

# Stress coping and psychological adaptation in the international students

## Research article

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**Abstract:** International students all over the world meet a lot of stressful situations due to different academic demands, cultural context, language problems and other adaptation difficulties. There is little evidence to explain what stress coping strategies are used by international students to cope with stressful situations and how they are connected to psychological adaptation. So the purpose of this study was to assess associations between psychological adaptation and stress coping strategies in international and domestic students. The study recruited 356 students: 258 host and 98 international students. Stress coping strategies were measured by Coping Orientation of Problem Experience questionnaire. Zung Self-Rating Depression Scale was used to measure depressive symptoms. Stress related health complaints were measured using a scale devised by the authors of this study. The study ascertained that in stressful situations international students used different stress coping strategies when compared to domestic students. Moreover, stress coping strategies used by international and domestic students were differently connected to health outcomes. The study pointed out that by researchers and counselors' special attention should be given to international students.

**Keywords:** *Stress coping strategies • Depressive symptoms • Stress related health complaints • International students*

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## 1. Introduction

The number of international students in Lithuanian universities as all over the world is growing. So the interest of understanding the needs of international students better is also growing. International students are a special group, because they face a lot of stressful situations in the host country. Previous studies had identified stressors such as language barriers, academic demands, homesickness, lack of social support, decreased self-esteem and lack of assertiveness [1]. In addition to academic preparation students are requested to learn a new language [2]. Stress of international students is also provoked by academic cultural

differences [3]. Furthermore, international students are under pressure of expectations of the relatives back home [4].

Second, but not less important, international students undergo an acculturation process. Acculturation manifests with changes in an individual's behavior, attitudes and identity as a result of interaction between the individual and environment of the host country. It goes without saying that acculturation is a stressful process. Berry [5] was the pioneer of acculturation stress and coping in international students' studies. He defined acculturation of international students as a stressful major life event, which requires stress coping strategies.

Stress coping is defined as behavioral and cognitive efforts made by a person to respond to internal or

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external demands, which are perceived as demanding a lot of effort or even exceeding resources available to them. Stress coping strategies are classified into two main areas – problem-oriented and emotion-oriented stress coping. Using problem-oriented stress coping, will lead to a person mobilizing their actions in a purposeful way to change their relation between themselves and their environment. While emotion-oriented stress coping aims to regulate emotions and without changing the environment [6].

Previous studies established that for Lithuanian students the following eight stress coping strategies were the most commonly used: problem-oriented stress coping, focusing on emotions, social support strategy, distraction, denial, religious coping, substance abuse and acceptance [7]. Most often in academic context students use problem oriented stress coping. To be more precise this, most often involves stressful situations students are trying to plan their actions and to solve the problematic situation [8]. However, stress coping is gender specific. Female students in stressful conditions more frequently engage to focus on and venting of emotions, use of emotional social support and religious coping, whereas male students more frequently use denial, substance use and acceptance stress coping strategies [7].

It could be assumed that stress coping strategies between domestic and international students may differ. Some problems international students are dealing with are similar to those encountered by domestic students, yet they face more difficulties dealing with them due to the lack of integration and difficulties with communicating, developing social networks and accessing social support [9]. Research in New Zealand established that international students use more denial, self-blame and behavioral disengagement coping strategies than domestic students [4]. Another study showed international students mostly used problem-oriented stress coping strategy, followed by searching for social support and behavioral disengagement strategy [10]. Nevertheless there is little evidence to prove that stress coping strategies between domestic and international students differ.

It is not only stress coping strategies that help students to adapt to different academic context and culture, there are some other factors that also help international students to adapt. Self-efficacy of the students is the most important factor protecting from acculturative stress. Speaking and understanding the language of the host country is also very helpful [11]. Other moderating factors include age, gender, motivation, personality and social support. Younger age and male gender makes the process easier. Length of time

spent in another country is also important [5]. Hence, demographic factors in studies of international students' adaptation should be controlled for.

It is said that cultural stress influences international students' well-being. Adjustment difficulties may lead to psychological problems. International students are likely to experience distress, homesickness, loneliness and feelings of not belonging in the host country [12]. However, a leading psychological problem in international students is their high level of depressive symptoms [13]. It is stated, that psychological adjustment is strongly related to depressive symptoms and somatic complaints among international students [14].

