

## PREDICTORS OF ACCULTURATIVE STRESS AMONG INTERNATIONAL POSTGRADUATE STUDENTS IN MALAYSIA PUBLIC UNIVERSITY

Ye, H.D.<sup>1,2</sup>, Muhamad Hanafiah Juni<sup>2\*</sup>

<sup>1</sup> Candidates of Master of Public Health, Department of Community Health, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia.

<sup>2</sup> Department of Community Health, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia.

\*Corresponding author: Associate Professor. Dr. Muhamad Hanafiah Juni,  
Email: [hanafiah\\_juni@upm.edu.my](mailto:hanafiah_juni@upm.edu.my)

---

### ABSTRACT

**Background:** Acculturative stress are contributed by acculturative stressors and related to the aptitude of the individual whether he has enough coping capacity to overcome the situation or not. International students would be more likely to encounter higher stress upon arrival to foreign country as compared to host groups of students, as they have to adjust to new social, cultural and academic environment, and uncertain surrounding. The aim of this study is to determine the predictors of acculturative stressors among international postgraduate students studying in a Malaysia public university.

**Materials and Methods:** A cross sectional study was conducted among 404 international postgraduate students in a public university in Malaysia. Acculturative stressors were assessed by a self-administered questionnaire with six main subsection, including homesickness, perceived discrimination, living condition, academic pressure, financial concern and social support. It consists of 38 items in likert-5 point response format. Data was analysed using IBM SPSS. Independent t-test and one-way ANOVA were used to determine the association between acculturative stressors and demographic factors, and predictors were explored using hierarchical regressions analysis.

**Result:** The response rate for the study was 82.1%. The mean age of the respondents was 32 years, whereas the majority of respondents (75.7%) were male students. Respondents were mainly from Middle East (42.3%) and Africa (37.1%). Hierarchical regression analysis found that the gender ( $p < 0.05$ ), religion ( $p < 0.05$ ), continent of origin ( $p < 0.05$ ), duration of stay ( $p < 0.001$ ), academic pressure ( $p < 0.001$ ), financial concern ( $p < 0.001$ ), and social support ( $p < 0.05$ ) were significant predictors. Academic pressure had a significant moderate positive relationship ( $r = 0.433$ ,  $p < 0.001$ ) with acculturative stress.

**Conclusion:** Three significant predictors of acculturative stress among international postgraduate students were academic pressure, financial concern and social support. In addition, female, being Christian, and those who came from Middle East experienced more stressors.

**Keywords:** Acculturative stress, predictors, postgraduate, international students.

## 1.0 Introduction

Acculturation is a twofold encroachment of ethnic and psychosomatic changes which occur due to the contact among two or more ethnic groups and their different members (Berry, 2005). Hence, after arriving in the host countries, international students need to cope with various challenging tasks related to acculturation. They have to deal with the people, society, school, psychological status, and behavioural changes in order to adapt to the new environment, include from academic, social, and cultural aspects (Hsiao-ping Wu, 2015). The specific related challenges and cultural shock are suddenly far from family, poor social integration, and low language proficiency (Poyrazli & Grahame, 2007), new academic styles, and other daily life events (Mori, 2000). The adjustment problems of international students differ by their races, religions, linguistic and cultural backgrounds, gender, ideology, and the process, resulting many of them may feel isolated (Safary Wa-Mbaleka & Nadine A. Joseph, 2013). These are known as “acculturative stressors” and it is necessary to explore the predictors during acculturation process.

There is increasing evidences show international students are more likely to encounter extra stressors and particularly susceptible to feelings of acculturative stress, due to limited personal resources when they enter a new country. Most common stressors which foreign students face are academic pressure, language obstacles, nostalgia, and damage of social backup, reduced self-esteem, perceived discrimination, absence of coping strategies, different living condition and limited financial funding compared to domestic students, international students tend to be more vulnerable. The degree of stress among international students of Canada University is significantly higher compared to local Canadians students (Adlaf et al. 2001). International students were faced exceptional academic and personal contests than that of the native students (Hsiao-ping Wu, 2015). In order to understand the acculturation and acculturative stress, large numbers of researches had been done among different populations in developed countries. Researchers also documented several constituents of acculturative stress such as: homesickness, perceived discrimination, living condition, academic pressure, financial concern, insufficient social support, cultural competence, and self-confidence.

### 1.1 Homesickness

Homesickness is a major distress to international students as reported by the previous studies (Mori, 2000; Yi et al, 2003; Poyrazli & Lopez, 2007; Hendrickson et al, 2011; Jie Sun et al, 2016). A study by Rajapaska & Dundes (2002) conducted a study on 182 international students in the United States and found that most of the students did not feel regretful for making the decision to pursue high degree in overseas, but still 29% presented the feeling of loneliness, 30% mentioned frequent homesickness, and 46% felt they had left a part of themselves at home. The reason why international students’ feeling of loneliness increased is due to some barriers, such as language obstacles, distinctly different cultural norms, and the nature of personal relationships in the host country, which all block them to establish friendships with local students. A qualitative examined the experience of loneliness conducted among 200 Australian international students revealed that two thirds of participants had experienced loneliness or isolation in their host country, particularly in the beginning months of their stay (Sawir et al, 2008).

