Islamic Guidance and Counseling Journal
https://journal.iaimnumetrolampung.ac.id/index.php/igcj

Navigating Faith: Unveiling the Reliability and Validity of the Circumplex Religious Orientation Inventory (CROI) in Indonesia's Diverse Spiritual Landscape

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Article Information:
Received 2024-03-13
Revised 2024-04-05
Published 2024-04-11

Keywords:
circumplex religious orientation
Indonesian context
religiosity
religious orientation
test adaptation

Abstract

Despite Indonesia's designation as a religiously diverse nation, there is a notable absence of a universally applicable religiosity scale that encompasses all faiths within its borders. Thus, this paper aims to translate, validate, and ensure the reliability of the Circumplex Religious Orientation Inventory (CROI), originally developed by Krauss and Hood in 2013, within the Indonesian cultural context. Data were collected via an online survey administered to 571 male and female volunteers in Indonesia, aged 18 years and above. The translation and assessment of the scale's psychometric properties, including internal consistency, factor analysis, convergent validity, time consistency, and socio-demographic analysis, were conducted. The study findings revealed that the Indonesian version of the CROI exhibited strong internal consistency, positive factor analysis outcomes, consistent responses over time, socio-demographic variations, as well as robust convergent and discriminant validity when compared to widely recognized measures of religiosity, religious orientation, intellectual humility, and religious tolerance. In conclusion, this research underscores the Indonesian version of the CROI as a valuable instrument for assessing religious orientation among individuals aged 18 and above in Indonesia.

INTRODUCTION

Indonesia is a nation that prioritizes the principle of "Belief" as its foundational ideology, with the connection between its citizens and God being visibly displayed in their daily routines (Ninin et al., 2018). This is further reinforced by article 29 of the Indonesian constitution of 1945 which stipulates that the state is founded upon a belief in the Almighty God and ensures that every individual has the freedom to adopt and practice their own religion in accordance with their personal beliefs (Undang-Undang Dasar Negara Republik Indonesia, 1945). A survey conducted by the Pew Research Center, 96% of Indonesians regard faith in God as essential for moral and ethical conduct, while 98% perceive religion as highly significant in their lives (pewresearch.org, 2020). Moreover, findings from a study conducted by the Indonesian Survey Institute reveal that 74.9% of religious individuals in Indonesia express deep devotion, and 82.9% consider religious factors when making important decisions (El Hafiz & Aditya, 2020). The diverse nature of Indonesian society is further exemplified through the various ritual

How to cite: Arumi, M. S., Sulastiana, M., Kadiyono, A. L., & Ninin, R. H. (2024). Navigating Faith: Unveiling the Reliability and Validity of the Circumplex Religious Orientation Inventory (CROI) in Indonesia's Diverse Spiritual Landscape. *Islamic Guidance and Counseling Journal, 7*(2). https://doi.org/10.25217/0020247453400
E-ISSN: 2614-1566
Published by: Institut Agama Islam Ma'arif NU (IAIMNU) Metro Lampung

practices observed within its communities (Muhtadi & Prasetyo, 2017). Given the significance of religion in the lives of individuals in Indonesia, it is unsurprising that a plethora of studies have been conducted on religious life and religiosity within the country. For instance, research has revealed that the level of religiosity in Indonesian society surpasses that of numerous other nations (Gebauer et al., 2014). Similarly, investigations have demonstrated that an individual's morality within Indonesian society is influenced by their religiosity (McKay & Whitehouse, 2015). Conversely, studies have also underscored that religion can serve as a source of social issues, including terrorism (Milla et al., 2020), prejudice (Hernawan, 2017), and social conflicts grounded in religion.

To advance the research on religiosity in Indonesia, it is imperative to have access to reliable and valid measurement instruments. A particular weakness in religiosity research in Indonesia is the absence of articles specifically addressing the measurement instruments and corresponding statistical analyses pertaining to religiosity (El Hafiz & Aditya, 2020). Consequently, it becomes challenging to compare different measurements of religiosity, as researchers may have different definitions and boundaries for the concept. In their literature review on Religiosity in Psychological Research in Indonesia, El Hafiz and Aditya emphasized that despite advancements in statistical methodologies, religiosity measurement scales developed by Indonesian researchers are still lacking and primarily rely on item correlation and Cronbach's statistical concepts. Although attempts have been made to adapt religiosity measurement tools, their development remains limited and in the early stages. As a result, the aspect of instrumentation presents the most significant obstacle for religiosity research in Indonesia. While various religiosity measurement instruments are available globally, few studies have validated their reliability and validity for reference. This has become a primary focus for religiosity researchers in Indonesia.

The lack of Indonesian versions of religiosity measures in the literature, particularly in internationally peer-reviewed journals, highlights the methodological gaps. Latent trait models, such as the use of psychometric methods in religiosity research, are rarely found in Indonesia (Abernethy & Kim, 2018). Recently, most published articles on adapting religiosity measurement scales in Indonesia have focused primarily on Muslim respondents. For example, Chairani's (2023) study on adapting the Centrality Religious Scale (CRS) and Suryadi's (2020) study on adapting the Muslim Daily Religiosity Assessment Scale (MUDRAS). Currently, there is no publication of a universally applicable religiosity scale that includes all religions in Indonesia.

Religious orientation has emerged as a significant area of study within the field of psychology of religion over the past four decades. Although numerous measures of religiosity have been proposed by Hill and Hood (2018), the most commonly utilized instrument is Gordon Allport's Religious Orientation Scale (Allport & Ross, 1967), commonly known as the Intrinsic/Extrinsic Scale (I/E). In recent years, Krauss and Hood (2013) have introduced the Circumplex Religious Orientation Inventory (CROI) as an alternative measure, which includes ten subscales to assess an individual's overall religious orientation and the Circumplex Religious Coping (CRC) model. The development of the CROI represents an endeavor to overcome the psychometric and theoretical limitations of previous measures, while also accommodating the assessment of both religious and nonreligious populations. Previous research indicates that the CROI exhibits promise in facilitating the streamlined and simplified measurement of religious orientation across diverse religious traditions and levels of religious commitment. Moreover, the CROI offers utility in assessing religious orientation among children, nonreligious individuals, those with lower educational attainment, and older adults. Its format enables accurate translations into various languages, thereby fostering a deeper comprehension of the developmental aspects of religious orientation and the underlying

universal structure of religious orientation, postulating that religious orientation shares commonalities across distinct groups, cultures, and religions (Krauss & Jr., 2014).