Previous studies established that psychological adaptation of international students depends on their coping styles [15]. It was stated that problem-oriented coping is associated with best acculturation and adaptation of international students [5]. Another study proved that passive collective stress coping strategies mediated the relationship between acculturative stress and depressive symptoms in Chinese international students [16]. Similar results were presented by Wei et. al. [17], where avoidance coping was associated with depressive symptoms in Asian international students. There is also some evidence that religious coping may be useful for international students' adaptation in a foreign country [4]. Moreover, it has been established that psychological adaptation is related to social support, which can also be evaluated as a stress coping strategy [18]. Another study found that international students who appreciated their friends, classmates and professors' support tended to have higher grades [19]. So the way in which international students cope with stress may be associated with his or her psychological adaptation in different cultural and academic contexts.

This study aims to explore what influences the acculturation process has on psychological adaptation. Psychological adaptation of international students was predicted by depressive symptoms and stress related health complaints. This study hypothesized that stress coping strategies are associated with psychological adaptation of international students in different ways than in domestic students. Demographic factors were controlled for because earlier studies evaluated their influence to psychological adaptation [5]. It is important to understand the acculturation process of international students, so that the counseling of international students can be made more effective and to make the questions for future researchers. So, the purpose of the study was to assess associations between psychological adaptation and stress coping strategies in international and domestic students.

## 2. Material and methods

In total 356 students from Lithuanian University of Health Sciences (LUHS) and Vytautas Magnus University (VMU) participated in the study. 258 host students from VMU were questioned in May of 2009 and 98 international students from LUHS were questioned in May of 2011. International students native countries: Netherlands, Australia, Estonia, India, Iran, Spain, Israel, South Korea, Pakistan, Poland, Russian, Lebanon, Malaise, Norway, Sweden, Switzerland, Turkey, United Kingdom and Germany. Descriptive characteristics of the participants are given in Table 1.

Coping Orientation of Problem Experience (COPE) – was used to measure dispositional stress coping strategies [20]. Questionnaire contains 60 items, 15 scales (4 items in each scale): positive reinterpretation and growth, mental disengagement, focus on and venting of emotions, use of instrumental social support, active coping, denial, religious coping, humor, behavioral disengagement, restraint, use of emotional social support, substance use, acceptance, suppression of competing activities, planning. Participants were asked to evaluate how typical this behavior is to them in stressful situation. Answers were placed on a Likert scale (1- I usually don't do this at all, 2- I usually do this a little bit, 3- I usually do this at medium amount, 4- I usually do this a lot). Higher scores on the scales indicate more usage of a particular coping strategy. Reliability of questionnaire was measured by Cronbach alpha (Table 2). Unreliable scales (Cronbach alpha <

0.6) such as mental disengagement, active coping and restraint were excluded from further analysis.

Zung Self-Rating Depression Scale – was used to measure depressive symptoms [21]. The scale contains 20 items. Participants were asked to choose an answer, which best suited their condition in the previous week. Answers were placed on a Likert scale (1- a little of the time, 2- some of the time, 3- good part of the time, 4- most of the time). 10 items in the scale are reversed. Participants were distributed into two groups by terciles; international and host students separately. First and second terciles reflect lower level of depressive symptoms, third tercile reflects higher level of depressive symptoms [22]. Reliability of the questionnaire was proved by Cronbach alpha – 0.81.

Health complaints scale – it is a set of symptoms composed by the authors of the study. It contains 12 symptoms, which are mostly identified in the literature as symptoms related to stress (e.g. headache, back-ache) [23]. Participants were asked to indicate how often they were bothered by each symptom in the last six months. Answers were placed on a Likert scale (1- a little of the time, 2- some of the time, 3- good part of the time, 4- most of the time). Symptoms had been summed and participants were distributed into two groups by the terciles of the scale [22]. First and second terciles reflect lower level of health complaints, third tercile reflects higher level of health complaints. Reliability of the questionnaire was proved by Cronbach alpha – 0.84.

Demographic factors – participants were asked about their gender, age, specialty and course.

