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Factors Influencing the Health Behaviors of International Students at a University

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Abstract

Purpose: Each year, college campuses in America welcome an increasing and diverse population of international students. While the health status of these students is as diverse as the countries they come from, the shared experience of coming from different cultures, different backgrounds and different systems could lead to differences in health behavior. This study aimed to identify key patterns in nutrition, exercise and use of health care services and make recommendations for health promotion interventions.

Methods: Online questionnaires were distributed to all international students enrolled in classes for the Spring 2007.

Results: The majority of international students believed healthy behaviors were important: good nutrition habits (91%); regular exercise (74%); and use of health care services (60%). Forty-four percent of the students reported they never exercise and 56% reported not to have used any health care services within the past year.

Conclusion: Although international students of Western Kentucky University, USA believe in healthy behaviours, majority often do not use the health care services. University wellness programs should be designed to identify target areas for health promotion interventions among international students. In addition, orientation programs provided to these students should be comprehensive and must include perceived academic, health, social and cultural issues and how to overcome them.

Keywords: Exercise; International students; Health care services; Health promotion; Nutrition.

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Introduction

Temporal and permanent migration of man from his homeland to another place is an old practice. Men and women of European and Asian ancestry traveled from various parts of Europe and Asia to America. Men and women of African and Asian ancestry were also transported from their home countries to America to work. Movement from one country to another is thus not a recent phenomenon. In modern times, people travel abroad for adventure, to transact business, visit relations, for exploration, to "seek greener pastures," and to study. Each year, students all over the world move from one place to another to achieve their educational ambitions. The number of international students around the world has increased with time.¹ The United States of America has been enrolling foreign students in its universities for more than 50 years. There were 25,000 foreign students studying in various colleges in the US in 1948.² By 1954/55 academic year, the number of international students had risen from 34,232 and to 547,867 by 2001.³ The current figures available are for 2005/2006 academic year which shows 582,984 foreign students studying in the US.³

International students enrich the cultural diversity on American college campuses, increase the revenue of these colleges, and contribute to the development of their native countries when they go back home. In 2005/06, foreign students contributed \$13,491,404, 249 in the form of tuition and living expenses.⁴ Individuals trained in colleges in the US occupy some top leadership positions in some countries. Today, top leadership positions in the Middle East are held by people trained in colleges across the US.⁵ The majority of international students studying in the US come from Asia, Europe, Middle East and Africa. Many countries from these regions are utilizing the American system of education in their effort toward advancement.⁶ This university is no exception to the influx of foreign students. There were 525 international students

enrolled in various programs during the 2006/2007 academic year. Health promotion according to Green and Kreuter (1999) is "any combination of health education and related organizational, economic, and environmental supports for behavior of individuals, groups and communities conducive to health."⁷ Health promotion is also defined as "a multifaceted constellation of perceptions and self-initiated activities designed to enhance personal and well being and fulfillment. Health promotion is thus a combination of efforts and a range of activities aimed improving the quality of life of individuals, groups and communities."⁸

Lifestyle choices, health beliefs and resource availability affect the health perception and health behaviors of individuals.⁹ Nutrition plays an important role in health and eating habits are sometimes influenced by the environment one finds himself and this could help in promoting healthy habits or otherwise.¹⁰ Proper nutrition reduces the risk of osteoporosis, hypertension, and cardiovascular diseases.^{11,12} A study conducted on the daily nutrition of students in a French University revealed 65% of students lived away from their families during the school year and have the opportunity to break away from the family dietary pattern and make their own food choices.¹³ This independence sometimes led to unhealthy nutrition patterns such as skipping breakfast and increased snacking.¹³

Regular physical activity has been regarded as an important component of a healthy lifestyle and has been linked to a wide array of health benefits.^{14,15} Regular physical activity improves cardiovascular health and decreases the risk of cardiovascular diseases.¹⁴ In their study of the influence of physical activity and yoga on central arterial stiffness, Duren, Cress and McCully found an influence of physical activity on arterial stiffness.¹⁴ High physical activity was associated with reduced arterial stiffness.¹⁴

