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'GENERIC' VERSUS 'MATURE' MEASURES OF CHRISTIAN RELIGIOSITY

Comparing two Quantitative Measures of Religiosity**

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A wide range of survey-based tools has been developed to measure religiosity, although the most commonly applied approaches tend to focus on 'generic' interpretations of religiosity for practical and generalising reasons. However, these generic approaches have not always been satisfactory due to the lack of variation in responses and the potential for poor correlation between the generic religiosity measure and the overall impact of faith in respondents' lives, particularly in less secular contexts. This led us to explore whether there is a difference between measuring religiosity using a 'generic' versus a 'mature' approach using 227 Christian respondents on Bantayan Island, the Philippines. The findings suggest that overall religiosity among our respondents was high for both measures, that the measures are strongly correlated, and that there was no statistically significant difference between the scores for each scale; however, there was evidence to suggest that the two scales are examining different dimensions of religiosity. When correlating the two religiosity scores to other scales on our survey, there was no statistically significant difference among the correlations when using the mature or generic measure of religiosity. This has important implications for mental health and care research methodologies, for which we highlight the importance of using contextually appropriate measures that incorporate various dimensions of religiosity.

Keywords: religiosity, religiosity scale, mature religiosity, generic religiosity, measuring religiosity, comparing religiosity measures

1. Introduction

Numerous definitions of religion and spirituality exist within the various disciplines and literatures examining Christian, faith-based themes (Oman 2013). Many

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scholars distinguish between religiosity and spirituality[1], although there is no agreed understanding of the relationship between the two concepts (Kapuscinski & Masters 2010). Drane (2007, 3), for instance, even suggests that trying to define spirituality in ontological terms is a 'lost cause' because 'the language of spirituality is now being used so widely, and to indicate such disparate entities and experiences'. Other scholars are more pragmatic and define the terms by associating religion with institutionalised practices, whereas spirituality is often used to refer to individuals' personal beliefs, values, experiences and attitudes (Hood et al. 2009; Oman 2013; Kapuscinski & Masters 2010). A similar separation of the two concepts was found by Ecklund (2010), who surveyed the attitudes of 2,200 scientists. Fifty percent of the scientists surveyed saw themselves as religious and regularly attended churches or other religious meetings. Another twenty percent considered themselves to be spiritual, but were not religious and did not attend meetings. So they had clearly separated the idea of being religious as an institutional affiliation from the more personalized view of spirituality. Similar views are found amongst other scientists (White 2012).

Taking a holistic perspective that integrates aspects of both religion and spirituality, we use the term religion to refer to 'a system of beliefs and practices observed by a community, supported by rituals that acknowledge, worship, communicate with, or approach the [supernatural]'[2] (Koenig 2008, 11) along with the quest to live in accordance with these beliefs and practices (Gorsuch 2002). Religiousness, or religiosity, refers to the adherence to, the degree of involvement with, and the personal significance attached to these beliefs and practices (Levin & Schiller 1987; Schaffer 1996).

A wide range of survey-based tools has been developed to use and apply these various understandings of religiosity and spirituality, particularly from a Christian perspective (see Hill & Hood 1999; Cotton et al. 2010), although there is no widely accepted operational model (Berry et al. 2011; Paloutzian & Park 2013). Many of these tools examine different dimensions of religiosity, in an attempt to fully characterise an individual's or group's religiosity levels (Achour et al. 2015; Hernandez 2011; Oman 2013). Dimensions that have been identified include: *religious practices/behaviors/rituals*, such as church attendance or regularity of prayer; *acceptance of beliefs espoused by the religious tradition*, such as biblical literalism or belief in the afterlife; *religious experiences*, such as feeling the presence of the divine; *knowledge about the respondents particular religion*; *religious consequences*, such as benevolent behavior; *religious attitudes; religious meaning and transcendence; and*

[1] While there is debate over the use of the terms religion and spirituality as defined by scholars with a Christian worldview applying these terms to other faith traditions, since all of our research participants are Christian, we believe these definitions and approaches to measurement are appropriate.

[2] A number of definitions of religion exist and there is a debate over the validity of each type of definition (Oman 2013 for a good review) although we have used Koenig's (2008) definition as he argues this approach is useful in research contexts and also connects well with a number of the scales that have been operationalized to measure religiosity.

religious or spiritual commitment, such as the influence of beliefs on other life decisions (Glock 1959; Lenski 1961; Bainbridge 1997; Alwin et al. 2006; Koenig et al. 2001; Hill & Hood 1999). While several detailed religiosity scales have been developed, the most commonly applied approaches within studies measuring religiosity, including some mental health studies, tend to focus on the behavioral and/or belief approach, measuring religious practices such as attending church services, frequency of prayer, and observance of religious holidays (Cotton et al. 2010; Hood et al. 2009; Christiano et al. 2002). This has been defined as a 'generic' approach to measuring religiosity, due to the emphasis on practical and generalizable dimensions of religiosity (Bush 2007).