**Table 1.** Descriptive characteristics of the subjects (n=356)

|           |            | International students (n=98) | Host students (n=258) |
|-----------|------------|-------------------------------|-----------------------|
|           |            | N (%)                         | N (%)                 |
| Gender    | Male       | 69 (70.4)                     | 25 (9.7)              |
|           | Female     | 29 (29.6)                     | 233 (90.3)            |
| Specialty | Dentistry  | 26 (26.5)                     | -                     |
|           | Medicine   | 72 (73.5)                     | -                     |
|           | Psychology | -                             | 145 (56.2)            |
|           | Sociology  | -                             | 56 (21.7)             |
|           | Education  | -                             | 57 (22.1)             |
| Course    | 1          | 27 (27.6)                     | 100 (38.8)            |
|           | 2          | 35 (35.7)                     | 76 (29.5)             |
|           | 3          | 8 (8.2)                       | 54 (20.9)             |
|           | 4          | 7 (7.1)                       | 28 (10.9)             |
|           | 5          | 17 (17.3)                     | -                     |
|           | 6          | 4 (4.1)                       | -                     |
| Age       | Mean±SE    | 22.4±2.6                      | 20.4±1.4              |

**Table 2.** Reliability analyses of COPE scales in the students sample (n=356)

| COPE scales                          | Cronbach alpha |
|--------------------------------------|----------------|
| Positive reinterpretation and growth | 0.67           |
| Mental disengagement                 | 0.43           |
| Focus on venting of emotions         | 0.80           |
| Use of instrumental social support   | 0.81           |
| Active coping                        | 0.53           |
| Denial                               | 0.76           |
| Religious coping                     | 0.92           |
| Humour                               | 0.87           |
| Behavioral disengagement             | 0.67           |
| Restraint                            | 0.46           |
| Use of emotional social support      | 0.85           |
| Substance use                        | 0.93           |
| Acceptance                           | 0.62           |
| Suppression of competing activities  | 0.65           |
| Planning                             | 0.68           |

Questionnaires for international students were administered in English, but for Lithuanian students it was translated by double translation in Lithuanian language.

**Data Analysis.** Descriptive statistics were used to characterize the study population. The Student *t* test was used to compare the deviation of the sample mean. Logistic regression was used for associations between stress coping strategies, depressive symptoms and health complaints. Odds ratios (OR) were calculated for dichotomously coded depressive symptoms and health complaints scores. Age, gender, specialty and course were controlled in multivariate analyses. Tests were two-tailed and alpha was set at 0.05. The level of significance was set at  $p < 0.05$ . Data analysis was conducted with the statistical package SPSS.17.

### 3. Results

Usage of stress coping strategies was compared in international and Lithuanian students groups, separately for men and women by comparing the means of stress coping strategies. Some differences were evaluated between international and host students. Lithuanian male students for coping with stress more often used focus on and venting of emotions, instrumental social

support and emotional social support coping strategies than international students. Yet, it was ascertained, that the mean of religious coping strategy was significantly higher among international students than in host students. Furthermore, male and female students differed in their use of stress coping strategies. In female group, only one mean difference reached statistical significance. International female students less often used focus on and venting of emotions than host students (Table 3).

We also explored the gender differences of preferred coping strategies among international and Lithuanian students (Table 3). International male students mostly used coping strategies such as positive reinterpretation and growth, planning and acceptance. The male host students in stressful situations most often used positive reinterpretation and growth, instrumental social support and planning. For female students the top two coping strategies were the same as for men, but Lithuanian females in stressful situation were more often engaged in searching emotional social support while international females tended to search for instrumental social support.