Given the scarcity of universally applicable instruments for assessing religiosity, particularly with regards to religious orientation as the central focus in the field of psychology of religion, the current study aims to adapt the Circumplex Religious Orientation Inventory (CROI) by Krauss and Hood (2013) for use among Indonesian adults. This endeavor involves the creation of the Indonesian Version of the Circumplex Religious Orientation Inventory (CROI-IV) and has focused on the processes of translation and psychometric analysis. To the best of our knowledge, this research represents the initial attempt to adapt and validate the CROI within an Indonesian context. The primary objective is to contribute to the body of research on religious orientation and enhance our understanding of religiosity in Indonesia.

Literature review

Religious orientation refers to different approaches to or avoidance of religion. Commitment is a key characteristic of religious orientation, although individual motivations may vary. Religious orientation is a multidimensional construct that can impact well-being positively or negatively (Aghababaei et al., 2019; Krauss & Hood., 2013). There is a need for more research on religious orientations, leading to the development of alternative measures and models.

Krauss and Hood (2013) propose a structural model called the CRC model to organize measurement in this field. They also introduce the Comprehensive Religious Orientation Inventory (CROI), which uses 10 measures to assess overall religious orientation and evaluate the CRC model. The CROI overcomes limitations of previous measures and is suitable for religious and nonreligious populations. Krauss and Hood constructed the CROI using 17 Romanian and five American samples, incorporating over 400 of their own items and more than 20 established measures.

The CROI was recently replicated in a nationally representative sample from the United States, and demonstrated good construct validity and reliable properties across all 10 subscales (Isaak et al., 2017). Within the CROI, scales measure two primary dimensions: commitment (meaning and importance of personal faith) and religious reflectivity (analysis and questioning of personal faith). These dimensions intersect to form four quadrants, each comprising one or more orientations. The CROI consists of four quadrants: uncommitted and non-reflective, uncommitted reflective, committed and reflective, and committed and non-reflective. The uncommitted and non-reflective quadrant involves social orientation and obligation. The uncommitted reflective quadrant includes three sub-orientations: doubt, tentativeness, and dialogue. The committed and reflective quadrant includes interest as it emphasizes a desire for knowledge. The committed and non-reflective quadrant contains centrality, personal gain, and punishment, which is characterized by a commitment to religious teachings without reflectivity.

The present study posits the following relationships between intrinsic, extrinsic, and quest orientations and the Centrality of Religiosity Index (CROI), drawing on the assertion made by Krauss and Hood (2013). Firstly, it is expected that there will be a strong association between intrinsic orientations and the centrality dimension of religiosity. Secondly, a close relationship is anticipated between extrinsic orientations and personal gain, punishment, and social dimensions. Thirdly, it is hypothesized that quest orientation will exhibit a positive correlation with interest, dialogue, tentativeness, and particularly doubt.

According to the concept from Huber (2012) which gauges the salience, importance, or centrality of religious meanings in an individual's personality, it is expected that Centrality religious will be positively correlated with centrality and personal gain, punishment, while showing a negative correlation with obligation and social dimensions. Moreover, based on the concept of intellectual humility, which entails acknowledging the limitations and imperfections

of one's knowledge and cognitive abilities (Krumrei-Mancuso & Rouse, 2016), it is also anticipated that intellectual humility will demonstrate a positive correlation with interest, dialogue, tentativeness, and doubt. Expanding on Allport's argument that an intrinsic orientation is associated with lower levels of prejudice compared to an extrinsic orientation (Allport & Ross, 1967), it is expected that the CROI aspect measuring intrinsic factors will exhibit a higher tolerance score compared to the CROI aspect measuring extrinsic factors.

METHODS

Procedure

In the process of adapting the CROI into its Indonesian version, adherence to cross-cultural adaptation guidance, as proposed by Beaton (2000), was followed. Initial efforts involved establishing communication through email with Stephen W. Krauss from Uniformed Services University of the Health Sciences, as one of the original developers of the CROI. The permission granted by email on August 28th, 2022. The subsequent phase centered on the adaptation of the CROI, employing forward and backward translations, as well as translation synthesis, to enhance the overall quality of the adaptation. Two pairs of independent translators, well-versed in the language, culture, test content, and principles, were engaged for this purpose.

Stage I. Initial translation

The forward translation into Indonesian was executed by two sworn translators within the language technical implementation unit of Universitas Negeri Jakarta (*UPT Bahasa UNJ*) and a psychology lecturer with an IELTS score of 6.5.

Stage II. Synthesis of translation

In order to attain semantic equivalence, the author, together with Translator 1 and Translator 2, conducted a comparative analysis of the translations produced by each translator individually. This step was undertaken to detect and address any inconsistencies in vocabulary and cultural notions pertaining to religious orientation. The few discrepancies between the original CROI and the Indonesian translated versions were, with the help of the authors, resolved. Additionally, as recommended by Krauss and Hood (2013), "*tempat ibadah*" ("place to worship") was substituted for "church/synagogue".

Stage III. Back translation

Back-translation process was carried out by different sworn translators from the language technical implementation unit of Universitas Negeri Jakarta (*UPT Bahasa UNJ*) and another psychology lecturer with a TOEFL score exceeding 550.

Stage IV. Expert committee

To ensure content validity, we sought expert reviews, employing Qualitative Content Analysis (QCA) (Philipp, 2014) and the content validity index (CVI) (Yusoff, 2019). The expert team comprised two Psychology Professors and a Ph.D. holder in Psychology. Furthermore, a Professor of Language Education from Universitas Negeri Jakarta scrutinized the language aspects of the instrument. The conclusions and results of these expert reviews laid the foundation for the items used in subsequent trial studies.

