

Relationship between Coping Strategies and Psychological Distress in Middle Eastern University and College Students: Structural Equation Modeling Analysis

Mi-Yeon Kim ⁽¹⁾, Doris Nussbaumer ⁽²⁾, Amal Al-Yazidi ⁽³⁾, Oussama Ben Khalifa ⁽³⁾, Mohamed Yassin Ouattas ⁽³⁾, Richard Sawatzky ⁽⁴⁾

(1) Mi-Yeon Kim, PhD, RN, Assistant Professor, School of Nursing, University of Calgary in Qatar, Doha, Qatar

(2) Public Services Librarian, University of Calgary in Qatar, Doha, Qatar

(3) BSN, University of Calgary in Qatar, Doha, Qatar

(4) PhD, RN, Professor, Canada Research Chair in Equitable People-Centred Health Measurement Trinity Western University, British Columbia, Canada

Corresponding author:

Mi-Yeon Kim, PhD, RN

Assistant Professor, School of Nursing

Trinity Western University, 22500 University Drive, Langley, British Columbia, V2Y 1Y1, Canada

+1 604 513-2121 extension 3042

Email: Mi-Yeon.Kim@twu.ca

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Abstract

Aim: The purpose of this study was to describe the relationship between coping strategies and psychological distress (anxiety and depression) in Middle Eastern university and college students.

Background: The adjustment process of university and college students is characterized by new experiences associated with maturation as well as challenges imposed by academic responsibilities. Difficulty or inability to cope with various demands of the transition into emerging adulthood places them in a perilous position that increases the risk of psychological distress.

Design: This study was a cross-sectional study.

Methods: Data were obtained via a questionnaire completed by 251 health care students enrolled in an English-speaking college and a university. Psychological distress was measured with Hospital Anxiety and Depression Scale and coping strategies were measured with Brief COPE Inventory. Five subscales selected for this study were problem solving, social support, religious, self-blame, and denial coping strategies. The data were analyzed using structural equation models with anxiety and depression as outcome variables.

Results: The results revealed difference in the types of coping strategies linked to anxiety and depression. The five coping strategies explained 46% variance in anxiety, whereas only the use of self-blame and religious coping strategies explained 26% variance in depression.

Conclusion: The finding of the study highlight that interventions may need to focus on different types of coping strategies depending on the nature of students' psychological distress.

Keywords: Anxiety; Coping; Coping strategy; Depression; Psychological distress

Introduction

The adjustment process of university and college students is characterized by experiences of heightened demands for academic success and the need for achieving psychological autonomy as well as facing responsibilities for their actions and needs. Difficulty or an inability to cope with such demands and obligations places them in a perilous position that increases the risk of psychological distress. Psychological distress is frequently used as an indicator for mental health and is defined as an emotional distress characterized by symptoms of anxiety and depression (Barlow & Durand, 2005).

Background

Evidence suggests that the prevalence rate of psychological distress ranges from 10% to as high as 84% among Western university and college students (Garlow et al., 2008; Steptoe, Tsuda, Tanaka, & Wardle, 2007), and 22% to 52% among the students in the Middle East (Al-Busaidi et al., 2011; Amr et al., 2013; Bayati, Beigi, & Salehi, 2009; Bayram & Bilgel, 2008), which are both higher than the rate of 14% to 17% in the general population (Steptoe et al., 2007). Students with increased levels of psychological distress are at a greater risk of developing long-term mental illness, for which the onset manifests shortly before or during the typical university and college age (Kessler et al., 2005). A serious concern is that students who are experiencing increased levels of psychological distress are unlikely to seek assistance or intervention.

Psychological distress is influenced by the various coping strategies that individuals adopt to deal with the stressor. Coping is defined as cognitive and behavioral efforts people use to manage internal and external demands of circumstances that they consider stressful and which exceeds one's resources (Tamres, Janicki, & Helgeson, 2002). Based on the Transactional Model of stress and coping by Folkman and Lazarus, coping strategies are typically categorized into problem-focused and emotion-focused coping (Lazarus, 1993). Problem-focused coping refers to strategies used to alter the cause of the stressor (Julal, 2013). Emotion-focused coping refers to strategies used to alleviate negative feelings by reinterpreting the stressful situation (i.e., positive reframing), or by avoiding the stress-inducing circumstances (Gardner, Krageloh, & Henning, 2014). However, some authors have challenged the notion stating that classifying coping strategies predominantly into problem-focused and emotion-focused coping is too simple given the complexity involved in the ways people respond to stressors. The Brief COPE scale by Carver et al. (1989) allows an additional categorization of dysfunctional coping. Dysfunctional coping refers to negative emotion-focused strategies used to deal with internal distress, i.e., behavioral disengagement, avoidance, and substance use (Carver, 1997). Cooper, Katona and Livingston (2008) used the Brief COPE

to validate the categorization of three types of coping responses: 1) problem-focused, 2) emotion-focused, and 3) dysfunctional. Although university and college students typically use both problem-focused and emotion-focused coping strategies, a greater proportion of students who experience an increased level of anxiety or depression use dysfunctional coping strategies (Carnicer & Calderon, 2014; Lee, Dickson, Conley, & Holmbeck, 2014; Siu & Chang, 2011). In contrast, students who use more problem-focused coping strategies and target their efforts to change the source of stressor by using more problem solving (i.e., making plans) and less dysfunctional coping strategies experience a decreased negative affect and a greater sense of well-being (Park & Adler, 2003; Sasaki & Yamasaki, 2007).