In our own research on the intersection between religion and natural disasters, we have attempted to measure the degree of religiosity of our participants to explore the nature of faith-based responses to disasters. The approaches used in our survey tools have often used 'generic' interpretations of religiosity to form the basis of measuring religiosity. However, they have not always been satisfactory due to the lack of variation in responses and the potential for poor correlation between the generic religiosity measure and the overall importance of faith in respondents' lives. This is particularly true in less secular contexts, where religious practices form an important component of the overall cultural practices of the region. For example, while conducting research after an earthquake disaster in Indonesia, one of the authors noted that a key religious scholar and leader in the community registered some of the lowest scores on the religiosity scale used in the research. When questioned, the religious leader noted that 'it is very hard to be a good Muslim' and that this was why he self-rated himself lower on the religiosity scale. While this relates to issues that have been identified with self-reported measures of religiosity, it also highlights the methodological issues of identifying who is 'most' religious (Hood et al. 2009).

This led our team of researchers to explore other approaches for quantitatively measuring religiosity; specifically, our research aimed to determine whether there is a difference between measuring religiosity using a 'generic' versus a 'mature' approach. To compare the more generic measures of religiosity previously used in our research with the Mature Religiosity Scale developed by de Vries-Schot and colleagues (2012), we used the case of the 2013 Typhoon Haiyan disaster on Bantayan Island, Philippines. The two religiosity scales were administered to Christian participants in conjunction with other scales developed to explore the relationships with God, with the community, and with the environment of those impacted by the disaster. The purpose of this paper is to examine the results of the generic versus mature measurements of religiosity and to determine whether such a measurement results in any differences in analysing the connections to other scales in our research.

2. Background Literature

According to ARAN (2013, 158), 'it is said that some people are religious, some are very religious, and some even more so'. This suggests a single continuum of religiosity, yet overall religiosity is more complex than one single dimension (BAINBRIDGE 1997; MCGUIRE 2002). If, as HOOD and colleagues (2009, 33) state 'there may be a hundred possible ways of being "religious" ', establishing who is 'most' religious becomes a difficult endeavour:

> Can we determine, for example, whether one who goes to church on a weekly basis but does not believe is more, or less, religious than one who never attends the mass but declares to be a devout believer? Is the one who meticulously performs the delicate nuances of the rite more or less religious than the one who disregards the details of worship but enthusiastically manifests signs of being infused with a holy spirit? (ARAN 2013, 165)

This issue is further complicated by the fact that some dimensions of religiosity may be highly correlated (i.e. scoring highly on one scale dimension is correlated with scoring highly on another scale dimension of religiosity) (HOOD et al. 2009), while other dimensions may not be highly correlated and seem to be separate constructs (ARAN 2013; MCGUIRE 2002). This leads to methodological questions regarding how to capture information on who is 'most' religious within a measure of religiosity.

2.1. Generic Religiosity Scales

Generic religiosity scales focus on measuring outward or external aspects of religion. This includes both behavioral aspects of religion, such as church attendance or engaging in regular prayer, and belief aspects of religion, such as believing in Jesus Christ (ARAN 2013). The generic approach can also involve respondents self-identifying how important faith is to their own lives, but without a specific context for understanding why faith is important or how respondents apply their religious beliefs within decision-making contexts.

Many of the scales or items used to measure religiosity focus on generic approaches (ALWIN et al. 2006). The difficulty of measuring personalised and subjective interpretations and meanings associated with religious experiences and then determining their overall religiosity has led to a focus on outward appearances of religiosity (ARAN 2013). For example, one of the most common generic measures of religiosity is the Duke University Religiosity Index (DUREL), which contains five items and was developed as a brief, yet comprehensive measure (including items related to self-reported religious commitment, organisational religious activities and behaviors, and non-organisational religious activities and behaviors) (LIU & KOENIG 2013). The use of this approach is supported by studies that have identified the importance of religious experiences, such as attendance at church services (ALWIN et al.

2006), and the sense of community provided by engaging in worship and prayer together (Joakim & White 2015). Furthermore, Kapuscinski and Masters (2010, 195) note that 'spiritual experience must have its "expressions" ', highlighting the importance of external or outward representations of religiosity[3].

Many studies use individual items to measure religiosity, often focusing on generic metrics such as church attendance or denominational affiliation (Hill 2013). For example, Cotton and colleagues (2010) found that almost two thirds of studies assessing the impact of religiosity on adolescent health outcomes measured religiosity using one or two items, with three of the four most common measures related to denominational affiliation, religious service attendance, and frequency of prayer. The low number of items used to measure religiosity is likely to impact the reliability of the religiosity score (Hill 2013) and leads to questions as to whether meaningful information can be derived from these more general or simple interpretations of religiosity (Berry et al. 2011).