Depressive symptoms and health complaints related to stress were compared between international and domestic students. It was ascertained that

**Table 3.** Comparison of stress coping strategies between international ( $n=98$ ) and host students ( $n=258$ ) in male and female groups.

| Stress coping strategies             | Male                    |                      |       |        | Female                  |                       |       |        |
|--------------------------------------|-------------------------|----------------------|-------|--------|-------------------------|-----------------------|-------|--------|
|                                      | Score, mean $\pm$ SE    |                      | T     | p      | Score, mean $\pm$ SE    |                       | T     | p      |
|                                      | Foreign students (n=69) | Host students (n=25) |       |        | Foreign students (n=29) | Host students (n=233) |       |        |
| Positive reinterpretation and growth | 12.2 $\pm$ 2.2          | 12.4 $\pm$ 2.4       | 0.38  | 0.70   | 12.0 $\pm$ 2.0          | 12.7 $\pm$ 1.9        | 1.90  | 0.06   |
| Focus on venting of emotions         | 8.3 $\pm$ 2.5           | 9.9 $\pm$ 2.4        | 2.72  | <0.01  | 9.9 $\pm$ 2.3           | 11.7 $\pm$ 2.3        | 3.92  | <0.001 |
| Use of instrumental social support   | 10.2 $\pm$ 2.9          | 11.8 $\pm$ 2.8       | 2.41  | <0.05  | 11.3 $\pm$ 2.4          | 12.1 $\pm$ 2.4        | 1.71  | 0.09   |
| Denial                               | 6.7 $\pm$ 2.5           | 6.6 $\pm$ 2.2        | -0.12 | 0.90   | 6.1 $\pm$ 2.1           | 6.3 $\pm$ 2.1         | 0.48  | 0.63   |
| Religious coping                     | 9.6 $\pm$ 3.9           | 6.0 $\pm$ 2.5        | -5.22 | <0.001 | 8.1 $\pm$ 4.0           | 7.5 $\pm$ 3.5         | -0.85 | 0.40   |
| Humor                                | 9.7 $\pm$ 3.1           | 10.4 $\pm$ 3.5       | 1.01  | 0.32   | 8.8 $\pm$ 3.0           | 8.2 $\pm$ 2.7         | -1.23 | 0.22   |
| Behavioral disengagement             | 6.8 $\pm$ 2.3           | 7.6 $\pm$ 2.0        | 1.41  | 0.16   | 7.0 $\pm$ 1.9           | 7.2 $\pm$ 1.9         | 0.69  | 0.51   |
| Use of emotional social support      | 9.2 $\pm$ 3.0           | 10.6 $\pm$ 2.9       | 2.04  | <0.05  | 11.5 $\pm$ 2.6          | 12.0 $\pm$ 2.7        | 0.98  | 0.33   |
| Substance use                        | 5.5 $\pm$ 2.5           | 6.2 $\pm$ 2.3        | 1.33  | 0.19   | 6.2 $\pm$ 2.9           | 5.6 $\pm$ 2.6         | -1.04 | 0.30   |
| Acceptance                           | 10.4 $\pm$ 2.4          | 11.4 $\pm$ 1.9       | 1.80  | 0.08   | 10.6 $\pm$ 2.3          | 11.0 $\pm$ 1.9        | 1.07  | 0.29   |
| Suppression of competing activities  | 10.2 $\pm$ 2.2          | 10.8 $\pm$ 2.0       | 1.14  | 0.26   | 10.4 $\pm$ 2.1          | 10.4 $\pm$ 2.2        | -0.07 | 0.94   |
| Planning                             | 11.9 $\pm$ 2.3          | 11.4 $\pm$ 2.6       | -0.78 | 0.44   | 11.8 $\pm$ 1.8          | 11.5 $\pm$ 2.1        | -0.93 | 0.35   |

international students' depressive symptoms level ( $38.2 \pm 8.1$ ) was higher than in domestic students group ( $37.0 \pm 7.9$ ), but the mean difference was not statistically significant ( $p=0.2$ ). In contrast, health complaints level was statistical significantly ( $p<0.001$ ) higher among Lithuanian students ( $21.1 \pm 5.0$ ) than in international students ( $17.5 \pm 4.8$ ).

Two separate multivariate logistic regression analyses were conducted to explore connections between stress coping strategies and depressive symptoms in international and host students. Regression models were adjusted for socio-demographic factors such as gender, age, specialty and course. Results are shown in Table 4.

