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Religiosity as a potential buffer against depression and stress among college students in Minahasa, Indonesia

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Abstract

Background: Mental health problems among college students are a growing concern, especially during their transition into higher education. Religiosity has been proposed as a potential protective factor. This study explores the relationship between religiosity and depression in a sample of first-year, university students in Minahasa, Indonesia.

Objectives: To investigate whether higher levels of religiosity are associated with lower levels of depression among college students.

Methods: A cross-sectional study was conducted with 367 first-year students at Manado State University. Depression was measured using the DASS-42 scale, while religiosity was assessed using the Duke University Religion Index (DUREL), encompassing organizational, non-organizational, and intrinsic religiosity. Data were analysed using correlation analysis.

Results: A significant negative correlation was observed between intrinsic religiosity and levels of depression and stress, with some variations between genders. No significant correlation was found between organizational and non-organizational religious activity and mental health symptoms.

Conclusion: Intrinsic religiosity, but not religious activities, was correlated with lower depression among first-year college students, suggesting a potential buffering role. This highlights the potential of incorporating faith-based or spiritual elements into student mental health programs in culturally relevant contexts.

Keywords: religiosity, depression, college students, mental health, DASS-42, DUREL, Indonesia

Introduction

Depression is currently a leading cause of disability, with more than 350 million people affected worldwide.[1,2] Stress, often intertwined with depression, can also lead to physical and mental health issues, including anxiety disorders, substance abuse, and even suicidal ideation.[3] The burden of these conditions is prominent among young adults, with college students being especially vulnerable. Their transition into higher education often involves navigating intense academic demands, financial burdens, adjusting to new social environments, and developing independence away from established support systems. These multifaceted pressures, combined with the critical developmental period of young adulthood, can profoundly impact mental well-being, leading to a heightened risk of experiencing significant depressive symptoms and stress.[4] Research indicated that around 30% of college students report significant depressive symptoms.[4,5] In Indonesia, the prevalence of mental health issues among college students is also concerning with a substantial proportion of students experiencing moderate to severe levels of depression and stress.[6,7] It is therefore imperative to conduct research focusing on specific factors that may mitigate these mental health challenges. Since mental state is a complex condition involving genetics, environment, and culture, considering the geocultural context in designing intervention strategies is essential.

Recent research indicated that Indonesia is currently the most religious country in the world with 100% of the respondents considering religion important in their life.[8] This deep societal embedding of faith is evident in daily life, public policy, and personal identity with religious values affect cultural norms and social interactions. The population adheres to one of the six officially recognized religions, and religious observance plays a central role in many individuals' lives. Religiosity can serve as a potential buffer against mental health issues, providing individuals with a sense of community, purpose, and coping mechanisms. Previous studies conducted in various cultural contexts have demonstrated that religiosity can play a protective role in mental health and reducing the incidence of depression and stress, although this relationship can vary significantly across populations and contexts.[9]

While most of the Indonesian population identifies themselves as Muslim, there are pocket areas where other religions are the majority. Minahasa is a regency in Indonesia where most of its people identify as Christians.[10] This area therefore possesses the unique properties of being a Christian-majority area in the Moslem-majority country of Indonesia. Most of the previous depression-religiosity research in Indonesia was conducted with Muslim-majority respondents. We aim to replicate such research in our Christian-majority samples of Minahasan college students. This gap in the literature underscores the need for further investigation, prompting the current study to explore the role of religiosity as a potential buffer against depression and stress among college students in Minahasa, Indonesia. By understanding these dynamics, we aim to contribute valuable insights that can inform mental health interventions and support systems within this population.

Methods

Participants

We conducted an online survey of 367 year-1 students at Manado State University, Indonesia in the first week of November 2024. The samples were conveniently drawn from five different departments (Public Health, Psychology, Information Technology Education, Sport Science, and Information Technology) based on the authors' teaching affiliations within Manado State University (total sampling, no students refused). All enrolled students who presented during the survey were invited to participate, resulting in a 100% voluntary participation rate within these classes. There is no threat nor incentive given for completing or not completing the survey. All respondents provided consent to be included in the study. Ethical approval from the institution's ethics committee were obtained (No. 002/IKM/2024).

