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The Mediating Roles Of Religious And Spiritual Coping Between Religiosity, Spirituality, And Depression Among Medical And Health Science Students.

Authors:
Usman Jaffer [1,5], Che Mohd Nasril Che Mohd Nassir [2], Rahmah Ahmad H. Osman [1,5], Abdul Latif Abd. Razak [1,5], Nasreen Allie [3], Mohamed Ayaaz Ahmed[4], Mohamad Afiudin Jalaludin [6], Nursyuhaidah Mohd Kadri [7*]

1. AbdulHamid Abusulayman Kulliyyah of Islamic Revealed Knowledge and Human Sciences, International Islamic University Malaysia, 50728 Kuala Lumpur, Malaysia; jafferu@iium.edu.my; rahmahao@iium.edu.my
2. Faculty of Applied Sciences, University Technology Mara, 35400, Perak Darul Ridzuan, Malaysia; nasrilche123@gmail.com
3. Faculty of Health Sciences, University of Cape Town, Barnard Fuller Building, Anzio Rd, Observatory, Cape Town, 7935, South Africa; penlynmedi@gmail.com
4. Southern Ambition 473 CC, 7764, Cape Town, South Africa, ayaaz@reamz.co.za
5. International Institute of Islamic Thought and Civilisation (ISTAC) International Islamic University Malaysia, Kuala Lumpur, Malaysia
6. Klinik Psikologi Azlina, Bandar Bukit Mahkota, Kajang, Selangor, Malaysia; afiudin1995@gmail.com
7. Faculty of Social Sciences and Liberal Arts, UCSI University, Jalan Puncak Menara Gading, Taman Connaught, 56000 Cheras, Federal Territory of Kuala Lumpur; Nursyuhaidah@ucsiuniversity.edu.my

* **Corresponding authors:** Nursyuhaidah@ucsiuniversity.edu.my

Abstract:

Introduction: Depression is a global mental health issue. Vulnerability for this condition increases in the university student population, specifically medical and health science disciplines. Previous evidence showed that religiosity and spirituality were inversely linked with depression. They have also been predominantly treated as one construct. Still, the mechanisms of these relationships are vague.

Objective: This study aims to investigate mediating roles religious and spiritual coping played on the relationships between religiosity, spirituality and depression among medical and health sciences students.

Methods: A total of 151 medical and health science students were recruited from various universities across Malaysia. The BDI-II, DUREL, Spirituality Scale (SS), RCOPE and SCQ were the measures used in this study.

Results: Religious coping (Positive) was responsible for full mediation between religiosity and depression. Positive spiritual coping partially mediated between spirituality and depression, while negative spiritual coping had a slight partial mediating effect.

Conclusion: These findings give insight into this population. It also provides avenues for psychoeducation and intervention. The ramifications of these findings may be applicable at the society as well as the government and policy making level in Malaysia.

Keywords: Religiosity; Spirituality; Depression; Coping ; Mediator

Introduction

A pertinent mental health issue at present is depression. Persistent sadness as well as losing interest and pleasure in activities that was once enjoyable, disrupted sleep cycles, appetite, poor concentration and exhaustion are all among the characteristics of depression. Globally, depression is experienced by 5% of the adult population (WHO, 2021) and in Malaysia 2.3 % (National Health and Morbidity Survey, 2020) – 23.9 % (Leong Bin Abdullah et al., 2021) of the adult population. A particularly vulnerable segment of the Malaysian population are university students. Based on 4 Malaysian universities, 27.5% of the students had symptoms in the moderate range and 9.7% scored from severe to extremely severe (Shamsuddin et al., 2013). When turning to health science and medical students it is found that the situation becomes more dire. In terms of health science, 51.4% had depression (Fauzi et al., 2021). Globally and in 28.5% to 78% Malaysia medical students have depression (Francis et al., 2019). This indicates that these students are of particular interest due to their high risk of depression.

