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Development and Preliminary Validation of Digital Religiosity Scale

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Abstract

This study aimed to design and examine preliminary psychometric properties of Digital Religiosity Scale (DRS) for measuring religious engagement in digital environment among university students in Pakistan. The research design was a mixed method, cross sectional design. The first phase was qualitative semi-structured interviews with university students to develop an initial item pool of lived experiences of digital religiosity. A survey was conducted in the second phase to 300 university students using convenience sampling technique. To investigate the underlying structure of the scale, Exploratory Factor Analysis (EFA) was carried out. Results confirmed a two factor solution of Digital Religious Engagement and Online Religious Guidance, accounting for a significant amount of variance in the data. The scale had good internal consistency, with Cronbach's alpha values above acceptable levels. Significant positive correlations with the Religious Commitment Inventory (RCI) and negative associations with the Non-Religious/Non-Spiritual Scale (NRNS) indicated evidence of convergent and preliminary evidence of discriminant validity. Results show that digital religiosity is a multi-dimensional phenomenon that encompasses both behavioral involvement and religious interaction based on authority in digital environments. The results should, however, be viewed as exploratory and future studies should use confirmatory factor analysis to further validate the measurement model. The study provides a first validated instrument to measure religiosity in digital environments and shows how religious expression is changing in networked societies.

Keywords*: Digital Religiosity, Religiosity On Social Media, Religiosity, Scale Development, Validation, Religious*

Introduction

Technological infrastructures have changed the ways in which people access, interpret and practice religion. Religion has become increasingly embedded within digital environments. This shift has led to the emergence of the notion of digital religiosity, conceptualizing how people express, enact and experience their religious beliefs, values, and identities within digital technologies and online spaces (Campbell, 2012; Helland, 2000; Bunt, 2018). Digital environments are not just extensions of offline religion but have brought in new forms of religious engagement that are networked, participatory and platform-mediated. Religion has become more of a networked and platform mediated form of engagement rather than an institution based and place bound phenomenon, thanks to the advent of digital, or new media.

Helland (2000) made a major contribution to this field by identifying two types of “religion online”: the dissemination of religious information via digital platforms and participatory and interactive religious practices that are part of the digital environments. Digital contexts rework the

question of religious authority and participation and this distinction is a key to understanding the processes involved (Campbell, 2013; Lövheim, 2011). Taking this further, Campbell (2012) suggests an understanding of digital media as "networked religion" because they are not merely a conduit for the transmission of religious material, but are actually reconstructing religious authority, community and ritual as participatory infrastructures. n this view, religion is a decentralized entity whose parameters are defined by the user and the affordances of the platform. Campbell and Tsuria (2021) put forward the idea of digital religiosity as a continuum; at one end you have the passive consumption of religious material such as an online sermon, while at the other is active involvement in digitally mediated communities like virtual prayer groups or the making of faith-based content. Taken together, these vantage points suggest that digital religiosity is not merely a technological extension of what has come before, but something with a different structural make-up to it.

We see evidence of this shift in a variety of cultural and religious settings. A case in point is the Muslim world, where studies show the Internet to be key infrastructure for community life and for the learning and negotiation of religious authority. Bunt (2018) describes digital platforms as 'cyber-Islamic environments' used for everything from social media and digital consultation to listening to sermons. In doing so, they render religious information more accessible and tend to de-institutionalise the old guard of traditional authority. In the same way, Lövheim (2011) demonstrates that digital media can help young consumers interact with various worldviews on religion, and promote personal and critical religious identity building. In all contexts, digital religiosity becomes a context-bound concept that is influenced by platform architecture, cultural patterns, and user agency.

In a more general theoretical sense, the mediatization theory helps to account for the changes in the religious sphere as a structural shift where religious practice is increasingly influenced by media logics such as visibility, connectivity, and algorithmic distribution (Hjarvard, 2011; Hoover, 2006). In this context, digital platforms are not just a repository of religious material but play an active role in shaping the production and maintenance of religious authority. In addition to this macro-level explanation, social identity theory offers a micro-level explanation about how people develop and maintain religious identity by interacting with others in groups. Tajfel and Turner (1979) state that identity is shaped by social categorization and in-group affiliation, which are reinforced in a digitally mediated religious community, as a result of ongoing interaction and symbolic boundary management.