A number of researchers have been critical of these generic approaches to measuring religiosity, with a variety of issues identified. Variations in responses based on cultural context can influence responses (Hill 2013; Abbott 2013, Schuman & Meador 2003). Participation in rituals and traditions is likely to vary by location; for example, church attendance is considered more important in some places as compared to others (Christiano et al. 2002). Ritual and behavioral questions are likely to be influenced by assumptions about how often it is expected that a religious person would engage in the described behavior and what this means in terms of religiosity; for example, is there a difference between a person who prays every day versus those who pray twice a day or perhaps just once a week (Storm, n.d.)? Furthermore, some researchers highlight how generic approaches provide limited understanding related to 'the *meaning* of the experience for the actor involved' (Yamane 2000, 179). Other identified issues include concerns that respondents have a tendency to over-represent their religious participation, particularly when responding to questions related to church attendance (McGuire 2002; Christiano et al. 2002), and approaches that 'categorize religion as a distinct sector of social life', with limited consideration of how religion and religiosity overlap and influence other aspects of daily living (Bush 2007, 1646). In fact, Sloan (2008) argues that the reductionist generic approach risks trivialising the transcendent.

The question remains as to whether the 'generic' approaches to quantitatively measuring religiosity, based mainly on external religious behaviors and beliefs, are appropriate methods for deducing overall religiosity levels.

[3] Kapuscinski and Masters (2010, 195) make this comment while highlighting the need for cognitive, affective, and behavioral components collectively: 'In the same way that any study of spirituality ignoring inner experience would be insufficiently narrow, excluding observable behavior seems unjustifiable from both psychological and theological perspectives'.

2.2. Mature Religiosity Scales

Mature measures of religiosity focus on how religion is used by individuals, in terms of what influence their religious beliefs have on various aspects of their lives, non-religious behaviors, and decision-making processes. This approach to religiosity is more internally focused, by attempting to measure the subjective experiences of the religious and the meaning that an individuals' faith brings to their lives.

The concept of intrinsic religiosity was first introduced by Gordon Allport in the 1960s, when he postulated that intrinsically oriented people view their religion as an end in and of itself, and as a framework for how to live their lives (Allport & Ross 1967; Masters 2013; Abbott 2013). In this sense, 'religion is purported to imbue life with meaning, provide coherence to life's events, and give life purpose'; it is 'interiorized' (Tongeren et al. 2013, 510; Levin & Schiller 1987). This intrinsic understanding of religiosity has been interpreted as a 'mature' form of religiosity, whereby individuals' cognition, self-definition, and behavior is heavily influenced and defined by their faith (Tongeren et al. 2013). This is contrasted with extrinsic religious orientations where people use their religion as a means to an end, for self-serving purposes such as protection or status (Allport & Ross 1967).

The intrinsic understanding of religiosity under the 'Religious Orientation Scale' has been one of the most frequently used approaches for assessing more mature religiosity values (Darvyri et al. 2014). The intrinsic approach is designed to gauge religiosity through a focus on measuring how people 'live their religion' (Cotton et al. 2010). Since the development of the Religious Orientation Scale, a number of other mature religiosity scales have been developed to expand the idea of 'mature' religiosity, including the Intrinsic Religious Motivation Scale, the QUEST scale, the Religious Maturity Scale, the Faith Maturity Scale, and the Spiritual Maturity Index (see Hill & Hood 1999 for a full review of various intrinsically motivated scales). These measures tend to 'emphasize values or behavioral manifestations of faith rather than belief content' (Hill 2013, 60).

We found the 'Mature Religiosity Scale' (MRS) recently developed by de Vries-Schot and colleagues (2012) to be of interest for our research. The MRS was developed from a psychological and theological perspective that focused on relationships, with three themes emerging from the 16 items: respondents' relationship with themselves, with God, and with their fellow humans. These relationships were explored around themes of ' "orientation to higher values out of a sense of inner freedom", "trust in God pervades the entire life", and "responsibility for fellow humans and creation" ' (de Vries-Schot et al. 2012, 59). After reviewing each item on the MRS, we were interested to determine whether this deeper, more intrinsic/mature interpretation of religiosity would result in any meaningful difference in our research results, compared to the more generic religiosity scale we had used previously.

2.3. Comparisons of Religiosity Scales

Only a small number of previous studies have compared the various methods of measuring religiosity. Alwin and colleagues (2006) examined methods for identifying religious identities, comparing a 'denominational' approach by identifying which denomination (mainly Protestant) to which the respondent belonged, to a self-identifying religious 'movement' approach (such as evangelical or fundamentalist); they found significant differences in how the two approaches categorised religious identity, although they concluded that the two approaches could be used to supplement each other. De Vries-Schot and colleagues (2012) compared the MRS to other measures of religiosity, including the DUREL, the Religious Well-Being sub-scale of the Spiritual Well-Being Scale, the Brief RCOPE scale, and the Receptive Coping scale, although this was primarily completed to examine the validity of the MRS, as opposed to comparing any differences the various religiosity scales had on the outcome of research results. De Vries-Schot and colleagues (2012) found a good correlation between the MRS and other religiosity scales, although the research did not specifically examine and compare the impact on other results and correlations (i.e. the research did not compare how religiosity scores would be different using a more generic measure of religiosity rather than the mature religiosity scale).