The use of health care services has both preventive and curative effects. The early

detection of a disease through screening may improve quality of life. Regular screenings and examinations prevent hitherto diseases that may have devastating effects.¹⁶ The preventive effect of health care utilization includes the prevention of disease and reduction in the incidence and severity of disease.¹⁶ Health promotion efforts involve activities focused on changing health behaviors to prevent disease and reduce the incidence of death and disability. This is achieved through programs such as immunizations and screening tests administered on healthy individuals to detect disease in treatable stage. The curative effect of health care services include the use of various types of treatments administered on individuals with diseases to prevent further disability, complication or death.¹⁶

Sharif studied the utilization motives and patterns of international students at a university health center. The study identified language, financial issues and stress as barriers to health care utilization.¹⁷ Another study conducted by McClaran and Sarris also identified that international students utilized health services less efficiently than the other students.¹⁸ Areas of concern cited by these students included insurance policies, patient/provider communication, and information about available health care services. Understanding the behavioral patterns of these students is essential in the acclimatization process and to serve them better.

People from different environments and backgrounds have unique ideas and cultures. International students come from diverse backgrounds and have different attitudes, beliefs and perceptions on personal health behaviors. Individuals differ in knowledge, attitudes and behaviors and international students are no exception. Studies have shown that many of these students find difficulties in adapting to the American way of life. Despite the dramatic increase in the population of international students in the US over the years, few studies have been conducted on the health

promotion behaviors of international students. The purpose of this study was to identify the factors that influence the health promotion behaviors of the international students at a university. Specifically, this study sought to examine the health patterns of international students as they relate to nutrition, exercise and utilization of health care services. The study also examined the perceived benefits and barriers to adopting healthy behaviors.

Methods

This survey was carried out using online questionnaire which was distributed to all 525 international students enrolled at the Western Kentucky University (United States of America) by the Office of International Programs following Institutional Board Review approval. To increase response rate, the survey was e-mailed on three successive Wednesdays, starting in March 21, 2007. International student organizations were also contacted and urged to encourage their members to participate in the survey.

The questions in the questionnaire were derived from the literature and a focus group discussion. The draft instrument was sent to three experts in international health for review. Comments and suggestions made were incorporated into the final instrument. Respondents were urged to select best responses to an 18 item questionnaire generated with constructs of the Health Belief Model, seeking responses to their perceived barriers and benefits to healthy living during their stay at this university. A focus group discussion was conducted with 8 graduating Western Kentucky International Students during the Fall 2006 semester to identify some barriers to health behaviors on campus. The questions covered three key areas: nutrition, exercise and use of health care services. Other questions sought demographic data, as well as knowledge, and practice.

Data Analysis

Questionnaires with missing background and demographic information were not recorded. Only questionnaires with complete background and demographic information were coded and recorded in a computer in this study. SPSS 14.0 was used to analyze the coded data. Frequencies, means and standard deviations were used to describe the responses including the demographic characteristics. Logistic regression analysis, analysis of variance (ANOVA) and Student's T-test were used to determine the relationship between the independent and dependent variables or compare data as appropriate. At 95% confidence interval, 2-tailed p values less than or equal to 0.05 were considered significant.

Results

Eighty-one international students responded to the survey. Fifty-seven percent of them were males, 27 yrs or older (38%), and had been at the university for 1 year or less (53%). Majority were graduate students (75%); from Asia (75%); lived off-campus (88%); and single (86%) (Table 1). While 91% of them believed good nutritional habits were important, those who believed in the importance of regular exercise and use of health care services were 74% and 60%, respectively. Some of them (41%) reported they did not exercise, while 19% exercised three times or more a week and 16% exercised at least two times a week. On the use of health care services, 56% reported not to have used any of the services within the past year, while 21% have used such services once and 10% reported using it at least three times within the year.