Stage V. Test of pre final version

Trial studies, incorporating cognitive interviews to delve into how participants perceived and processed each item before selecting their responses, were conducted with 30 participants – Indonesian individuals aged 18 and above – using verbal retrospective probing. Participants were provided with explicit instructions to respond to the survey questions utilizing the

prescribed technique. Subsequently, the interviewer proceeded to pose supplementary inquiries in order to elicit a comprehensive understanding of the participants' thoughts and perceptions pertaining to each item, prior to their final selection. The findings of the study unequivocally indicate that all participants demonstrated a thorough comprehension of the specific objectives associated with each item and encountered no discernible challenges during the administration of the test.

Stage VI. Documentation or Appraisal

To conduct the documentation or appraisal stage, a psychometric analysis of the psychological scale adaptation was performed according to Gronier (2023). This analysis encompassed socio-demographic analysis, time consistency, internal consistency, factor analysis, and convergent validation.

Population and the methods of sampling

The participants involved in this study on adaptation consisted of 571 volunteers who were aged between 21 and 51 years (M = 30.29, SD = 6.196). Among these participants, 38% identified as female and 62% identified as male. The selection of participants was carried out using a convenience sampling technique. The sample size used in this study was based on the recommendation by Krauss and Hood (2013), which suggests having a number of participants that is less than eight times the number of items plus an additional 50 participants according to Meyers et al. (2013). Following this standard, the sample size for the current study exceeded 550 participants, which was deemed sufficient for the CROI. Indonesia is renowned for its religious and cultural diversity. Data from the Ministry of Religion in 2022 reveals that 86.93% of the country's population practices Islam, 7.47% are Christian, 3.08% are Catholic, 1.71% are Hindu, 0.74% are Buddhist, and 0.05% adhere to Confucianism (satudata.kemenag.go.id, 2022). To ensure a comprehensive representation of religious groups other than Islam, which is the majority religious affiliation, the minimum percentage of participants from other religious affiliations will be determined based on the following figures. Additionally, a demographic analysis was conducted to ensure the adequacy of all religious affiliations by comparing participant data means, in order to address the potential impact of varying participant numbers.

Furthermore, an online form was used to collect data from December 12th, 2023, to February 15th, 2024. Prior to their participation, all individuals were provided with information about the researcher, the purpose of the study, and the expected time needed to complete the form. They were assured that their data would be treated as confidential and anonymous, as the study had obtained permissions from the Research Ethics Committee (License number 1206/UN6.KEP/EC/2023) at Universitas Padjadjaran. Participants were given the option to withdraw from the research at any time. They were informed that their participation had no direct benefits or harmful effects. Once consent was obtained, participants were able to proceed with completing the questionnaires. This approach ensured transparency, consideration of ethical factors, and protection of participants' rights throughout the research process.

Instrumentation

The CROI. The 63-item CROI measures the 10 orientations in the CRC model with an item example of each dimension as follows: Personal ("*Tuhan memberikan kenyamanan dan perlindungan*"), Centrality ("*Agama adalah energi penggerak hidup saya*"), Gain ("*Jika saya lebih beriman, Tuhan akan memberi saya kesehatan*"), Punishment ("*Hal-hal buruk akan terjadi pada orang yang tidak menyembah Tuhan*"), Obligation ("*Saya merasa mendapatkan tekanan dari teman dan keluarga dalam melaksanakan ibadah*"), Social ("*Saya senang pergi ke tempat ibadah karena bisa bertemu dengan orang-orang yang saya kenal*"), Doubt ("*Meragukan keyakinan diri dalam hal agama bisa jadi adalah hal yang baik*"), Tentativeness

("*Kita tidak akan pernah tahu kebenaran utuh dalam hal agama*"), Dialog ("*Saya telah menilai kembali keyakinan saya terhadap agama ketika mengalami perubahan dalam hidup*"), and Interest ("*Saya ingin menilai secara teliti gagasan-gagasan keagamaan*"). The CROI has been shown to have reliability and validity in both English (Isaak et al., 2017; Krauss & Hood., 2013), Romanian (Krauss & Hood., 2013) and Persian (Aghababaei et al., 2019). A 5-point Likert-type scale was applied for this and the following scales, unless indicated otherwise.

Centrality Religious Scale (CRS). This 15-item scale was adapted by Chairani (2023) from Huber and Huber (2012). It was used to measure five dimensions: intellectual, ideology, public practice, private practice, and experience with each dimension consisting of 3 items, by utilizing a five-point Likert scale ranging from 1 (not suitable at all) to 5 (very suitable). This scale has been shown to have meet the criteria Goodness of Fit Statistics: Chi-Square $\chi 2$ (80) = 90.69, p = 0.194 (p> 0.000), RMSEA = 0.026 (p<0.06), Non-Normed Fit Index (NNFI)/TLI = 0.984, Comparative Fit Index (CFI) = 0.988, Standardized RMR = 0.0576.

Religious Orientation. This 18-item scale was adapted by Al-Fariz (2021) based on the short versions of the New Indices of Religious Orientation (NIRO-short form) from Francis (2007). The scale was used to measure three types of religious orientation: intrinsic, extrinsic, and quest. It utilized a five-point interval scale ranging from 1 (not suitable at all) to 5 (very suitable). The quest religiousness demonstrated the criteria of goodness fit statistics with a chi-square of 9.02, df=5, p-value=0.10828, RMSEA=0.047, and a p-value for the test of close fit (RMSEA<0.05) of 0.47. The 90 percent confidence interval for RMSEA was (0.0;0.096). Intrinsic religiousness also achieved fitness with the criteria, with a chi-square of 4.65, df=4, p-value=0.324, RMSEA=0.021, and a p-value for the test of close fit (RMSEA<0.05) of 0.69. The 90 percent confidence interval for RMSEA was (0.0;0.085). Extrinsic religiousness exhibited a chi-square of 7.65, df=6, p-value=0.2651, RMSEA=0.028, and a p-value for the test of close fit (RMSEA<0.05) of 0.71. The 90 percent confidence interval for RMSEA was (0.0;0.078).

Intellectual Humility. The 22-item scale adapted by Al-Fariz (2021) was used to evaluate an individual's humility in terms of their ability to foster trust and exhibit respect for different perspectives. This construct, derived from Krumrei-Mancuso's (2017) concepts, consists of four dimensions: independence of intellect and ego, willingness to reconsider one's viewpoint, regard for others' viewpoints, and absence of intellectual overconfidence. A five-point Likert scale, ranging from 1 (not at all suitable) to 5 (highly suitable), was employed for measurement. The adequacy of the model was confirmed based on the following fit indices: Chi-Square = 156.87, df = 133, p-value = 0.077, RMSEA = 0.02, p-value for Test of Close Fit (RMSEA < 0.05) = 1.00, and a 90% Confidence Interval for RMSEA of (0.0; 0.035).