To our knowledge, and as noted in the literature, there is limited research comparing various religiosity measures with each other. There is a need to examine the interrelations between scales and to identify areas of conceptual overlap (Kapuscinski & Masters 2010). Thus, this paper fills a gap by comparing two measures of religiosity, a generic and mature approach; this comparison was completed by examining the correlation between the two scales, scale items with conceptual overlap, and the outcome of these different measures of religiosity on research findings. Afterwards, we will examine the implications this has for mental health research.

3. Methods

Our research used two survey tools to measure Christian religiosity in participants: a 'generic' religiosity scale and a 'mature' religiosity scale (exact wording for each question can be found in *Table 1*). The generic religiosity scale incorporated nine items from a variety of sources, including the Emotions and Beliefs after Trauma questionnaire[4] (Salcioglu 2004), and questions developed by the authors. Items ranged from a focus on beliefs (I believe the way to know God is through Jesus Christ; Praying can help save people from being hurt or killed in disasters), behavior/rituals (I attend church services at least once a week; I pray to God regularly), and the importance of faith in their lives (My faith is an important part of my life; Praying

[4] M. Başoğlu: *Emotional and cognitive responses to torture and war*, invited presentation at the ISTSS Conference on Public Health Perspectives on Trauma Treatment and Research: A Continuum of Care from Primary Prevention to Clinical Services. San Antonio, Texas, USA, Nov. 2000.

after the disaster helped me to cope with my suffering). Respondents rated their responses on a 5-point Likert scale, ranging from '1' (not at all typical of me) to '5' (very much typical of me). The Mature Religiosity Scale (MRS) developed by DE VRIES-SCHOT and colleagues (2012) included 16 items, with response categories ranging from '1' (totally disagree) to '5' (totally agree). The religiosity score for each scale was calculated by taking the mean value across the nine items for the generic scale and the 16 items for the mature scale; however, any respondent missing the response to more than one item per scale was removed from the analysis. Participants also responded to 59 other questions in order to compare the impact of results when using two different measures of religiosity. These items related to the impact of the disaster (8 items), blame associated with the disaster (6 items), God control (4 items), relationship with God (12 items), relationship with the church community (11 items), and relationship with the environment (11 items). Response categories ranged from 1' (not at all typical of me) to '5' (very much typical of me).

3.1. Case Study Site

Super Typhoon Haiyan (referred to as Typhoon Yolanda in the Philippines) struck the Visayas region of the Philippines on November 8, 2013. Over 14 million people were affected by the disaster, with 6,190 deaths and 1,785 people reported missing (OCHA 2014). The focus of this study, Bantayan Island (located along the northern tip of Cebu province), was along the direct path of the typhoon, and experienced significant damage, including destruction of approximately 30% of homes on the island, many more suffering some degree of breakage, infrastructural damages (including power and communications), and significant impacts on livelihoods (UMBAO 2013). The Barangay districts participating in the research on Bantayan Island included a mix of both coastal and inland locations, rural versus more urban; all areas had a heavy reliance on fishing and farming for livelihood.

The selection of a non-Western case study for this research has several implications. First, the research allows the testing for the reliability and validity of the selected religiosity survey instruments in a non-Western context. Although a lot of research has been devoted to assessing religiosity, much of this research has occurred within a Western and Christian context (LIU & KOENIG 2013). Our results provide an empirical support for the use of these instruments in a non-Western, Christian context. Second, our research provides an opportunity to explore culturally specific measures of religiosity, offering insights into key components of religiosity on Bantayan Island. Finally, a significant implication of the non-Western case study relates to the lack of secularisation of the case study site. Bantayan Island, and the Philippines in general, is a highly religious society, with Filipinos generally claiming a high degree of religiosity and participation in religious activities (ABAD 2001). This is likely to result in higher religiosity scores than might be seen in a more secular context.

3.2. Data Collection

Data were collected during the month of August 2016 using a mix of non-random, convenience sampling methods. Questionnaires were distributed by local barangay health workers on our behalf and donations were provided to the health programs in each barangay in appreciation of this assistance. A total of 227 surveys was completed by participants, with a higher rate of female respondents (n=158) compared to males (n=69)[5]. The mean age of respondents was 45 years, although this ranged from 21 to 84. Respondents had generally completed either elementary school (39%) or high school (40%), although a significant proportion had completed some form of post-secondary education (21%). Most respondents classified their socio-economic status as either 'poor' (57.5%) or 'just enough' (39.4%), although a small percentage classified themselves as 'middle class' (1.3%) or 'rich' (0.4%). All respondents who noted their faith affiliation were Christian, with the majority (62.1%) identifying their denomination as Roman Catholic, 16.7% identifying as Philippine Independent Church (IFI) / Aglipay, and 10.6% identifying as Seventh Day Adventist (remaining denominations were: Baptist (2.2%), Born Again Christian (1.8%), and UCCP/Protestant (0.4%)). This is consistent with the religious make-up of Bantayan Island.