Most of the research on coping reflects Western and European perspectives. Although few studies have examined types of coping strategies used by young adults in the Middle East, no studies to date have explored the impact of coping behaviors on psychological distress of Middle Eastern university and college students. Given the detrimental effects associated with psychological distress and its potential for symptoms persisting into adulthood, it is imperative the overlooked coping strategies used by the students in the Middle East be examined.

Therefore, the purpose of this research was to describe the relationships between coping strategies (problem-focused, emotion-focused, and dysfunction) and psychological distress (anxiety and depression) in university and college students living in Qatar. The examination of coping responses of participants in this study was guided by the theoretical perspective proposed by Carver (1997) and focused on the influence of three categories of coping strategies validated from previous research (Cooper, Katona, & Livingston, 2008; Petrinc, Mazanec, Burant, Hoeffler, & Daly, 2015).

Methods

1. Study design

A quantitative survey was conducted following a cross-sectional design.

2. Study setting & sample

The study participants were 251 students enrolled in an English-speaking college and a university in Qatar. A cover letter describing the study was distributed to the Dean and all faculty members of each institution to introduce the research and to ask for their support with data collection. With permission to enter classrooms, students were visited in-person in their classrooms where the description of the study was provided. Students who agreed to participate in the research were requested to complete self-report questionnaires on paper. The inclusion criteria were: 18 years or older and attending university or college in Qatar; able to read and understand written English; and consent to participate in the study.

3. Measures

Coping: Coping strategies of study participants were assessed using the Brief COPE, which is an abbreviated version of the COPE Inventory. The Brief COPE consists of 28 items that encompasses 14 dimensions (subscales): self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame. The response to each item is rated on a four-point Likert-type scale that ranges from 'I haven't been doing this at all' (1) to 'I have been doing this a lot' (4). Higher scores reflect a greater tendency to use the particular coping strategy. Cronbach's alpha reported in previous studies for each of the subscales ranges from below 0.60 to 0.87 (Tang et al., 2016). Test-retest reliability and construct validity have been established with studies of people with dementia and women with breast cancer. Five subscales, representing problem focused, emotion-focused, and dysfunctional coping strategies, were selected from the questionnaire for the purpose of this study: problem-solving, social support, religious coping, self-blame, and denial. The choice of subscales was informed by both theoretical perspectives and the findings of previous studies that have shown the association between the selected subscales of coping strategies and psychological distress. The function of problem focused coping is reflected in the subscale of problem-solving; emotion focused coping is reflected in social support and religious coping; and dysfunctional coping is reflected in self-blame and denial.

Psychological distress: Anxiety and depression aspects of psychological distress were measured with the Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983). The HADS consists of 14 items in which seven items measure anxiety and the other seven items measure depression. The response to each item is rated on a four-point Likert-type scale that ranges from 0-3 and a sum of total score is calculated separately for anxiety and depression. Higher scores for each dimension indicate higher levels of anxiety or depression. The number of factors most commonly reported is a two-factor structure consisting of anxiety and depression. Cronbach's alpha varies from 0.68 to 0.93 for anxiety, and 0.67 to 0.90 for depression (Bjelland et al., 2022). The concurrent validity has been demonstrated with the General Health Questionnaire (GHQ-28), Beck Depression Inventory (BDI), and Spielberger State-Trait Anxiety Inventory (STAI) (Bjelland et al., 2022).

Source of stress and demographic data: The participants were asked to choose as many relevant sources of stressor as applicable from the following options: academic, role transition, family, personal, social relationships and others. Data of demographic characteristics, including information on extraneous variables such as gender and age, were also collected.

4. Analysis

The survey responses were entered into a data file using the Statistical Package for the Social Sciences (SPSS) software. Demographic characteristics and levels of psychological distress of the sample were described using means and standard deviations (for continuous variables) and percentages (for ordinal and nominal variables). Bivariate relationships between the study variables were examined using Pearson correlations. Chi-square and t-test tests were conducted to examine group differences. Structural equation modeling was applied, using the Mplus software to determine the extent to which coping strategies explain variation in psychological distress. The recommended two-step approach was followed by first conducting psychometric analyses to establish the measurement models and subsequently fitting a structural model to examine the associations between the latent variables (Byrne, 2012). Two separate models were specified to examine the associations with anxiety and depression as two separate outcomes reflecting psychological distress. Weighted least squares estimation, with mean and variance adjustment (WLSMV), was used to accommodate the ordinal scaling of the variables. In addition, the relatively small amount of missing data (< 5%) was accommodated via pairwise deletion (Enders, 2013). Global fit indices were used to examine the goodness fit of the models, including the root mean square error of approximation (RMSEA) and the comparative fit index (CFI), with CFI values >0.95 and RMSEA values <0.08 being indicative of acceptable model fit (Kline, 2016). Furthermore, we examined residual correlations to identify potential areas of misfit. We followed the convention to regard a p value of <0.05 (2-sided) as being indicative of a statistically significant result.

