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SOURCES OF STRESS AND ITS IMPACT ON HEALTH BEHAVIORS AND ACADEMIC PERFORMANCE OF INTERNATIONAL STUDENTS AT A COMPREHENSIVE MIDWESTERN UNIVERSITY

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ABSTRACT

The purpose of this study was to investigate the sources of stress, its impact on health behaviors and academic performance of 220 international students studying at a comprehensive Midwestern university, and coping strategies used by international students to manage stress. The study was a cross-sectional descriptive design, using a quantitative method. Two hundred twenty international students enrolled at the university during the summer and fall of 2003 participated in this study. Data were collected using "Sources of Stress, Health Behaviors and Academic Performance Scale for international students. Statistical procedure for data analysis included t-test, ANOVA, chi-square and bivariate correlation. Results indicated that stress experienced by international students emanated from alienation/discrimination, communication/language difficulties, homesickness/loneliness, financial hardships and academic pressure. Forming friendships, dating U.S. students and religion practicing were most commonly reported as the best stress coping strategies. Significant gender differences existed regarding the level of stress experience, where male students reported less stress than female students overall. Academically, overall international students performed well with a mean GPA of 3.4 and the overall health behavior was good among international students. Stress was reported by international students as playing a motivational role in regard to academic performance and health behaviors. It was recommended that thorough orientation programs and cultural competency training for faculty, staff and students would help increase interaction and understanding among the university community hence smoothing the acculturation process for international students.

INTRODUCTION

Traveling to a foreign country in pursuit of education is quite exciting, but at the same time challenging. This process involves transition from one culture to another and from one environment to another. In most cases this transition implies adjustment on (1) general life-style factors such as food, housing, transportation, climate, financial problems, and health care; (2) academic conditions, such as English language, education system, and learning skills; (3) socio-cultural aspects such as culture shock, racial discrimination, customs, norms, regulations, intercultural contacts/social activities, American values, and world views; and (4) psychological adjustment from homesickness, loneliness, depression, frustration, alienation, loss of status/identity, and inferiority for international students (Tseng & Newton, 2002).

Cross-cultural contacts are inherently stressful (Fasheh, 1984; Wan, Chapman, & Biggs, 1992). There is a general consensus that international students in American colleges and universities face more stress and adjustment problems than American peers as they pursue their academic studies (Altbach & Wang, 1989; Russo & West, 1999). Such stressful experience can impact their health behavior and academic performance (Weidner, Kohlmann, Dotzauer and Burns, 1996).

Rice (1999) specifies three common types of student stressors: 1) personal and social stressors, 2) adjustment and acculturation stress among different ethnic groups, and 3) academic stressors. Rice (1999) identifies personal and social stressors as transition issues, loneliness, and relationships. Adjustment and acculturation stress are major stressors that revolve around acculturation to new environments, feelings of “not belonging,” and perceptions of discrimination. Academic stressors include test anxiety, workload, and time management.

While originating from more than 70 countries, international students at this Midwestern university go through the process of adapting to new educational and social environments. The process of adapting to a new setting is very challenging for international students because of cultural and social differences in terms of language, academic preparation, and study habits (Berry & Annis, 1974). In their study of academic stress of international students, Russo and West (1999) found that demanding courses, financial pressures, fear of failure, anxiety, uncertainty, and conflict surrounding the establishment of personal values and identity create a challenging environment for international students. Cho (1988) and Bois (1956) urge that the stress and associated problems that international students experience need further exploration. Therefore this study investigated sources of stress and its impact on international students' health behaviors and their academic performance. Knowledge about the causes of stress problems for these students is important to provide necessary services that may reduce stress.

METHODS

DESIGN

The research approach was a cross-sectional descriptive design, using quantitative methodology. Four sets of descriptive data were collected: sources of stress to international students, impact of stress on health behaviors, impact of stress on academic performance, and coping options after entering the U.S. Relationships between the following variables were compared: the level of stress and its impact on health behaviors and academic performance, and coping strategies according to gender, age, marital status, residence type, geographic origin, type of sponsorship, number of working hours per week, and length of stay in the US.