4. Results

Overall religiosity among the Christian respondents recruited for our survey was high for both measures of religiosity, as expected within the context of our case study site. The mean religiosity score (out of a maximum of five) for respondents as measured by the generic religiosity scale was 4.42, $SD = 0.522$. The mean religiosity score for respondents as measured by the mature religiosity scale was slightly lower at 4.27, with a slightly larger standard deviation of 0.64. Of the 215 participants with full data for both religiosity scales, 94 produced an increase in their religiosity score when measured using the mature religiosity scale compared to the generic religiosity scale and 104 respondents produced a decrease, whilst for 17 respondents there was no difference in their overall religiosity score. Both scales showed a high level of internal consistency, as determined by a Cronbach's alpha score of 0.723 for the religiosity scale and 0.913 for the mature religiosity scale, demonstrating the reliability of both survey instruments in a non-Western context.

To compare the responses between the religiosity scale and the mature religiosity scale, responses for each scale were normalised, and a paired-sample t-test was conducted to determine whether there was a statistically significant difference between the scores on the two scales. Mean difference between the scales (–0.0357, $SD = 0.967$) was slightly lower than the expected difference of 0.0, although this

[5] Although females were overrepresented in the research, there was no statistically significant difference between male and female scores on both the generic and mature religiosity scales.

difference was not found to be statistically significant $t(214) = -0.541$, $p = 0.589$. This suggests that there is no statistically significant difference between the scores on the religiosity scale and the mature religiosity scale.

A Spearman's rank-order correlation was performed to determine the strength and direction of the association between the generic religiosity scale and the mature religiosity scale. The Spearman's correlation test was performed due to both scale scores developed using Likert items and the fact that a monotonic relationship was found, based on a visual inspection of a scatterplot (Laerd Statistics 2016). There was a strong positive correlation between the two measures of religiosity, $r_s = 0.540$, $p = 0.000$. Although the correlation was quite strong, if the two scales were measuring the same concept, we would have expected an even higher correlation. This suggests that the two scales, although highly correlated, are potentially measuring slightly different dimensions of religiosity.

To further explore the correlation between the two religiosity measures, Kendall's tau-b correlations were run between each question in the generic religiosity scale and the mature religiosity scale. The Kendall's tau-b correlation was performed due to the data being based on ordinal level data and the fact that we were not able to meet the monotonic relationship assumption required for the Spearman's rank-order correlation for each individual question. Table 1 provides an overview of the results of the correlation analysis.

Table 1
Kendall's tau-b Correlation Analysis between
Generic Religiosity and Mature Religiosity Scale Questions

		My faith is an important part of my life	*I pray to God regularly*	*During the typhoon I prayed*	*I believe the way to know God is through Jesus Christ*	*Praying can avert natural disasters*	*I believe in God*	*I attend church services at least once a week*	*Praying can help save people from being hurt or killed in disasters*	*Praying after the disaster helped me to cope with my suffering*
I entrust myself more and more to God	Tau-b	0.213	0.281	0.370	0.304	0.284	0.157	0.100	0.214	0.217
	Sig.	0.001	0.000	0.000	0.000	0.000	0.016	0.102	0.001	0.001
My religion supports my sense of self-esteem and identity	Tau-b	0.210	0.215	0.320	0.294	0.248	0.127	0.195	0.246	0.311
	Sig.	0.001	0.000	0.000	0.000	0.000	0.041	0.001	0.000	0.000
Knowing God's love is fundamental for my life	Tau-b	0.102	0.143	0.315	0.332	0.368	0.235	0.157	0.183	0.307
	Sig.	0.115	0.025	0.000	0.000	0.000	0.000	0.010	0.004	0.000