4.1 Ethics Approval

The study was approved by the University of Calgary Conjoint Health Research Ethics Board (UCCHREB), the College of North Atlantic-Qatar (CNAQ) Institutional Review Board (exempted for the ethical review CAN-Q IRB file #: IRB-2017-004 based on Ministry of Public Health Guidelines, Regulations and Policies for Research Involving Human Subjects, Category 2), and Primary Health Care Corporation Independent Ethics Committee.

Results

1. Sample Description

The study participants were enrolled mostly in healthcare-related programs and in various years of their studies (see Table 1). The sample consisted of 81.3% females (n=204) and 18.3% (n=46) males, and their mean ages were 25.8 years (SD 8.1) and 21.9 years (SD 3.5), respectively. The largest racial group was Arabic (44.2%), followed by Asian (29.5%). Most of the students lived at home (98%). The most common religions were Islam (79.3%) and Christianity (16.7%). The most common sources of stress for students were related to academic responsibilities and personal issues. Nearly half of the study participants reported experiencing either normal or mild levels of anxiety, with the highest proportion of students (36%) reporting a moderate level of anxiety (Table 2). The pattern was slightly different for depression where more than 75% of students reported experiencing normal to mild levels while the remaining students reported moderate (17.6%) to severe (4%) levels of depression (Table 2). The distribution of coping strategies for each of the five subscales is summarized in Table 3.

2. Psychometric Analyses

The first phase of the analysis involved establishing the measurement structure of two instruments, HAD and Brief COPE (see Figures 1 & 2). The frequently reported factor structure of the HAD consisted of a two-factor model that discriminates dimensions of anxiety and depression (Bjelland et al., 2002; Helvik et al., 2011; Mykletun & Dahl, 2001). The test of the model showed that a two-factor model has a satisfactory fit with the data, WLSMV χ^2 (76) = 202.46, RMSEA = 0.08, CFI = 0.910). The measurement structure for Brief Cope was determined based on confirmatory factor analyses of several factor structures reported in the literature. The model of three composite subscales of the Brief COPE used in Cooper et al.'s study did not have a good fit with the data. Based on the assumption that college students would share similar characteristics and contexts, an 11-factor model described in Tang et al.'s (2016) study involving a Hong Kong college sample was selected to test for the goodness of fit. Five of the 11 factors that aligned with this study's hypothesized model were selected for the purpose of this study including: problem-solving, social support, self-blame, denial, and religious coping strategies. Additionally, two items in the questionnaire, #4 (took alcohol or drugs to feel better) and #11 (been using alcohol and other drugs to help me get through it), were removed because the coping strategies involve culturally and legally forbidden behaviors for people of Islamic faith and were therefore considered to be irrelevant for Muslim students (Ali, 2014). The goodness-of-fit of the resulting five-factor model was satisfactory: WLSMV χ^2 (67) = 123.24, RMSEA 0.058 CFI 0.97.

3. Structural Equation Models

Separate structural equation modeling analyses were conducted for the outcome variables of anxiety and depression. The model for anxiety resulted in a good fit (WLSMV χ^2 (174) = 268.173, RMSEA 0.046 CFI 0.957), with 46% of the variance in anxiety being explained by the five coping strategies. The model for depression also resulted in a good fit (WLSMV χ^2 (174) = 282.654, RMSEA 0.050 CFI 0.949), with an explained variance of 29%. Anxiety was explained by all five coping strategies: problem solving (p = 0.004), social support (p = 0.019), self-blame (p < 0.0001), denial (p = 0.024), and religious coping strategies (p = 0.003) (Figure 3). However, the pattern was different for depression, which was explained by only two of the subscales: self-blame (p < 0.0001) and religious coping strategies (p = 0.004) (Figure 4).

Table 1. Characteristics of study participants

| Variable | n (%) / Mean (SD) | Significance in group difference |
|---------------------------------------|-------------------|----------------------------------|
| Sex (n= 251) | | |
| Male | n= 46 (18.3) | |
| Female | n= 204 (81.3) | |
| Age (n= 240) | Mean (\pm SD) | $p < 0.001$ |
| Male | 21.9 (\pm 3.6) | |
| Female | 25.8 (\pm 8.1) | |
| Academic programs (n= 251) | | |
| Nursing | 154 (61.4) | |
| Paramedic | 21 (8.4) | |
| Radiography | 12 (4.8) | |
| Respiratory | 11 (4.4) | |
| Pharmacy Tech | 7 (2.8) | |
| Environmental & Occupational Health | 8 (3.2) | |
| IT | 16 (6.4) | |
| Chemistry | 22 (8.8) | |
| Race (n= 248) | | |
| Arabic | 111 (44.8) | |
| Asian | 74 (29.8) | |
| Black | 34 (13.7) | |
| South Asian | 17 (6.9) | |
| Caucasian | 6 (2.4) | |
| Other | 6 (2.4) | |
| Religion (n= 251) | | |
| Muslim | 199 (79.3) | |
| Christian | 42 (16.7) | |
| Hindu | 7 (2.8) | |
| Other | 3 (1.2) | |
| Marital status (n= 251) | | |
| Married | 73 (29.1) | |
| Divorced | 2 (0.8) | |
| Single | 170 (67.7) | |
| Living with a partner | 6 (2.4) | |
| History of anxiety (n= 249) | 45 (18.1) | |
| History of depression (n= 251) | 57 (22.7) | |