PARTICIPANTS

The sample consisted of 220 international students enrolled in academic programs at a comprehensive Midwestern university in the summer and fall semester of 2003. The study excluded students enrolled in the Cultural Intensive English Program because they do not have their GPA recorded in the university system. Students who qualified

for the study had been at the university for at least one semester. This minimal time period assured the investigator that such students had experienced some acculturation stress being in the new country and could therefore contribute to the study. Participants responded to a mail- in survey instrument.

INSTRUMENTS

The Sources of Stress, Health Behaviors and Academic Performance Scale for international students utilized for data collection and was a self-report questionnaire. The instrument was constructed from three previously validated instruments: the Student Stress Scale (SSS) developed by Ross et al. (1999), the Acculturative Stress Scale for International Students (ASSIS) developed by Sandhu and Asrabadi (1994) and Health Behaviors and Attitudes (HBA) questionnaire developed by Igbani (1989). Some elements in the previous instruments were modified to reflect the need and content of the study. The instrument was pilot-tested for the validity. A Cronbach's coefficient alpha reliability test of $\alpha = .94$ for the instrument's internal consistence was obtained.

Data collected for stress were categorized into perceived discrimination/alienation; loneliness/homesickness; perceived hate/rejection; fear; guilt; daily living; and academic. Data collected for coping strategies were based on the frequency of utilization of the listed services and programs available at UNI. Likert-type items were included in the sources of stress, health behaviors, and coping strategies questions. Some questions in the health behaviors questionnaire were dichotomous in nature requiring a "yes" or "no" response. a response rate of 64% was obtain for all data returned. Descriptive statistics, t-test, one-way ANOVA, cross-tabulation/Chi-square, and bivariate correlation were employed in the data analysis procedure.

RESULTS

Most international students at the Midwestern University either often or most of the time experienced stress: 55% from alienation/discrimination because of opportunities being denied to them, 59% from loneliness such as homesickness, and 60% from non-specific stress due to communication or language problems. Other sources of stress were daily living tasks such as responsibilities (62%), financial difficulties (56%), and meeting goals (50%). With regard to sources of stress attributed to academic pressures, most students reported stress due to class workload (59%), pressure to do well (61%), job search (61%), graduate school search (60%), examinations or assignments (64%), and oral presentations (57%). Most international students did not perceive hate/rejection, fear/safety, and guilt due to separation from families in home countries as significant sources of stress while being at the university.

TABLE 1 *International Journal of Global Health and Health Disparities*, Vol. 5, No. 1 [2007], Art. 5
 SOURCES OF STRESS FOR INTERNATIONAL STUDENTS (N = 141)

Categories			
Stressor		<i>n</i>	%
Discrimination/Alienation	Opportunity Denial	77	55
Loneliness	Homesickness	84	59
Culture Shock/Change	Adjusting to New Food	91	65
Non-Specific Stress	Communication in English	85	60
Daily Living	Responsibilities	89	62
	Financial Difficulty	79	56
	Meeting Goals	71	50
	Search for Job	86	61
Academic Pressure	Class Workload	83	59
	Pressure to Do Well	86	61
	Search for Graduate School	84	60
	Examinations/Assignments	90	64
	Oral Presentation	81	57

HEALTH BEHAVIORS OF INTERNATIONAL STUDENTS

Health behaviors of international students were assessed in seven major behavioral areas, namely: nutrition, safety, physical activity/appearance, social activity/social life, alcohol and drug use, self-care, and sex life. Sixty-seven percent of international student participants considered themselves as healthy individuals.

NUTRITION

Most international students indicated good nutritional health behaviors.

Fifty one percent of all international students that participated in the study reported eating breakfast, three meals per day, vegetables, and fruits almost every day. In addition 73% reported drinking five glasses of water daily and drinking two or less sodas per day.