The meaning and significance of my life is in my relationship with God	Tau-b	0.109	0.101	0.269	0.361	0.255	0.149	0.203	0.254	0.289
	Sig.	0.078	0.101	0.000	0.000	0.000	0.017	0.000	0.000	0.000
The experience of God in my life motivates me to decide for the good, even if this is difficult	Tau-b	0.208	0.148	0.339	0.266	0.231	0.203	0.159	0.219	0.314
	Sig.	0.001	0.016	0.000	0.000	0.000	0.001	0.006	0.000	0.000
I believe in God sincerely, not mainly out of obligation or fear	Tau-b	0.196	0.202	0.418	0.324	0.332	0.235	0.183	0.214	0.238
	Sig.	0.002	0.001	0.000	0.000	0.000	0.000	0.002	0.001	0.000
In time of trial and tribulation I trust in God	Tau-b	0.185	0.157	0.269	0.287	0.321	0.263	0.070	0.182	0.242
	Sig.	0.004	0.015	0.000	0.000	0.000	0.000	0.251	0.005	0.000
I am willing to be accountable to God and my fellow humans about my way of life	Tau-b	0.158	0.170	0.332	0.225	0.248	0.180	0.227	0.192	0.209
	Sig.	0.011	0.005	0.000	0.000	0.000	0.004	0.000	0.002	0.001
My faith is oriented to values that transcend physical and social needs	Tau-b	0.233	0.190	0.262	0.293	0.266	0.175	0.123	0.233	0.350
	Sig.	0.000	0.002	0.000	0.000	0.000	0.005	0.035	0.000	0.000
Out of my sense that God loves humans, I pursue to love my fellow man	Tau-b	0.270	0.322	0.380	0.341	0.324	0.198	0.111	0.230	0.327
	Sig.	0.000	0.000	0.000	0.000	0.000	0.002	0.064	0.000	0.000
My faith influences all areas of my life	Tau-b	0.197	0.141	0.315	0.199	0.196	0.196	0.186	0.254	0.295
	Sig.	0.002	0.022	0.000	0.001	0.001	0.002	0.002	0.000	0.000
The development of my personality and my faith influence each other mutually	Tau-b	0.105	0.112	0.203	0.301	0.247	0.210	0.174	0.246	0.309
	Sig.	0.089	0.067	0.001	0.000	0.000	0.001	0.003	0.000	0.000
As a person I am only fully complete in a relationship with God	Tau-b	0.246	0.218	0.259	0.351	0.299	0.243	0.160	0.167	0.363
	Sig.	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.007	0.000
For me, praying for and doing justice belong together inextricably	Tau-b	0.264	0.173	0.201	0.292	0.250	0.166	0.187	0.259	0.305
	Sig.	0.000	0.005	0.001	0.000	0.000	0.008	0.001	0.000	0.000
I pursue higher values such as love, truth, and justice	Tau-b	0.198	0.154	0.275	0.309	0.239	0.193	0.191	0.246	0.311
	Sig.	0.002	0.012	0.000	0.000	0.000	0.002	0.001	0.000	0.000
My sense of self-esteem is connected to who I am and not so much to what I have	Tau-b	0.177	0.196	0.329	0.131	0.249	0.154	0.124	0.200	0.227
	Sig.	0.005	0.002	0.000	0.037	0.000	0.015	0.035	0.001	0.000

From *Table 1*, several questions show statistically significant correlations, although many of these are weak. This further confirms that the questions and concepts explored in the two scales seem to be examining different dimensions of religiosity, with limited conceptual overlap between items. Furthermore, the strongest

correlations (moderate correlations with $\tau_b = 0.3 < 0.5$) were often associated with questions on the generic religiosity scale related to prayer. This suggests that prayer forms an important component of the overall religiosity of our respondents, which provides support for the inclusion of ritual and generic examinations of religiosity in the cultural context of Bantayan Island.

To examine the impact that the type of religiosity scale used might have on the outcome of the results, we conducted a further analysis exploring the correlation between religiosity measures and other scales developed in our survey, including: relationship with God, relationship with the church, relationship with the environment, disaster impact, God control, and God blame. First, a new religiosity scale was developed by including both the generic and mature measures of religiosity, to determine whether merging the two scales would provide an enhanced measure of religiosity that combined both internal and external aspects of religiosity. The 'Total Religiosity' scale showed a high level of consistency, as determined by a Cronbach's alpha of 0.919. A Spearman's rank-order correlation was performed to determine the strength and direction of the association between the three religiosity measures (total, mature and generic) and the six other scales included in our survey. To determine whether the correlations between the mature and generic measures of religiosity were statistically significantly different, a Fisher's *r* to *z* transformation was conducted so that the *z*-scores could be observed. Z-scores under –1.96 or above +1.96 indicate that the difference between the two correlations was statistically significant at a 0.05 significance level. *Table 2* outlines the results of this analysis.

Table 2
Correlation between Religiosity and other Survey Scales

Other Survey Scales		*Total Religiosity*	*Mature Religiosity*	*Generic Religiosity*	*z-score*[*]
Relationship with God	*Correlation Coefficient*	0.288[**]	0.227[**]	0.349[**]	–1.38
	Sig. (2-tailed)	0.000	0.001	0.000	0.168
	N	214	214	219	
Relationship with Church	*Correlation Coefficient*	0.596[**]	0.518[**]	0.626[*]	–1.65
	Sig. (2-tailed)	0.000	0.000	0.000	0.099
	N	211	211	216	
Relationship with the Environment	*Correlation Coefficient*	0.572[**]	0.499[**]	0.570[**]	–1.02
	Sig. (2-tailed)	0.000	0.000	0.000	0.308
	N	211	211	216	
Disaster Impact	*Correlation Coefficient*	0.209[**]	0.168[**]	0.209[**]	–0.44
	Sig. (2-tailed)	0.002	0.014	0.002	0.660
	N	211	213	216	

	Correlation Coefficient	0.261**	0.233**	0.266**	
God Blame	*Sig. (2-tailed)*	0.000	0.001	0.000	–0.37 0.711
	N	215	217	220	
	Correlation Coefficient	0.353**	0.305**	0.375**	
God Control	*Sig. (2-tailed)*	0.000	0.000	0.000	–0.82 0.206
	N	214	216	219	

* Z-scores were calculated based on the comparison of correlation coefficients between the mature and generic religiosity scales (the total religiosity correlation coefficient was not included in the calculation of the z-score).

All three religiosity scales showed similar correlations to the other concepts implemented in the survey, although the generic measure of religiosity showed the strongest correlations (particularly strong correlations are noted between the religiosity scores and the relationship with the church, as well as the relationship with the environment). The *z*-scores highlight that there is no statistically significant difference among the correlations whether we use the mature or generic measure of religiosity.