Measures

Depression, anxiety, and stress were measured using Depression, Anxiety, and Stress Scale 42 items (DASS-42).[7,11,12] DASS-42 is a 42-item self-report questionnaire comprising three distinct scales, each with 14 items: Depression, Anxiety, and Stress. Each item is rated on a 4-point Likert scale ranging from 0 (Did not apply to me at all) to 3 (Applied to me very most of the time). To calculate the scores for each subscale, the ratings for the 14 items belonging to that subscale were summed. Higher scores indicate greater severity of symptoms. For interpretation, raw scores for each subscale can be categorized into severity levels (normal, mild, moderate, severe, extremely severe) based on established cut-off scores.[12]

Religiosity was examined using a DUREL questionnaire, measuring the organizational religious activity (ORA), non-organizational (personal) religious activity (NORA), and internal religiosity (IR).[13] ORA was measured by one item asking about the frequency of attending church or other religious meetings (How often do you attend church or other religious meetings?). Responses range from 1 (Never) to 6 (More than once/week). NORA was measured by one item asking about the frequency of private religious activities (How often do you spend time in private religious activities, such as prayer, meditation, or Bible study?), with the response range from 1 to 6 as above. IR was measured by three items assessing the degree of personal religious commitment and the integration of religious beliefs into one's life (e.g., My religious beliefs are what really lie behind my whole approach to life). Responses typically range from 1 (Definitely not true) to 5 (Definitely true of me). Scores of ORA, NORA, and IR were calculated. ORA and NORA are single-item measures, while IR is derived by summing the scores of its three items. Higher scores on each subscale indicate greater religious involvement in that dimension.

Statistical analyses

All statistical analyses were performed using Microsoft Excel and SPSS ver. 10. Descriptive statistics, including means, standard deviations, and frequencies, were calculated to characterize the demographic profile of the participants and the distributions of DASS-42 and DUREL scores. Correlations between dimensions of religiosity (ORA, NORA, and IR) and mental health outcomes (Depression, Anxiety, and Stress) were measured using Spearman's rank due to the non-normal distribution of the data. Comparisons were performed using independent sample t-tests or chi-squares, depending on the data. The significance level for all statistical tests was set at $p<0.05$.

Results

The majority of participants were female (n=268, mean age 18.47 years), significantly younger than their male counterparts (n=99, mean age 19.15 years; $p<0.001$). Students were distributed across five departments, with Public Health being the most represented (46.6%), followed by Psychology (16.9%), and Information Technology Education (16.3%). The sample was predominantly Christian (Protestant: 76.8%; Catholic: 6.8%), with a smaller representation of Islam (16.0%) and other religions. Most students have 2 or 3 siblings (28.1% and 21.8%, respectively), lived in rented private rooms (74.9%), and the majority had a normal BMI (64.9%), though a significant proportion were underweight (24.0%). Other than the different gender distribution across departments, it also appeared in accommodation type ($p=0.016$) and BMI categories ($p=0.014$), with males were more likely to be overweight or obese.

Table 1. Demographic characteristics of the respondents

Variables		M+F (n=367)	M (n=99)	F (n=268)	p-value (M vs. F)
Age (mean±SD)		18.66±1.20	19.15±1.31	18.47±1.10	<0.001***
Major (n,%)	Psychology	62 (16.9)	12 (12.1)	50 (18.7)	<0.001***
	Public Health	171 (46.6)	17 (17.2)	154 (57.5)	
	IT Education	60 (16.3)	25 (25.3)	35 (13.1)	
	Sport Science	16 (4.4)	10 (10.1)	6 (2.2)	
	IT	58 (15.8)	35 (35.4)	23 (8.6)	
Religion	Islam	58 (158)	15 (15.2)	43 (16.0)	0.812
	Christian (Protestant)	282 (76.8)	78 (78.8)	204 (76.1)	
	Christian (Catholics)	25 (6.8)	6 (6.1)	19 (7.1)	
	Others (Hindu/Buddha)	2 (0.5)	0 (0)	2 (0.7)	
Accommodation	Renting private room	275 (74.9)	63 (63.6)	212 (79.1)	0.016*
	With parents	58 (15.8)	21 (21.2)	37 (13.8)	
	With relatives	11 (3.0)	4 (4.0)	7 (2.6)	
	Boarding house	23 (6.3)	11 (11.1)	12 (4.5)	
No. of siblings	0	28 (7.6)	11 (11.1)	17 (6.3)	0.664
	1	72 (19.6)	22 (22.2)	50 (18.7)	
	2	103 (28.1)	26 (26.2)	77 (28.7)	
	3	80 (21.8)	21 (21.2)	59 (22.0)	
	4	38 (10.4)	9 (9.1)	29 (10.8)	
	5	25 (6.8)	5 (5.1)	20 (7.5)	
	≥6	21 (5.7)	5 (5.1)	16 (6.0)	
BMI	Underweight	88 (24.0)	18 (18.2)	70 (26.1)	0.014*
	Normal	238 (64.9)	64 (64.6)	174 (64.9)	
	Overweight	36 (9.8)	13 (13.1)	23 (8.6)	
	Obese	5 (1.4)	4 (4.0)	1 (0.4)	
	Raw values	21.06+3.75	22.17±4.99	20.66±3.06	0.006**