To deal with these mental health issues individuals adopt various coping mechanisms. The behaviors as well as thoughts leveraged upon to deal with stress both internally and externally is defined as coping (Algorani & Gupta, 2022; Folkman & Moskowitz, 2004). While defense mechanisms are sub/unconscious, coping is deliberate, conscious, and voluntary. Reduction and toleration of depression are managed through both these processes (Algorani & Gupta, 2022; Venner, 1988). Considering the above mechanisms, religion and spirituality are important mechanisms to deal with depression. The domains of religiosity and spirituality have been studied with relation to various pathologies in numerous populations. It has been related to, anxiety, stress, handling disease, higher adherence to treatment, decreased hospitalisation, and lower rates of mortality (de Brito Sena et al., 2021; Dua et al., 2021) in adolescence, young adults, geriatrics, males, and females, in the workplace, the school setting, the university setting and even those who consider themselves areligious.

When considering religion in the psychological context there are various factors which play a role. The terms of religion, which comprises of motivated behavior, with clear objectives, acted out externally, having various rituals that an individual may perform in a group setting. Spirituality on the other hand is an internal endeavor, which is subjective in nature, and which has a special relationship with a transcendental being and may also include divine experiences. This religion and spirituality are found to be distinct constructs (Hyman & Handal, 2006; Oman, 2013; Paloutzian & Park, 2021) albeit having many overlaps. Based on these distinctions, the terms religiosity which is an individual's ability to enact religion (Ellis et al., 2019), and spirituality specifically focuses on a unique relationship with the devine (Braghetta et al., 2021; Jensen, 2021). Following that, religious coping thus uses what comprises religion for coping (Aflakseir & Mahdiyar, 2016; Torralba et al., 2021) and spiritual coping, uses the unique relationship with what is transcendent to cope (Charzyńska, 2015). While attempts have been made over the past three decades to distinguish between

religion and spirituality, many studies still treat them as interchangeable (Ozcan et al., 2021) when relating them to depression.

Various studies have been conducted on religiosity, spirituality, and religious coping in Malaysia, however they have either been based on a single-religion majority study and only focus on religiosity and religious coping (Ramzy et al., 2021). Recently, Francis et al. (2019) studied religiosity and religious coping on medical students with relation to depression and mental anxiety in a multi-religious context. Whilst they had included the multi-religious dimension in their study, they did not distinguish between spirituality and religion. Furthermore, the population focused on medical students from a single institute. There is thus a need to investigate religiosity, spirituality, religious coping and spiritual coping as distinct factors and their relation to depression in the multi-religious Malaysian context.

Moreover, while in these studies relationships are investigated, the type of relationship religious coping and spiritual coping plays with depression is still ill-defined generally in various populations and particularly in this population. One method to investigated is through the mediation model. A mediator variable mediates the independent and dependent variables. These associations between the dependent variable, i.e. depression in in this study, and the independent variable, i.e. religiosity or spirituality will be explained through mediation. Complete mediation is when the mediator variable i.e. spiritual or religious coping causes complete mediation. This the independent variable no longer having an effect on the dependent variable. Partial mediation is when the independent and mediator variable each effects the dependent variable partially (Hays, 2022).

Religious coping has been investigated as a meditation variable in the relashiships between resilience and mental well-being (Surzykiewicz et al., 2022), between God attachment and mental health (Kim et al., 2020), and Illness Perception and Health-Related Quality of Life (Ibrahim et al., 2012). Research has not been found in terms of a mediator between religiosity, spirituality and depression specifically in the present population.

The purpose of this study is thus to investigate the mediating role of religious coping and spiritual coping in the relationship between religiosity, spirituality and depression.

Methodology

A quantitative cross-sectional design was used to in this study. It used self-report questionnaires in the examination of the relationships between religiosity and depression as well as spirituality and depression.

Sample Size, and Subject Recruitment

The present study was concerned with undergraduate medical and health science students from various faculties and/or universities located in Peninsular Malaysia. Data was collected over a period of May 2022 to July 2022 and was open to all medical and health science students in Malaysian universities. A total of N = 151 students was successful registered and proceeded with the study.

Data Collection Procedures

The permission was sought from the instrument formulators to use their instruments and inventories. The items were digitized, and the language was made more applicable to the Malaysian context. Data was collected online using google forms. The inclusion criteria were willingness to participate, ≥18 years of age, registration in a Malaysian university (Peninsular Malaysia) as an undergraduate student, in the medical or health science faculties, has read and understood the informed consent as well instructions for the study and were willing to proceed.