Religious Tolerance Scale. The scale developed by Al-Fariz (2021) consisting of 30 items was utilized to assess the degree of positive acceptance towards individuals with different religious backgrounds, encompassing divergent values, practices, or beliefs. The development of this scale was based on the conceptual framework proposed by Witenberg (2019), which encompasses three distinct dimensions: fairness, empathy, and reasonableness. To measure these dimensions, a five-point Likert scale was employed, ranging from 1 (not at all suitable) to 5 (highly suitable). The adequacy of the model was confirmed through various fit indices: Chi-Square=623.37, df=312, p-value=0.000, RMSEA=0.05, p-value for Test of Close Fit (RMSEA<0.05)= 0.22, 90 Percent Confidence Interval for RMSEA= (0.047 ; 0.059), NFI=1.00, GFI=0.99, CFI=1.00.

Data Analysis

In evaluating internal consistency, both Cronbach's alpha and McDonald's omega were employed. While Cronbach's alpha is more widely recognized, Gronier (2023) recommended the inclusion of McDonald's omega, particularly in cross-cultural adaptations of scales in

Psychology. Confirmatory Factor Analysis (CFA) was chosen for factor analysis due to its suitability and statistical rigor in testing construct validity through a confirmatory approach rather than an exploratory one (Byrne, 2016). Following Gronier's guidance, various fit indices were computed to establish the model's acceptability, including normed $\chi 2$, Goodness Fit Index (GFI), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), Standardized Roots Mean Square Residual (RMSR), Akaike Information Criterion (AIC), and Normed Fit Index (NNFI).

The convergent validity was conducted by calculating average variance extracted (AVE) of CROI-IV, and by correlating CROI-IV with other scales measuring similar constructs (Yasir, 2016). Specifically, we examined the correlation between CROI-IV and Indonesian versions of CRS, religious orientation scale, intellectual humility, and religious tolerance used by previous research in Indonesia, employing Pearson's correlation coefficient. Time consistency analysis utilized the test-retest technique. Finally, for socio-demographic analysis, ANOVA was applied to compare different modalities within the same variables.

RESULTS AND DISCUSSION

Results

Socio-demographic analysis

Through thorough data analysis using t-tests and ANOVA, it becomes evident that demographic variables have significant implications for the dimensions of the CROI-IV. Specifically, gender significantly influences differences in centrality, personal, gain, punishment, and interest, while no noticeable difference exists regarding the impact of gender on social, obligation, doubt, tentative, and dialog orientations. On the other hand, age differences have a significant effect on all orientations. Additionally, no significant differences are observed in any orientation among individuals of different religions. Detailed results of the t-tests and ANOVA are presented in Table 6, providing a comprehensive understanding of the complex relationships between demographic variables and the dimensions of the CROI-IV in our study.

Content validity

In this study, we utilized the content validity index (CVI) to assess content validity. According to Lynn (1986), there are two types of CVIs that authors calculate. The first type pertains to the content validity of individual items, while the second pertains to the content validity of the overall scale. Based on the I-CVI measurement results, it is evident that there is one item with a value below 0.78 (I-CVI = 0.72). The authors made revisions to this item prior to conducting the CFA. Initially, the item read "*Hal-hal buruk akan terjadi pada orang yang tidak menyembah Tuhan*" (Negative consequences will occur in people who do not worship God). After the authors made revisions, the item read "*Hal buruk akan terjadi pada kehidupan orang yang tidak menyembah Tuhan*" (Negative consequences will occur in the lives of people who do not worship God). As a result, the I-CVI score increased to 0.82. This aligns with Polit & Beck (2006) assertion that authors utilize information from the I-CVI to guide revisions, removals, or replacements of items that fall below the standard. Furthermore, the S-CVI/Ave value of 0.97 indicates that this scale possesses excellent content validity, surpassing the threshold of 0.90 specified by Bentler (1990).

Table 1. Demographic characteristics of study participants

Variables	N	Centrality		Personal		Gain		Punishment		Social		Obligation		Doubt		Tentative		Dialog		Interest	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Total	571																				
Gender																					
Male	354	24.28	3.48	24.24	3.59	24.36	3.50	24.30	3.52	10.70	3.48	14.77	4.42	12.32	4.13	10.65	3.63	11.00	3.56	24.58	3.53
Female	217	24.92	3.24	24.92	3.22	25.09	3.39	24.92	3.23	10.69	3.14	14.50	4.04	12.50	3.69	10.47	3.27	10.95	3.33	25.18	3.19
Sig.		0.029*		0.024*		0.016*		0.036*		0.951		0.477		0.596		0.568		0.851		0.044*	
Age																					
18-22	13	21.38	5.49	21.62	5.55	22.30	5.22	21.23	5.17	12.92	5.01	18.07	7.73	15.54	6.77	13.38	5.64	14.08	5.72	22.23	5.36
23-27	240	24.31	3.40	24.23	3.53	24.29	3.60	24.30	3.52	11.18	3.46	15.09	4.38	12.90	4.05	10.99	3.56	2.46	3.55	24.50	3.51
28-32	127	24.89	3.75	24.80	3.63	24.95	3.74	24.69	3.69	10.39	3.71	14.23	4.35	12.06	4.14	10.27	3.82	10.68	3.73	25.13	3.61
33-37	127	24.46	3.19	24.46	3.20	24.60	3.12	24.57	3.08	10.52	2.90	14.63	4.06	12.19	3.61	10.49	3.16	10.83	3.10	24.74	3.15
38-42	30	25.37	1.69	25.70	2..03	26.13	1.91	26.03	1.45	9.20	1.47	13.03	2.08	10.50	2.08	9.13	1.43	10.07	2.57	26.13	1.61
>42	34	25.36	2.12	25.44	2.51	25.62	2.17	25.41	2.39	9.70	1.99	13.56	2.62	11.18	2.29	9.44	2.09	9.97	1.59	25.85	2.23
Sig.		0.004**		0.003**		0.003**		0.001**		0.001**		0.002**		0.000**		0.001**		0.002**		0.002**	
Religion																					
Islam	348	24.59	3.08	24.59	3.15	24.73	3.162	24.68	3.07	10.40	3.11	14.38	3.85	12.07	3.65	10.29	3.15	10.71	3.15	24.95	3.09
Christian	82	24.15	4.47	24.18	4.40	24.26	4.67	24.02	4.49	11.39	4.20	15.39	5.13	13.22	4.86	11.28	4.43	11.56	4.39	24.27	4.31
Catholic	83	24.54	3.57	24.49	3.69	24.49	3.44	24.42	3.61	11.07	3.35	15.14	4.77	12.79	4.14	10.99	3.70	11.42	3.55	24.59	3.72
Buddhist	17	25.47	2.18	25.35	2.52	25.35	2.55	24.24	2.40	10.41	2.15	14.06	3.19	11.94	2.46	9.82	2.29	10.70	2.37	25.82	2.27
Hindu	22	23.59	4.67	23.27	4.61	23.77	4.75	23.50	4.78	12.09	4.51	16.00	6.55	13.73	5.73	11.77	5.14	12.27	5.05	23.77	4.37
Confusionist	16	25.50	1.55	25.19	2.10	25.88	1.75	25.31	1.54	10.00	1.46	13.44	2.53	11.50	1.59	10.06	1.48	10/06	2.24	26.23	2.36
Sig.		0.370		0.374		0.362		0.248		0.037*		0.120		0.067		0.065		0.076		0.113	