### ***1.2 Perceived discrimination***

Perceived discrimination is defined as one's interpretation of being subject to prejudicial treatment (de Araujo, 2011). International students noted prejudice and discrimination in their academic and social lives as results of they were marginalized in class or in social events (Hsiao-ping Wu, 2015). International students also experienced different forms of discrimination primarily outside of campus, which is always related to the colour, ethnicity and regions of origin of persons (Poyrazli & Grahame, 2007). Some students also reported to feel inferior owing to their socio-cultural background (Akhtar & Kröner-Herwig, 2015). Besides that, an American research with reference to campus social interactions in foreign students revealed that seeking funding and job opportunities, housing, and shopping areas, or contacting with university staff were also potential situations for perceived discrimination (Lee & Rice, 2007). One research finding showed that apparent discrimination causes more identity conflict, increased stress, less satisfaction in academic study and greater psychosocial and socio-cultural adjustment issues (Leong & Ward, 2000). The experience of discrimination may also cause a higher level of homesickness and discourage possible friendships with domestic students (Smith & Khawaja, 2011). Compared to internal students or European international students, students from the continents of Africa, Asia, Latin America, and the region of Middle East often perceive significant discrimination with the feeling of inferiority, direct verbal abuse, and even physical attacks (Lee & Rice, 2007; Poyrazli & Lopez, 2007).

### ***1.3 Living conditions***

Living conditions attributed by climate, eating habits, housing condition, the way of transportation and other factors can influence acculturative stress among international students in host country. Amos and Lordly (2014) explored the international students' Canadian food experiences and found that maintaining cultural identity with traditional foods was an overarching theme related to acculturation. Another study focusing on the dietary habits of Portuguese university students living in London revealed that the diets of first year students leaving far away from family would be more likely to be worse than the diets of those who have lived away from home for several years (Vilela et al, 2014).

### ***1.4 Academic pressure***

On account of different educational background, international students may find it difficult to adjust to new educational system, such as critical thinking approach, problem-based learning, interactive teaching style, and oral presentation (Eiman & Collins, 2017). In addition, assignment deadlines, work responsibilities or overload also contribute to academic pressure (Kelly & Meifen, 2014). Therefore, many researchers have considered academic stress as a unique aspect of acculturative stress for international students. A study conducted in New Zealand established an idea that international students from China were not used to the national education mode initially and barely got good grades even though they worked hard (Holmes, 2004) and research in United States also indicated that academic stress is a salient acculturative stressor for Chinese international students because of the additional challenges of facing a language barrier and adapting to a new academic atmosphere (Smith & Khawaja, 2011). Besides that, the difficulties with academic expression involve struggling to express oneself adequately in writing and in class discussions (Liao & Wei, 2014). The relationship between students and teachers also has an impact on their academic performance (Sylvester,

2015). Idiomatic styles, humour and choice of examples used in lectures, lecturers' accents, and students who are lacked of discussion skills and inadequate listening comprehension for extended lectures posed severe problems in academic study. Consequently, many students are susceptible to look down upon themselves in result of failure to keep as good performance as they were used to in home countries, and those students with excessive perfectionism have a tendency to attribute the poor academic performance to personal failure.

For most international students, language proficiency is the most common factor which affects their academic performance and cause stress. Reading articles, communicating with classmates, following lectures, and writing homework in English are the practical challenges (Smith and Khawaja, 2011). One survey revealed that language barriers were the leading cause to decrease the expected academic performance among East Asian international students (Hamamura & Laird, 2014). In addition, lack of English proficiency is also a disadvantage when applying for scholarships and assistantships (Malekan & Khan, 2017). Yeh and Inose (2003) conducted a study among 372 international students in a large urban university in the United States and concluded that higher frequency use, fluency level and degree to which students felt comfortable speaking English, predicted lower levels of distress. Furthermore, English proficiency was a predictor of both psychological and socio-cultural adjustment (Zhang & Goodson, 2011).

### ***1.5 Financial concerns***

Several previous studies have revealed that international students had more chance to expose to financial difficulty during acculturation process (Mori, 2000; Pan et al., 2010; Hsiao-ping Wu., 2015; Zi Yan & Kathleen., 2016). The common financial issues include increasing tuition fee, insufficient scholarships, unexpected inflation and employment limitation. Especially for those who rely on self-support, insufficient financial support may contribute to significant high level of acculturative stress. It has reported that East Asian families prone to spend a great deal of money to create a better educational environment in overseas for their children, which places high expectation on them (Hamamura & Laird, 2014). Hence, they have an additional pressure in term of managing study time, quality of life and social engagement for ease of good outcomes. Some students who received fellowship from their home country or host country, still need to keep good academic records in order to maintain their source of funding. Therefore, international students' general level of acculturative stress is estimated to be higher.

### ***1.6 Social support***

Social support has been considered as a crucial social context during cross-cultural transition and intercultural education in a host country (Sullivan & Kashubeck-West, 2015). When international students study abroad, they may face the threat to lose own mutual identity and usual support from their families, therefore new cross-cultural friendships from the host citizens and other international students are necessary to develop (Chuah & Singh, 2016). Initially, international students' attitudes toward acculturative stress may be positive, but, once without continuous social support, they may experience more realistic and thorny problems than those more permanently stable and established. For instance, researchers described that frequent and continuous contact between international students and host nationals were established to make vast contribution towards social support and sense of satisfaction (Hendrickson et al, 2011). Similar results of one study among 318 undergraduate

international students in Malaysian public university showed that those who were positively involved in the social circle of domestic students presented significantly less stress, lower levels of homesickness but higher levels of satisfaction (Chuah & Singh, 2016). Social support has been categorized as practical, emotional, informational and social company support, while Atri, Sharma and Cottrell (2007) found that their study in emotional support was significantly associated with sojourners' psychological health. Specifically, family, friends and important others as the critical sources of support play a significant role in daily life, however, its influence on the relationship between acculturative stressors and acculturative stress had not been given enough attention in the study of foreign students (Eustace, 2007).

