The Moderating Effects of Religious and Spiritual Copingon The Relationships of Religiosity and Spirituality With Depression Among Medical and Health Science Students.

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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 moderating 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. Beck's Depression Inventory second edition (BDI-II) was used to measure depression and depressive symptoms, the Duke University Religion Index (DUREL) was used to measure religiosity, and the Spirituality Scale (SS) was used to measure the beliefs, intuitions, lifestyle choices, practices, and rituals representative of the human spiritual dimension.Whilstthe brief scale of religious coping (RCOPE) and spiritual coping questionnaire (SCQ)were used to assess positive and negative religious and spiritual coping respectively.

Results: Negative religious coping played a moderating role in the relationship between religiosity and depression. Similarly, negative spiritual coping also played a moderating role between spirituality and depression.

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 Mechanism; Moderating effects

Introduction

Depression is characterized by persistent sadness and a lack of interest or pleasure in previously rewarding or enjoyable activities. It can also disturb sleep and appetite. Tiredness and poor concentration are common. Globally, approximately 5% of adults suffer from depression (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. A study found that, 27.5% had moderate, and 9.7% of medical students had severe to extremely severe depression (Shamsuddin et al., 2013). Similarly it was found that 51.4% of health science students 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. Coping can be defined as the behaviors and thoughts leveraged upon to manage stressful situations both internally and externally (Algorani& Gupta, 2022; Folkman & Moskowitz, 2004). It is a term used distinctively for conscious and voluntary action, different from "defense mechanisms" that are subconscious or unconscious adaptive responses, both of which aim to reduce or tolerate depression (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, better coping with disease, better adherence to treatment, lower hospitalization, and lower mortality rates (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 objective, external, and ritual or organizational practices that an individual performs in a group setting and that guides behavior and spirituality, an internal, subjective, and divine experience or direct relationship with a higher power 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 varying tendencies to commit to religious beliefs, principles, and activities (Ellis et al., 2019), and spirituality which is specifically related to the search for, or to the relationship with the Sacred (Braghetta et al., 2021; Jensen, 2021). Following that, religious coping, the use of religious beliefs or practices to cope with life situations (Aflakseir&Mahdiyar, 2016; Torralba et al., 2021) and spiritual coping, attempts to cope with life situations based on what is transcendent (Charzyńska, 2015) are thus found when investigating these constructs as a coping mechanism. While distinctions between religion and spirituality have been made over the past three decades, 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 of this study was also limited to medical students in 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, anxiety, and stress in the multi-religious Malaysian context. This study will therefore not compare between religions or denominations when it comes to religiosity or spirituality.

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. Moderation analysis is one method to study these relationships.

A moderating variable, also called a moderator variable (religious and spiritual coping), changes the strength or direction of an effect between two variables religiosity/spirituality and depression. In other words, it affects the relationship between the independent variable or predictor variable (religiosity/spirituality) and a dependent variable (depression).Religion and spirituality have been studied as a moderator between stressors and quality of life (Pucciarelli et al., 2020), between stress and depression (Ahles et al., 2015) and between anxiety and depression (Lucchetti et al., 2021). This effect was however not found by others (Wink et al., 2005)and thus further investigation is still warranted. However religious and spiritual coping has not been investigated as a moderator between religiosity/spirituality and depression.

The purpose of this is to examine the moderating role of religious and spiritual coping on the relationship between religiosity and spiritualty with depression. It will be conducted on undergraduate medical and health science students in the university setting.

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 ofpositive 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).

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 α = 0.81- 0.94 for the subscales and α = 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 α = 0.92, and of the N-SCOPE, α = 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 moderating 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 1) was used to investigate the moderating 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 (UniSHAMS)	1 (0.7)
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 Moderating Role of RCOPE On the Relationship Between the Religiosity and Depression

Based on the percentile bootstrap estimation, there is no significant effects (p>0.05)on the relationship between religiosity (in this case positive religious coping) and depression. Hence, there was no moderating role played by P-COPE on the relationship between religiosity and depression. Whilst the results revealed a significant moderating effect on the relationship between religiosity and depression (B = -0.98, T-statistic = -3.19, p = 0.001) indicating that here was a moderating role played by negative religious coping (N-COPE) on the relationship between religiosity and depression.Simple slope analysis (Figure 1) was conducted to better understand the nature of the moderating effects, indicating the line is much steeper for low N-COPE. This highlights that at a high level of N-COPE the impact of religiosity is much stronger in comparison to lower-level N-COPE.