Note: ** = p<0.01, *p<0.05

Table 2. Intercorrelations of the CROI Scales and Their Internal Reliabilities

CROI Orientation	*m*	*M(SD)*	α	ω	1	2	3	4	5	6	7	8	9
1. Centrality	6	24.53(3.40)	0.876	0.877	1								
2. Personal	6	24.49(3.47)	0.875	0.876	0.61**	1							
3. Gain	6	24.64(3.48)	0.875	0.876	0.62**	0.72**	1						
4. Punishment	6	24.54(3.43)	0.870	0.870	0.42**	0.43**	0.52**	1					
5. Obligation	8	14.67(4.28)	0.899	0.899	-0.49**	-0.38**	-0.09	-0.19*	1				
6. Social	6	10.70(3.34)	0.888	0.891	-0.24**	-0.15	0.06	-0.08	0.29**	1			
7. Doubt	7	12.39(3.96)	0.906	0.907	-0.35**	-0.44**	-0.56**	-0.37**	0.02	0.09	1		
8. Tentativeness	6	10.58(3.49)	0.887	0.889	-0.57**	-0.35**	-0.58**	-.009	0.14*	0.04	0.32**	1	
9. Dialog	6	10.98(3.47)	0.880	0.883	-0.36**	-0.55**	-0.46**	-0.07	0.19*	0.01	0.49**	0.31**	1
10. Interest	6	24.81(3.41)	0.869	0.869	0.42**	0.53**	0.42**	0.22**	-0.21**	-0.01	-0.08	-0.21**	-0.08

Note: m = number of items, M = means, SD = standard deviation, α = alpha cronbach's coefficients, ω = McDonald's omega coefficients, * = p<0.05, ** = p<0.01

Internal consistency

Table 2 presents data concerning the internal and retest reliabilities, as well as the intercorrelations, of the CROI scales. All 10 CROI scales exhibited strong internal reliabilities, underscoring their reliability as measurement tools. It is important to note that the orientation within a CROI typically does not exhibit high correlations, suggesting that they are not redundant measures. Among the four scales in the committed/unreflective quadrant (personal, centrality, gain, and punishment), intercorrelations ranged from 0.42 to 0.72. In contrast, the two scales in the uncommitted/unreflective quadrant (obligation and social) showed a correlation of 0.29 ($p<0.001$). Finally, the three scales in the uncommitted/reflective quadrant (doubt, tentativeness, and dialog) displayed intercorrelations ranging from 0.31 to 0.49.

Factor analysis

A confirmatory factor analysis was conducted on the representative sample to analyze whether the structure of the CROI could be replicated using the full 10-factor model of the CROI-IV. The outcomes revealed that each item exhibited factor loadings within the spectrum of 0.55 to 0.95, as illustrated in Table 3. Specifically, only six items registered above 0.50, and the rest of 57 items reached or exceeded 0.70.

Based on the findings presented in Table 4, it is clear that all CROI-IV orientations, with the exception of social orientation, necessitate adjustment indices in order to satisfy the criteria for adequacy. These criteria encompass a Goodness of Fit Index (GFI) exceeding 0.9, a Comparative Fit Index (CFI) falling within the range of 0.90 to 1.00, a Tucker-Lewis Index (TLI) surpassing 0.95, a Root Mean Square Error of Approximation (RMSEA) lower than 0.08, a Root Mean Square Residual (RMSR) below 0.8, a low Akaike Information Criterion (AIC) value, and a Non-Normed Fit Index (NNFI) greater than 0.95 (Gronier, 2023).

Convergent validity

The process of assessing convergent validity in our study involves a thorough examination of the intercorrelations among various variables: the CROI-IV orientation, the Indonesian version of CRS, religious orientation, Intellectual Humility, and Religious Tolerance, as previously explored by researchers investigating religiosity in Indonesia. A comprehensive presentation of this analysis is available in Table 5. It is important to note that the Intrinsic and Extrinsic religious orientations exhibited positive correlations with every measure in the committed/unreflective quadrant. Conversely, the Quest religious orientation displayed a positive and significant correlation with orientations in the uncommitted/unreflective quadrants. The CRS manifested an exceptionally high correlation with orientations in the committed/unreflective quadrant. Intrinsic and extrinsic religious orientations demonstrated negative correlations with every measure from the uncommitted/unreflective and uncommitted/reflective quadrants. Additionally, all religious orientations, CRS, Intellectual humility, and religious tolerance exhibited significant positive correlations with the committed/reflective quadrant.

To ensure convergent validity, we additionally computed the average variance extracted (AVE). The findings revealed the subsequent AVE values: centrality orientation (0.553), personal orientation (0.517), gain orientation (0.519), punishment orientation (0.504), social orientation (0.579), obligation orientation (0.548), dialog orientation (0.561), doubt orientation (0.595), tentative orientation (0.584), and interest orientation (0.507).