Existing literature is rich in theory but one thing remains unclear is how digital religiosity manifests as a measurable construct. The existing measure of religiosity, the Religious Commitment Inventory (RCI-10), was created to assess offline religious activity, and mainly reflects beliefs and institutional engagement (Worthington et al., 2003). Likewise, non-religiosity measures do not capture religious engagement in the digital sphere, like the NRNSS (Cragun et al., 2015). As a result, the current tools do not measure the important aspects of digital religiosity, such as the use of online religion, signifying identities online and engaging in virtual community. This is a significant issue in terms of measurement in relation to the available psychometric measures of digital religion.

Furthermore, most of the empirical studies to date are qualitative in nature or are observations of particular contexts and situations, which limits the extent to which they can be compared and cumulative knowledge can be developed. The studies have been crucial in making digital religiosity relevant, but the lack of standardisation in measuring digital religion makes it impossible to systematically analyse the psychological structure and correlates of digital religion. Such a restriction is important, especially in non-Western contexts, as the amount of religious activity online can vary greatly according to cultural and institutional differences in religious life.

Therefore, a psychometric instrument to assess the multi-dimensional aspects of digital religiosity in cognitive, psychological and behavioral dimensions is needed and needs to be validated. To fill this void, the development of a Digital Religiosity Scale (DRS) provides an operationalization of digitally mediated religious engagement that can be measured, which, in turn, allows for empirical assessment of the structure and outcomes of digitally mediated religious engagement. Creating a measure that captures the psychosocial impact of religion on digital environments and that could be used in cross-contextual comparison for future research would be necessary to advance research on the psychosocial impact of religion in digital environments.

Aims and Objectives

The purpose of the present study is to build a multidimensional scale of digital religiosity for social media users and to test this scale.

1. To discover social media users' perceptions and lived experiences of digital religiosity via semi-structured interviews, to find dimensions that were grounded in the reality of the data and could be used to develop a scale.
2. To explore and test the factor structure and internal consistency reliability of Digital Religiosity Scale (DRS) with Exploratory Factor Analysis (EFA) and Cronbach's alpha.

Method

This study adopted the mixed methods research design that combined the qualitative and quantitative methods in developing and validating the Digital Religiosity Scale (DRS). This research was carried out in two stages. The purpose of Phase 1 was to examine the experiences of the participants in relation to digital religiosity, using a qualitative phenomenological design. In-depth interviews are used in phenomenology to gain a deep understanding of the subject's experience of the phenomenon. Items for scale were created in this phase based on the findings. In Phase 2, a quantitative survey design was utilized and the scale created was administered to the respondents through Google Forms.

Phase 1

Participants

Phase 1 comprised 15 social media users (male and female) who actively used social media. Convenience sampling was used for recruitment and the ages of participants ranged from 18 to 25 years.

Materials

Demographic Information

Demographic information was gathered such as age (18-25 years), gender (male/female) and educational attainment (under-graduate). The participants comprised university students and professionals.

Interview Guide

Semi-structured interviews were the main data collection methods used. After studying existing literature on digital religiosity, the researchers formulated the questions that were included in the interview. The interview guide helped to explore participants' lived experiences and perceptions about religious engagement on digital platforms.

Procedure

Before data collection began, the study received ethical approval from the Institutional Review Board (IRB) and the relevant authorities of the university. The subjects were drawn from within the University, and a short description of the purpose of the study was given to them prior to

participation. All participants gave written informed consent. Ensuring confidentiality and anonymity and informing the participants that they would be able to leave the study at any time without repercussions. Information about possible risks and the academic objective of the study was also given. Semi-structured interviews were conducted in an environment of comfort and privacy in the University. Participants were given an introduction to the structure and topics of the interviews prior to the interview. Data collection was carried out in a standard manner. Participants filled out a demographic information sheet and were interviewed utilizing the prepared guide. Methodological uniformity was achieved by conducting all interviews in a uniform manner. At the end of the process, participants were thanked for their participation. There was no financial or material support given. All the interviews were verbatim transcribed and thematic content analysis was performed to discover some patterns, themes and categories of digital religiosity. From the qualitative results, a preliminary pool of 50 items for the Digital Religiosity Scale (DRS) was created.