Thereafter, sociodemographic data which include gender, age, marital status, educational year, university, and range of household income, if the participants were willing to disclose was obtained. Following that, the students' depression, religiosity, religious coping, spirituality, and spiritual coping was administered using specific and separate inventories respectively. The data was then exported from google forms to a Microsoft Excel spreadsheet following review and formatting was transferred to SPSS 26.0 (IBM Corp., Armonk, NY, USA).

Students' Depression Symptoms Assessment

To measure the depression and depressive symptoms among students, the Beck's Depression Inventory second edition (BDI-II) was used. BDI-II is a 21 item self-report scale designed to measure depression symptoms (Beck et al., 1996). The scores are summed up to give an overall score with higher scores indicating higher levels of depression. In terms of psychometric properties, this instrument has an internal consistency of $\alpha = 0.9$, with a test-retest reliability of $r = 0.73$ to 0.96, the convergent validity was 0.82 – 0.94 with BDI-I and 0.66 – 0.86 with other measure of depression (Wang & Gorenstein, 2013). When turning to discriminant validity the score was $r < 0.4$ with other measures (Wang & Gorenstein, 2013; Beck et al., 1996). When scoring, the following ranges are suggested by previous research: 0 – 13 to indicate minimal or no depression; 14 – 19, mild depression; 20 – 28, moderate depression; and 29 – 63, severe depression (Wang & Gorenstein, 2013).

Students' Religiosity Assessment

To measure the religiosity among students the Duke University Religion Index (DUREL) inventory was used (Koenig et al., 1997). It is 5-item measure which delineate three areas of religiosity i.e., organized religious activity (ORA), non-organized religious activity (NORA) and intrinsic religiosity (IR) (Koenig et al., 1997). ORA refers to communal religious activities such as attending public places of worship and religious activities. NORA refers to religious activities conducted in a personal manner, such as private scripture reading, and personal prayer time. IR assesses the degree of personal religious commitment and motivation.

In terms of psychometric properties this instrument has high test-retest reliability = 0.91, high internal consistency $\alpha = 0.78–0.91$, and high convergent validity with other measures of religiosity $r = 0.71–0.86$ (Koenig & Büssing, 2010). It has been translated to Malay (Nurasikin et al., 2010). It scores between a range of 5–27. (Koenig & Büssing, 2010).

Students' Religious Coping Assessment

The brief scale of religious coping (RCOPE) is an instrument used to assess students' religious coping (Pargament et al., 2011). It consists of 14 items with seven positive coping (P-COPE) items and seven negative coping (N-COPE) items to assess the role of religion in coping with various dimensions of life. This scale consists of positive coping having a positive opinion of God and doing religious practices when facing adversity and negative coping where blame is attributed to God and adversity is equated to punishment (Pargament et al., 2011). In terms of internal consistency, this measure is $\alpha = 0.92$ (median) for P-COPE and $\alpha = 0.81$ (median) for N-COPE. There was also a good concurrent validity, predictive validity, and incremental validity (Pargament et al., 2011). It has also been translated (Yusoff et al., 2009).

2.6. Students' Spirituality Assessment

To measure the religiosity among students the Spirituality Scale (SS) inventory (Jagers & Smith, 1996) was used. SS is a holistic instrument that attempts to measure the beliefs, intuitions, lifestyle choices, practices, and rituals representative of the human spiritual dimension and is designed to guide spiritual interventions. The internal consistency for this scale ranged from $\alpha = 0.81$- 0.94 for the subscales and $\alpha = 0.94$ for the total instrument. Test re-test reliability was $r = 0.85$ and the validity was rated as good (Delaney, 2003).

Students' Spirituality Coping Assessment

The Spiritual Coping Questionnaire (SCQ) is a 32-item instrument constituting of two scales comprising of positive spiritual coping (P-SCOPE) and negative spiritual coping (N-SCOPE) (Charzyńska, 2015). It is responded to in terms of a 1-5 Likert scale. The P-SCOPE and N-SCOPE domains. Personal, social, environmental, and religious domains are the sub-scale domains in this measure. Various question represents various domains and could be summed up either in terms of general positivity and negativity or positivity and negativity by domain. The internal consistency of the P-SCOPE scale was $\alpha = 0.92$, and of the N-SCOPE, $\alpha = 0.82$. In test-retest reliability it was $r = 0.78$ for the P-SCOPE scale, and $r = 0.72$ for the N-SCOPE scale. Construct validity was reported to be good (Charzyńska, 2015).