Time consistency

The time constancy is measured using the so-called test-retest technique. We have already administered CROI-IV to the same subjects (N = 70) at two-time intervals. Following the first measurement on January 2nd, 2024, we conducted the second measurement on January 17th,

2024, or approximately 2 weeks after the first measurement. The results show a high positive correlation between CROI-IV scores of the first and the second time data collection, as depicted in Table 6.

Table 3. Factor Loading

CROI Orientations	Translated Item	t values	Factor Loading
Centrality	*Item1*	14.102	0.719
	Item 2	12.629	0.725
	Item 3	13.955	0.725
	Item 4	14.173	0.740
	Item 5	13.720	0.717
	Item 6	14.102	0.790
Personal	*Item 7*	14.157	0.727
	Item 8	13.404	0.787
	Item 9	13.872	0.725
	Item 10	14.706	0.678
	Item 11	12.752	0.725
	Item 12	14.071	0.763
Gain	*Item 13*	13.769	0.745
	Item 14	13.691	0.745
	Item 15	14.434	0.697
	Item 16	14.417	0.701
	Item 17	13.127	0.771
	Item 18	13.691	0.746
Punishment	*Item 19*	13.178	0.765
	Item 20	14.281	0.703
	Item 21	14.223	0.708
	Item 22	13.685	0.741
	Item 23	14.150	0.711
	Item 24	13.805	0.733
Social	*Item 25*	11.599	0.850
	Item 26	14.697	0.724
	Item 27	14.971	0.700
	Item 28	14.591	0.732
	Item 29	14.356	0.748
	Item 30	13.650	0.781
Obligation	*Item 31*	14.542	0.742
	Item 32	14.534	0.739
	Item 33	14.738	0.720
	Item 34	14.853	0.715
	Item 35	14.779	0.720
	Item 36	14.583	0.736
	Item 37	14.804	0.717
	Item 38	14.643	0.732
Doubt	*Item 39*	13.576	0.809
	Item 40	14.361	0.771
	Item 41	15.267	0.693
	Item 42	14.117	0.787
	Item 43	13.623	0.810
	Item 44	15.318	0.689
	Item 45	14.397	0.766
Tentativeness	*Item 46*	13.987	0.761
	Item 47	14.260	0.746
	Item 48	14.561	0.722
	Item 49	14.722	0.707
	Item 50	12.043	0.837
	Item 51	14.011	0.757
Dialog	*Item 52*	12.769	0.804
	Item 53	14.645	0.699
	Item 54	14.950	0.684
	Item 55	14.481	0.724
	Item 56	12.637	0.810
	Item 57	14.138	0.735
Interest	*Item 58*	13.836	0.730
	Item 59	13.997	0.718
	Item 60	13.461	0.739
	Item 61	14.107	0.713
	Item 62	14.153	0.698
	Item63	13.213	0.751

Table 4. Fit criteria of CROI-IV

CROI Orientation	Modification indices	X^2 *(p value)*	GFI	CFI	TLI	RMSEA	SRMR	AIC	NNFI
Centrality	2-5; 4-6; 1-6	17.640 (0.007)	0.999	0.993	0.982	0.058	0.015	5913.060	0.982
Personal	9-12; 9-10; 7-10	13.500 (0.036)	1.000	0.995	0.988	0.047	0.015	6059.596	0.998
Gain	14-17; 15-18; 13-16	17.748 (0.007)	0.999	0.992	0.981	0.059	0.015	6124.983	0.981
Punishment	20-23; 21-24; 21-23	16.855 (0.010)	0.999	0.993	0.982	0.056	0.017	6148.082	0.982
Obligation	32-33; 31-34; 37-38; 36-37; 35-36	27.899 (0.022)	0.997	0.994	0.989	0.039	0.016	7441.072	0,989
Social	-	22.272 (0.008)	0.998	0.992	0.987	0.051	0.016	5560.527	0.978
Doubt	40-45; 44-45; 41-42; 39-45	26.296 (0.003)	0.997	0.993	0.985	0.053	0.017	6379.742	0.985
Tentativeness	48-51; 48-49; 49-50	14.950 (0.021)	0.998	0.995	0.987	0.051	0.014	5828.132	0.987
Dialog	53-57; 52-53	12.268 (0.092)	0.999	0.997	0.993	0.036	0.013	5978.105	0.993
Interest	60-63; 59-62; 59-63; 59-60	8.933 (0.112)	0.997	0.997	0.992	0.037	0.009	6108.560	0.992

Table 5. Correlations of CROI-IV with religious orientations, CRS, Intellectual humility, and religious tolerance previously exhibit in Indonesia

Variables	CRC Quadrants									
	Committed/ unreflective			Uncommitted/ unreflective			Uncommitted/ reflective			Committed/ reflective
	CE	PE	GA	PU	OB	SO	DO	TE	DI	IN
ROI	0.737**	0.727**	0.744**	0.764**	-0.769**	-0.773**	-0.082	-0.190*	-0.167	0.364**
ROE	0.671**	0.661**	0.682**	0.697**	-0.736**	-0.776**	-0.143	-0.143*	-0.118	0.201**
	0.065	0.038	0.082	0.087	-0.329**	-0.429	0.744**	0.739**	0.713**	0.103*
CRS	0.928**	0.740**	0.646	0.649**	-0.917**	-0.880**	-0.190*	-0.32**	-0.38**	0.550**
IH	0.633**	0.604**	0.645**	0.659**	-0.789**	-0.789**	-0.101	0.23*	0.43**	0.682**
RT	0.758**	0.633**	0.669**	0.687**	0.692**	-0.792**	0.22**	0.08	0.03	0.302**

Note: ROI = Religious orientation-Intrinsic, ROE = Religious orientation-Extrinsic, ROQ = Religious orientation-Quest, CRS = Centrality Religious Scale, IH = Intellectual Humility, RT = Religious Tolerance, CE = Centrality, PE = Personal, GA = Gain, PU = Punishment, OB = Obligation, SO = Social, DO = Doubt, TE = Tentativeness, DI = Dialog, IN = Interest, * = $p<0.05$, ** = $p<0.01$

Table 6. correlation result of test-retest with the same participants

CROI Orientation	Test-Retest
Centrality	0.944**
Personal	0.862**
Gain	0.893**
Punishment	0.738**
Obligation	0.917**
Social	0.759**
Doubt	0.873**
Tentativeness	0.857**
Dialog	0.773**
Interest	0.929**

** = $p<0.01$

Discussion

For a test to be deemed highly reliable, a reliability coefficient above 0.8 is desirable (Ursachi et al., 2015). The Cronbach's Alpha method revealed that each dimension of the CROI-IV exhibited adequate internal consistency. Nevertheless, since alpha values may underestimate internal consistency, we also present McDonald's omega value, which is considered to be better in assessing reliability by providing the reliability of the total scale (Dunn et al., 2014). All CROI-IV dimensions have McDonald's omega values slightly better compared to the alpha values, indicating excellent internal reliability.