Phase 2

Participants

A total of 300 university students and professionals aged 18-45 years were included in the study. The sample consisted of 130 males (43.3%) and 170 females (56.7%). The participants came from a wide range of educational, occupational and family backgrounds, suggesting heterogeneity in the sample.

Materials

Demographic Information

A wider range of demographic data was gathered, such as age (18–45 years), gender (male and female), education (undergraduate and MPhil), occupation (students and professionals), family system (nuclear and joint) and marital status (married and unmarried).

Religious Commitment Inventory (RCI-10)

Religious Commitment Inventory– 10 (RCI-10), developed by Worthington et al. (2003), was used in the second phase of the research to determine the degree of individuals' commitment to their religion. The measure indicates to what extent an individual perceives his or her religion to affect his or her thinking, actions, and behavior. This test contains 10 items and is made up of two factors, namely, Intrapersonal Religious Commitment (which refers to the relevance of religion to one's personality, such as "My religious beliefs lie behind my whole approach to life") and Interpersonal Religious Commitment (which focuses on participation in religious activities and communities, for example, "I enjoy working in the activities of my religious organization"). The answers to the test questions are marked using the 5-point Likert scale that includes responses from "Not at all true of me" (1) to "Totally true of me" (5). The researchers noted high levels of reliability (.93 Cronbach's alpha) and validity of the scale, and for the current research, its Urdu translation was used.

Non-Religious Non-Spiritual Scale (NRNSS)

The Non-Religious Non-Spiritual Scale (NRNSS) is a measure created by Cragun, Hammer, and Nielsen (2015) to determine the degree to which individuals embrace their non-religious and non-spiritual nature. The NRNSS scale aims at measuring one's orientation regarding non-religiosity and non-spirituality. The NRNSS scale comprises 17 items and is considered a unidimensional measure of the construct known as the Non-Religious Non-Spiritual Orientation. One such item is "I do not believe in God or any higher power." Each item on the scale is scored based on a 5-point Likert scale, in which participants rate the items from Strongly Disagree (1) to Strongly Agree (5).

The reliability and validity were considered satisfactory in the initial study, with the scale demonstrating adequate content validity. In the current study, the Urdu version of the NRNSS scale was administered to participants

Digital Religiosity Scale (DRS)

The Digital Religiosity Scale (DRS) was used to assess individuals' religious engagement through digital media. The scale measures the forms of religious expression in digital environments among social media users. The scale was developed using the following steps:

Step 1: Conceptualization of Digital Religiosity

The construct of digital religiosity was first defined through existing literature on digital religion, online religious engagement, and networked religious practicesDigital religiosity was defined as students' religious engagement, guidance-seeking and expression in digital platforms.

Step 2: Item Generation using Qualitative Interviews

Semi-structured interviews were carried out with social media users to gain insight into their experiences of digital religiosity. The interview data were analyzed in order to look for common themes, and the initial pool of scale items were created.

Step 3: Review and refinement of the items

Initial items were vetted for clarity, relevance, repetition and appropriateness for social media. Ambiguous, overlapping or weak items were revised or eliminated prior to administering the scale to the larger sample.

Step 4: Factor Analysis and Reliability Testing

The participants were 300 people. Exploratory Factor Analysis was performed to determine the factor structure of the DRS, and Cronbach's alpha was employed to investigate the internal consistency of the total score and subscores of the DRS.

Step 5: Validity Testing and Final Scale Formation

Convergent and divergent validity of the final scale was examined by looking at its correlation with the Religious Commitment Inventory and Non-Religious/Non-Spiritual Scale, respectively. The final DRS was created based on the factor structure, reliability, and validity results, with two dimensions, Digital Religious Engagement and Online Religious Guidance.