It was ascertained that stress coping strategies are strong predictors of depressive symptoms in international and Lithuanian students controlling for demographic factors. Stress coping strategies explained more than 50% of depressive symptoms variance in international students and more than 30% of depressive symptoms variance in domestic students. More often use of focus on and venting of emotions, behavioral disengagement and substance use coping strategies

and less frequent use of positive reinterpretation and growth, humor coping strategy was associated with higher level of depressive symptoms in international students. Different results were found among Lithuanians. Students focusing more on using venting of emotions, denial strategies and less humor and emotional support strategies were more likely to have a higher level of depressive symptoms.

Two logistic regression models presented associations between stress coping strategies and health complaints among international and host students (Table 5).

Focus on venting of emotions, denial and religious stress coping strategies significantly predicted higher levels of health complaints in international students after controlling for demographics. Lithuanian students who used more venting of emotions and less acceptance tended to have higher levels of health complaints. Surprisingly, host students having higher scores of planning had a significant 1.37-fold higher risk of higher level of stress related health complaints. On the contrary, lower scores of planning predicted higher levels of health complaints in international students, yet connections did not reach statistical significance.

**Table 4.** Stress coping strategies' connections with depressive symptoms in international ( $n=98$ ) and host students ( $n=258$ )

| Stress coping strategies             | International students  | Host students           |
|--------------------------------------|-------------------------|-------------------------|
|                                      | OR <sup>a</sup> (95%CI) | OR <sup>a</sup> (95%CI) |
| Positive reinterpretation and growth | 0.58 (0.40-0.85)**      | 0.89 (0.72-1.11)        |
| Focus on venting of emotions         | 1.83 (1.29-2.61)**      | 1.44 (1.20-1.74)***     |
| Use of instrumental social support   | 0.96 (0.70-1.31)        | 0.86 (0.69-1.07)        |
| Denial                               | 1.15 (0.82-1.61)        | 1.39 (1.12-1.74)**      |
| Religious coping                     | 1.08 (0.90-1.30)        | 1.05 (0.95-1.15)        |
| Humor                                | 0.68 (0.51-0.92)*       | 0.79 (0.68-0.92)**      |
| Behavioral disengagement             | 1.49 (1.01-2.19)*       | 1.19 (0.97-1.47)        |
| Use of emotional social support      | 1.06 (0.79-1.42)        | 0.82 (0.67-1.00)*       |
| Substance use                        | 1.42 (1.04-1.95)*       | 1.11 (0.96-1.28)        |
| Acceptance                           | 0.99 (0.75-1.32)        | 0.99 (0.81-1.20)        |
| Suppression of competing activities  | 0.96 (0.65-1.43)        | 0.89 (0.73-1.09)        |
| Planning                             | 1.28 (0.85-1.91)        | 1.01 (0.83-1.23)        |
| Pseudo R <sup>2</sup>                | 0.51                    | 0.36                    |

\* $p<0.05$ ; \*\* $p<0.01$ , \*\*\* $p<0.001$ .

OR<sup>a</sup> adjusted for age, gender, specialty and course of students.

Pseudo R<sup>2</sup> statistics are derived from a logit model (probability of having higher level of depressive symptoms).

**Table 5.** Stress coping strategies' connections with health complains in international ( $n=98$ ) and host students ( $n=258$ )

| Stress coping strategies             | International students  | Host students           |
|--------------------------------------|-------------------------|-------------------------|
|                                      | OR <sup>a</sup> (95%CI) | OR <sup>a</sup> (95%CI) |
| Positive reinterpretation and growth | 1.01 (0.83-1.24)        | 0.84 (0.63-1.11)        |
| Focus on and venting of emotions     | 1.21 (1.04-1.41)*       | 1.48 (1.14-1.92)**      |
| Use of instrumental social support   | 0.93 (0.76-1.13)        | 0.91 (0.71-1.16)        |
| Denial                               | 1.26 (1.05-1.52)*       | 1.00 (0.77-1.30)        |
| Religious coping                     | 1.09 (1.00-1.19)*       | 0.94 (0.81-1.09)        |
| Humor                                | 0.91 (0.80-1.03)        | 1.01 (0.83-1.24)        |
| Behavioral disengagement             | 1.05 (0.87-1.27)        | 1.08 (0.81-1.44)        |
| Use of emotional social support      | 0.91 (0.76-1.08)        | 0.99 (0.78-1.26)        |
| Substance use                        | 1.07 (0.94-1.21)        | 1.15 (0.94-1.41)        |
| Acceptance                           | 1.01 (0.85-1.19)        | 0.79 (0.63-0.99)*       |
| Suppression of competing activities  | 1.05 (0.89-1.25)        | 0.96 (0.73-1.25)        |
| Planning                             | 0.89 (0.75-1.05)        | 1.37 (1.00-1.89)*       |
| Pseudo R <sup>2</sup>                | 0.17                    | 0.23                    |

\* $p<0.05$ ; \*\* $p<0.01$ , \*\*\* $p<0.001$ .