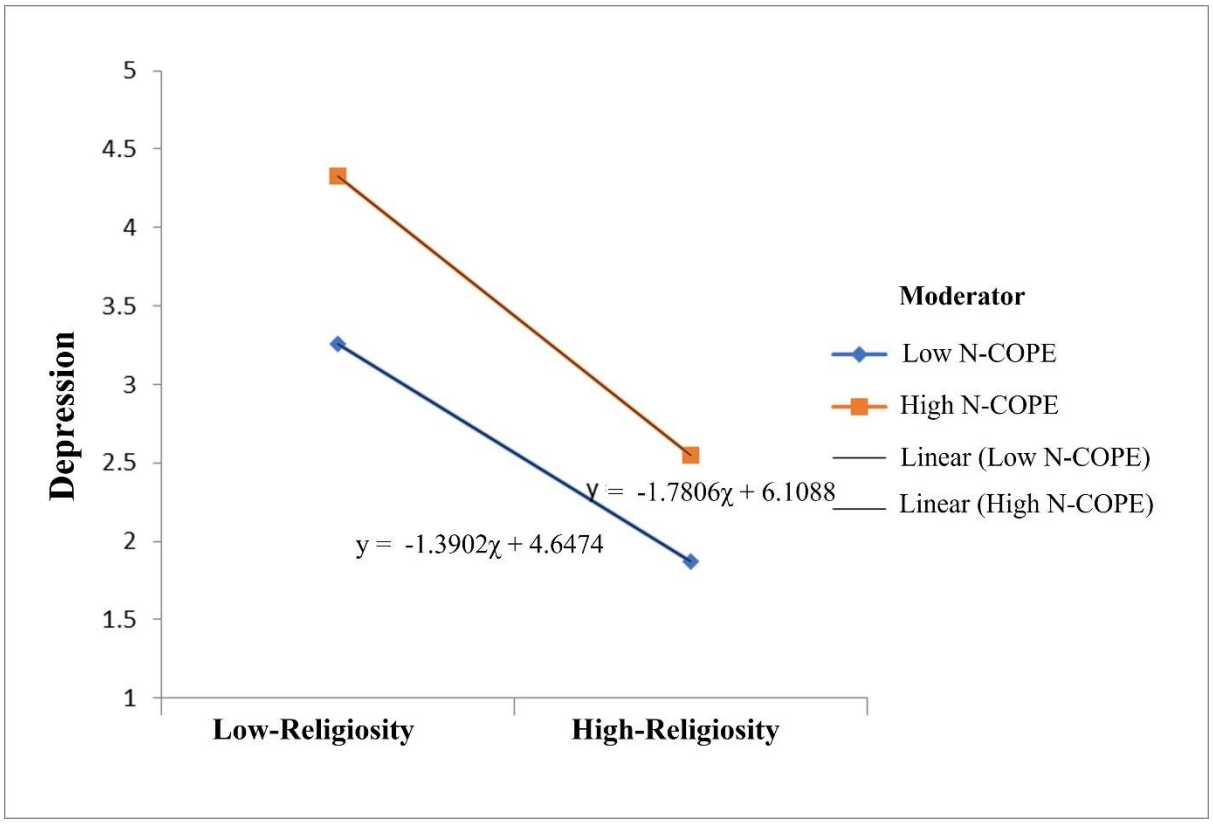

Figure 1: The Moderating role of negative religious coping (N-COPE) on the relationship between spirituality and depression

The Moderating Role of SCOPE On the Relationship Between Spirituality and Depression.

The moderating role of positive spiritual coping (i.e., P-SCOPE) was tested using a percentile bootstrap estimation approach on the relationship between spirituality and depression, the results revealed that there were no significant effects (p> .05) thus, there was no moderating role played by P-SCOPE on the relationship between spirituality and depression. The moderating role of negative spiritual coping (i.e., N-SCOPE) was also tested on the relationship between spirituality and depression, the results revealed a significant moderating effect on the relationship between religiosity and depression (B = - 0.01, t-statistic = -2.5, p = 0.01). Hence, there was a moderating role played by N-SCOPE on the relationship between spirituality and depression. Simple slope analysis conducted to better understand the nature of the moderating effects (Figure 2) highlighting that at a high level of N-SCOPE the impact of spirituality is much stronger in comparison to lower-level N-SCOPE. The higher N-SCOPE the higher the strength of the relationship between religiosity and depression.