Missing data: Anxiety n=1; Depression n=1

Table 2. Severity levels of anxiety and depression in study participants

| Severity | | Anxiety * n (%) | Depression ^ n (%) |
|----------|---------|--------------------|-----------------------|
| Normal | (0-7) ¥ | 61 (24.4) | 129 (51.6) |
| Mild | (8-10) | 59 (23.6) | 67 (26.8) |
| Moderate | (11-14) | 90 (36) | 44 (17.6) |
| Severe | (15-21) | 40 (16) | 10 (4) |

* Anxiety n= 250 ^ Depression n=250 ¥= value of total score

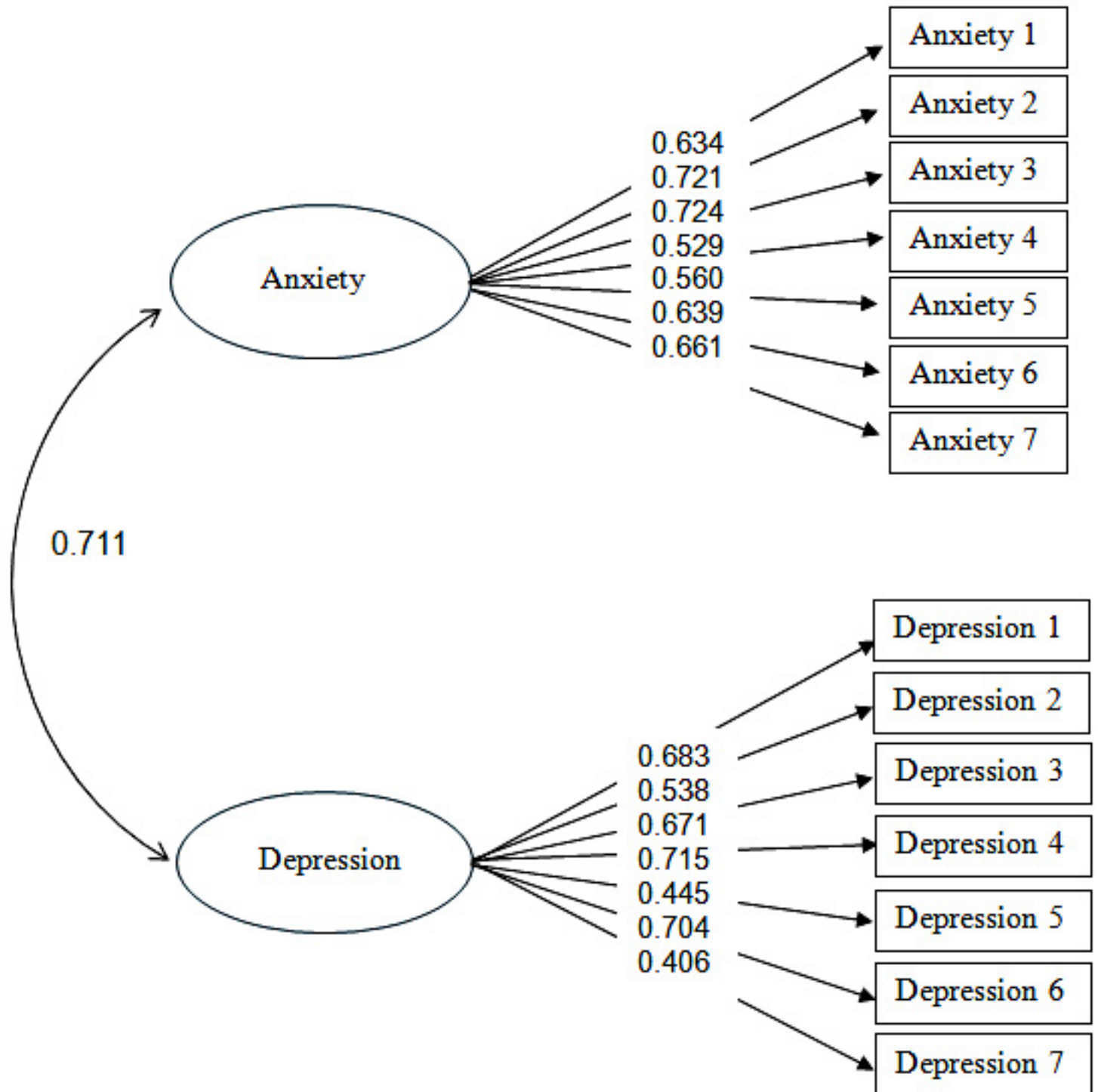
Table 3. Frequency of coping strategies used by Middle Eastern university and college students