SAFETY

With regard to safety issues, most international students observed the law on not driving while drunk and/or driving without the seatbelt buckled. The majority of international students (77%) always had their seatbelts buckled up while riding in the car, buckled their seatbelts while driving, never rode with someone under the influence of alcohol, and never drove under the influence of alcohol

PHYSICAL ACTIVITY AND PHYSICAL APPEARANCE

Most international students (66%) participated in exercises such as jogging, walking, and bicycling an average of two hours per week. Eighty-six (61%) indicated they covered a distance of at least two miles each time they went out jogging or walking. However, 53% believed they had become less physically active than they were in the past, and hence were unhappy with their appearance.

ALCOHOL AND DRUG USE

Few international student respondents (9%) smoked either cigars or pipes in the past or were still smoking. Six percent smoked pipes, 4% smoked cigars and less than 1% smoked both cigars and pipes. Only 4% were current smokers of cigars or pipes. A relatively large number of international students reported they smoked cigarettes in the past (34%), but only 9% indicated they were still smoking. Three percent currently smoked less than 10 cigarettes per day, 2% smoked 11-19 cigarettes per day, and 1% smoked at least 20 or more cigarettes a day. Some international students attempted to stop smoking in the past month. Eight students tried to stop one time, one student tried

2-3 times, and three students tried 4 or more times. In terms of drug use, 5% of the students reported to have used at one point in time marijuana, opium, cocaine or methamphetamine. In terms of alcohol use, 38% of the respondents drank either wine, beer or some liquor 1-3 times a week. At each sitting, 28% reported drinking 1-2 glasses of wine, beers and liquor and 9% of all respondents had 4 or more drinks per sitting for each kind of alcohol drink.

SELF-CARE

Sixty-three percent of international students who participated in the study had a physical examination at least once in the past two years. Fifty-three percent of participants reported they had updated their immunizations. In terms of dental care, 98% of all participants indicated they brushed their teeth daily and after meals. However, only 5% flossed, 11% had a dental check up every six months, and 35% had an annual dental check up.

SEX

Of the international students who responded to the question relating to sexual life, 50% indicated they have had 1-2 sexual partners in the past three years. Thirty-two percent had 2-4 sexual partners in the past three-year period, 5% had more than four partners, and 13% of all participants did not have any sexual partner in the past three years. In terms of using protective devices against Sexually Transmitted Infections (STIs) or unwanted pregnancies for those sexually active students, 34% always used protective devices, 23% almost every time used them, 17% once in a while or rarely used any protective device; 13% reported as not applicable or just never used them, while 13% did not respond to the question.

International students socialized or handled social life in various ways such as talking on the phone with friends (55%). Only 17% were active either in social and recreational groups, professional associations or church groups. The majority of the students (67%) reported getting along well with people around them.

To determine stress experience by gender, student status and marital status, the independent sample t-test indicated significant differences between male and female international students on an overall stress scale. Female students indicated they experienced a higher level of stress than male students. In terms of student status a significant difference between undergraduate and graduate students was found. Undergraduate students reported they experienced a higher level of stress than graduate students. Similarly unmarried students reported a significant higher level of stress compared to those who were married ($p < 0.01$).

TABLE 2
T-TEST: STRESS EXPERIENCE BY GENDER, STUDENT STATUS, AND TRAVEL EXPERIENCE (N = 141)

Category	<i>n</i>	Mean Reported Stress level	SD	<i>t</i>	<i>p</i>
Gender					
Male	64	2.95	1.03		
Female	77	3.31	1.04	-2.04	0.04
Student Status					
Undergraduate	64	3.35	.94		
Graduate	77	2.97	1.09	2.20	0.02
Marital Status					
Married	35	2.68	1.27		
Not Married	106	3.30	.91	-2.63	0.01
Travel Experience					
Yes	93	3.02	1.06		
No	48	3.39	.98	2.03	0.04