*Notes: BMI: body mass index; *p<0.05; **p<0.01; ***p<0.001 using t-test or chi-square.*

Previous research has established the significant gender bias in mental health assessment, where females reported higher mental health symptoms.[7] Therefore, we analysed the males and female groups separately. Table 2 displays the differences in depression, anxiety, and stress (DAS) levels among respondents. Most respondents had normal depression level (64.0%), moderate anxiety level (20.7%), and mild stress level (32.7%). In all three DAS parameters, females consistently reported more severe symptoms compared to males (all p<0.01, either when calculated by categories or the raw values). In the religiosity scale, organizational religious activity (ORA) showed no significant gender differences (p=0.731). However, non-organizational religious activity (NORA) and internal religiosity (IR) were significantly higher in females (p=0.000 and p=0.008, respectively). Together, these results suggest that females generally report higher levels of stress and religiosity, particularly in personal and internal dimensions, while males tend to report lower levels of depression, anxiety, stress, as well as lower NORA and IR.

Table 2. DASS and DUREL descriptive values in respondents

Parameter		M+F (n=367)	M (n=99)	F (n=268)	p-value (M vs. F)
D	Normal	235 (64.0)	69 (69.7)	166 (61.9)	0.008**
	Mild	35 (9.5)	9 (9.1)	26 (9.7)	
	Moderate	56 (15.3)	8 (8.1)	48 (17.9)	
	Severe	19 (5.2)	2 (2.0)	17 (6.3)	
	Extremely severe	22 (6.0)	11 (11.1)	11 (4.1)	
Depression raw values		9.54±8.60	9.01±9.83	9.73±8.11	0.515
A	Normal	75 (20.4)	36 (36.4)	39 (14.6)	<0.001***
	Mild	47 (12.8)	14 (14.1)	33 (12.3)	
	Moderate	76 (20.7)	21 (21.2)	55 (20.5)	
	Severe	64 (17.4)	16 (16.2)	48 (17.9)	
	Extremely severe	105 (28.6)	12 (12.1)	93 (34.7)	
Anxiety raw values		14.71±8.93	10.76±7.87	16.17±8.87	<0.001***
S	Normal	109 (29.7)	46 (46.5)	63 (23.5)	<0.001***
	Mild	120 (32.7)	28 (28.3)	92 (34.3)	
	Moderate	79 (21.5)	17 (17.2)	62 (23.2)	
	Severe	43 (11.7)	6 (6.1)	37 (13.8)	
	Extremely severe	16 (4.4)	2 (2.1)	14 (5.2)	
Stress raw values		16.51±9.44	12.56±9.20	17.97±9.13	<0.001***
Religiosity					
	ORA	4.96±1.18	4.93±1.20	4.98±1.17	0.731
	NORA	3.70±1.68	3.17±1.61	3.89±1.66	<0.001***
	IR	4.71±0.62	4.53±0.85	4.78±0.50	<0.001***

*Notes: D: depression; A: anxiety; S: stress; ORA: organizational religious activity; NORA: non-organizational religious activity; IR: intrinsic religiosity; *p<0.05; **p<0.01; ***p<0.001 using t-tests or chi-square.*

Table 3. Correlation matrix of depression, anxiety, and stress with religiosity

Parameter ORA		M+F (n=367)			M (n=99)			F (n=268)		
		NORA	IR	ORA	NORA	IR	ORA	NORA	IR	ORA
Depression	r	-0.022	0.015	-0.135**	-0.038	0.070	-0.207*	-0.027	-0.042	-0.141*
	p-value	0.676	0.777	0.010	0.711	0.489	0.040	0.660	0.491	0.021
Anxiety	r	0.000	0.045	-0.094	0.012	0.057	-0.184	-0.023	-0.035	-0.137*
	p-value	0.998	0.387	0.072	0.910	0.574	0.069	0.712	0.572	0.025
Stress	r	0.029	0.040	-0.108*	0.051	0.067	-.225*	0.009	-0.049	-0.129*
	p-value	0.583	0.447	0.040	0.619	0.508	0.025	0.885	0.427	0.035

*Notes: ORA: organizational religious activity; NORA: non-organizational religious activity; IR: intrinsic religiosity; *p<0.05; **p≤0.01.*