Although research on the adopting issues of the international student is conducted by several researchers, and some strategy or measures have been taken to solve their problems. However, the effect and efficacy are not satisfied, and international students still encounter all kinds of acculturative stress (Sullivan & Kashubeck-West, 2015). Therefore, this study was conducted with aim to determine predictors of acculturative stress among international postgraduate students to provide more specifics understanding to the problem.

## 2.0 Materials and Methods

A cross-sectional study was carried out among 404 respondents in Universiti Putra Malaysia (UPM). The respondents were selected using systematic random sampling from various faculties in Universiti Putra Malaysia. The inclusion criterion was international postgraduate students who were pursuing masters or doctorate degrees at UPM during data collection period.

The self-administered questionnaire was used to assess international students' acculturative stressors. It consists of two sections, and section one is related to social-demographic factors, such as age, gender, nationality, marital status, religion, the current educational degree they are pursuing, how long they have been in Malaysia, the source of funding for their study and who are accompanying them while studying at UPM. Section two, the predictors of acculturative stress in international students was adapted Acculturative Stressor Scale for international students from 4 previous standard scales, which are Acculturative Stress Scale for International Students (ASSIS)-English Edition (Sandhu & Asrabadi 1994), modified ASSIS (Akhtar & Kröner-Herwig, 2015), Index of Life Stress (ILS) and Index of social support (ISS), both ILS and ISS were developed by Yang and Clum (1995). In total, 38 items were adapted from these standard scales, and 5 new items were self-developed on the basis of literature review. The responses are in a 5-point Likert-type scale (1 = strongly disagree, 3 = not sure, 5 = strongly agree) that assesses adjustment problems. The total scale for all items ranges from 43 to 215, with higher scores indicating high level of acculturative stress.

A pre-test was conducted among 37 international postgraduate students before the main study. This exercise was carried out to test the reliability and validity of the self-administered questionnaire, in order to find out the weaknesses and potential errors of this questionnaire. Based on the information given by respondents, necessary amendments were made to ensure the questionnaires that 11 items were deleted. Finally, there are 32 items in 6 subsections, which are homesickness (5 items), perceived discrimination (5 items), living conditions (5 items), academic pressures (7 items), financial concerns (4 items) and social support (6



items). Correlation of total items and Cronbach's alpha reliability coefficients for section two were computed on these 37 respondents. The reliability of the six subsections ranged from 0.719 to 0.912. The overall Cronbach's alpha coefficient of acculturative stressor scale was 0.896. The average time taken to complete the whole questionnaire package was around 15 minutes.

The paper-pencil English version of questionnaire was distributed to the respondents and collected after one hour. A total of 492 questionnaires were distributed to international postgraduate students, while 404 cases were kept for data analysis. The data were manually entered into IBM SPSS statistics version 22 by researchers. And double-entry protocol was used to reduce data-entry errors.

The analysis involved 3 categories, which are descriptive, bivariate and multiple linear regression. Acculturative stress of the participants was compared on general demographic variables using descriptive statistics such as frequency, means, standard deviations, and range and reliability coefficients. Independent sample T-test and One-way ANOVA was used to the significant association between acculturative stressors among different groups, such as gender, marital status, religions, educational level and continent of origin. Hierarchical regression analysis was performed to exam the significant predictive factors of acculturative stress. Dummy coded variables were created for all categorical independent variables including gender, marital status, religion, educational status, continent of origin, source of funding and accompany status. The analysis was conducted by using method of "enter". The level of significance was set at as alpha of less than 0.05.

Ethical approval to conduct the study was obtained from the research Ethic Committee involving Human Subject of the Universiti Putra Malaysia (Ref: UPM?TNCPI/RMC/1.4.18.2(JKEUPM). Permission were granted by various faculties in Universiti Putra Malaysia to conduct the study among International students in the faculties.

## 3.0 Result

### 3.1 Demographic Characteristics of Respondents

A total of 404 international postgraduate students participated in the study. The average age of the respondents were 32 years old, 306 (75.7%) were males, 221(54.7%) were single, and 315(87%) were Muslim. There were 219 (54.2%) respondents who were pursuing Masters' degree and 185 (45.8%) pursuing Ph.D. in UPM. All respondents were Asian or African that 254 (60.4%) came from Asia and 37.1% came from African counties (Nigeria, Somali, Libya and so on). Among Asian students, 42.3% respondents were from Middle East region i.e., Iraq, Iran, Yemen and Saudi Arabia. The major source of financial support of the international students studying at UPM is self-support (72.5%). In terms of accompany status, 71.5% international students are living alone.

### 3.2 Acculturative Stressors

The means of scores on the subscales of acculturative stressors (response score ranges from 1 to 5) was calculated in order to figure out the major sources of acculturative stress among international postgraduate students in UPM. The results were presented in Table 1 below.

**Table 1:** Ranking of sources of acculturative stress on the basis of mean of means on the subscales of Acculturative Stress Contributing Factors in International Students (N=404)

Ranks	Stressors	M
1	Financial concerns	3.608
2	Academic pressure	3.263
3	Homesickness	3.042
4	Social support	3.010
5	Perceived discrimination	2.894
6	Living condition	2.708

The results showed that the rank of six main acculturative stressors, that financial concerns (M=3.608), academic pressure (M=3.263) and homesickness (M=3.042) were the top three most reported stressors among international students, but perceived discrimination (M=2.894) and living condition (M=2.708) are the least reported stressors.