Procedure

Phase 2 was conducted after the IRB and the appropriate units in the universities approved the study. Faculty contacts and internet distribution were used to recruit participants and the voluntary nature of participation was clearly explained. All participants gave informed consent before collecting data. To maintain confidentiality and anonymity and to assure participants that there was no risk of their withdrawing. The study was explained to them in advance, with regards to its purpose, risks, and academic significance. We put the data collection online with Google Forms so participants could complete the questionnaire at their convenience. While that made getting the data a simple matter, it was not without its disadvantages; for one thing, we could not control the conditions under which they answered and some were inattentive in their responses. As for the questionnaire itself, there was no counterbalancing and the order was set: Demographic section first, then RCI-10, NRNSS and DRS. We made sure to give clear instructions right from the start of the survey, making it plain that you should answer honestly since there are no wrong or right answers. The estimated time of completion was 15-20 minutes. When finished, participants were thanked for their time. Finally, the data was analyzed with the help of IBM SPSS Statistics.

Results

The primary aim of the present research was to create and validate an instrument of digital religiosity in the context of social media users of Pakistan. An exploratory factor analysis (EFA) was performed to explore construct validity and underlying factor structure, and Cronbach's alpha was used to assess internal consistency reliability. The results are shown below.

Table 1

Demographic characteristics of the participants

Variable	Category	*f*	Percentage (%)
Age	18-45 years	300	100.0
Gender	Male	130	43.3
	Female	170	56.7
Educational Qualification	B.Ed (1.5)	72	24.0
	BS	159	53.0
	MPhil	69	23.0
Occupational Status	Student	135	45.0
	Professional	48	16.0
	Unemployed	75	25.0
	Part time worker	42	14.0
Family System	Nuclear family	162	54.0
	Joint family	138	46.0
Marital Status	Married	135	45.0
	Unmarried	165	55.0
Family Income	High income	123	41.0
	Middle income	126	42.0
	Low income	51	17.0
History of Physical Illness	Yes, currently experience	39	13.0
	Previously experience, not now	69	23.0
	Never experience	192	64.0
History of Psychological Illness	Yes, currently experience	33	11.0
	Previously experience, not now	66	22.0
	Never experience	201	67.0

Note. *f* = frequency, %= percentage.

The sample was 300 individuals between the ages of 18 and 45. Of these, 130 (43.3%) were male and 170 (56.7%) were female. The educational qualification of 72 (24.0%) had a B.Ed (1.5) degree, 159 (53.0%) held a BS degree, and 69 (23.0%) held an MPhil degree.

Regarding occupational status, 135 (45.0%) were students, 48 (16.0%) were professionals, 75 (25.0%) were unemployed, and 42 (14.0%) were part-time workers. As far as family system was concerned 162 (54.0%) were in nuclear family system and 138 (46.0%) were in joint family system. Respectively, 135 (45.0%) were married and 165 (55.0%) were unmarried. In terms of family income, 123 (41.0%) had high income, 126 (42.0%) had middle income, and 51 (17.0%) had low income.

The health history of 39 (13.0%) participants included current physical illness, 69 (23.0%) had a previous history of physical illness, and 192 (64.0%) had no history of physical illness. For psychological illness, 33 (11.0%) had current psychological illness, 66 (22.0%) had a past history, and 201 (67.0%) had no history of psychological illness.

Exploratory Factor Analysis (EFA)

Exploratory Factor Analysis was performed to determine the structure of the Digital Religiosity Scale (DRS). Extraction was performed using Principal Component Analysis and oblique rotation (Oblimin) was used because there were expected to be some correlation between factors. Analysis indicated that a two factor solution was supported by the eigenvalues greater than 1 and the scree plot. The two factors represented Digital Religious Engagement and Online Religious Guidance. Factor loadings ranged from acceptable to strong levels, with most items loading above .50 on their respective factors. The model accounted for a large percentage of the total variance (61.4%) and had a stable factorial structure for exploratory purposes.

The rotated factor solution was used to interpret the dimensional structure of the scale. The factors were named in accordance with the conceptual similarity of the items loading well on the factors. The percentage of variance explained by the factors extracted was used as an indicator of the appropriateness of the model.

The internal consistency reliability for each identified factor was computed with Cronbach's alpha to guarantee good reliability of each subscale. The factors that were included in the final structure of DRS showed acceptable reliability and clear conceptual coherence.