OR<sup>a</sup> adjusted for age, gender, specialty and course of students.

Pseudo R<sup>2</sup> statistics are derived from a logit model (probability of having higher level of depressive symptoms).

## 4. Discussion

It was proposed that due to different encountered stressful situations international students use different stress coping strategies than host students [4,10]. But there is little evidence for this. Our study ascertained that stress coping between international and Lithuanian students differs. Domestic students more often used focus on and venting of emotions stress coping strategy than international students. Moreover, in stressful situations international students tend to search for instrumental and social support less than host students. This could be explained by the lack of integration that international students experience. Due to this, they encounter difficulties with developing social networks, communicating and getting social support [9]. However, these mean differences are significant only between male students. Probably female students tend to make better social support networks than do men. Moreover, the top three coping strategies of students show that female students tend to use social support strategies more frequently than male students, as has been established in previous studies [20]. It shows that male students cope with stress differently than female students, which has also been identified in previous studies [7].

Chai [4] proposed that international students use more religious coping than domestic students. Another study confirmed that Asian students were more religious and used religion as a coping style more often than European students [13]. Our study affirmed that international male students use more religious coping than domestic students. However this study did not affirm that international students use more denial or behavioral disengagement than host students as was proposed earlier [4].

Amponsah [10] established that the most used stress coping strategy by international students is problem-oriented stress coping, the second is searching for social support and the third is behavioral disengagement strategy. Our study ascertained that positive reinterpretation and growth is the preferred stress coping strategy in students. This study also affirmed previous findings that international and domestic students often use problem oriented stress coping strategy as planning and less frequently use substance use and denial [7]. However, top stress coping strategies exclusion showed that domestic students tend to choose social support for coping more often than international students. This could probably be explained by the lack of social integration of international students, yet this may also show that international students tend to use more planning and positive reinterpretation and less

avoidance which is more likely to be recommended within an academic context [8,20].

However, these differences in coping between international and domestic students might be influenced by specialty. This includes international students studying dentistry or medicine and domestic students studying psychology, sociology and education (Table 1). Some studies proposed that medical students are at a higher risk of distress than the general population [24]. However, the current evidence that medical students are under higher stress than students of social sciences as psychology, sociology or education is still contentious.

Our study affirmed that psychological adaptation of international students is dependent on coping styles [15]. Previous studies established that worse psychological adaptation is predicted by focusing on emotions in stressful situation [25]. Use of focus on and venting of emotions for both domestic and international students was connected with higher levels of depressive symptoms and health complaints. It is said that emotion-oriented coping mostly predicts depressive symptoms. So, the more students are engaged in emotions in stressful situation the more possibility there is for them to experience bad mood and other symptoms of psychological inadaptability. It is also stated that emotion-oriented coping is connected to bad mood more strongly than good mood is to problem-oriented coping [26]. Moreover, more frequent use of humor stress coping strategy was associated with lower levels of depressive symptoms. This suggests that laughing off a problem could be adaptive in stressful situation. However, these associations are based on contemporaries' measurements of stress coping strategies and psychological adaptation indicators, so conclusions about causality could not be identified.

It was established that domestic students have higher levels of health complaints and more often use focus on and venting of emotions stress coping strategy. As previously stated, health complaints had been associated with this strategy. Supposedly, higher levels of health complaints in domestic students could be explained by more frequent use of focus on and venting of emotions. Of course, it is only a hypothesis, which should be explored, in further studies.