### 3.3 Association between acculturative stressors and demographic factors

#### 3.3.1 Association between acculturative stressors and gender

The results in Table 2 shows that male students (M=22.58, SD=4.609) had significant lower academic pressure than female students (M=23.68, SD=5.318). However, the financial concerns' mean scores among male (M=14.71, SD=3.861) were significantly higher than that of female students (M=13.55, SD=4.197). The male students also showed higher mean scores among perceived discrimination and insufficient social support, but there was no significant difference.

**Table 2:** Acculturative stressors among gender (N = 404)

Acculturative stressors	Male	Female	t	p-value
	(n=306)	(n=98)		
	M(SD)	M(SD)		
Homesickness	15.22(3.782)	15.23(4.015)	-0.043	0.966
Perceived discrimination	14.58(4.801)	14.31(4.344)	0.506	0.613
Living condition	13.46(3.551)	13.80(4.624)	-0.664	0.508
Academic pressure	22.58(4.609)	23.68(5.318)	-2.000	<b>0.046*</b>
Financial concerns	14.71(3.861)	13.55(4.197)	2.529	<b>0.012*</b>
Social support	18.16(4.207)	17.74(4.468)	0.831	0.407

P significance value (p<0.05)\*, (p<0.01) \*\*, (p<0.001) \*\*\*

### 3.3.2 Association between acculturative stressors and marital status

As given in Table 3, married students generally scored higher in all acculturative stressors than that of single students except the variable of living condition. There was significant difference in homesickness ( $p < 0.001$ ), perceived discrimination ( $p = 0.002$ ), financial concerns ( $p < 0.001$ ) and social support ( $p < 0.001$ ). Nevertheless, there is no statistically significant difference in the scores of living condition and academic pressure.

**Table 3:** Acculturative stressors among marital status (N = 404)

Acculturative stressors	Single (n=221)	Married (n=183)	t	p-value
	M(SD)	M(SD)		
Homesickness	14.34(3.791)	16.28(3.623)	-5.210	<0.001***
Perceived discrimination	13.86(4.488)	15.31(4.817)	-3.140	0.002**
Living condition	13.67(3.898)	13.38(3.763)	0.775	0.439
Academic pressure	22.69(4.814)	23.05(4.806)	-0.752	0.453
Financial concerns	13.72(3.932)	15.28(3.859)	-3.989	<0.001***
Social support	17.63(4.072)	18.57(4.454)	-2.225	0.027*

P significance value ( $p < 0.05$ )\*, ( $p < 0.01$ ) \*\*, ( $p < 0.001$ ) \*\*\*

### 3.3.3 Association between acculturative stressors and education status

An independent t-test was also used to explore the association between acculturative stressors among Master and Ph.D. students. The results revealed that Ph.D. students have generally higher mean scores in all stressors. And there was significant difference in homesickness ( $p < 0.001$ ), perceived discrimination ( $p = 0.001$ ), financial concerns ( $p < 0.001$ ) and social support ( $p < 0.001$ ). Coincidentally, these results were consistent with the association between acculturative stressors and marital status.

**Table 4:** Acculturative stressors among education status (N = 404)

Acculturative stressors	Master (n=219)	Ph.D. (n=185)	t	p-value
	M(SD)	M(SD)		
Homesickness	14.58(3.680)	15.98(3.883)	-3.737	<0.001***
Perceived discrimination	13.79(4.389)	15.37(4.899)	-3.393	0.001**
Living condition	13.54(4.042)	13.54(3.585)	0.021	0.983
Academic pressure	22.54(4.733)	23.22(4.881)	-1.424	0.155
Financial concerns	13.37(3.857)	15.69(3.739)	-6.112	<0.001***
Social support	17.19(3.923)	19.09(4.442)	-4.515	<0.001***

P significance value ( $p < 0.05$ )\*, ( $p < 0.01$ ) \*\*, ( $p < 0.001$ ) \*\*\*

### 3.3.4 Association between acculturative stressors and continent of origin

One-way ANOVA was applied to examine the variances in the six acculturative stressors scores in the students of three continents of origin (Table 5). The results revealed significant difference across three continents of origin on perceived discrimination ( $F_{(3,400)} = 7.659$ ,  $p < 0.001$ ), living condition ( $F_{(3,400)} = 3.024$ ,  $p = 0.030$ ), academic pressure ( $F_{(3,400)} = 5.664$ ,  $p = 0.001$ ) and financial concerns ( $F_{(3,400)} = 4.220$ ,  $p = 0.006$ ). Schaeffer Post Hoc tests further



revealed that African students had considerably higher scores of perceived discrimination but low score for academic pressure compared to Middle East and other Asian students. African students had significantly lower living condition scores but higher financial concerns scores than other Asian students.