Table 2

KMO and Bartlett's Test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.705
Bartlett's Test of Sphericity	Approx. Chi-Square	8027.368
	df	1225
	Sig.	<.001

Note. KMO=Kaiser-Meyer-Olkin, df=degree of freedom, Sig=Significant level

Data was checked for adequacy before factor extraction. Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .705, which is acceptable for inter-item correlations for factor analysis. Bartlett's Test of Sphericity was statistically significant ($\chi^2(1225) = 8027.368$, $p < .001$), indicating that the correlation matrix was appropriate for structure detection and that there were enough relationships between items.

Table 3

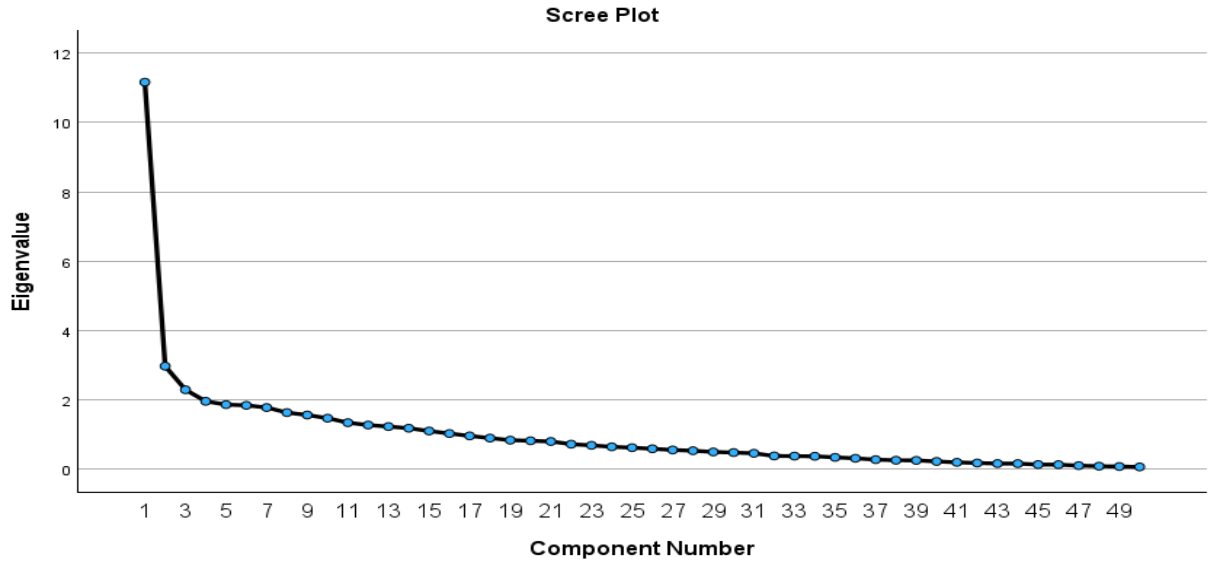
Factor Loadings of the Digital Religiosity Scale (DRS) Items

	Component	
	1	2
Should online religious content include practical guidance and answers to questions?	.755	
Should online religious content be in simple language so everyone can understand?	.702	
Have online religious discussions brought improvement to your home environment?	.690	
Should online religious content be correct and authenticated?	.681	
Do you share information obtained from online religious discussions with others in your home environment?	.598	
Should you necessarily seek guidance from scholars when you have a religious problem or confusion?	.588	
Are online sources such as videos, lectures, Instagram, and YouTube an easy means for youth to obtain religious information?	.560	
Are online religious activities easier and cheaper compared to traditional worship	.546	
Have you ever asked scholars about prayers or other religious matters?	.544	
Is the freedom of time and place in online learning more beneficial for youth?	.518	
Do young people mostly acquire religious knowledge from online sources?	.514	
Is there a risk of confusion from online religious content?	.508	
Have you ever sought guidance from scholars about your religious problems?	.501	
Do you view religious content in WhatsApp groups?		.705
Should an online scholar be honest and hardworking?		.671
Is the presence of online scholars helpful for women in obtaining religious guidance?		.664
Should an online scholar possess patience, tolerance, and the ability to continuously learn?		.658
Do you consider sharing religious content online an important means?		.618
Does the presence of online scholars provide women with protection and convenience in religious difficulties?		.585
Do you use different social media platforms for religious content?		.530
Is the facility of watching lectures from various scholars simultaneously in online learning more beneficial for youth?		.521

Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization.