Although there is little evidence of how connections between stress coping strategies and psychological adaptation differ between domestic and international students, previous studies estimated that problem-oriented coping is associated with best acculturation and adaptation of international students [5]. Our study estimated that the use of positive reinterpretation and growth is associated with lower levels of depressive symptoms in international students controlling for

demographics. So the welcome news is that the most frequently used stress coping strategy of international students is associated with better mood.

There is some evidence that religious coping may also be useful for international students' adaptation in a foreign country [4]. Another study showed that international students with a higher level of spirituality seem to have as much acculturative stress as those with a lower level of spirituality. The same results were demonstrated by students who had and had not been religious [11]. Our study estimated that the level of depressive symptoms was not connected with religious coping in either international or domestic students. Yet in international students more frequent use of religious coping was associated with higher levels of health complaints. Also, a greater use of denial coping was associated with higher levels of health complaints in international students. So religious coping and denial in this context may be interpreted as avoidance coping, because instead of solving a problem, students may be relying on god or denying the problem altogether, which is linked to worse health outcomes for students [25].

Earlier studies established that more frequent use of behavioral disengagement and substance use and denial and less frequent use of problem-oriented coping is associated with higher level of depressive symptoms [25]. Our study affirmed that international students using more behavioral disengagement and substance use as coping tend to have lower mood. Surprisingly, these associations were not significant in domestic students. Similar results were estimated in the study of Asian international students [17]. Also, in domestic students, lower levels of depressive symptoms were connected to social support and this was not affirmed in international students as found in a previous study [18]. Supposedly, less frequently used stress coping strategies of social support by international students is not as valuable to Lithuanian students.

Of course the study met a number of limitations. Firstly, domestic and international students were recruited from different specialties, which could have influenced the results. Some other factors associated with psychological adaptation of international students as personality characteristics or English language skills had not been controlled in the study. Future studies should involve these covariates to control their influence on the stress coping and adaptation of international students. Ethnicity of international students had not been controlled in the study because this international population contains students from huge variety of different nations. Moreover, this study was a relatively

small study. Furthermore, we cannot determine causal pathways from this study. So longitudinal studies of psychological adaptation and coping in international students is highly recommended for future research.

## 5. Conclusions

This study explored what influence acculturation process has on psychological adaptation. Psychological adaptation of international students was viewed in the stress coping and health indicators framework comparing with domestic students. It was ascertained that in stressful situations international students less frequent than domestic students use focusing on and venting of emotions stress coping strategy. Also male international students more often used religious coping strategy and less frequently – social support strategies than domestic students. Moreover, stress coping strategies used by international and domestic students were differently connected to psychological adaptation measured by health outcomes. More frequent use of focusing on and venting of emotions, behavioral disengagement, substance use and less frequent use of positive reinterpretation and growth and humor was associated with higher levels of depressive symptoms in international students. More frequent use of focus on and venting of emotions, denial and religious coping was associated with higher levels of stress related health complaints among international students. This study highlights the importance and special attention that needs to be given to international students so that they can more successfully adapt to studying and living in a foreign country.

## Conflict of interest

The authors declare that they have no competing interests.