Statistical Analysis

Linear regression was used to investigate that religious and spiritual coping mediates the effect of spirituality on depression. There the mediating variables investigated were religious (positive and negative) and spiritual (positive and negative) coping. The analyses were adjusted for covariates. Regression analysis using a percentile bootstrap estimation approach with 10000 samples (Shrout & Bolger, 2002), implemented with the PROCESS Macro Version 4.1 (Hayes, 2022, model 4) was used to investigate the mediating role of religious coping (positive and negative) and spiritual coping (positive and negative) on the relationship between religiosity, spirituality, and depression.

Results

Sociodemographic and Students' Characteristic Profiles

A total of 151 medical and health science students (mean age: 21.2 ± 1.71 years) took part in this study (Table 1). The majority were female participants (n = 103, 68.2%), with the Malay ethnicity being the highest number of participants (n = 119, 78.8%) followed by the Indian (19%). When it came to religion Islam accounted for the majority (n=122, 80.8 %), followed by Hinduism (n = 16, 10.6%) being the second highest. Most of the participants were single (99.3%).

University wise, the International Islamic University Malaysia (IIUM) accounted for most of the participants (73.5%), followed by the Management and Science Univeristy (MSU) (25.2%) with Universiti Sultan Abdul Halim Mu'adzam Shah (UniSHAMS) and University Malaya also being represented (1.4%). Turning to the programs, most of the participants (n = 71, 47%) were undertaking the bachelor's degree in medicine, bachelor's degree in surgery (MBBS) followed by pharmacy (n = 50, 33.1%). First and second year students has the same number of participants (43%) while third and fourth year were also the same amount (6.6%). When it came to household median income 57.6% preferred not to respond with representation from the household group of bellow 40 (B40) (17.2%) and middle 40 (M40) (17.9%) being similar.

Table 1: Sociodemographic and students' characteristic profiles (N = 151)

Variables	**Frequency, n (%)**
Age*	21.12 ± 1.71
Gender	
Male	43 (28.5)
Female	103 (68.2)
Undisclosed	5 (3.3)
Ethnicity	
Malay	119 (78.8)
Chinese	8 (5.3)
Indian	19 (12.6)
Other Bumiputra	5 (3.3)
Religion	
Islam	122 (80.8)
Buddhism	4 (2.6)
Taoism	2 (1.3)
Hinduism	16 (10.6)
Christianity	7 (4.6)
Marital Status	
Single	150 (99.3)
Married	0 (0)
Undisclosed	1 (0.7)
Income Category	
B40 (<RM4850)	26 (17.2)
M40 (RM4851-10959)	27 (17.9)
T20 (>RM10960)	11 (7.3)
University	
International Islamic University Malaysia (IIUM)	111 (73.5)
Management and Science University (MSU)	38 (25.2)
Universiti Sultan Abdul Halim Mu'adzam Shah	1 (0.7)

(UniSHAMS)	
Universiti Malaya (UM)	1 (0.7)

Notes: data values are presented as number of subjects (n), with percentage (%) in parentheses; * Data are means ± standard deviations. B40, below 40; M40, middle 40; T20, top 20.

Students' Level of Depression

When looking at the levels of depression (see Table 2), those who reported in the normal category were just over a third of the participants (37.1%) while those presenting with depressive symptoms (Moderate – Extreme 30.5%) accounted for just under a third of the participants.

Table 2: Students' depression levels based on Beck's Depression Inventory (BDI)

Depression Level	Frequency, n (%)	Mean ± SD
Normal	56 (37.1)	6.14 ± 2.85
Mild mood disturbance	27 (17.9)	13.3 ± 1.75
Borderline clinical depression	22 (14.6)	18.55 ± 1.14
Moderate depression	29 (19.2)	23.69 ± 2.45
Severe depression	16 (10.6)	34.06 ± 2.98
Extreme depression	1 (0.7)	53.00 ± 0.00

Notes: data values are presented as number of subjects (n), with percentage (%) in parentheses and mean ± standard deviation.

