is statistically distinct from items measuring Islamic universality. We call this factor Islamic Ethics.
2. *Islamic Connectedness*: The second factor included items from the PMIR’s IEPU factor and the PMIR’s Islamic Positive Religious Coping and Identification (IPRCI) factor. For our converts, the last four items of the IEPU loaded highly for factor 2 and IPRCI items 3- 14 loaded highly for factor 2. These items capture variance in the constructs of Islamic Universality (e.g., “I consider every Muslim in the world as my brother or sister”) and Islamic Positive Religious Coping and Identification (e.g., “When I face a problem in life, I seek Allah’s love and care”) respectively. Items that measure Islamic Universality capture the bonds between Muslims and other Muslims through their shared beliefs and spiritual connection to Allah. Likewise, items measuring Islamic Religious Coping and Identification capture variance in Muslims’ connections to Allah as a way to transcend and overcome difficult earthly circumstances. Because both

constructs emphasize two different outcomes of a deep spiritual connection with Allah, we call this factor Islamic Connectedness.

3. *Islamic Diet*: For converts only, a factor emerged for which only two items had high loadings– IEPU items 6 and 7. However, two other items (IPRCI 7 and 10) were also cross-loaded for this factor, but loaded more highly on the *Islamic Connectedness* factor. IEPU items 6 (“Islam is the major reason why I do not eat pork”) and 7 (“Islam is the major reason why I do not drink alcohol”) both measure variance in the extent to which Muslims agree that Islamic law restricts their consumption of pork and alcohol. Interestingly, these items form a separate factor for converts, but do not for non-converts. Potentially, this is because removing alcohol and pork from one’s diet is a profound lifestyle change for many converts, particularly because it is in such stark contrast with mainstream American culture. For some, foregoing alcohol and pork is a substantial sacrifice to demonstrate commitment to Islam, and it is likely that these items are especially salient for converts. Because this factor represents a specific ethical obligation for Muslims to avoid *haram* consumables, we call this factor Islamic Diet.

4. *Linear Belief*: For converts, factor 4 is made up of the items in the PMIR’s Islamic Beliefs and Punishing Allah Reappraisal factors. These items capture the extent to which Muslims believe in central Islamic tenets (e.g., “I believe in the existence of paradise and hell”) and the extent to which they appraise negative life events as punishment from Allah (e.g., “When I face a problem in life, I believe I am being punished by Allah for bad actions I did”) respectively. The constructs in the IB and PAR items were not a part of the same factor for non-converts, but they are for converts. For converts, there may be a greater conflation of fear of Allah with belief in Islamic tenets. Potentially, converts may expect life after conversion, that is, a life of faith in Islam, to be easier than life without faith; therefore, converts may see difficulties

in life as the outcome of a lack of belief. If this is the case, converts may assume a more linear, cause-and-effect relationship between their level of belief and their life difficulty. For these reasons, we call this factor Linear Belief.

5. *Islamic Religious Struggle*: Factor 5 is composed of the six items in the PMIR's Islamic Religious Struggle factor. These items capture the extent to which Muslims struggle to believe in some of the core tenets of Islam and that it is beneficial to believe in Islam (e.g., "I doubt that the Holy Qura'n is the exact word of Allah"). Because this factor corresponds directly with the factor for Islamic Religious Struggle as described by Abu Raiya, et al. in the PMIR, we will also use the name Islamic Religious Struggle for this factor.

6. *Islam-Specific Duty*: For converts, the sixth factor included some items from the PMIR's IPRCI factor and the PMIR's IRDOE factor. The IPRCI items that had high loadings for this factor (items 1 and 2) and IRDOE items 1-3 measure variance in frequency of performing religious duties (e.g., "Except in prayers, how often do you read or listen to the Holy Qura'n"; "How often do you go to the masjid?"). Other items from the IRDOE (items 9-12) that had high loadings for this factor measure the extent to which Muslims believe that Islam is the 'true' faith, or that Islam must be entirely followed (e.g., "Islam is the best way to worship Allah, and should never be compromised"). Together, these constructs demonstrate how Muslim converts connect dutiful practice with a relatively inflexible understanding of spiritual realities. This factor represents the connection between performing practices specific to Islam based on beliefs that are uniquely Islamic. Consequently, we call this factor Islam-Specific Duty.