A one-way ANOVA was computed to determine the difference in stress experience by age, region of origin, and length of stay in the US. The one-way ANOVA test indicated significant differences between various age groups ($p < 0.01$). The Tukey HSD post hoc test indicated students ages 18-25 years ($M = 3.42$) experienced significantly higher levels of stress than students ages 26-35 years and 36 years and older. Based on region of origin, the Tukey HSD post hoc analysis indicated Asian students suffered stress more than students from Europe, North America other than US ($p < 0.01$), and Africa ($p < 0.01$). Students from Africa experienced significantly higher stress compared

to students from South America ($p = 0.03$). Also no significant difference was noted between students from Europe, North America other than US, South America, and Africa. The ANOVA test for the length of stay indicated a significant difference in stress levels between students who have been in the US for a longer time compared to those who have been in the US for a shorter time ($p < 0.01$). Students who have been in the US for less than four years experience higher levels of stress than those who have been in the US for four or more years. No significance differences were found between levels of stress experienced by length of stay at the Midwestern University, residence type, work hours per week, and financial sources.

STRESS, ACADEMIC PERFORMANCE

The overall mean stress level for international students was 3.15 ($SD = 1.05$); range = 3.0). The mean GPA was 3.4 ($SD = 0.53$; range = 2.70). The independent-samples t-test results comparing academic performance of male and female students indicated no significant statistical differences ($t [132] = -1.424$, $p > 0.05$). Female students GPA averaged a little higher than male students (females, $M = 3.45$; $SD = 0.47$, males, $M = 3.32$; $SD = 0.58$).

TABLE 9

T-TEST: ACADEMIC PERFORMANCE BY MARITAL STATUS, GENDER, STUDENT STATUS, AND TRAVEL EXPERIENCE (N = 141)

Variable	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Marital Status				
Married	3.66	.30		
Not Married	3.30	.56	4.75	0.01
Gender				
Male	3.32	.58		
Female	3.45	.47	-1.42	0.15
Student Status				
Undergraduate	3.11	.54		
Graduate	3.62	.39	-6.12	0.01
Travel Experience				
Yes	3.41	.56		
No	3.35	.47	.65	0.51

The academic performance between married and non-married students was significantly different ($t [106] = 4.75$, $p < 0.01$). Married students had higher GPAs ($M = 3.67$; $SD = .30$) compared to students who were not married ($M = 3.30$; $SD = 0.56$). The t-test also indicated a significant difference in academic performance between graduate and undergraduate students ($t [134] = -6.12$, $p < 0.01$). Graduate students had

higher academic performance compared to international students (graduates, $M = 3.62$, $SD = 0.39$, undergraduates $M = 3.11$, $SD = 0.54$, $p < 0.01$).

The ANOVA test revealed a significant difference in academic performance for different age groups ($p < 0.01$). Students aged 18-25 years differed significantly from students aged 26-35 years ($p < 0.01$) and 36 or older ($p < 0.01$). Results indicated older students had better academic performance. Students aged 36 years or older performed higher than all students under 36 years old (36 years or older, Mean GPA = 3.75; 26-35 years, Mean GPA = 3.51; 18-25 years, Mean GPA = 3.19). Length of stay at Midwestern University or the US, number of work hours per week, residence type and financial source did not have a significant impact on GPA.

STRESS AND HEALTH BEHAVIORS

A t-test was performed to determine if there were significant gender differences in health behaviors for international students. Female students self reported feeling less healthy than male students ($p = 0.03$). Male students reported skipping breakfast more often than female students ($p = 0.02$). Female students indicated eating vegetables and fruits more often than male students ($p < 0.01$). Male students reported having more sexual partners in the past two years than female students ($p < 0.01$). A further t-test was performed for student status and health behaviors. Results indicated that undergraduate students sometimes skipped breakfast ($p < 0.01$), ate less vegetables ($p = 0.02$), and less fruits daily ($p < 0.01$) than graduate students. Furthermore, undergraduate students perceived they were becoming less physically active than they used to be. Graduate students reported being moderately active just as they used to be ($p = 0.03$). Health behaviors were not statistically significant for international students when compared by region of origin ($p = 0.50$).