| Dimensions and items | haven't been doing this at all | been doing it a little bit | been doing this a medium amount | been doing this a lot |
|--|--------------------------------|----------------------------|---------------------------------|-----------------------|
| Problem Solving | | | | |
| been doing something about the situation (coping 2) (missing value= 2) | 7.2% | 25.3% | 43.4% | 24.1% |
| been taking actions to make situation better (coping 7) (missing value= 0) | 2.8% | 17.5% | 42.6% | 37.1% |
| been trying to come up with strategy about what to do (coping 14) (missing value= 1) | 5.2% | 22.0% | 48.4% | 24.4% |
| been thinking hard about what steps to take (coping 25) (missing value= 0) | 5.6% | 22.7% | 38.6% | 33.1% |
| Social Support | | | | |
| been getting emotional support (coping 5) (missing value= 1) | 13.2% | 34.4% | 32.4% | 20.0% |
| been getting help and advice from other people (coping 10) (missing value= 1) | 10.8% | 32.4% | 33.2% | 23.6% |
| been getting comfort and understanding (coping 15) (missing value= 1) | 13.2% | 26.0% | 40.0% | 20.8% |
| been trying to get advice or help from others about what to do (coping 23) (missing value= 3) | 13.3% | 27.0% | 34.3% | 25.4% |
| Self-blame | | | | |
| been criticizing myself (coping 13) (missing value= 3) | 20.2% | 39.1% | 25.0% | 15.7% |
| been blaming myself for things that happened (coping 26) (missing value= 0) | 23.1% | 36.3% | 16.7% | 23.9% |

Table 3. Frequency of coping strategies used by Middle Eastern university and college students
(continued)

| Denial | | | | |
|---|-------|-------|-------|-------|
| been saying to myself "this isn't real" (coping 3) (missing value= 5) | 40.7% | 29.7% | 17.9% | 11.8% |
| been refusing to believe it happened (coping 8) (missing value= 0) | 41.4% | 31.5% | 18.7% | 8.4% |
| Religious | | | | |
| been trying to find comfort in my religion or spiritual beliefs (coping 22) (missing value= 4) | 12.1% | 10.5% | 27.1% | 50.2% |
| been praying or meditating (coping 27) (missing value= 2) | 9.6% | 13.7% | 24.1% | 52.6% |
| n= 251 | | | | |

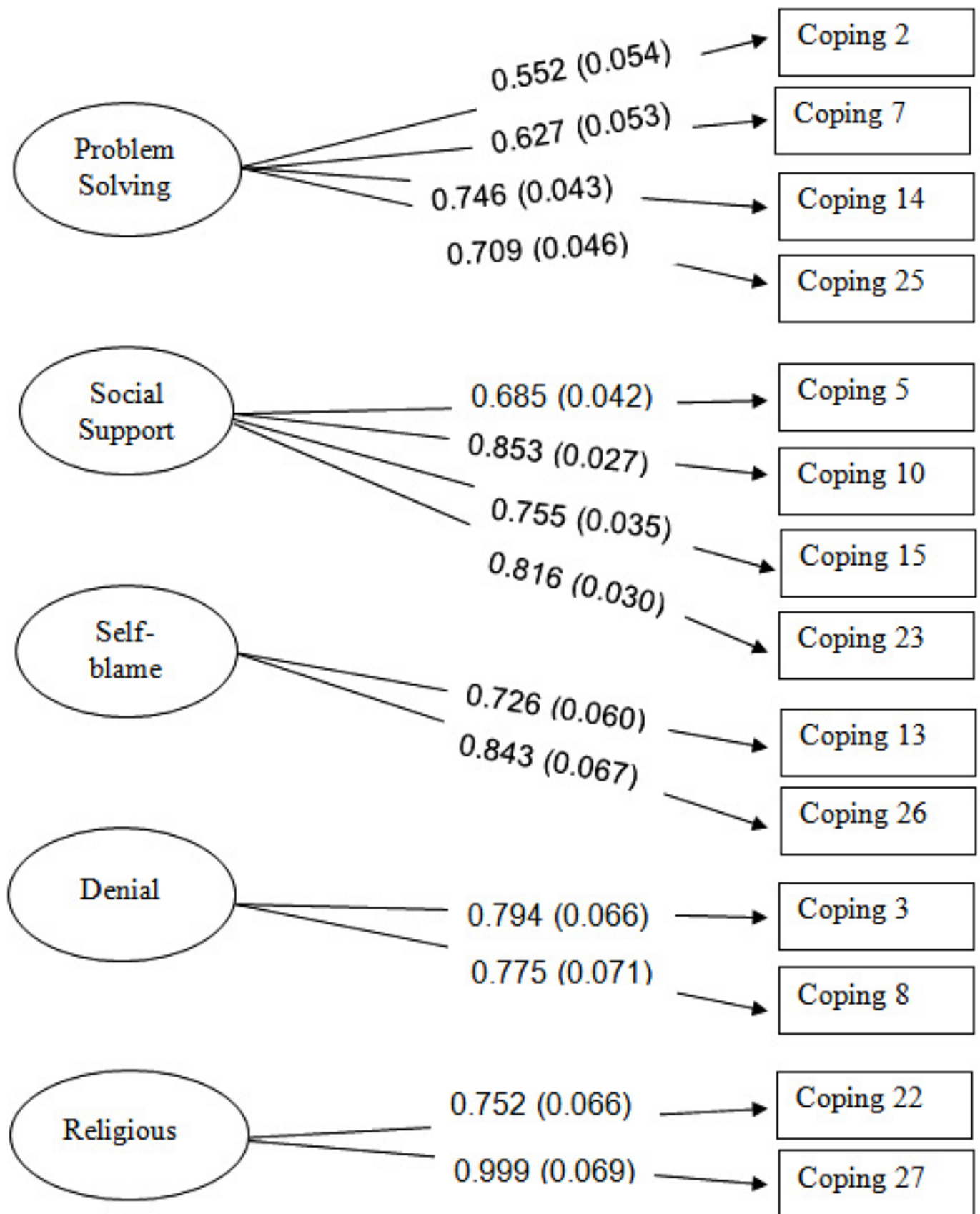
Figure 1: Measurement Model of Hospital Anxiety and Depression Scale



$$\chi^2 (76) = 202.46 \quad \text{RMSEA} = 0.08 \quad \text{CFI} = 0.91 \quad (p < 0.0001)$$