Table 3 presents the correlation matrix between DAS and religiosity. Both ORA and NORA did not correlate with DAS across gender subgroups. Interestingly, intrinsic religiosity (IR) shows significant negative correlations with all three DAS parameters. In the total sample, IR significantly correlated with D ($r = -0.135$, $p = 0.010$) and S ($r = -0.108$, $p = 0.040$). This pattern is consistent among males and females, with stronger correlations observed in males for depression ($r = -0.207$, $p = 0.040$) and stress ($r = -0.225$, $p = 0.025$). In females, interestingly, IR correlated with all three dimensions (D: $r=-0.141$, $p=0.021$; A: $r=-0.137$, $p=0.025$; S: $r = -0.129$, $p = 0.035$). The negative values of r showed an inverse correlation, which means higher religiosity scores are associated with lower depression, anxiety, and stress scores. When separated between religions, only Christian groups showed this negative religiosity-DAS correlation (Table S1); however, this could just be attributed to the larger sample size of Christian subjects in our current research.

Discussion

These findings provide insight into the relationship between religiosity and psychological distress among college students in Minahasa, Indonesia. Due to the predominance of Christian students in our sample, the findings primarily reflect the phenomenon within this religious group, while comparisons with other faith groups are limited by sample size. The results suggest the distinct roles of different dimensions of religiosity: organizational religious activity (ORA), non-organizational religious activity (NORA), and intrinsic religiosity (IR) in influencing depression, anxiety, and stress (DAS). We also observed significant gender differences in how religiosity interacts with mental health outcomes.

The most striking finding of this study is the significant negative correlation between intrinsic religiosity (IR) and all three dimensions of psychological distress: depression (D), anxiety (A), and stress (S). IR, which reflects an individual's internal commitment to their faith and the personal integration of religious beliefs into their daily life, emerged as a significantly correlated with lower psychological distress, suggesting its protective factor against mental health challenges in this population. Existing literature suggests that intrinsic religiosity provides individuals with a sense of meaning, purpose, and coping mechanisms during times of stress or adversity.[14–17] For example, individuals with high intrinsic religiosity may draw on their faith to reframe negative experiences, find solace in spiritual practices, or seek comfort in their relationship with a higher power. These internalized beliefs and practices are associated with lower levels of emotional and psychological toll of depression, anxiety, and stress. In the context of our population, where most of the respondents (76.8%) were Christian, this finding suggests an association between this religion's values and lower mental health problems, as also evident when Christian respondents were analysed separately (Table S1). The mental dynamic of how this protective effect manifested would be interesting to be investigated in further qualitative research (e.g., through surrender, believing, declaring God's Word, etc).[18]

Interestingly, in our samples, males showed greater D-IR and S-IR correlations, while females, although weaker, showed significant correlations between IR and all D, A, and S. Among males, IR showed stronger negative correlations with D and S, suggesting that internal faith may play a particularly important role in helping men manage these forms of distress, such as external pressure or inadequacy.[19] For females, IR was more strongly associated with reduced anxiety, indicating that it may serve as a key resource for alleviating worry and fear.[20] These gender differences may reflect variations in how males and females experience and express psychological distress, as well as differences in how they engage with and internalize religious beliefs.

The lack of protective effect of ORA or NORA is also interesting to be discussed. This distinction between internal faith and external religious activities aligns with long-standing

theoretical frameworks in the psychology of religion, notably the early works differentiating intrinsic from extrinsic religious orientations.[21] In our sample, it is possible that IR does not correlate with ORA and NORA, meaning that internal faith system does not necessarily translate into religious activity.[20,22] From our samples, only ORA correlated with IR (Table S2). These suggest that external religious practices—such as attending services—may not directly influence mental health outcomes in this population. While religious activities are often encouraged as a parameter of piety, their lack of association with psychological distress highlights the importance of distinguishing between external religious behaviours and internal religious commitment. From another point of view, it can also be argued that ORA and NORA may not always translate into meaningful spiritual experiences or emotional support. This is, in particular, true in areas where religion has mixed with local habits or traditions. For example, attending religious services may be more of a social or cultural obligation for some individuals, rather than a deeply personal or transformative experience. Similarly, personal religious practices like prayer may vary in their emotional and psychological impact depending on the individual's level of engagement and intentionality. These findings underscore the need to look beyond external religious practices and focus on the internalization of religious beliefs as a key factor in promoting mental well-being. Within the Christian context, this association appears to stem more from a "heart transformation"—referring to a profound, internalized spiritual change (akin to the theological concept of *metanoia*)—rather than solely from "behaviour modification" which denotes outward religious actions or observances that may not always reflect a deep, personal commitment.