STRESS, ACADEMIC PERFORMANCE, AND HEALTH BEHAVIORS

The bivariate correlation was computed to determine the interrelationship between stress, academic performance, and health behaviors of international students. The correlation matrices indicate that some of the observed relationships were strong. Stress was significantly inversely correlated to the health behaviors of being less physically active than before coming to UNI ($r = -0.23$, $p < 0.01$), and significantly positively correlated with frequent wine drinking ($r = 0.18$, $p = 0.04$). Students who perceived they were less physically active ate less vegetables and breakfast daily ($r = 0.17$, $p = 0.04$, $r = 0.28$, $p < 0.01$ respectively). Also students who frequently drank wine were also most likely to drink beer ($r = 0.70$, $p < 0.01$), liquor ($r = 0.73$, $p < 0.01$), and have many sexual partners ($r = 0.22$, $p < 0.01$). There was a weak negative relationship between stress and academic performance ($r = -0.14$, $p = 0.09$). However, high academic performance was strongly correlated to being less physically active ($r = -0.29$, $p < 0.01$). Therefore, high stress had a positive impact on academic performance, but resulted in less physical activity for international students.

COPING STRATEGIES

Most international students at the Midwestern university (70%) developed friendships with other international students on campus, while 62% of the participants most of the time exercised or visited the Wellness Recreation Center (WRC). Fifty-two percent indicated religion as a strategy for coping with stress, and 53% reported dating American students was another coping strategy for stress.

Coping strategies for stress differed significantly across demographic characteristics. A t-test indicated a statistically significant difference in stress level by marital status, gender, and student status. More “not married” students reported developing friendships with American students ($p = 0.02$), and dating American students ($p < 0.01$) as compared to married students. Four percent of the married students dated American students. Female students indicated they were more likely to visit the health center ($p < 0.01$), or visit the international service center ($p = 0.03$) as compared to their male counterparts who reported dating American students as their main coping strategy ($p < 0.01$). Undergraduate students reported, to a large extent, dating American students ($p < 0.01$) as a coping strategy followed by visiting the International Service Center ($p < 0.01$) and dating fellow international students to a lesser extent ($p = 0.03$).

The ANOVA test also indicated developing friendships with international students ($p < 0.01$); visiting the WRC ($p = 0.04$); and dating American students ($p < 0.01$) were statistically different between age groups. Older students (36-older) differed significantly with students aged 18-25 ($p < 0.01$) and 26-36 ($p < 0.01$) years old. Older students ages 36 years and older, reported developing friendships with other international students as a main coping strategy. Younger students (18-25) visited the WRC more than students aged 36 years or older. Dating American students was reported more among younger students (18-35), as opposed to older students (36-older), ($p < 0.01$). Also, an ANOVA test indicated visiting the Student Activity Center ($p < 0.01$), and practicing religion ($p < 0.01$) were statistically significant with region of origin. Most African students differed significantly with their Asian ($p = 0.03$), European and North America other than U.S. students ($p < 0.01$). African students used religion as a coping strategy more often than students from Europe, North America other than the US, and Asia. No significant differences were observed between African students and those from South America. Students who had been in the U.S. longer experienced less stress and coped by developing friendship with American students

Furthermore, dating American students ($p < 0.01$) and religion ($p < 0.01$) were statistically different by residential type. Students who lived off campus dated American students more than those who lived on campus ($p < 0.01$).

DISCUSSION

This study examined sources of stress and its impact on academic performance and health behaviors of international students at a comprehensive Midwestern university. Almost all international students from Africa felt alienated and hence felt opportunities were denied to them. Students from Asia reported similar feelings as their fellow African students. The opposite was the case for international students from Europe and North America other than the U.S. Consistent with the findings of Reinicke (1986) almost no

students from Europe felt discriminated, on the other hand, opportunities were denied to them. The more years international students stayed in the U.S. or at the Midwestern university, the less discriminated against they felt. This might be due to the fact that as students stay longer in the U.S. there is a greater chance of making friends and connections. Examining cultural adjustments made by international students, Reinicke (1986) discovered that students who stayed longer in the U.S. felt less discrimination.