**Table 5:** Acculturative stressors among continent of origin (N = 404)

Acculturative stressors	Africa	Middle East	Other Asia	F	p-value
	(n=150)	(n=171)	(n=73)		
	M(SD)	M(SD)	M(SD)		
Homesickness	15.67(4.026)	14.78(3.695)	15.30(3.665)	1.440	0.231
Perceived discrimination	15.58(5.309)	13.85(4.130)	13.22(3.987)	7.659	<0.001***
Living condition	12.99(3.413)	13.69(3.898)	14.49(4.269)	3.024	0.030*
Academic pressure	21.64(4.832)	23.42(4.725)	24.04(4.575)	5.664	0.001**
Financial concerns	14.93(3.741)	14.63(3.990)	13.01(4.101)	4.220	0.006**
Social support	17.94(4.420)	18.13(3.978)	18.04(4.617)	0.110	0.954

P significance value (p<0.05)\*, (p<0.01) \*\*, (p<0.001) \*\*\*

### 3.3.5 Association between acculturative stressors and religion

Table 6 presents the relationship of religion and acculturative stressors. Religion was divided into four main groups, and one-way ANOVA was conducted to compare the four groups with six stressors. In summary, there was significant difference in perceived discrimination ( $F_{(3, 400)} = 9.224$ ,  $p < 0.001$ ), academic pressure ( $F_{(3, 400)} = 4.198$ ,  $p = 0.006$ ) and financial concerns ( $F_{(3, 400)} = 6.340$ ,  $p < 0.001$ ). The subsequent Schaeffer Post Hoc tests showed that Christian students had significant higher perceived discrimination compared with Muslim and none religion students but lower academic pressure than other religions' (Hindu/ Buddhist) students. Muslim and Christian students had significant higher financial concerns than the students who reported none religion.

**Table 6:** Acculturative stressors among religion (N = 404)

Acculturative stressors	Muslim	Christian	Others	None	F	p-value
	(n=315)	(n=51)	(n=17)	(n=21)		
	M(SD)	M(SD)	M(SD)	M(SD)		
Homesickness	15.32(3.889)	15.25 (3.543)	14.88(3.160)	13.90 (4.170)	0.941	0.421
Perceived discrimination	14.26(4.635)	17.33 (4.311)	13.94(4.841)	11.90 (3.477)	9.224	<0.001***
Living condition	13.44 (3.773)	13.47 (4.012)	14.06(4.145)	14.76 (4.122)	0.889	0.447
Academic pressure	22.95 (4.645)	21.14 (4.944)	25.59(4.273)	23.29 (6.084)	4.198	0.006**
Financial concerns	14.72 (3.903)	14.29 (3.875)	13.76 (4.07)	10.95 (3.653)	6.340	<0.001***
Social support	18.21(4.268)	17.29 (3.98)	19.59(4.063)	16.33(4.51)	2.582	0.053

P significance value (p<0.05)\*, (p<0.01) \*\*, (p<0.001) \*\*\*

### 3.4 Predictors of acculturative stress

Hierarchical regressions analysis was used to examine significant predictors of acculturative stress in international postgraduate students. Variables were entered in three blocks. The first block consisted of general demographic variables such as age, gender, marital status, religion and educational status. Other specific variables which were unique to international students, including continent of origin, duration of stay in Malaysia, source of funding and accompany status, were entered into the second block. After finishing two blocks of variables in the model, remaining acculturative stressors including homesickness, perceived discrimination, living condition, academic pressure, financial concerns, and social support were entered in the model as a third set of variables.

**Table 7:** Hierarchical regression analysis predicting acculturative stress from demographic factors and acculturative stressors (N= 404)

Model	Variables	Block I	Block II	Block III
		$\beta$	$\beta$	$\beta$
Block I	Age	-0.031	-0.019	-0.093
	Gender	-0.107*	-0.085	-0.078
	Marital status	-0.017	-0.004	-0.007
	Religion			
	Muslim	-0.172	-0.161	-0.094
	Christian	-0.219*	-0.135	-0.051
	None	-0.090	-0.094	-0.027
	Educational status	0.092	0.014	-0.038
Block II	Continent of origin			
	Middle East	-	0.236***	0.173**
	Other Asia	-	0.185**	0.140*
	Others	-	0.031	0.026
	Length of stay	-	0.174***	0.186***
	Source of funding	-	0.069	0.048
	Accompany status	-	0.061	0.070
Block III	Homesickness	-	-	-0.010
	Perceived discrimination	-	-	-0.008
	Living condition	-	-	0.053
	Academic pressure	-	-	0.282***
	Financial concerns	-	-	0.189***
	Social support	-	-	0.118*
	R <sup>2</sup>	0.037	0.110	0.315
	R <sup>2</sup> Change	-	0.073	0.205
	F	2.177*	3.709***	9.300***
	df	7,396	13,390	19,384

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

Note. Variable coding: gender (Female = 0, male = 1), marital status (single=0, married=1), educational status (Masters=0, Ph.D.=1), source of funding (self-support =0, fellowship=1), accompany status (None=0, family=1); religion (Others=0, Muslim=1; Others=0, Christian=1; Others=0, None=1); continent of origin (Africa=0, Middle East=1; Africa=0, Other Asia=1; Africa=0, Others=1).

The obtained regression results in Table 7 showed that age, marital statuses, education status, source of funding, accompany status, homesickness, perceived discrimination and living condition were not significant predictors of acculturative stress. In the first model, general demographic variables show a little variance ( $R^2 = 0.037$ ) in acculturative stress scores.

Gender and religion were substantial predictors of acculturative stress. Female students, religion belief with Hindu / Buddhist compared with Christian are allied with a high level of acculturative stress.

The variables entered in block II added 7.3% of the explained variance, leading to a better model accounting for 11% of the variance ( $R^2 = 0.11$ ,  $F_{(13, 390)} = 3.709$ ,  $p = 0.035$ ). Continent of the respondent's origin was found to be an important predictor of acculturative stress, showing African students were the least stressed group. International students of Middle East ( $b = 0.236$ ,  $p < 0.001$ ) and other Asia ( $b = 0.185$ ,  $p < 0.001$ ) had a significantly higher level of acculturative stress as compared to students from Africa respectively. Duration of stay also predicted a higher level of acculturative stress, which was the longer the student lived in Malaysia, the higher their level of acculturative stress ( $b = 0.174$ ,  $p < 0.001$ ).