Note: Values are standardized estimates

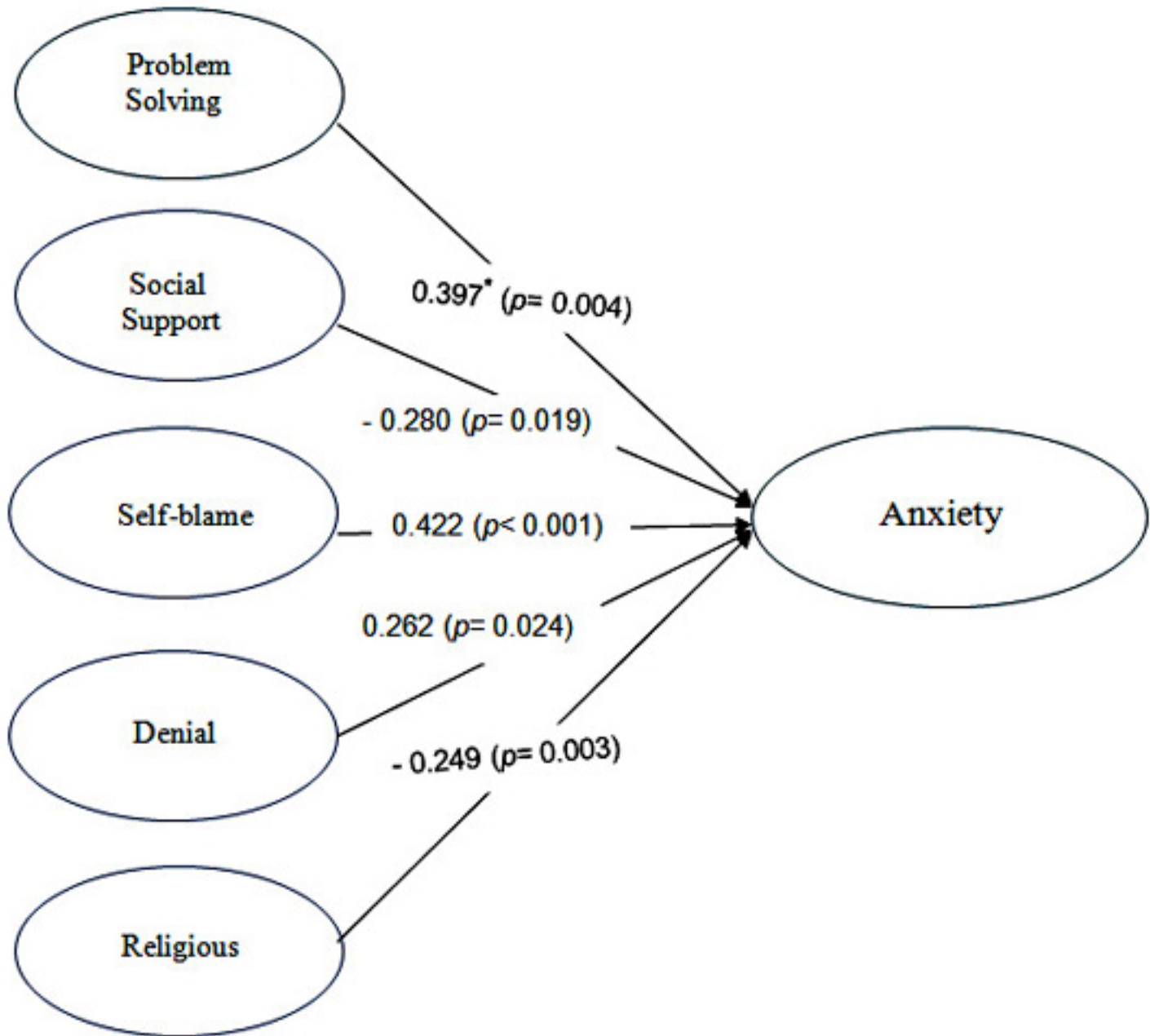
Figure 2. Measurement model of Brief Cope Questionnaire



$\chi^2 (67) = 123.24$ RMSEA = 0.058 CFI = 0.97 ($p < 0.0001$)

Note: Values are standardized estimates with standard errors in brackets. Correlations among the latent variables were estimated but are not shown.