International Students' Perceived Barriers to Healthy Eating

Six items assessed international students' perceived barriers to healthy eating. Fifty-four percent of the students perceived lack of ethnic foods as a barrier in addition to time constraints (51%) and transportation difficul-

Table 1: Responding international students' demographic and background characteristics

Item	Number (%)
Gender	
Male	46 (57)
Female	35 (43)
Age	
18-20 years	9 (11)
21-23 years	22 (27)
24-26 years	19 (24)
27+ years	31 (38)
Student status	
Freshman	3 (4)
Sophomore	8 (10)
Junior	2 (2)
Senior	4 (5)
Graduate	61 (75)
Other	3 (4)
Area of origin	
Africa	10 (13)
Asia	61 (75)
Europe	1 (1)
North America	1 (1)
South America	8 (10)
Relationship status	
Married	11 (14)
Single	70 (86)
Current residence	
Residence Hall	10 (12)
Off-campus	71 (88)

N=81

Table 2: Responding international students' perceived barriers to healthy eating

Item	Yes N (%)	No N (%)
No Barriers	21 (26)	60 (74)
Lack of ethnic foods	44 (54)	37 (46)
Time constraints	41 (51)	40 (49)
Transportation difficulties	35 (43)	46 (57)
Lack of funds	24 (30)	57 (70)
Lack of cooking skills	17 (21)	64 (79)
Difficulty going to the store	12 (15)	69 (85)

N = 81

ties (43%). Lack of cooking skills (21%) and difficulty going to the store (15%) were the items least likely perceived as barriers (Table 2). An association existed between age and transportation to the grocery store ($p < 0.05$). Students 21-23 years old had more difficulty going to the grocery store than students 18-20 years old.

International Students' Perceived Benefits to Healthy Eating

The international students supported all items measuring their perceived benefits to healthy eating. Majority of the respondents believed healthy eating decrease the occurrence of illness (84%), provided higher energy level (74%), lower cholesterol level (70%), and improved academic performance (57%).

International Students' Perceived Barriers to Regular Exercise

Nine items assessed the students' perceived barriers to regular exercise. Two items were identified to be common barriers. Among the respondents, 56% perceived cold weather in addition to heavy school work (70%) as barriers to exercise. Items that were not perceived as barriers included non-familiarity with equipment (26%), long distance to exercise facility (25%), hot weather (19%), schedule at exercise facility (12%), and feeling uncomfortable due to gender (9%) (Table 3). A statistically significant difference was observed between region of origin and how often students exercise ($p < 0.05$). Students from Asia tended to exercise more than students from Africa. A significant relationship existed between age and exercise ($p < 0.05$). Students who were 21-23 years old perceived exercise to be more important than students 27 years and older. Students 24-26 years old believed exercise

improved the body systems more than students 21-23 yrs old.

Table 3: Responding international students' perceived barriers to regular exercise

Item	Yes N (%)	No N (%)
Heavy school work	57 (70)	24 (30)
Cold weather	45 (56)	36 (44)
Non-familiarity with equipment	21 (26)	60 (74)
Long distance to exercise facility	20 (25)	61 (75)
Hot weather	15 (19)	66 (81)
Schedule at exercise facility	10 (12)	71 (88)
People look at me differently	8 (10)	73 (90)
Intimidation because of race/ethnicity	7 (9)	74 (91)
Uncomfortable because of gender	5 (6)	76 (94)

N = 81

On barriers to regular exercise, an association existed between region and the feeling of intimidation at exercise facilities because of race ($p < 0.05$). The international students from Africa perceived the feeling of intimidation as a barrier to exercise more than students from South America. Western Kentucky University has a very large white population (non-Hispanic and Hispanic) with a small number of black students and especially African students. Students from Africa may have felt overshadowed at the exercise facilities. Surprisingly, international students living in halls of residence perceived the distance between their halls of residence to be a barrier to regular exercise when compared to students who lived off-campus.

International Students' Perceived Benefits to Regular Exercise

The survey used 8 items to measure international students' perceived benefits to

regular exercise. Respondents believed regular physical activity was beneficial. The most common perceived benefits were weight control (95%), improves circulation (80%), decreases cardiovascular diseases (74%), and increases longevity (65%). The least supported item was infection prevention (44%). Compared to students living off-campus, international students living on campus believed regular exercise improved circulation.