Having the first two blocks of variables in the model, acculturative stressors were entered in the model as a third set of variables. The final model explained 31.5% of the total variance ( $R^2 = 0.315$ ,  $F_{(19, 384)} = 9.300$ ,  $p < 0.001$ ). So, the acculturative stressors were caused an additional 20.5% of the total variance in the acculturative stress scores. Academic pressure ( $b = 0.282$ ,  $p < 0.001$ ), financial concerns ( $b = 0.189$ ,  $p < 0.001$ ) and social support ( $b = 0.118$ ,  $p = 0.027$ ) were found to predict high level of acculturative stress. While academic pressure was relatively the strongest predictor in comparison to other stressors.

In summary, based on the results in the above tables, there were 7 significant predictors out of 15 acculturative stressors associated with acculturative stress level ( $p < 0.05$ ), which are gender, religion, continent of origin and duration of stay in Malaysia, academic pressure, financial concerns and social support. Especially academic pressure, which had a significant moderate positive relationship ( $r = 0.433$ ,  $p < 0.001$ ) with acculturative stress.

#### 4.0 Discussion

Analysing the socio-demographic predictors the study revealed that female students perceived significant acculturative stressors from academic pressure, homesickness and living condition. Married international students reported significant source of acculturative stress from homesickness, perceived discrimination, financial concerns and insufficient social support. The students from Middle East or Asian countries at Universiti Putra Malaysia had significantly high level of academic pressure and living condition problems. Majority of the students were self-support (72%), and it is observed that the self-support international students rent shared accommodation outside university campus. However, African students faced more problems from perceived discrimination and financial concerns than Asian students. This finding could be due to Africans' socioeconomic status and cultural factors such as skin colour, race or belief. Previous studies had revealed that persons on their colour has high perceived discrimination (Poyrazli & Lopez, 2007), cultural regions far away from host country also cause higher level of acculturative stress (Ozer, 2015). A special finding from religion was that none religion group perceived significant lower level of financial concerns and discrimination compared to religion groups. This can be explained that majority of none religion group came from China, and there were numerous local Malaysian Chinese students who may provide more sufficient help for foreign Chinese and they had fewer barrier of communication with each other.

The results of the hierarchical regression analysis revealed that the top three significant predictors of acculturative stress were academic pressure, financial concerns and insufficient social support. While, homesickness, perceived discrimination and living condition were not significant variables.

Academic pressure was found to be the greatest source of acculturative stress. There was a significant moderate positive relationship between acculturative stress level and academic pressure, which proved that academic pressure was the leading cause of acculturative stress. The detail academic stressors found in this research included worrying about failing to get degree, maladjustment to Malay language and big pressure for publishing academic paper. A relative study indicated that the high prevalence of acculturative stress among Nepalese students in Korea was caused by the language barrier that English was not widely used in this country (Bhandari, 2012). Since international students initially joined in a new education system, they might experience several concerns about understanding teaching style, participating in classroom discussion, or figuring out the lecturer's expectations. Even though English is teaching language in Universiti Putra Malaysia, proficiency in Malay or other local language is important to communicate during field works or trip, this made a great impact on international students' academic performance. As Desa et al (2012) revealed that students' degree of proficiency in the host country language could be big challenges when they struggle to manage unexpected issues. Besides that, Sherry, et al., (2004) emphasized that international students encountered lower perceptions about the quality and efficiency of services provided by educational institutions in comparison to local students.

The financial situation of Universiti Putra Malaysia international students was that majority of them were supporting their educational expenses by themselves, only few got financial source from their own government funding or Universiti Putra Malaysia fellowship, which was in line with Khawaja and Dempsey's research (2008) where two thirds of the international students in Australia received financial support through their parents. According to Özoğlu et al (2015) study in Turkey, when international students make decision to choose Turkey as destination for higher education, the accessibility of scholarships provided by the local government, organizations, or even the home countries was a significant consideration. Meanwhile some international students in Turkey reported financial difficulties because of inadequate scholarships. Even though, the tuition fee in Malaysia is relatively lower than that in other countries, male married Ph.D. students who were from Africa still perceived significant higher level of financial concerns. These international students group tended to stay in Malaysia for long time, thus their financial burden might increase due to failing to graduate in time with previous scholarship or personal funds.

Several previous studies have proved that social support was a significant factor in the process of acculturation. For example, one researcher reported that far away from their previous social support system and facing new cultural constraints, international students often experienced insufficient social support (Ozer, 2015). Similarly, Bai (2016) mentioned that foreign people who could acquire enough social support usually perceive lower levels of acculturative stress. Zhang and Brunton (2007) conducted a survey in New Zealand and found that 77% international students preferred to have more local friends, but 55% were not satisfied with their opportunities to establish new friendships with residents. However, in this survey, the social support issues that international students encountered were unfamiliar with the counselling service in school campus, and some research students relied too much on their

advisors. However, the way to contact their family or close friends for help was not reported to be an issue among international postgraduate students. Because the popular use of smart phone with accessible communication software, such as Facebook, What-app, we-chat and son on, it is quite convenient to get in touch with anyone who they want.