The validity evidence of the internal structure was examined through CFA. However, with the exception of the social orientation, the first model did not satisfy all the criteria for the internal structure evidence of CROI-IV orientations. Consequently, we addressed these discrepancies by implementing modifications suggested by modification indices to achieve acceptable fit index values.

Unlike previous findings in samples from the United States, Romania, and Iran (Persian), it has been observed that Indonesian versions of CROI require a significant number of modification indices. This is due to Indonesian people's tendency to perceive similarity in the context of items as repeated items, which subsequently influences their responses to the items in a similar manner (Prihatini et al., 2017). For the centrality orientation, item no. 2 will elicit a similar response to item 5 after reversing the scores. Indonesian individuals who prioritize religion above all else in their lives, religion will serve as the driving force (Mubarok et al., 2021). This accounts for the modification indices of item 4 and 6, as well as item 1 and 6, since these items specifically examine the significance of religion in life. In the personal orientation, a similar interpretation of Indonesian respondents about the items can result in correlated errors in item 7, 9, 10, and 12, as all of these items inquire about Indonesian people's beliefs regarding God's provision of guidance and assistance in times of trouble. In the gain orientation, a comparable context is expected to yield correlated errors between item 14 and 18 (pertaining to the assistance of God in one's career), 15 and 17 (relating to God's help in achieving life goals), and 13 with 16 (highlighting the role of faith in God in promoting good health). The same rationale can be applied to the punishment orientation, where items 20, 21, and 23 all describe negative consequences for disobeying God or neglecting attendance at places of worship. Doubt items 39, 40, and 45 convey the notion that questioning religion is a normal occurrence, while items 41 and 42 suggest that doubting religion is unwise. Tentativeness items 48, 49, 50, and 51 assert that religious certainty represents truth, dialog items 52, 53, and 57 discuss Indonesia people's experiences that may influence beliefs about religion, and interest items 59, 60, 62, and 63 express a desire to further explore the study of religion. These cultural differences reinforced the issue brought by Shou et al. (2022) about the importance of adaptation and validation in Asian people, so that accurate assessment can be obtained.

After implementing the suggested modifications from the modification indices, the modified model for centrality, personal, gain, punishment, obligation, doubt, tentativeness, dialog, and interest orientation demonstrated improved fit, meeting the criteria for a well-fitted model across all indicators of fit indices. Conversely, small chi-square values were successfully obtained in the model even though not all p values scored more than 0.05. This may be attributed to the sensitivity of the chi-square index to sample size, with larger samples more likely to yield significant results even when the model is a good fit (Bergh, 2015). Moreover, all items displayed factor loadings exceeding 0.5 which means the items are practically necessary, with most of item has loadings of more than 0.7 indicate a well-defined structure as expected in factor analysis Hair et al. (2010).

Convergent validity was assessed by conducting a Pearson Product-Moment Correlation analysis between CROI-IV scores and a religious orientation scale, namely the Centrality Religious Scale (CRS), intellectual humility, and a religious tolerance scale previously used by an Indonesian researcher. The findings indicated a strong and positive correlation between intrinsic orientations of Indonesian respondents and their religious centrality. This relationship is likely because both intrinsic and centrality orientations measure religious commitment (Kirkpatrick & Hood, 1990). In contrast, extrinsic religious orientation was found to be correlated with personal gain and punishment, as both measures pertain to using religion for external outcomes such as guidance, life accomplishments, or avoiding punishment (Krauss & Hood., 2013). On the other hand, the Quest religious orientation displayed a significant and positive correlation with doubt, tentativeness, and dialogue. This correlation supports the

empirical findings of Krauss and Hood (2013) on CROI, which also showed a strong connection between the Quest orientation and doubt, tentativeness, and dialogue. However, the Quest orientation did not demonstrate an association with centrality, personal gain, and punishment, indicating that the link between the Quest orientation and doubt, tentativeness, and dialogue measures an Indonesian people's inclination to question religion rather than reflecting a general religious commitment and belief. This confirms that doubt, tentativeness, dialogue, and the Quest orientation measure a lack of religious commitment and belief, also known as religious skepticism (Batson, 1976; Batson et al., 1993; Batson & Schoenrade, 1991).

While intellectual humility is consistently related to dialogue and tentativeness, it does not correlate with doubt orientation. Additionally, it is also significantly positively correlated with centrality, personal gain, and punishment orientations. This suggests an Indonesian people's willingness to engage in dialogue and an acknowledgement of the limitations of understanding without causing doubt in one's own religion. This aligns with the argument from Krauss and Hood (2013) that people high on the intrinsic scale are interested in learning about their religion but are relatively sure of their beliefs and do not enjoy or value the doubts they may have.