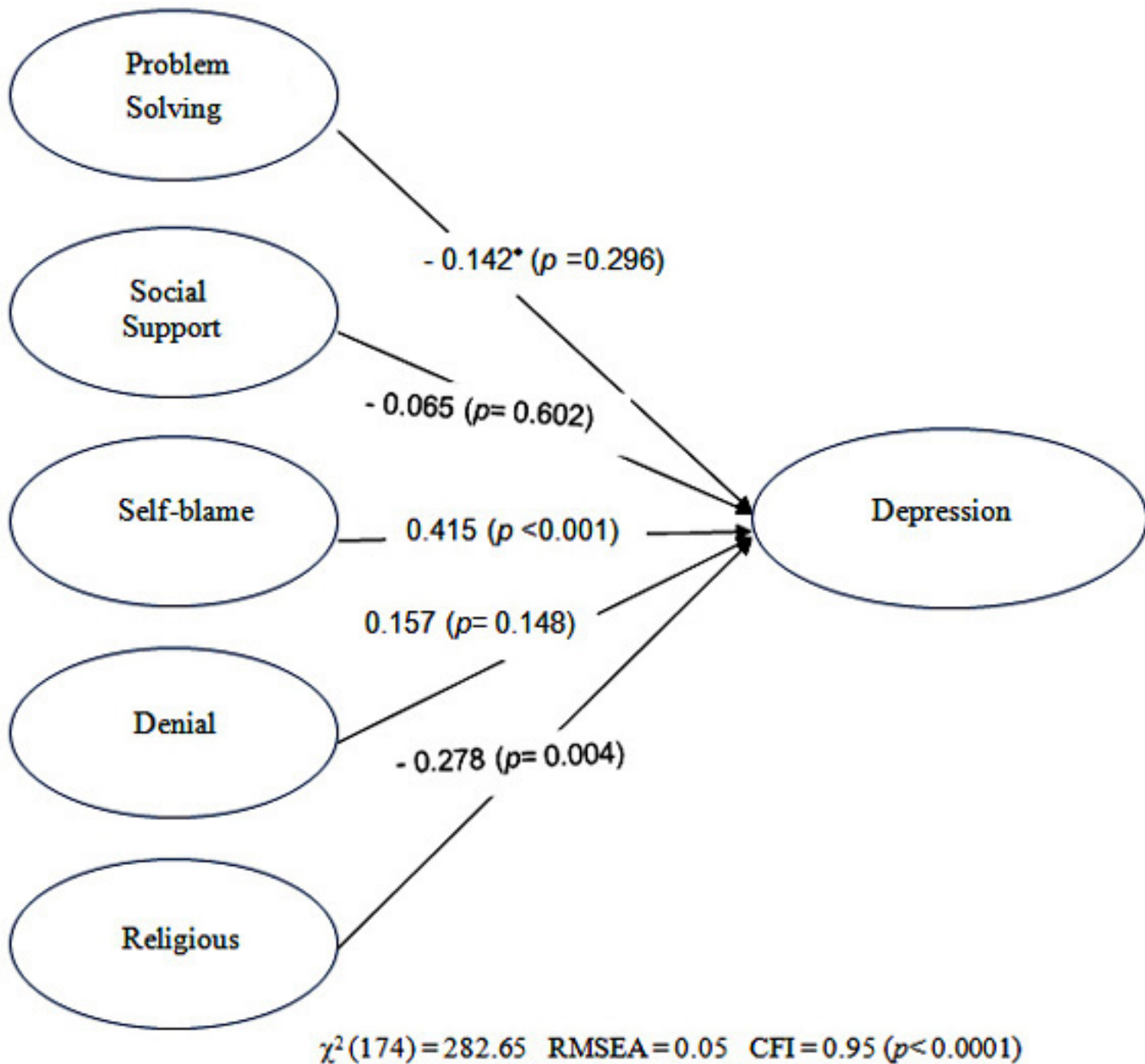
Figure 3: Structural Equation Model: Predictors of Anxiety



$$\chi^2(174) = 268.17 \quad \text{RMSEA} = 0.046 \quad \text{CFI} = 0.96 \quad (p < 0.0001)$$

* Values are standardized estimates. Correlations are not shown. See figures 1 and 2 for measurement structures of the latent variables. Correlations among the exogenous latent variables were estimated but are not shown.

Figure 4: Structural Equation Model: Predictors of Depression



* Values are standardized estimates. Correlations are not shown. See figures 1 and 2 for measurement structures of the latent variables. Correlations among the exogenous latent variables were estimated but are not shown.

Discussion

The purpose of this study was to examine the relationship between coping strategies and psychological distress in college and university students in the Middle East. The results showed that a substantial proportion of students were experiencing at least mild to moderate levels of anxiety and depression, and the scores of some students were much higher at moderate to severe levels. Although students were experiencing both anxiety and depression, a greater proportion of students were affected by anxiety, and at a higher level, in comparison to the proportion of students affected by depression.

When comparing the results of this study to those of other studies of students in western countries, the findings reveal that there are both similarities and differences in coping strategies used by students in the Middle East and in western countries. Students from countries in both regions are similar in using a combination of problem- and emotion-focused coping strategies which influenced their levels of anxiety and depression. In particular, dysfunctional coping strategy such as self-blame was significantly associated with their psychological distress. There are differences between students from countries in the two regions related to the specific type and frequency of coping strategies that were utilized for dealing with stressors. For example, religious coping is much more frequently used among students of the Middle East in comparison to students in western countries (Abdel-Khalek & Lester, 2007; Gardner et al., 2014).