Among these risk factors, homesickness and perceived discrimination were not significant variables, which were reversed to previous studies done in developed countries. For instance, Lee & Rice (2007) compared domestic students to European international students in a university of America, the students from Asia, Latin America; they found major discrimination which ranges from inferiority feelings, verbal insults, discernment when looking for work, and usually physical attacks. Another study done by Tochkov et al (2010) examined the frequency and causes of homesickness faced by international students through two samples, which found that international students from subcontinent of India perceived considerably higher level of homesickness than freshmen from America. The possible explanation was more than 95% of current respondents came from Africa, Middle East and other Asia countries with very few from European countries. Therefore, they can have more access to a racially homogenous society, then acquiring useful support and similar cultural identify. Living condition was the least reported stressor compared to others, which is related to adjusting to new foods/eating habits, how to select groceries, clothing and other suppliers, figuring out how to use public transportation and adapting to the climate or housing condition here. This result was opposite to Desa, et al., (2012) finding that environment was the one of the top sources of acculturative stress in postgraduate international students studying in UKM.

## **5.0 Conclusion and recommendation**

The current study explored predictors of acculturative stress in international postgraduate students in Universiti Putra Malaysia. Among socio-demographic factors, gender, religion, continent of origin and duration of stay were significant predictors. The six modified variables namely homesickness, perceived discrimination, living condition, academic pressure, financial concern and social support were all positively associated with acculturative stress, suggesting that these were risk factors during acculturation. The top three significant predictors of acculturative stress were academic pressure, financial concern and social support.

International postgraduate students in different host environments may perceive different acculturative stressors. Further researches can conduct the survey on international students both in Malaysia and other countries, and then explore the deep potential reasons. Therefore, the finds can help offices of student service and student affairs organizations in university campuses to provide effective counselling programs to the students who are in troubles and promote constructive international student amendment and broad-based education for the eradication or minimization of adverse effects on them.



## Acknowledgement

The manuscript is part of requirement for Master of Public Health dissertation in Department of Community Health, Faculty of Medicine and Health Sciences of Universiti Putra Malaysia. The authors also would like to extend our appreciation to the Dean of faculties of UPM (Faculty of Engineering, Faculty of Computer Science and Information Technology, Faculty of Economic and Management, Faculty of Educational Studies, Faculty of Medicine and Health Sciences, and Faculty of Food Science and Technology) for allowing us to conduct this research in the faculty.

## Declaration

The authors declare that they have no conflict of interest regarding publication of this article.

## Author's contribution

Author 1: Information gathering, preparation and editing of manuscript

Author 2: Initiation of idea, review and final editing of manuscript

## References

- Adlaf, E.M., Gliksman, L., Demers, A., & Newton-Taylor, B. (2001). The prevalence of elevated psychological distress among Canadian undergraduates: findings from the 1998 Canadian Campus Survey. *Journal of American College Health*, 50 (2), p67-72.
- Akhtar, M., and Kröner-Herwig, B. (2015). Acculturative stress among international students in context of socio-demographic variables and coping styles. *Current Psychology*, 34(4), 803-815.
- Amos, S., & Lordly, D. (2014). Picture this: A photovoice study of international students' food experience in Canada. *Canadian Journal of Dietetic Practice and Research*, 75(2), 59-63.
- Atri, A., Sharma, M., & Cottrell, R. (2007). Role of social support, hardiness, and acculturation as predictors of mental health among international students of Asian Indian origin. *International Quarterly of Community Health Education*, 27(1), 59-73.
- Bhandari, P. (2012). Stress and health related quality of life of Nepalese students studying in South Korea: A cross sectional study. *Health and quality of life outcomes*, 10(1), 1.

- Bai, J. (2016). Development and validation of the Acculturative Stress Scale for Chinese College Students in the United States (ASSCS). *Psychological assessment*, 28(4), 443.
- Berry, J. W. (2005). Acculturation: Living successfully in two cultures. *International Journal of Intercultural Relations*, 29(6), 697-712.
- Chuah, J. S., & Singh, M. K. M. (2016). International Students' Perspectives on the Importance of Obtaining Social Support from Host National Students. *International Education Studies*, 9(4), 132.
- de Araujo, A. A. (2011). Adjustment issues of international students enrolled in American colleges and universities: A review of the literature. *Higher Education Studies*, 1(1), 2.
- Desa, A., Yusoooff, F., & Kadir, N. B. Y. A. (2012). Acculturative stress among international postgraduate students at UKM. *Procedia-Social and Behavioral Sciences*, 59, 364-369.
- Eiman Abdel Meguid<sup>1</sup> and Matthew Collins. (2017). Students' perceptions of lecturing approaches: traditional versus interactive teaching. *Advance in Education and Practices*; 8, 229 – 241, March 2017.
- Eustace, R.W. (2007). Factors influencing acculturative stress among international students in the United States. Doctoral dissertation. Retrieved from <http://krex.kstate.edu/dspace/handle/2097/1>.
- Hamamura, T., & Laird, P. G. (2014). The effect of perfectionism and acculturative stress on levels of depression experienced by East Asian international students. *Journal of Multicultural Counseling and Development*, 42(4), 205-217.
- Hendrickson, B., Rosen, D., & Anne, R.K. (2011). An analysis of friendship networks, social connectedness, homesickness and satisfaction level of international students. *International Journal of Intercultural Relation*, 35, 281 – 295.
- Holmes, P. (2004). Negotiating differences in learning and intercultural communication ethnic Chinese students in a New Zealand university. *Business Communication Quarterly*, 67(3), 294-307.
- Hsiao-ping Wu, Esther Garza, and Norma Guzman (2015). International Student's Challenge and Adjustment to College. *Education Research International*, Volume 2015, Article ID 202753, <http://dx.doi.org/10.1155/2015/202753>
- Jie Sun, Linda Serra Hagedorn & Yi (Leaf) Zhang. (2016). Homesickness at College: Its Impact on Academic Performance and Retention. *Journal of College Student Development*; Vol. 57, No. 8 November 2016, 043 – 957.
- Kelly Yu-Hsin Liao & Meifen Wei. (2014). Academic Stress and Positive Affect: Asian Value and Self-Worth Contingency as Moderators Among Chinese International