Regarding religious tolerance, the measurements show a significant and consistent correlation with centrality, personal, gain, punishment orientations. However, there is a lower correlation with the obligation orientation and a negative correlation with social orientations. The correlation of religious tolerance tends to be higher with the centrality orientation, which represents intrinsic religious orientation. This is compared to the average correlation with personal, gain, and punishment orientations, which contain elements similar to extrinsic religious orientation. This suggests that Indonesian peoples with intrinsic religious orientation are more tolerant in their religious beliefs compared to those with extrinsic religious orientation. Furthermore, the negative correlation with social orientation indicates that Indonesian peoples who seek acceptance in society tend to be less tolerant in their religious beliefs. This confirms research results that there is a phenomenon of tolerance and intolerance in Indonesia (Al Fariz & Saloom, 2021)

The CRS exhibited a stronger correlation with centrality orientations than personal, gain and punishment. This implies that these two measures assess the same underlying construct, while still being associated with other orientations that gauge commitment in religion. Moreover, religious orientations, CRS, intellectual humility, and religious tolerance all demonstrated significant positive correlations with interest orientation, with the highest correlation observed with intellectual humility. This suggests that Indonesian who cultivate trust and exhibit respect for diverse perspectives are more inclined to possess a curiosity to delve deeper into their own religion, irrespective of their specific religious orientation. Additionally, Indonesian peoples are also more likely to possess an open-mindedness and willingness to comprehend and accept other religions. Indonesian people are known to have a high tolerance for differences in religious beliefs, particularly when their religious orientation is more focused on personal meaning and intrinsic values (Ulfaturrohmatiririn et al., 2021).

To further corroborate the validity, we employed AVE measures. The AVE values for all CROI-IV orientations surpassing the acceptable threshold of 0.5, indicating satisfactory convergent validity (Cheung et al., 2023). This finding aligns with Fornell and Larcker's (1981) assertion that the AVE should not fall below 0.5, affirming that the latent construct explains no less than 50% of the indicator variance.

The Pearson Product-Moment Correlation test was conducted to determine the relationship between scores from the first and second data collection on the same subject with a time span of 14 days, resulting in all orientations of CROI-IV having correlation coefficients (r) higher than 0.7. A correlation with $0.3 < r < 0.5$ is considered as low, $0.5 < r < 0.7$ is moderate

and r > 0.7 is strong (Tabachnick & Fidell, 2019). This result indicating the scale is stable over time and therefore reliable.

The sensitivity of cross-cultural adjustment is assessed by comparing various modalities of the same variable (Gronier, 2023). Socio-demographic analysis indicates that gender shows significant differences on centrality, personal, gain, punishment, and interest orientation, with female have higher mean score than male, except interest orientation confirming the results obtained by Aghababei (2019) that males are less likely to see religion as important aspect of their life, but Males are more interested to learn about religion that female.

The impact of age difference on all aspects of religious orientations within the circumplex tends to be more prominent among older individuals. This implies that as people grow older, their religious orientations may undergo a transformation or become more accentuated (Ingersoll-Dayton et al., 2002). The disparity in religious orientations across different age groups can be attributed to a multitude of factors, including life experiences, changes in social environments, and evolving personal beliefs. Gaining an understanding of these age-related disparities can provide valuable insights into the development and evolution of religious orientations throughout an individual's lifespan. It can also facilitate a deeper comprehension of the role that religion plays during different stages of life and its influence on shaping individuals' perspectives. Conversely, there are no noteworthy distinctions among the various orientations of CROI that are influenced by religious affiliations, even though major participants in this study are from Islamic affiliations. This finding of no distinctions across religious orientations aligns with the replication and validation study conducted by Isaak et al. (2017) of the Circumplex Religious Orientations Inventory (CROI). However, it should be noted that in their study, the majority of participants reported Evangelical religious affiliations. This indicates the universality of CROI and suggests that it can be utilized to measure the individual religious orientations of diverse religions. Therefore, CROI-IV is considered to possess a moderate level of sensitivity across different cultures. The moderate sensitivity level of CROI-IV across various cultures implies that while this tool can discern disparities in religious orientations, it may not comprehensively encompass all the intricate nuances of specific religious contexts. It is imperative for researchers to bear this in mind when determining the optimal number of participants from each religious affiliation and when interpreting the findings. Moreover, researchers should contemplate supplementing CROI with supplementary measures or qualitative methods to obtain a comprehensive comprehension of religious orientations in diverse religious contexts.

Research Implications

This study pioneers the adaptation of Krauss and Hood's Circumplex Religious Orientation Inventory (CROI) in Indonesia, marking the first publication on its application in an Asian context. The findings establish the CROI's utility and generalizability in Indonesia, offering a valuable tool for mapping religious orientations across different religions. The introduction of the Indonesian version is expected to deepen our understanding of religiosity among the Indonesian population. Furthermore, this research sets the stage for potential adaptations of the CROI in other non-English-speaking countries, encouraging a more global exploration of religious phenomena.

Limitations and Suggestions for Further Research

One limitation of this study is that the majority of participants were Muslims, which may restrict the generalizability of the findings to other religious groups. Additionally, the use of a convenience sample of volunteer respondents and reliance on self-reports were other limitations. Another constraint was the cross-sectional design, which hinders the ability to establish causal relationships. Future research, employing more robust methodologies, should

aim to investigate diverse cultures and religious groups to enhance the generalizability of findings. Researchers may find it beneficial to explore the structure of the Circumplex Religious Orientations Inventory (CROI) in Indonesia specifically, and to document potential differences in factor loadings, covariances, and means across cultures (Krauss & Hood., 2013). Moreover, this study solely utilized confirmatory factor analysis (CFA) as a validation procedure for the instrument. Incorporating additional validation procedures such as RASCH analysis and assessments of convergent and divergent validity could further bolster the instrument's reliability and validity.

CONCLUSIONS

This study aims to adapt the Circumplex Religious Inventory into the Indonesian Version, ensuring that the translation and cultural adaptation processes strictly adhere to relevant guidelines. The findings indicate that the CROI-IV is both reliable and valid for assessing the religious orientation among Indonesian individuals aged 18 years or older. The study, supported by a comprehensive review process involving expert reviewers to ensure content validity, reveals that robust psychometric analysis positions the CROI-IV as a valuable tool, contributing to the advancement of religious research, especially religious orientation. Future researchers could contact the corresponding author of this study to access the full version of CROI-IV if needed.

ACKNOWLEDGEMENT

The authors would like to express their sincere gratitude to Prof. Dede Rahmat Hidayat, M.Psi., Ph.D, for his valuable guidance, insights, and support throughout the scale adaptation process.

AUTHOR CONTRIBUTION STATEMENT

M.S.A contributed to conceptualization, collecting data, and data analysis. M.S, A.L.K and R.H.N validated and supervised the findings in this work. All authors discussed the results and contributed in the manuscript writing.

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