7. *Islamic Introjection*: For converts, the seventh and final factor was composed only of IRDOE items (items 4-8) that measure variance in Islamic religious introjection, which Abu Raiya, et al. refer to as obligation (e.g., "I go to the masjid because others would disapprove of

me if I did not”). As discussed previously, religious introjection is a form of religious internalization in which a person is extrinsically motivated (i.e., when they receive external approval) to internalize their religious beliefs (Ryan, Rigby, & King, 1993). Therefore, we call this factor Islamic Introjection.

As detailed above, the factors *Islamic Ethics*, *Islamic Connectedness*, and *Islamic Religious Struggle* are represented by similar PMIR items for both non-converts and converts. The composition of other latent factors, however, differs more substantially between non-converts and converts, such that converts may see their religiousness as being more impacted and defined by observing Islamic dietary restrictions, closely connecting lack of faith and punishment, associating religious duties with doctrinal exclusivism, and feeling obligated to act more religiously than non-convert Muslims.

4 DISCUSSION

The first major finding of this study is that, based on the results of our confirmatory factor analyses, the factor structure put forth by Abu-Raiya, et al. (2008) may not be an accurate representation of Islamic religiousness. In particular, we found evidence that the IPRCI and IRDOE factors described by Abu-Raiya, et al. (2008) have poor fit. One explanation for this is that both the IPRCI and IRDOE are represented by PMIR items that span several constructs. The items measuring religious duties/practices, positive religious coping, and religious identification all represent the proposed IPRCI factor and items measuring religious duties/practices, religious introjection, and religious exclusivism all represent the proposed IRDOE factor. It seems, to use the IRDOE factor as an example, that these constructs do not co-vary closely enough to represent the same latent factor. However, although the proposed factor structure of the PMIR may not be

good fit, the items of the PMIR as a scale do seem to be valuable for capturing variance in Islamic religiousness.

The findings of our exploratory factor analysis have implications for understanding how convert's religiousness compares to non-converts religiousness in Islam. From a statistical measurement standpoint, these results tentatively cast doubt on the assumption that Islamic religiousness is the same for converts and non-converts. That is, just as it is statistically inappropriate to use the same latent factor structure to measure the religiousness of people of different faiths (i.e., using the same factors to represent Islam and Christianity), it may also be inaccurate to use the same latent factor structure to account for religiousness of converts and non-converts from the *same* faith. This study provides evidence that, although Muslim converts' religiousness is largely similar to that of Muslim non-converts, its structure is different in measurable ways that are likely to be psychologically important. Although it remains to be seen if these statistical differences also translate to practical, real-world differences, our results provide evidence that the components of religiousness are different between convert and non-convert Muslims. One implication of this study is that it is possible that this is also the case for other faiths; more research in this area is required.

4.1 Similar Factors

In regards to Islamic religiousness in particular, the first thing to take away from the results is that, overall, the factor structures of religiousness for Muslim converts and Muslim non-converts are similar. Figure 4 (see Results section) provides a visual illustration of the factor structures of non-converts and converts. As shown, the pattern of items with their associated factors is largely the same in each group of respondents. This is unsurprising, given that each group is comprised of Muslims who, for the most part, experience and partake in their faith in

similar ways (i.e., although there are important differences, both converts and non-converts are still all Muslims). *However*, although they are similar overall, they are different in important ways that render direct comparison of religiousness between converts and non-converts a dubious proposition at best.

The results of our analyses show that the factors *Islamic Ethics*, *Islamic Connectedness*, and *Islamic Religious Struggle* are similar between converts and non-converts. This provides some support that these elements of Islamic religiousness have generally similar composition, regardless of whether a person was raised in the Islamic faith or converted to Islam.

Generally, our results suggest that we might not expect converts to differ from non-converts in how their Islamic ethical principles are represented. The majority of PMIR items that measure Islamic ethical principles pertain to ethical ideals that Americans generally consider moral regardless of religious beliefs, such as showing respect to parents, helping relatives and neighbors, and not committing suicide. Although these items reflect Islam's specific emphasis on these values, adhering to the principles these items represent likely does not require a convert to make a major life change or sacrifice. There are, however, two notable exceptions. The 6th and 7th items of the PMIR's IEPU scale measure the extent to which a Muslim's faith limits them from eating pork and drinking alcohol, respectively. For non-converts, these items represent the *Islamic Ethics* factor. For converts, however, these 2 items (cross-loaded with several other items, see Tables 7 and 8) form an independent factor, *Islamic Diet*. This is important, because it indicates that the ethical obligation to avoid pork and alcohol is a distinct component of Islamic religiousness for converts but not for non-converts. For non-converts, who have always been a part of the Muslim faith, the ethical principle of abstaining from pork and alcohol is likely to have less psychological salience than it does for the convert, who, at one point or another, was