Anxiety was significantly associated with the use of all five coping strategies: problem-solving, social support, religious coping, self-blame, and denial. This pattern is consistent with results of previous studies and affirms that students in both Middle East and in western countries use a variety of coping strategies that function as problem focused and emotion focused coping. More specifically, our hypothesized model of problem focused, emotion focused, and dysfunctional coping strategies was supported (Buizza, 2021; Eisenbarth, 2019). However, the frequency of particular coping strategies that students used differed between Middle East and in western countries. For instance, students in the Middle East frequently and consistently used religious coping strategy to deal with stressors whereas the western students' reliance on religious coping strategy was either inconsistent or non-significant. The difference was also noted in the nature of the relationship between problem solving coping strategy and anxiety. The order of the reported relationship among students of western countries is typically in a negative direction, meaning, higher the use of a problem coping strategy, the lower the level of anxiety. However, the pattern of relationship observed among students in the current study was in an opposite direction. That is, the frequent use of problem-solving coping strategy was associated with a higher level of anxiety. One of the possible explanations for the contrasting relationships between two groups may be

linked to people's appraisal of the stressor. When an individual appraises the stressor as uncontrollable, the use of problem-solving coping strategy is associated with a higher level of psychological distress (Forsythe & Compass, 1987). Thus, it is plausible that for students in the Middle East who are experiencing significant levels of psychological distress, the stressor may be perceived as an event beyond their control. Another explanation may be related to the design of the study. Because the current study is of a cross-sectional design, it is possible that the observed relationship may operate in an opposite direction. For example, students who are anxious may engage in more frequent use of problem-solving coping strategy in an attempt to alleviate the stressor. Another difference between students from the two regions is in the type of emotion-focused coping strategies used, such as playing sports or engaging in exercises. While students in western countries were observed to frequently participate in sports or exercises to relieve stress and deal with stressors, Middle Eastern students' engagement in sports or exercises were infrequent. Part of the explanation may be related to the history of past campaigns in Western countries to increase the public's awareness on the importance of participating in sports and exercises for managing stress. Finally, although the use of dysfunctional coping strategy such as taking drugs or alcohol among students in the Middle East is unknown, for students in western countries, this is one of the most frequently reported coping strategies used to deal with stressors.

The observed pattern of the relationship between coping strategies and depression was different to that of anxiety. Of the five coping strategies included in the hypothesized model, only two coping strategies were statistically significantly related to depression: self-blame and religious coping. The results support the findings of previous studies about the negative effects of self-blame (Mahmoud, Staten, Hall, & Lennie, 2012). Depressed individuals are more likely to blame themselves for the stressor they are facing. A study by Buizza et al. (2021) examining coping strategies of students who reach out to a university counselling service reported that self-blame coping strategy is a major predictor of mental health issues (i.e., depression). According to Janoff-Bulman (as cited in Graham & Juvonen, 1998), self-blame can be categorized into the two types: behavioral self-blame and characterological self-blame. With behavioral self-blame, the cause of a negative event is perceived as controllable, whereas with characterological self-blame, the cause of a negative event is perceived as uncontrollable. People who exhibit characterological self-blame for negative outcomes cope more poorly and are more depressed than people with behavioral self-blame. Consistent with this theoretical perspective, the use of self-blame coping strategy in the current study was significantly associated with increased levels of both anxiety and depression. In comparison to the self-blame coping strategy, the link between religious coping strategy and depression has been mixed and inconsistent. Religious coping is largely divided into positive religious

into positive religious coping and negative religious coping. Positive religious coping reflects features such as a secure relationship with God, in spiritual communication with others, and holding a novel worldview. Negative religious coping represents holding a tense and conflictual relationship with God and interpreting challenges as punishment from God. The type of religious coping has been reported to influence differential outcomes. Sarizadeh et al. (2020) found that negative religious coping is positively related to depression ($p=0.001$), whereas positive religious coping is negatively related to depression among high school students ($\beta= -0.25$, $p=0.001$). Similarly, Areba et al. (2018) have also reported that positive religious coping is related to decrease in symptoms of depression among Somali college students ($\beta = -0.04$, $p=0.05$). Additionally, Gardner et al. (2014) reported a negative correlation between positive religious coping and perceived stress among international Muslim university students in New Zealand ($\rho = -0.48$, $p < 0.01$). However, in contrast to the findings of the above studies, Sapranaviciute et al. (2013) did not find a significant relationship between religious coping and depression (OR 1.08, CI 0.90-1.30) among international students.

Several limitations need to be mentioned. First, due to the use of questionnaires for data collection, potential biases due to self-selection, self-reporting, inaccurate recall cannot be ruled out. Second, the cross-sectional design of the study reduces the ability to confirm causality. Third, because of convenience sampling, the results of the study have limited generalizability. For example, the study sample included proportionally more females.

Implication and Conclusion

Given the reported moderate to high levels of psychological distress and their effect on both academic progress and long term well being of individuals, it is important to identify those students who are, or at risk of, developing an increased level of psychological distress so that early intervention can be initiated. The focus of intervention should be on improving adaptive coping strategies and to discourage the use of maladaptive coping strategies such as self-blame. For international students, Muslim students in particular, the focus should be on fostering their reliance on faith to deal with the stressor.

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