5. Discussion

The results of our comparison of the generic and mature religiosity scales suggest that there was no statistically significant difference when using the generic religiosity scale compared to the mature religiosity scale (MRS). As we expected, the overall scores for religiosity were slightly lower when measured using the mature compared to the generic religiosity scale. The generic religiosity measure resulted in stronger correlations to the other scales examined in our survey, although none of these were statistically significantly different from correlations based on the MRS. Of interest is the result that the generic measure of religiosity resulted in stronger correlations to respondents' reported relationships with God, with the church, and with the environment; this was contrary to our expectations, as we had hypothesised that respondents with a more 'mature' interpretation and implementation of their faith would have developed stronger relationships, particularly to God. This suggests that the generic measure of religiosity could be a better predictor of religious / spiritual outcomes compared to the mature scale, at least in our study participants.

These results could be due to a number of factors. First, respondents may have completed the surveys incorrectly or they might have misunderstood some of the questions, particularly on the mature religiosity scale where the wording was complex. Second, there could be a concern with item contamination, although the ordering of items was the same for all respondents. Third, respondents may be responding in a socially desirable way, or over-estimating the importance of their faith and their faith-based activities, particularly in the context of the highly religious society found

on Bantayan Island. Finally, the results may highlight the importance of beliefs and rituals for measuring religiosity in the respondents of our study. This interpretation is supported by the strength of association between questions related to the role of prayer and the questions on the mature religiosity scale. De Vries-Schot and colleagues (2012) also noted a correlation between their mature religiosity scale and other, external rituals practiced in one's faith. For example, attending church, praying and reading the Bible on a regular basis were found to moderately correlate with the mature religiosity scale ($r = 0.31$ to 0.44).

Although there was no statistically significant difference between the generic and mature measures of religiosity, they may be examining different dimensions or understandings of religiosity. This is consistent with other findings in the literature that suggest that religiosity as a meaning system can be implemented in many different ways, often depending on the specific requirements of the research question asked (Paloutzian & Park 2013). These results highlight the importance of incorporating different dimensions when measuring religiosity. Kapuscinski and Masters (2010, 195) had previously highlighted this, arguing that there is a need to measure cognitive, affective, and behavioral aspects of religiosity collectively: 'in the same way that any study of spirituality ignoring inner experience would be insufficiently narrow, excluding observable behavior seems unjustifiable from both psychological and theological perspectives'.

It is of importance to note that our 'generic' religiosity scale examined different aspects of beliefs and behaviors, as well as self-reported measures of the importance of faith in the respondent's life. Since our generic scale incorporated three different dimensions of religiosity, with nine items overall, this probably improved the overall reliability of the religiosity measure. Including only one or two items (as many health-related research programs have done in the past) would likely reduce the reliability of the generic religiosity score, particularly if the item selected relied on church attendance – an item seen as less important for religiosity in our case study context.

Our research results have implications for mental health and care research. As many studies examining connections between religiosity and health use only one or two items to provide a measure of religiosity, there should be some empirical evidence to support the use of each item in the research context. For example, in our sample, respondents were much more likely to pray regularly compared to attending church regularly. Using only a measure of church attendance would probably reduce the overall reliability of the religiosity score in our research context. Thus, we argue that even when using generic measures of religiosity, mental health and care researchers should include items that incorporate culturally appropriate items to measure religiosity, and if possible, aspects of different dimensions of religiosity, including ritual/behavioral and more mature/intrinsic dimensions.

Moreover, our findings relate back to the different conceptualisations and operationalisations of religion and religiosity. As most scholars are now in agreement that there is no singular definition of religion, 'this means that there is not likely to be one

experience, meaning, practice, belief, motive, or other thing central to religion or spirituality but a range of them, from religion to religion, from spirituality to spirituality, and from individual to group, whose elements are not necessarily the same' (Paloutzian & Park 2013, 9). This further supports the need for contextually specific measures of religiosity in health research, even if some of the items are more generic in nature. When using generic measures across different cultural contexts, it might be useful to adjust some items, or perhaps weight some items, depending on the specific interpretations of religiosity and expected practices in the area (e.g. church attendance might be more important in other study sites).

6. Challenges and Limitations

Overall, our findings suggest that there was a limited impact on the research results when using a generic versus a mature measure of religiosity. Although there were some slight differences in how the two religiosity scales correlated to other concepts explored in our research, these differences were not statistically significant. One of the drawbacks of our study is that the other concepts explored in our research were also faith-based concepts, related to a post-disaster context. This might have implications in terms of item contamination and requires further research.

Further research would also be helpful to examine whether the differences between mature and generic measures of religiosity would be more pronounced in a more secular case study context. Our case study site was in a highly religious area, where most respondents self-identify as religious and participate in several religious activities on a regular basis (Abad 2001). This explains the high religiosity scores for both scales. While we cannot definitely explain the influence this had on our research results, we would hypothesise that a more secular context might result in different findings. Thus, we recommend further research be conducted in order to determine whether the results are replicable in other contexts.