- Students. *Cultural Diversity and Ethnic Minority Psychology* Vol. 20, No. 1, 107–115, 2014
- Khawaja, N. G., & Dempsey, J. (2008). A comparison of international and domestic tertiary students in Australia. *Australian Journal of Guidance and Counselling*, 18(01), 30-46.
- Lee, J. J., & Rice, C. (2007). Welcome to America? International student perceptions of discrimination. *Higher education*, 53(3), 381-409.
- Leong, C. H., & Ward, C. (2000). Identity conflict in sojourners. *International Journal of Intercultural Relations*, 24(6), 763-776.
- Liao, K. Y. H., and Wei, M. (2014). Academic stress and positive affect: Asian value and self-worth contingency as moderators among Chinese international students. *Cultural Diversity and Ethnic Minority Psychology*, 20(1), 107.
- Malekian, K.A., & Khan, A., (2017). Determinants of burnout and stress on students health: A study of Iranian expatriate students. *Sains Humanika*, 9(1 – 4).
- Mori, S. (2000). Addressing the mental health concerns of international students. *Journal of Counseling and Development*, 78,137-144.
- Ozer, S. (2015). Predictors of international students' psychological and sociocultural adjustment to the context of reception while studying at Aarhus University, Denmark. *Scandinavian journal of psychology*, 56(6), 717-725.
- Özoğlu, M., Gür, B. S., & Coşkun, İ. (2015). Factors influencing international students' choice to study in Turkey and challenges they experience in Turkey. *Research in Comparative and International Education*, 10(2), 223-237.
- Pan, J.Y., Yue, X., and Chan, C.L.W. (2010). Development and validation of the Acculturative Hassles Scale for Chinese Students (AHSCS): An example of mainland Chinese university students in Hong Kong. *Psychologia*, 53 (3), 163- 178.
- Poyrazli, S., and Grahame, K. M. (2007). Barriers to adjustment: Needs of international students within a semi-urban campus community. *Journal of Instructional Psychology*, 34(1), 28-36
- Poyrazli, S., and Lopez, M. D. (2007). An exploratory study of perceived discrimination and homesickness: a comparison of international students and American students. *The Journal of Psychology*, 141(3), 263–279. doi:10.3200/JRLP. 141.3.263-280.

- Rajapaksa, S., & Dundes, L. (2002). It's a long way home: International student adjustment to living in the United States. *Journal of College Student Retention: Research, Theory & Practice*, 4(1), 15-28.
- Safary Wa-Mbaleka & Nadine A. Joseph. (2013). International Students' Isolation in the Philippines: Causes, Effects and Coping Strategies. *Development Education Journal of Multidisciplinary Research Vol.2 No. 1 January 2013*.
- Sandhu, D. S., & Asrabadi, B. R. (1994). Development of an acculturative stress scale for international students: Preliminary findings. *Psychological reports*, 75(1), 435-448.
- Sullivan, C & Kashubeck-West, S., (2015). The Interplay of International Students' Acculturative Stress, Social Support, and Acculturation Modes. *Journal of International Students; Volume 5, Issue 1 (2015)*, pp. 1-11.
- Sawir, E., Marginson, S., Deumert, A., Nyland, C., & Ramia, G. (2008). Loneliness and international students: An Australian study. *Journal of Studies in International Education*, 12, 148-180.
- Smith, R. A., and Khawaja, N. G. (2011). A review of the acculturation experiences of international students. *International Journal of Intercultural Relations*, 35(6), 699-713.
- Sherry, C., Bhat, R., Beaver, B., & Ling, A. (2004). Students as customers: The expectations and perceptions of local and international students. In HERDSA conference.
- Sylvester Dodzi Nyadanu, Mirrielle Yayra Garglo, Timothy Adampah & Rachel Libline Garglo (2015). The Impact of Lecturer-Student Relationship on Self-Esteem and Academic Performance at Higher Education. *Journal of Social Science Studies*, Vol. 2, No. 1; 264-281.
- Tochkov, K., Levine, L., and Sanaka, A. (2010). Variation in the prediction of cross-cultural adjustment by Asia-Indian students in the United States. *College Student Journal*, 44(3), 677-689.
- Vilela, S., Santos, S., Padrão, P., & Caraher, M. (2014). Length of migration and eating habits of Portuguese university students living in London, United Kingdom. *Ecology of food and nutrition*, 53(4), 419-435.
- Yang, B., and Clum, G. A. (1995). Measures of life stress and social support specific to an Asian student population. *Journal of Psychopathology and Behavioral Assessment*, 17, 51-67.
- Yeh, C. J., & Inose, M. (2003). International students' reported English fluency, social support satisfaction, and social connectedness as predictors of acculturative stress. *Counselling Psychology Quarterly*, 16(1), 15-28.
- Yi, J. K., Giseala Lin, J. C., & Kishimoto, Y. (2003). Utilization of counseling services by international students. *Journal of Instructional Psychology*, 30, 333-342.

Zhang, J., & Goodson, P. (2011). Predictors of international students' psychosocial adjustment to life in the United States: A systematic review. *International Journal of Intercultural Relations*, 35(2), 139-162.

Zi Yan & Kathleen FitzPatrick. (2016) Acculturation and health behaviors among international students: A qualitative approach. *Nursing and Health Sciences*; 18, 58–63