This study provided implications for mental health interventions, particularly in culturally religious contexts like Indonesia, Minahasa, and elsewhere. The observed significant association between intrinsic religiosity and lower psychological distress suggests that fostering internal faith and spiritual commitment could be a valuable strategy for promoting mental well-being. Mental health programs could incorporate elements of spiritual counselling or faith-based coping strategies to help individuals draw on their religious beliefs as a source of strength and resilience. On the other hand, religious leaders can incorporate mental health related counselling into their ministry, especially those who are ministering to college students.[23] The limited role of organizational and non-organizational religious activities highlights the need to move beyond superficial religious practices and focus on deepening individuals' internal engagement with their faith. Religious leaders and mental health professionals could work together to encourage more meaningful and intentional participation in religious activities, emphasizing their potential to enhance emotional and psychological well-being. Finally, the gender differences observed in this study underscore the importance of developing gender-sensitive interventions.[24] Programs targeting males could focus on using intrinsic religiosity to address feelings of hopelessness or pressure, while programs for females could emphasize the role of faith in managing anxiety and worry. Interestingly, the bible is filled with numerous scriptures for this matter (e.g., Philippians 4:6-7, John 14:27, Isaiah 41:10, 1 Peter 5:7). This study has several limitations. First, the cross-sectional design prevents us from establishing cause-and-effect relationships. While we observed associations, we cannot conclude that intrinsic religiosity directly buffers or protects against depression and stress. Future longitudinal studies would be needed to explore the arrow of causality. Second, the use of a convenience sample drawn from five departments at a single university in Minahasa limits the generalizability of our findings to other student populations or broader Indonesian contexts. The overwhelming dominance of Christian participants in our sample, while characteristic of the Minahasa region, means our findings primarily reflect this religious group. The smaller sample sizes for other religious

affiliations prevented meaningful comparative analyses, so we cannot generalize these findings to non-Christian populations in Indonesia. As with all self-report measures, there is a potential for response bias, where participants might report socially desirable answers, particularly concerning sensitive topics like religiosity and mental health. Specifically, males (as reflected in Table 2) may be less open to report mental health symptoms due to societal norms around masculinity and emotional expression, potentially leading to an underestimation of their true mental health challenges.[25,26] These inherent challenges of self-reported data in a culturally sensitive context might affect the accuracy and completeness of disclosure. Future research employing mixed-methods approaches could offer a more comprehensive understanding.

Conclusion

This study highlights the significant correlation of intrinsic religiosity with lower level of depression, anxiety, and stress among college students in Minahasa, Indonesia. While external religious practices, which are prevalent in this area, did not show significant associations with mental health outcomes, internal faith emerged as a powerful protective factor, particularly for males (depression and stress) and females (depression, stress, and anxiety). These findings underscore the importance of fostering intrinsic religiosity as a strategy to enhance mental well-being and suggest that mental health interventions should be tailored to address the unique needs of males and females. By integrating spiritual and psychological approaches, mental health professionals can provide more holistic and effective care for individuals in religiously oriented communities.

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Table S1. Correlation matrix between DAS and DUREL based on religion.

Parameter		All religions (n=367)			Islam (n=58)			Christian (n=282)			Catholic (n=25)			others (n=2)		
		ORA	NORA	IR	ORA	NORA	IR	ORA	NORA	IR	ORA	NORA	IR	ORA	NORA	IR
D	r	-0.022	0.015	**-.135****	0.015	0.012	-0.155	-0.033	0.014	**-.125***	-0.235	0.063	-0.221	n/a	n/a	n/a
	p-value	0.676	0.777	**0.010**	0.914	0.931	0.246	0.577	0.810	**0.036**	0.258	0.765	0.288	n/a	n/a	n/a
A	r	0.000	0.045	-0.094	-0.142	-0.087	-0.111	0.009	0.064	-0.105	-0.015	0.235	0.030	n/a	n/a	n/a
	p-value	0.998	0.387	0.072	0.289	0.515	0.409	0.882	0.282	0.079	0.945	0.258	0.887	n/a	n/a	n/a
S	r	0.029	0.040	**-.108***	-0.076	-0.084	-0.180	0.034	0.057	**-.117***	-0.027	0.225	0.063	n/a	n/a	n/a
	p-value	0.583	0.447	**0.040**	0.569	0.531	0.176	0.572	0.344	**0.049**	0.900	0.279	0.765	n/a	n/a	n/a

Table S2. Intercorrelation of ORA, NORA, and IR

Parameter		ORA	NORA	IR
ORA	r	1.000	**0.292*****	**0.123***
	p		<0.001	0.019
NORA	r	**0.292*****	1.000	0.047
	p	<0.001		0.367
IR	r	**0.123***	0.047	1.000
	p	**0.019**	0.367	

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