The Mediating Role of Religious Coping in The Association Between Religiosity and Depression

Based on Table 6, the results indicated that religiosity was a significant predictor of P-COPE (B = 0.62, standard error, SE = 0.07, confidence interval, CI = 95% [0.49, 0.75], p = 0.001), and that P-COPE was significant predictor of depression (B = -0.55, SE = 0.26, CI = 95% [-1.05, -0.037], p = .04). The overall effect of religiosity on depression was B = -0.82, SE = 0.21, CI = 95% (-1.24, -0.39), p = 0.001. Moreover, the direct effect of religiosity on depression was not significant $p > 0.05$, however the indirect effect was significant (B = -0.34, CI = 95% [-0.73, -0.05], $p < 0.05$), indicating that P-COPE of students fully mediated the relationship between their religiosity and depression. Hence, there was a mediating role played by positive religious coping in the relationship between religiosity and depression. Students employing positive religious coping strategies could thus influence their depression irrespective of their religiosity.

Table 6: Summary of coping mediation in religiosity and depression

Relationship	Total Effect	Direct Effect	Indirect Effect	CI at 95%		T-statistic	Conclusion
				Lower	Upper		
Religiosity → P-COPE → Depression	-0.82 (0.00)	Not significant	-0.34	-0.73	-0.05	-3.85	Full Mediation
Religiosity → N-COPE → Depression	-0.21 (0.00)	-0.21	-0.03	-0.20	0.08	-3.85	No mediation

Note: CI, confidence interval; N-COPE, negative religious coping; P-COPE, positive religious coping.

Turning to the mediating role of N-COPE in the relationship of religiosity and depression, the religiosity had no significant influence on N-COPE $p > 0.05$. Moreover, N-COPE was a significant predictor of depression (B = 0.39, SE = 0.13, CI = 95% [0.14, 0.64], $p = 0.003$), and the direct effect of religiosity on depression was also significant (B = -1.35, SE = 0.34, CI = 95% [-2.02, -0.68], $p = 0.001$). There was no significant mediating effect of N-COPE on the relationship between religiosity and depression, thus there was no mediating role played by negative religious coping in the relationship between religiosity and depression.

The Mediating Role of Spiritual Coping in The Association Between Spirituality and Depression

Based on Table 7, spirituality was a significant predictor of P-SCOPE (B = 0.61, SE = 0.04, CI = 95% [0.52, 0.69], standardized beta coefficient, β = 0.76, $p = 0.001$), and P-SCOPE was significant predictor of depression (B = -0.18, SE = 0.09, CI = 95% [0.004, 0.36], β = 0.22, $p = 0.04$). The direct effect of spirituality on depression was significant (B = -0.45, SE = 0.07, CI = 95% [-0.59, -0.31], $p = 0.001$). These results also indicated the significant indirect effect (B = 0.11, SE =0.09, CI = 95% [0.02, 0.3196], β = 0.16). Thus, there was a mediating role played by positive spiritual coping in the relationship between spirituality and depression. Students' spirituality was associated with depression approximately 0.11 points as mediated by P-SCOPE.

Table 7: Summary of positive and negative spiritual coping as mediator in the relationship between spirituality and depression

Relationship	**Total Effect**	**Direct Effect**	**Indirect Effect**	**CI at 95%**		**T-statistic**	**Conclusion**
				Lower	**Upper**		
Spirituality → P-SCOPE → Depression	-0.34 (0.00)	-0.45 (0.00)	0.11	0.02	0.32	-6.3	Partial mediation
Spirituality → N-SCOPE → Depression	-0.34 (0.00)	-0.31	-0.031	-0.07	-0.01	-7.3	Partial mediation

Note: CI, confidence interval; N-SCOPE, negative spiritual coping; P-SCOPE, positive spiritual coping.

Turning to the mediating role of N-SCOPE with spirituality and depression, results indicated that spirituality was a significant predictor of N-SCOPE (B = -0.16, SE = 0.05, CI = 95% [-0.26, -0.06], β = -0.25, $p = 0.002$), and that N-SCOPE was significant predictor of depression (B = 0.18, SE = 0.07, CI = 95% [0.05, 0.33], β = 0.19, $p = 0.01$). The direct effect of spirituality on depression was significant (B = -0.31, SE = 0.05, CI = 95% [-0.40, -0.21], $p = 0.001$). The results also indicated a significant indirect effect (B = 0.03, SE = 0.02, CI = 95% [-0.07, -0.003], β = 0.04), thus there was a mediating role played by negative spiritual coping in the relationship between spirituality and depression. Students' spirituality was associated with depression and significantly mediated by N-SCOPE albeit slightly.