not a Muslim and likely did not proscribe the consumption of pork or alcohol. The fact that these two items form their own factor for converts is not surprising; for many converts, some of the first major lifestyle changes they make as part of conversion are abstaining from pork and alcohol (Kose, 1996).

The *Islamic Connectedness* factor, which includes items pertaining to Islamic Universality, Positive Religious Coping, and Identification, is represented by the same PMIR items for converts and non-converts with the exception of 3 items. Generally, we conclude that converts share many similarities with non-converts in how universality and positive religious coping are represented as components of their religiousness. That is, variance in feelings of universality as Muslims and reliance on faith in Allah to cope with challenges are similarly represented for all Muslims. The composition of this factor does differ between converts and non-converts in that, for converts, 3 items measuring identification were part of *Islamic Connectedness*, whereas for non-converts they were part of the *Islamic Internalization* factor. These items measure to what extent Muslims internalize their beliefs because they find them personally valuable or satisfying (i.e., identification; Ryan, Rigby, & King, 1993). However, these items also describe how Muslims connect with Allah through practices like reading the Holy Qura'n and fasting. It seems that, for non-converts, these items represent internalizing their beliefs, whereas for converts, they are a part of their connectedness to Allah overall.

Of all the factors our analyses yielded, only *Islamic Religious Struggle* was represented by exactly the same items for both converts and non-converts. For both converts and non-converts then, it seems that struggling with doubts about their faith is an important component of what it means to be a Muslim.

4.2 Differing Factors

While the overall pattern of factors was similar between converts and non-converts, individual factors differed in their makeup between these two groups. The results section of this paper describes the loadings of specific items for latent factors in more detail, but this section will discuss general differences in Islamic religiousness between converts and non-converts.

Belief is a central component of all religions (Hood, et al., 2009), and Islam is no exception. The importance of belief makes it a keystone in understanding how converts and non-converts differ in the makeup of their religiousness. Our results suggest that the role of belief in Islamic religiousness, and its manifestations, are slightly different for converts and non-converts. For converts, the same factor (*Linear Belief*) that is represented by items measuring level of belief in Islam is also represented by the items measuring the extent to which a Muslim believes Allah punishes them for their sins through the difficulties of life. For non-converts, the same factor (*Islamic Devotion*) that is represented by Islamic beliefs is also represented by the frequency of practices that show commitment and faith to Islamic beliefs. This seems to reflect a difference in how belief plays a part in religiousness; for converts Islamic belief is paired with the belief that Allah will punish them if their Islamic belief is weak; but for non-converts Islamic belief is paired with practices that both reflect and reinforce belief. Although this result is by no means conclusive, it does provide evidence that belief in the tenets of Islam is different for converts, and it may be that convert's belief is more connected to worldly outcomes (i.e., life's difficulties as spiritual punishments).

Practice is often regarded as another major component of religion (Hood, et al., 2009). Our results provide evidence that converts and non-converts may incorporate religious duties and practice into religiousness differently. For converts, the factor (*Islam-specific Duty*) that is

represented by common Islamic religious duties and practices is also represented by Islamic exclusivism. A tentative conclusion to be drawn from this connection is that, because the items measuring these concepts align on the same factor, converts are motivated to carry out religious duties and practices because of their belief that Islam is the only true faith. Religious practices for non-converts, on the other hand, are represented by the same factor that represents their belief in Islam's main tenets. As discussed previously, non-converts' beliefs and practices as Muslims are closely linked. For converts, however, it seems that practices are associated with belief that Islam is the 'right' religion, rather than a belief in Islam itself. This is likely reflective of converts' search for meaning: it may be more important to a convert that the reason they are participating in the practices of the religion they have joined is because that religion is 'right' and that it exclusively offers the truth.