The Exploratory Factor Analysis (EFA) was conducted using Principal Component Analysis (PCA) as the extraction method and Oblimin Rotation method to investigate the factor structure of the DRS, The eigenvalues greater than 1 and the scree plot were used to extract two components. Loadings were relatively high for most of the items, ranging from .501 to .755 for the items loaded strongly on Component 1. These items primarily related to digital engagement and access to religious knowledge such as seeking religious guidance, accessing religious content online, sharing religious content and assessing how accessible and useful digital religious resources are. This feature is the main factor in digital religiosity in this sample. Items in component 2 had loadings from .521 up to .705. These items were primarily related to online encounters with religious authorities and platforms, such as encountering scholars, using social media platforms to access religious content, and the perceived credibility and support from scholars online.
Multiple items exhibited cross-loadings on both components, highlighting the conceptual overlap between the digital engagement and authority-related dimensions. Specifically, the content clarity, authenticity, and guidance dimensions had moderate loadings on both factors, indicating that the participants were not able to distinguish clearly between the access to religious content and interaction with religious authority in digital environments. Overall, the two component solution suggests that university student digital religiosity is organized around two closely related but distinct aspects: (1) digital religious engagement and accessibility, and (2) interaction with religious authority and religious scholarly guidance online.

Figure 1
Scree Plot of Eigenvalues



The scree plot was checked to find the number of factors to be retained in the exploratory stage of scale development. There was a marked drop in the first component and the eigenvalue calculated for the first component was significantly larger (about 6.0) than the other components. The second component was also well above Kaiser's (1960) minimum eigenvalue criterion of 1.0, having an approximate value of 2.0. In addition to the second component, eigenvalues were generally decreasing and tended to lie more or less horizontally, this is the “scree” that Cattell (1966)

described. The value of this flattening at the third component indicated the time at which this flattening started and was adopted as a visual criterion in the factor retention process. Based on the eigenvalue criterion and also by looking at the scree plot, a two factor solution was selected for the present data. Two theoretical models that underpinned the Digital Religiosity Scale were used to theoretically support this solution: (1) active use of religious content online, and (2) perceived accessibility of digital religious resources.

Table 4

Reliability Statistics of the Digital Religiosity Scale

Scale/Subscale	Cronbach's Alpha	N of Items
Digital Religiosity Scale	.861	21
Digital Religious Engagement	.862	13
Online Religious Guidance	.772	8

Cronbach's alpha was used to determine the internal consistency. Overall scale had good reliability ($\alpha = .861$). Subscale reliability was also satisfactory, with the Digital Religious Engagement and Online Religious Guidance dimensions exhibiting satisfactory internal consistency coefficients, which means that the items within each dimension were sufficiently correlated and measured coherent constructs.

The reliability was high at the subscale level, as Factor 1 (Digital Religious Engagement) had a Cronbach's alpha of .862 for 13 items. Factor 2 (Online Religious Guidance) showed acceptable reliability with an alpha coefficient of .772 for 8 items and the threshold of .70 was surpassed. Results showed good levels of internal consistency for both subscales, suggesting that they are appropriate for further testing of validity.

Table 5

Correlation Matrix for Convergent and Discriminant Validity

		intrapersonal	interpersonal	engagement	guidance	drs	rci	nrnss	individualistic	institutionalistic
intrapersonal	r	1								
	Sig.									
	N	300								
interpersonal	r	.709**	1							
	Sig.	0.000								
	N	300	300							
engagement	r	.394**	.476**	1						
	Sig.	0.000	0.000							
	N	300	300	300						
guidance	r	.523**	.600**	.374**	1					
	Sig.	0.000	0.000	0.000						
	N	300	300	300	300					
drs	r	.557**	.653**	.807**	.849**	1				
	Sig.	0.000	0.000	0.000	0.000					
	N	300	300	300	300	300				
rci	r	.928**	.920**	.469**	.607**	.653**	1			
	Sig.	0.000	0.000	0.000	0.000	0.000				
	N	300	300	300	300	300	300			
nrnss	r	-.567**	-.666**	-.474**	-.615**	-.661**	-.665**	1		
	Sig.	0.000	0.000	0.000	0.000	0.000	0.000			
	N	300	300	300	300	300	300	300		
individualistic	r	-.607**	-.675**	-.491**	-.589**	-.654**	-.692**	.945**	1	
	Sig.	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
	N	300	300	300	300	300	300	300	300	
institutionalistic	r	-.170**	-.292**	-.182**	-.352**	-.328**	-.248**	.605**	.310**	1
	Sig.	0.003	0.000	0.002	0.000	0.000	0.000	0.000	0.000	
	N	300	300	300	300	300	300	300	300	300