Results of this study indicated that students who were not married felt lonelier than married students and hence were bothered with homesickness most of the time. The process of adjusting to the new setting takes a while and in the process unmarried students feel lonely. Married students are accompanied by or will later be joined by their families and feel less lonely and homesick because they have someone with whom to talk. Ruetrakul (1987) and Huntley (1993), studying adult problems of adjustment while attending U.S. institutions of higher education, reported married students experienced less loneliness and homesickness, because their main social impulses came from within their families rather than out in the community.

Most international students from Asia reported difficulty communicating in English and, correspondingly, they reported high levels of stress. Similarly, some students from African and South American countries had difficulty communicating in English. This might be due to the fact that students from most Asian countries neither speak English nor utilize English as the medium of instruction in their higher learning institutions. When Asian students arrive in the US to attend colleges and universities most of them first enroll in an intensive English program (CIEP). This might be slightly different for students coming from African or South American countries where English is either the national language, or used as a medium of instruction in higher learning institutions. Countries that were under British colonial rule either use English as a medium of instruction or English is a national language. However, this might not be true for students who come from French, Portuguese, and Spanish speaking countries. Students from non-English speaking countries experience similar language problems as those from Asia. Interestingly, students who lived in the university apartments reported more English language problems than international students who lived in the residence halls, or off campus. Such findings might be attributed to the fact that students who live in the university apartments are either married students or live with a fellow international roommate. Because of that, they have less interaction time with American students and have less opportunity for improving their English compared to those who live in the residence halls or off campus.

Responsibility and was more reported by married and graduate students whereas undergraduate or unmarried students were more concerned with meeting goals, and had more financial difficulties. Greater academic stress was reported among graduates or graduating students. Although academic pressure is a common source of stress for college and university students regardless of their backgrounds or continents of origin, many international students experience added academic pressure due to being unfamiliar with the education system, language difficulties, and in some cases financial difficulties (Wan et al., 1992; Chapman, Wan, & Xu, 1988).

Although operating under similar conditions and university environment, male and female students study appeared to experience stress in different ways. Female students reported significantly higher stress from homesickness, alienation, and being unhappy with their appearance compared to male students. This pattern suggests that female students' stress might be related to social and interpersonal issues. Although female students reported higher stress levels than male students, academically, they had higher GPAs than male students (female: ($M = 3.45$) Male: ($M = 3.32$)). These findings suggest that stress may positively contribute to high academic performance among female students. Eghbali (1985), Hudd et al. (2000), and Misra et al. (2002), reported higher stress levels among female student compared to male students. Similarly, high levels of stress were associated with lower GPAs among undergraduate students. Lower GPAs among undergraduate as opposed to graduate students might be due to the fact that graduate students are required to maintain a GPA of 3.0 or greater to remain at university. Therefore, graduate students with a GPA below 3.0 might have been suspended at the time this study was conducted. Wan et al. (1992) and Huntley (1993) reported similar results that undergraduate students reported higher stress levels compared to graduate students.

Students from Asia experienced higher levels of stress followed by students from Africa. Language was reported as the main source of stress for Asian students while discrimination, alienation and cultural shock were more reported by students from Africa. These findings are consistency with those of Eghbali (1985), Huntley (1993), Wan et al. (1992), Church (1982), Reinicke (1986), Kaul (2002), Klineberg & Hull (1979), Wingfield (2001), and Michailidis (2002). These researchers discovered that students from Asian countries experienced higher levels of stress due to English language problems while students from Africa experienced stress due to homesickness and alienation. Students who perceived themselves as having a greater cultural and academic similarity with Americans (especially students from Europe and Canada) enjoyed more social contacts with Americans and hence expressed lesser stress (Vaz, 1984). Travel experience also lowered the stress level among international students. Reinicke (1986), Church (1982), and Hull (1978) discovered that the experience of previously being in a foreign culture diminishes stress levels and cultural shock in the new foreign culture.

Stress, generally, had small negative impact on student academic performance and health behaviors of international students at the Midwestern university. On average, international students performed well. The mean GPA for international students was 3.4 on the scale of 4.0. These findings were congruent with that of Huntley (1993) who discovered that international students demonstrated higher academic performance than their American counterparts. Female students reported eating vegetables less frequently, frequently skipping breakfasts, felt less physically active than they used to be, and were unhappy with their appearance compared to male students. Tsai et al., 1998 and Pan et al., 1999 reported females' dissatisfaction with their health, especially their appearance and physical activity level.