Another importance difference between convert and non-convert religiousness is that the role of religious internalization appears to be comprised of different ideas. As mentioned previously, religious internalization is composed of identification and introjection (Ryan, et al., 1993). For converts, items measuring identification represent the *Islamic Connectedness* factor, but items measuring introjection represent its own factor, *Islamic Introjection*. For non-converts though, items measuring both identification and introjection represent one factor, *Islamic Internalization*. The fact that, like *Islamic Diet*, *Islamic Introjection* is an independent factor unique to converts provides evidence that this introjection is an especially salient component of Islamic religiousness for converts, but not necessarily non-converts. Converts may more readily internalize their beliefs based on the attitudes and expectations of others, and thereby feel obligated to maintain their Muslim beliefs and practices rather than intrinsically motivated to do so. This is reasonable; since any person who has converted to a religion is likely to, at some

point, rely on the attitudes, beliefs, and norms of established believers to become a functioning member of a faith. For Muslim converts, it is plausible that their beliefs and practices are more influenced by others than non-converts.

4.3 Complexity of Factors

One final point on differences between the structure of religiousness between converts and non-converts is that converts in general have less complex factor loadings than non-converts. As discussed in the results section and represented in Figure 5 (Results section), converts have far fewer cross-loaded items for each factor than do non-converts. While this does not mean that converts do not have a deep or complex understanding of their faith, this finding does provide evidence that convert religiousness may lack the complexity and maturity that non-converts are able to cultivate, on average, through a lifetime of faith specific to Islam. Although one might think converts are more pluralistic than non-converts due to their mixed-belief background, many researchers have made the claim that the process of conversion is, in part the search for a stable, salient, and clear-cut identity, meaning system, and worldview (Rambo, 1993). It is plausible that this finding reflects that converts' religiousness is more 'black-and-white' than non-converts' religiousness.

5 CONCLUSION

To date, very few empirical studies have compared components of religiousness between converts to a religion and non-converts of the same religion. Additionally, no study has compared religiousness between converts to Islam and non-convert Muslims.

However, this study has limitations that warrant consideration, and particularly on issues of measurement. The first measurement limitation of this study is that our data come from self-report items, and it is not clear to what extent response biases (e.g., social desirability) may have

influenced responses. Additionally, self-report responses do not always reflect actual beliefs and practices, particularly between attitudes and behaviors (Ajzen & Fishbein, 1977; Gorsuch, 1984). Other methods may be useful to complement measurement of Islamic religiousness in future research. Second, conversion is an ongoing process rather than a singular event (Rambo, 1993), and religiousness for both converts and non-converts is constantly evolving (Hood et al., 2009). Our current data is only cross-sectional; future research using longitudinal methods may provide further insights regarding similarities and differences in religiousness between converts and non-converts. Third, the similarities across items for factors that were similar between groups can be tested further in order to assess metric and scalar equivalence across groups. The current analysis, given its complexity, is offered as an initial exploration.

Despite such limitations, these results may be valuable in expanding knowledge on religious differences in converts and non-converts. Namely, this study establishes evidence for the following conclusions:

- 1) Islamic religiousness is fairly similar overall for converts and non-converts, but the specific structures for components of Islamic religiousness are different for convert and non-convert Muslims in measurable ways,
- 2) In terms of ethical principles, dietary restrictions play a special role for convert religiousness, but not for non-converts,
- 3) Religious identification is part of connecting to Allah for converts, but part of religious internalization for non-converts,
- 4) For converts, Islamic beliefs align with spiritual punishment; for non-converts, Islamic beliefs align with Islamic practices,

- 5) For converts, Islamic practices align with Islamic exclusivism; for non-converts, Islamic practices align with Islamic Beliefs;
- 6) The structure of Islamic religiousness is less complex for converts than for non-converts.

It is important for psychologists who study religion to approach measurement issues with an especial sense of rigor wherever possible (Gorsuch, 1984). Religiousness, including religious conversion, is difficult to measure due to the abstract nature of religious beliefs. Although religious beliefs and practices have measurable phenomena, psychologists who study religion have the difficult charge of defining constructs that hinge on belief in the unseen and supernatural. For instance, as stated previously, converts are frequently thought to be more zealous, or to believe more strongly, than non-converts. However, the findings of this study suggest it is difficult to fully assess differences in the level of Islamic belief between converts and non-converts when it seems they believe *differently*. It seems that, moving forward, researchers should measure religiousness with such considerations in mind.

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