**. Correlation is significant at the 0.01 level (2-tailed).

Convergent Validity

Convergent validity of the DRS was evaluated by Pearson correlation coefficients with the Religious Commitment Inventory (RCI). Results indicated that there were significant positive relationships between DRS and RCI ($r = .653$, $p < .001$). Theoretically, it was expected that digital religiosity would be related to the general pattern of religious commitment, and this was confirmed by the positive relationship between both Digital Religious Engagement and Online Religious Guidance with intrapersonal and interpersonal dimensions of religiosity at the subscale level.

Strong positive correlation results were found between DRS and RCI total score ($r = .653$, $p< .001$), as well as with Digital Religious Engagement ($r = .807$, $p< .001$) and Online Religious Guidance ($r = .849$, $p< .001$) dimensions of the instrument. These results support the convergent validity, showing that digital religiosity is well related to the already existing concepts of religiosity. Online Religious Guidance was more associated with RCI than Digital Religious Engagement at the subscale level ($r = .607$, $p < .001$ vs. $r = .469$, $p < .001$), indicating that digitally mediated religious guidance is more related to traditional religiosity than being engaged in digital spaces.

Divergent Validity

The Non-Religious/Non-Spiritual Scale (NRNS) was used to determine the discriminant validity. Results showed that DRS was significantly negatively correlated with NRNS ($r = -.661$, $p < .001$) and RCI was similarly inversely correlated ($r = -.665$, $p < .001$) with NRNS for discriminant validity. These results indicate that there is a relationship between digital religiosity and non-religious orientations, with higher scores on digital religiosity being correlated with lower scores on non-religious orientations, which suggests some preliminary evidence of discriminant validity, but there may be some conceptual overlap between constructs.

Discussion

The present study was aimed at developing and preliminary psychometric evaluation of Digital Religiosity Scale (DRS) among university students in Pakistan ranging from 18 to 45 years. The results indicate that digital religiosity can be conceptualized in a two-dimensional way: Digital Religious Engagement and Online Religious Guidance. This is a structure that mirrors the increasing importance of digital environments in the formation of religious cognition, behavior and authority relations among adult populations who are increasingly enmeshed in networked communication systems.

The two-factor solution is in line with theoretical approaches to digital religion that argue for a shift from institutional to online forms of religiosity. Campbell (2012, 2013) posits that digital spaces provide alternative channels of interaction in religion that are characterized by being interactive, accessible and networked. This is illustrated in the engagement dimension that is identified in this research and relates to the behavioral interaction with the religion content in digital spaces among adult students. This correlates with the notion of the "networked religion" in which religious meanings are produced in a decentralized and participative manner online (Campbell, 2013; Campbell & Vitullo, 2016).

Firstly, the digital religious engagement can be conceptualized as behavioral and cognitive interaction with religion content in digital environments, including the consumption, sharing and access to information about religion. This represents the change of the practices of religion into a participatory culture in the context of digitalization according to Campbell (2013) in terms of his concept of the "networked religion" as a process of co-production of the religion meanings in decentralized online interactions instead of hierarchical structures of authority. Secondly, the online religious guidance can be considered an indicator of dependency on the perceived religious

authority in online environment. This corresponds to the dichotomy proposed by Helland (2000) of "religion-online" and "online-religion" indicating that people do not use digital technologies just to receive religious information but also to look for interpretive legitimation and moral guidance via digitally-mediated scholarly actors.

However, most importantly, the identification of these two factors shows that digital religiosity is not a one-sided phenomenon but a complex psychological system based on behavioral involvement and interpretation through the authority. This is in line with Bunt's (2018) assertion that digital Islam (digital religiosity in general) is not a either/or system, but a both/and system.