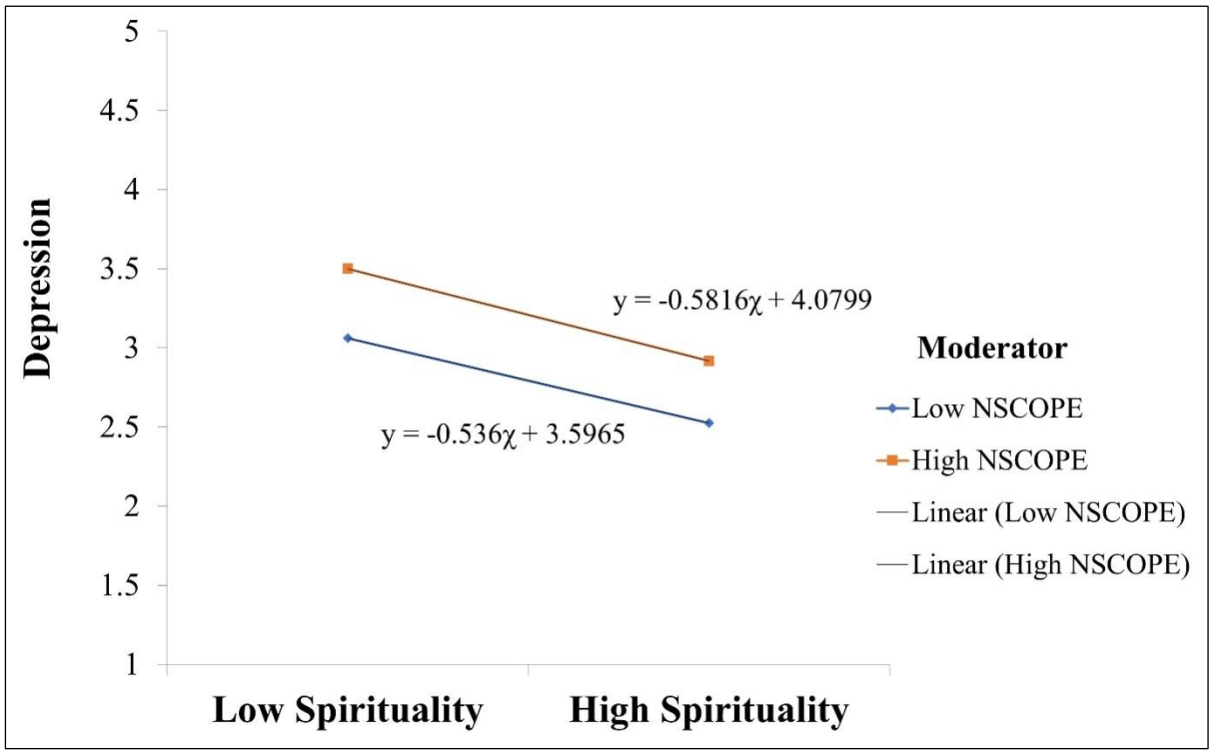

Figure 2:The moderating role of negative spiritual coping (N-SCOPE) on the relationship between spirituality and depression

Results Summary

negative religious coping (N-COPE) played a moderating role. negative spiritual coping (N-SCOPE) was a moderator between spirituality and depression.

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).

Interestingly many studies have highlighted that negative religious coping (i.e., N-COPE) is an important consideration when dealing with depression. Many studies have found a positive correlation between negative religious coping and depression which indicates that those who employ negative religious coping displayed higher symptoms of depression (Jaffer, et. al., 2022) This does elucidate more particularly those studies which found that religion contributes to and in certain instances even causes depression (Bonelli et al., 2012) may not be the religiosity, but the view, mindset, and coping strategy of the individual. Its role however has not explored in the Malaysian student population context. Hence, in this study it was found that negative religious coping (N-COPE)

plays a moderating role on the relationship religiosity and depression. The more the students employed negative religious coping the more it impacted the negative effect religiosity has on depression. This is also a common strategy among people who believe in God. We find the trend that when calamity strikes there is a tendency to people to start looking to God's chastisement for sin, or God anger and retribution. Case in point was the tsunami that hit Aceh, Indonesia (Latschan, 2014) or the recent floods which hit Pahang (East Peninsular Malaysia) and the negative coping sentiments being publicly proclaimed(Fong, 2021). This is therefore fertile ground to address in individuals, through education and psychoeducation as well as cognitive reappraisal with individuals employing this strategy.

Negative spiritual coping (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. In this study negative spiritually moderated the role between spirituality and depression once again enhancing the effect. 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. Furthermore, the literature is once again scarce on the role of negative spiritual coping, and these are novel findings for this population. It has however been shown to also be an intermediate factor between hope and depression as well as stress and depression in various populations (Clark & Hunter, 2019; Tao et al., 2022). 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.

Recommendations

For future studies a larger sample size with more representation in terms of religion, program and university is recommended. A longitudinal study may also be beneficial in the Malaysian context. Qualitative research in terms of honing into the dimensions of spirituality and religiosity at the individual level may contribute insights specifically when guiding future education and interventions. It may also be viable to assess other coping strategies in addition to religion and spirituality to get a clearer picture of how to effectively incorporate these factors in managing students' mental health.

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 quite high in this population. Using negative coping strategies i.e. viewing religion as well as spirituality negatively both seem to exacerbate the symptoms of depression. These factors provide fertile ground for psychoeducation and intervention as well as for the general mental health terrain in Malaysia

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