A further issue raised by our findings relates to the interpretation of religiosity from a 'mature' versus a less 'mature' approach. Some researchers have been critical toward an approach that polarises intrinsic (or mature) and extrinsic motivations for religion. Pargament (1992) argues that individuals often have both intrinsic and extrinsic motivations for participating in religious activities, and these motivations are often intertwined with secular goals. Further, individuals are likely to differ in their interpretations of what makes someone 'religious' both within and among religious groups; some religions and religious groups have a tendency to focus on religious practices and rituals, whereas others may be more focused on internal or behavioral/consequential dimensions of religiosity (Aran 2013). This is supported by our findings where prayer rituals were found to be an important component of overall religiosity, although questions related to prayer were excluded from the mature religiosity scale. Again, this supports the need for contextually specific measures of religiosity. It would be particularly helpful if aspects of these religiosity measures were developed or validated by the local population instead of the common top-down,

hierarchal approach where religiosity is defined by the researcher; KAPUSCINSKI and MASTERS (2010) recommend the use of qualitative interviews and focus groups to help identify the validity of religiosity measures within specific contexts.

As a final comment on the use of quantitative measures of religiosity, it is worth noting concerns related to the use of quantitative methods to measure religiosity; this debate has been particularly acute in the area of assessing religiosity as a healthcare utility. For example, SLOAN (1999; 2000; 2008) argues that the quantitative research methods employed to study the healthcare benefits of religiosity are seriously flawed from the point of view of scientific empirical research methodology, and amount to trivialising the theological. He concludes that it is not possible to use either generic or mature approaches as credible, scientific methods for evaluating the benefits of religiosity and health outcomes. LYSAUGHT (2009) and SCHUMAN and MEADOR (2003) are similarly critical of the use of quantitative methods to assess religiosity as a healthcare utility. Others argue that religion is a nuanced, lived experience and that

> it is simply impossible to construct a research instrument that anticipates all the possible elements individuals might choose to weave into their own personal beliefs and practices, much less all the possible permutations and creative intermixing each individual might create from these many diverse elements. (MCGUIRE 2008, 17)

This concern has been acknowledged by quantitative researchers. For example, KAPUSCINKSI and MASTERS (2010, 200–1) note that 'the experience of spirituality is not easy to verbalise, and even more difficult to operationalize for empirical investigation', and KOENIG and colleagues concede that

> religion is not a single homogenous construct where different religious measures all assess the same thing. The many aspects of religion, which includes public ritual observances, private devotional practices, as well as attitudes, beliefs, and feelings, make it difficult to study. (1999, 128)

While it is beyond the scope of this particular paper to address these methodological concerns, it is worth noting that our broader research program also incorporates an ethnographic, narrative study to examine the lived experience of disasters and faith, which should help triangulate the quantitative and qualitative results in the future.

7. Conclusion

This study has important implications for research in mental health and care. Many studies have made salutary connections between mental health and religiosity (KOENIG et al. 2012; MOREIRA-ALMEIDA et al. 2006; JANG et al. 2018; ABDEL-KHALEK & LESTER 2017), and highlighted how religiosity can impact the likelihood of accessing mental health services (TURNER et al. 2018). While some have been critical of the

approaches to measuring religiosity taken in these studies, our research indicates that measuring religiosity using either the generic or mature measures of religiosity should not significantly impact the research outcomes. Our findings suggest that although there are some dimensional differences with limited conceptual overlap between the generic versus mature measures of Christian religiosity used in our research context, these differences did not have a significant impact when correlating religiosity to other concepts/scales. This suggests that regardless of how religiosity is measured, either as a generic quality or as a mature one, both types of scales capture similar qualities, and that overall, a generic measure may even be better as a predictor of religious/spiritual outcomes compared to the mature scale. However, we highlight that future research is needed to determine whether these results are replicable in other study sites.

Our findings offer further guidance for mental health studies using only one or two items to measure religiosity. While we would recommend against this approach due to the complex nature of religiosity, for those studies that do opt to use only one or two items, we recommend researchers select the appropriate item(s) based on empirical evidence for each research context. This will help to ensure the validity of the items used to measure religiosity. This highlights the fact that regardless of whether one is using a generic or mature measure of religiosity, it is important to use contextually appropriate measures that incorporate various dimensions of religiosity.

Finally, this study is particularly relevant within the context of mental health after a disaster. Disaster events cause damage, destruction, and disruption of the normal routines of affected populations, and these experiences have the potential to cause psychological trauma and impact mental health. Religion and religiosity have been identified as a key mechanism to respond to, cope with, and recover from disasters (IFRC 2014), although a small proportion of individuals may suffer from religious struggles after a traumatic event (Abu-Raiya et al. 2016). This may lead to poorer recovery and mental health outcomes, suggesting the importance of religiosity in building resilience to traumatic events. Although further research is needed to identify key individuals who may need additional assistance in the post-disaster recovery period, increasing our understanding of religiosity measurements can help support our understanding of how religiosity impacts mental health after disaster.

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