The high loadings and internal consistency of both dimensions support the idea that digital religiosity is a systemic change of religious experience and not just a superficial technological extension of traditional religiosity. The findings suggest that religious life in digital environments is a “networked religion” in the sense of Campbell and Vitullo (2016) where meaning is co-created in the constant interactions among users, platforms and religious authorities.

The engagement dimension is the democratisation of religious knowledge, people engaging in religious conversation on social media, in online lectures and digital communities. This does not imply that authority is reduced, however, as the guidance dimension indicates that users still depend on perceived religious expertise, suggesting a reconfiguration of authority rather than a dissolution of authority (Hjarvard, 2011; Campbell, 2017).

This duality is a very important psychological phenomenon: digital religiosity is associated with increased autonomy in the access to religious information, as well as increased dependence on the interpretation by authority, thus creating a hybrid cognitively-religious system. High positive correlations of DRS with Religious Commitment Inventory (RCI) demonstrate convergent validity. The correlation of DRS with total scores of RCI ($r = .653$) proves that digital religiosity is closely linked with existing measures of religious commitment and supports the idea that religiosity is transported across the contexts, including digital (Koenig et al., 2012). Interestingly, guidance dimension turned out to be more correlated with RCI than engagement, which suggests that need for religious authority remains a critical component of religiosity even in digital environment. This finding is consistent with the conclusion by Zinnbauer et al. (1997), according to which basic pattern of religiosity remains consistent across expressions and media although the behavior may vary. This means that digital religiosity is not a replacement for traditional religiosity but its extension into new communicative and technological space.

Convergent validity was quite good while discriminant validity was more complicated. Negative correlations between DRS and NRNS prove the expected negative relationship between constructs of religiosity and non-religiosity. At the same time, relatively high magnitude of correlations suggests that there is some conceptual overlap, and not complete independence. It is consistent with current critique of dichotomous models of religiosity and non-religiosity. Modern religious identity is not polarized but continuum of meaning-making practices, as Ammerman (2013) says. Similarly, results show that non-religiosity does not necessarily mean absence of belief systems but rather different existential and epistemological orientations.

High correlation between NRNS and RCI proves that people may have difficulty distinguishing between religious commitment and other spiritual or secular orientations, especially if religiousness is a dominant norm of culture. Results of psychometric analysis provide information about strengths and weaknesses of the scale developed. DRS demonstrates good internal structure and convergent validity, but the overlapping with NRNS suggests that boundaries between constructs of religiosity and non-religiosity should be further refined. This conclusion is consistent with previous methodological issues of psychology of religion where similar constructs could measure the same cultural variance but not conceptual redundancy (Hill & Pargament, 2003). In future development of the scale it should be taken into consideration that more efforts should be

made to refine measures of non-religiosity in order to ensure their independence from religious constructs and reflect secular meaning systems.

This study contributes to literature in three ways. First, it provides empirical evidence that digital religiosity is a multidimensional psychological phenomenon rather than merely a behavior measure. Second, it reveals that digital spaces are not a substitute for traditional religiosity but rather reconfiguration of it and thus allow for hybrid religiosity expressions (Campbell, 2012; Bunt, 2018). Third, it shows the continuing importance of religious authority in digital spaces, which may or may not be decentralized.

Conclusion

This study aimed to develop and validate a psychometric instrument that would help to measure digital religiosity in social media users. Results provide support for the hypothesis that digital religiosity is a structured phenomenon consisting of two interrelated dimensions: digital religious engagement and online religious guidance, which are indicative of participation in digital religious environments as well as dependence on religious authority in online spaces. Scale showed good psychometric properties: high internal consistency and coherent factor structure. Convergent validity was supported by correlations with existing measures of religious commitment, proving that digital religiosity is not independent but deeply integrated phenomenon that is connected to other manifestations of religiosity. Negative correlations with non-religious orientation proved the theoretical stance regarding digital religiosity as a part of a continuum of religiosity, but presence of some conceptual overlap means that religious and non-religious orientations may co-exist within the same psychological and cultural context. Because this is a cross-sectional study, results should be considered as correlational, not causal. However, this study provides additional information to the literature on religion in digital space because it developed a valid measurement instrument, which revealed reconfiguration of religious practice in digital media. Future research in this area may focus on cross-cultural validation, longitudinal design and structural equation modeling.

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