Common coping strategies reported by international students were: exercising, visiting the university's Wellness Recreation Center, developing friendships among fellow international or American students, dating American students, and regular practice of their

religion. Age, culture, and gender had a significant impact on coping strategies. Older and married international students were more likely to isolate themselves. Wan et al. (1992), Vaz (1984), Poyrazli et al. (2001), Huntley (1993), Ruetrakul (1987), and Reinicke (1986) reported that older, married, or graduate students revealed similar characteristics, that they encountered more adjustment problems relating to poor socialization patterns, and therefore preferred developing friendships with other international students. Other reasons for poor social adjustment may include (1) graduates live in their own homes (apartments) and often tend to enclave with students from their own countries thus further alienating or distancing themselves from American culture; (2) many are more likely to be married and they might have their families with them and therefore tend to spend more time thinking about their families or socializing with them. Undergraduate, younger, and unmarried students tend to spend more of their leisure time with American students.

CONCLUSIONS

The common sources of stress for international students were: perceived discrimination/alienation, loneliness, cultural shock/change, communication problems, responsibilities, financial difficulties, and academic pressure. These common sources of stress were significantly different between demographic variables such as marital status, gender, age, student status, region of origin, previous travel experience, length of stay at the university or the U.S., residential type, number of work hours per week, and financial sources. Variations existed within demographic variables with regard to the level of stress international students experienced.

Students from North America other than U.S. (Canada in this case) and those from Europe had the lowest levels of stress. They expressed minimal difficulties with culture, language, immigration laws, and the academic system. On a whole they enjoyed the academic life pretty much as American students. Also students who have been at university or in the U.S. for a longer time had lower stress levels as opposed to those who just arrive or who have stayed for less than two years.

IMPLICATIONS

The fact that students reported high levels of stress and yet did not opt for the available university services such as the health center, counseling center, international service center, visiting their academic advisor, and/or the center for multicultural education indicates that international students are not well informed about the availability of these services, or that the services provided are culturally inappropriate in the sense that they do not alleviate the stress problems for students. In addition, the ability of a reasonable number of students especially young, undergraduate, and unmarried students to adjust and integrate well in the American culture and social life implies that if consistent and goal-oriented efforts are promoted it will be possible to help all international students to assimilate with American culture and the education system.

RECOMMENDATIONS

Further study should be conducted to find out stress reduction patterns as demonstrated by students for whom stress was not a big concern. The study should seek to answer questions such as how and why some students are able to maintain lower stress levels, what strategies they employ to reduce stress, and are their experienced stressors somehow different from the rest. Understanding the behavioral patterns and characteristics of these students may provide valuable information that can be applied to other international students. Also, a further study should be conducted in order to investigate the degree of stress that results from each source in order to determine which stressors are more severe or detrimental and which ones have negligible effect.

Also, further study should be conducted in order to determine if a difference exists between American and international students with regards to sources of stress and its impact on academic performance and health behaviors of students at UNI. International students indicated high academic performance despite the stress they experienced. Such comparisons can provide useful information pertaining to the exact kind of services required for the two groups. Also, the study should focus on investigating whether health behaviors reported by international students are indeed the result of their stress experiences or just cultural differences and the environment in which international students live.

Finally, the counseling center, health center, center for multicultural education, student activity center, and the international service office should provide extensive training in multicultural counseling and communication for their staff, and they should be in the forefront of a campus-wide effort to foster multiculturalism. Also, they should explore appropriate ways to approach and assist international students in need of their services. It is clear that the nature of counseling is even more complex in cross-cultural situations. Although counselors are trained to meet the psychological needs of American students, they should also be trained to facilitate counseling with individuals from abroad; especially international students who come from different ethnic, language, and socioeconomic status backgrounds. In addition, faculty, staff, and American students should be provided with cultural competency seminars which can better assist them in understanding international students' cultures, needs, and realities of people in the world.

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