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## References

- [1] Poyrazli S., Arbona C., Nora A., McPherson R., Pisecco S., Relation between assertiveness, academic self-efficacy, and psychological adjustment among international graduate students. *J Coll Student Dev*, 2002, 43(5), 632-642
- [2] Misra R., Castillo L.G., Academic stress among college students: comparison of American and international students. *Int J Stress Manage*, 2004, 11(2), 132-148
- [3] Brown L., The incidence of study-related stress in international students in the initial stage of the international sojourn. *J Stud Int Educ*, 2008, 12(1), 5-28
- [4] Chai P.P., Religion/spirituality as a stress coping mechanism for international students, PhD thesis, Auckland University of Technology, Auckland, 2009
- [5] Berry J.W., Immigration, acculturation and adaptation. *Appl Psychol Int Rev*, 1997, 46, 5-68
- [6] Lazarus R., Evolution of a Model of Stress, Appraisal and Coping, and Discrete Emotions., In: Rice V. (Eds.), *Handbook of Stress, Coping and Health*, SAGE Publications, London, 2000
- [7] Sapranavičiūtė L., Perminas A., Kavaliauskaitė E., Universiteto studentu streso iveikos strategijų struktūra. *Tarptautinis psichologijos žurnalas: biopsichosocialinis požiūris*, 2011, 8, 9-28, (in Lithuanian)
- [8] Sapranavičiūtė L., Perminas A., Universiteto studentu streso iveikos strategijų sasajos su nusiskundimais sveikata. *Visuomenės sveikata*, 2011, 1 (52), 98-107, (in Lithuanian)
- [9] Sovic S., Coping with stress: the perspective of international students. *ADCHE*, 2008, 6(3), 145-158.
- [10] Amponsah M.O., Non UK University students stress levels and their coping strategies. *Educ Res*, 2010, 1(4), 88-99
- [11] Lee S., Bradley K.D., Relation between general self-efficacy, assertiveness, spirituality, and acculturative stress among international students. *Proceedings of The Mid-Western Educational Research Association annual meeting* (Columbus, OH), 2005
- [12] Thomson G., Rosenthal D., Russell J., Cultural stress among international students at an Australian university. *Proceedings of Australian International Education Conference* (Perth, Australia), 2006, 1-8
- [13] Wei M., Heppner P.P., Mallen M., Ku T.Y., Liao K.Y., Wu T.F., Acculturative stress, perfectionism, years in United States, and depression among Chinese international students. *J Couns Psychol*, 2007, 54, 385-394
- [14] Shenoy U.A., College-Stress and Symptom-expression in International Students: A comparative study, PhD thesis, Faculty of the Virginia Polytechnic Institute and State University, Virginia, 2000
- [15] Ward C., Bochner S., Furnham A., *The psychology of culture shock*. Routledge, London, 2001
- [16] Shuk-Nga Lau J., Acculturative stress, collective coping, and psychological well-being of Chinese international students. *DAI, Section B, The Sciences and Engineering*, 2007, 67(12), 7380
- [17] Wei M., Ku T.Y., Russel D.W., Mallinckrodt B., Liao K.Y., Moderating effects of three coping strategies and self-esteem or perceived discrimination and depressive symptoms: A minority stress model for Asian international students. *J Couns Psychol*, 2008, 55(4), 451-462
- [18] Bektas Y., Demir A., Boden R., Psychological adaptation of Turkish students at U.S. campuses. *Int J Adv Couns*, 2009, 31(2), 130-143
- [19] Tan T.J., Winkelman C., The Contribution of Stress Level, Coping Styles and personality traits to International Students' Academic Performance, 2007, [http://www.isana.org.au/files/20051017165757\\_intstudentAcademicperformanceStresslevelscopingstyles\(1\).pdf](http://www.isana.org.au/files/20051017165757_intstudentAcademicperformanceStresslevelscopingstyles(1).pdf)
- [20] Carver C.S., Scheier M.F., Weintraub J.K., Assessing Coping Strategies: A Theoretically Based Approach. *J Pers Soc Psychol*, 1989, 56(2), 267-283
- [21] Zung W.W., A self-rating depression scale. *Arch Gen Psychiatry*, 1965, 12, 63-70
- [22] Epstein R. M., Shields C.G., Franks P., Meldrum S.C., Feldman M., Kravitz R.L., Exploring and Validating Patient Concerns: Relation to Prescribing for Depression. *Ann Fam Med*, 2007, 5, 21-28
- [23] Lovallo W.R., *Stress & Health. Biological and Psychological Interactions*, 2nd ed., Sage Publications, Thousand Oaks, 2005
- [24] Dyrbye L.N., Thomas M.R., Shanafelt T.D., Systematic review of depression, anxiety, and other indicators of psychological distress among U.S. and Canadian medical students. *Acad Med*, 2006, 81(4), 354-373

- [25] Kim J.H., Knight B.H., Longmire V.F., The Role of Familism in Stress and Coping Processes Among African American and White Dementia Caregivers: Effects on Mental and Physical Health. *Health Psychol*, 2007, 26 (5), 564-576
- [26] Sears S.F., Urizar G.G., Evans G.D., Examining a Stress - Coping Model of Burnout and Depression in Extension Agents. *J Occup Health Psychol*, 5(1), 56-62, 2000