International Students' Perceived Barriers to the Use of Health Care Services

Out of the 9 items that assessed the students' perceived barriers to the use of health care services, only two items were perceived by them to be barriers. Fifty-seven percent of them perceived the lack of understanding of insurance policy while 53% perceived co-payment as barriers to health care services utilization. The items least likely to be perceived as barriers were heavy school work (28%), transportation difficulties (19%), lack of alternative medicine (14%), and language barrier (9%) (Table 4). The international students from Africa and Asia perceived lack of understanding of cultural

practices as a barrier to using health care services more than students from South America ($p < 0.05$).

International Students' Perceived Benefits to the Use of Health Care Services

The majority of the international students who responded believed they did not need transportation to use the health care facility on campus and also receive prompt treatment at this facility (69%). On the other hand, some students did not believe health care staff was aware of their needs (33%), respond well to their needs (30%) or encourage them to have regular check-ups (28%). Female international students were found to have used health care services significantly more than their male counterparts ($p < 0.05$). A relationship existed between gender and preventive health services. Female international students believed health care services provided more preventive services ($p < 0.05$). In addition, female international students believed health care staff were aware of students' health needs more than male international students ($p < 0.05$).

Discussion

This study has identified some factors influencing the health behaviors of international students. Some of these factors had earlier been reported in an earlier study by Johnson and Kittleson who found that busy school work left Asian students little time to exercise.¹⁹ In identifying perceived barriers to good nutrition, the majority of international students identified the following: transportation, time constraints and lack of ethnic foods. This is supported by an earlier study of Asian students living in the US. In that study, students reported the following barriers: time constraints, unavailability of ethnic foods, and the lack of cooking skills.²⁰ In an attempt to tackle the problem of transportation, University of Western Kentucky provides shuttle services to the central business district and students have to

Table 4: Responding international students' perceived barriers to the use of health care services

Item	Yes N (%)	No N (%)
Complicated insurance policies	46 (57)	35 (43)
Co-payment	43 (53)	38 (47)
Heavy school work	23 (28)	58 (72)
Transportation difficulties	15 (19)	66 (81)
No alternative medicine	11 (14)	70 (86)
Lack of understanding of cultural practices	9 (11)	72 (89)
Insensitivity	8 (10)	73 (90)
Fear of diagnosis	8 (10)	73 (90)
Language barrier	7 (9)	74 (91)

N = 81

plan their trips around the schedule. It does appear that many of the international students often do not plan their movement along with the transport service schedule.

The study by Sharif among international students at the California State University, Los Angeles identified confusion about insurance forms and claim procedures as barriers to the use of health care services.¹⁷ However, the barriers to the use of health care services identified in our study include lack of understanding of insurance policy, and co-payment. To reduce these barriers to healthy behaviors, it is suggested that exercise facilities on campus must have longer and flexible hours. With such revisions, students will have the opportunity to exercise at different times of the day. In addition, students should be able to schedule and manage their time effectively. This will give them more time to exercise, cook or go to the grocery store when needed. The shuttle service must also have longer operating hours and a more flexible schedule to help get students to and from shopping center in time. A better understanding of insurance policies will help students use health services easily when they need them. Most of these students are unaware of “co-payments” and “deductibles” when they arrive in the United States. Such misunderstanding may be preventing them from using available services.

Conclusion

This study has highlighted the health behaviors of international students and identified some barriers influencing the health behaviors. The perceived barriers to good nutrition, exercise and the use of health care were transportation issues, time constraints (heavy school work), and cultural issues.

It is recommended that orientation programs provided to international students should be comprehensive and must include perceived academic, social, cultural and time management issues. Health education programs on the importance of exercise,

nutrition and the use of health services must continue to be provided to international students. These programs could be provided through the international students' association or through the various associations within the international students' association. Students play leadership and other vital roles in such organizations and are more receptive to programs through such medium. Insurance programs offered through the university must be clearly explained to these students to familiarize them with services available. Most students come from countries where health care is free or based on the “pay-as-you-go” system. A clear understanding of the insurance system will increase the number of such students who use preventive health services. Further studies are recommended to be able to understand this population better.

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