Results Summary

Positive religious coping (P-COPE) was responsible for full mediation between religiosity and depression, while negative religious coping (N-COPE) played a moderating role. Positive spiritual coping (P-SCOPE) partially mediated between spirituality and depression, while negative spiritual coping (N-SCOPE) had a slight partial mediating effect.

4. Discussion

Depression is a worldwide phenomenon that is particularly high amongst the medical and health science student population. Previous Malaysian studies have found depression to afflict 17% of the medical students (Francis et al., 2019) and approximately 27% for health science students (Fauzi et al., 2021; Leite et al., 2021) with 1.4% to 73 % worldwide (Rotenstein et al., 2016). Alarmingly, in the present study approximately 30% of the sample population were found to exhibit depressive symptoms. These corroborate previous findings.

The relationship between religiosity and depression has been documented in studies for ages. Many studies have reported there is a negative relationship between religiosity and depression (Fauzi et al., 2021; Francis et al., 2019). This however has depended on where the samples came from, America and Canada as opposed to Europe and some Asian countries (Braam & Koenig, 2019). This contrary to some studies which did not find any relationship between religiosity and depression (Lupo & Strous, 2011).

When it came to religious coping previous studies found many students used positive religious coping however these were not significant in terms of depression (Francis et al., 2019). The factor that did play a significant role was negative coping (Fauzi et al., 2021; Francis et al., 2019). This relationship was also not clearly defined. In the present study positive religious coping (P-COPE) fully mediated the relationship between religiosity and depression, which indicates that the level of religiosity was not as important as the use of positive religious coping as a strategy. This is found in many other scenarios as well (Mahamid & Bdier, 2021). Where individuals are not necessarily religious, however when adversity strikes, there is a tendency to turn back to religion and use these strategies to make sense of the situation. For instance, a common term in the Malaysian context, transcending religion and race, is “sabar” which literally means have patience and being satisfied with the circumstances one is in (Mastor et al., 2015). This gives clinicians an evidence-based tool to intervene in students and other individuals facing depression.

In terms of spirituality, it was once again indicated that those students who had higher spirituality, tended to show less symptoms of depression. Positive spiritual coping (i.e., P-SCOPE) was found to have a partial mediating role between spirituality and depression in the present study. Students’ used spiritual coping strategies in dealing with stressful situations which could lead to depression. Unlike the relationship of positive religious coping, the spirituality of the individual did account for prediction of depression. Positive spirituality has been found to be to be an intermediate factor between hope and depression as well as stress and depression in various populations (Clark & Hunter, 2019; Tao et al., 2022). The strategy with spirituality and positive spiritual coping may thus be different where intervention is concerned as compared to religiosity. Intervention in addition to leveraging on the positive

spiritual coping strategies may require a focus on the actual spirituality of the individual as well.

Negative spiritual coping (in term of N-SCOPE), like negative religious coping has a positive relationship with depression. This once again indicates that viewing spiritual factors negatively plays a role in mental health. It is interesting that the term spiritual depression has been coined in the literature (Taylor, 2017). This makes the case of a life void of spirituality and the sudden awaking of spirituality could have a type of depression. It could perhaps be the negativity of the coping strategy which is a factor playing a greater role than spirituality itself. Surprisingly a slight partial mediation was also found in this relationship. Negative spiritual coping thus gives us fertile ground to intervene as well. Psycho-spiritual education may be an area that could be explored for intervention. Cognitive reframing and even the use of spiritual evidence-based therapies may be an avenue to pursue.

Conclusion

Religious and spiritual coping were investigated as the mediator in the relationship between religiosity, spirituality, with depression in the Malaysian medical and health science student population. It was found that religiosity and spirituality is quite high and the use of positive religious coping as well as positive spiritual coping were readily used strategies. Using religion as a positive coping mechanism seems to fully explain the relationship between religiosity and depression, while positive spiritual coping only partially seemed to explain this relationship. These factors provide fertile ground for psychoeducation and intervention as well as for the general mental health terrain in Malaysia

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